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of science and research

12

2022
issue 1

AD ALTA

Journal of Interdisciplinary Research

AD ALTA: Journal of Interdisciplinary Research

Double-Blind Peer-Reviewed

Volume 12, Issue 1, 2022

Number of issues per year: 2

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MAGNANIMITAS Assn.

AD ALTA: JOURNAL OF INTERDISCIPLINARY RESEARCH

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JOURNAL NO.: 12/01 (VOLUME 12, ISSUE 1), JUNE, 2022

ADDRESS: CESKOSLOVENSKE ARMADY 300, 500 03, HRADEC KRALOVE, THE CZECH REPUBLIC, TEL.: 498 651 292, EMAIL: INFO@MAGNANIMITAS.CZ

ISSN 1804-7890, ISSN 2464-6733 (ONLINE)

AD ALTA IS A PEER-REVIEWED JOURNAL OF INTERNATIONAL SCOPE.

2 ISSUES PER VOLUME.

AD ALTA: JOURNAL OF INTERDISCIPLINARY RESEARCH USES THE RIV BRANCH GROUPS AND BRANCHES, BUT THE JOURNAL IS NOT A PART OF RIV. THE RIV IS ONE OF PARTS OF THE R&D INFORMATION SYSTEM. THE RIV HAS COLLECTED AN INFORMATION ABOUT RESULTS OF R&D LONG-TERM INTENTIONS AND R&D PROJECTS SUPPORTED BY DIFFERENT STATE AND OTHER PUBLIC BUDGETS, ACCORDING TO THE R&D ACT [CODE NUMBER 130/2002], THE CZECH REPUBLIC.

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D	EARTH SCIENCE
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F	MEDICAL SCIENCES
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A SOCIAL SCIENCES

AA	PHILOSOPHY AND RELIGION
AB	HISTORY
AC	ARCHAEOLOGY, ANTHROPOLOGY, ETHNOLOGY
AD	POLITICAL SCIENCES
AE	MANAGEMENT, ADMINISTRATION AND CLERICAL WORK
AF	DOCUMENTATION, LIBRARIANSHIP, WORK WITH INFORMATION
AG	LEGAL SCIENCES
AH	ECONOMICS
AI	LINGUISTICS
AJ	LITERATURE, MASS MEDIA, AUDIO-VISUAL ACTIVITIES
AK	SPORT AND LEISURE TIME ACTIVITIES
AL	ART, ARCHITECTURE, CULTURAL HERITAGE
AM	PEDAGOGY AND EDUCATION
AN	PSYCHOLOGY
AO	SOCIOLOGY, DEMOGRAPHY
AP	MUNICIPAL, REGIONAL AND TRANSPORTATION PLANNING
AQ	SAFETY AND HEALTH PROTECTION, SAFETY IN OPERATING MACHINERY

THE ROLE OF SOCIAL NETWORKS IN PROMOTING POSITIVE BEHAVIOUR DURING COVID-19 CRISIS AMONGST A SAMPLE OF USERS IN SAUDI SOCIETY: TWITTER AS A MODEL

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Abstract: This study seeks analysing Twitter social network role in promoting positive behaviour during COVID-19 crisis and exploring the relationship between them. It targets identifying Twitter positive behaviour level differences through variables of gender, age, marital status, residence status, administrative region, and Twitter using size. An online questionnaire was used on a validity-and-stability verified sample of (586) individual Twitter users in the Kingdom of Saudi Arabia. Sample members approved Twitter users' positive behaviour during COVID-19 crisis. They agreed that the positive behaviour level was medium with a Twitter effect of (19.4%). There were both a positive, medium-strong correlation between Twitter daily use and a statistically significant correlation between one - session Twitter using and positive behaviour promotion. However, there were statistically significant differences in positive behaviour promotion when using Twitter between social status favouring singles, residence status favouring residents, age favouring those under 21, administrative region favouring the southern region, usage period favouring network daily and two days - users, and browsing time favouring much Twitter users .The study recommends conducting studies on positive social behaviour and its dimensions to broadly generalise results. Studies on the Internet of behaviour and artificial intelligence are needed to analyse the positive behaviour expected by social networks users to enhance opportunities. It also stressed children and adolescents' digital social education to prepare community members for effective online participation, the activation of public and private services-providing agencies Twitter accounts, interacting positively with users' questions and responses, and substituting fixed stereotypes by interesting interactive patterns.

Keywords: social networks -twitter - positive behaviour - crisis - covid-19.

1 Introduction

The contemporary world is witnessing a set of rapid changes communication and information technology, which made the world a global village in which information is transmitted in fractions of a second. Undoubtedly, these changes have a direct impact on individuals and institutions that consist societies, which prompted these societies both to accept these changes and innovations and to adapt to them to benefit from the advantages they offer in all fields. On top of these innovations are social networks, and because the boundaries of geography no longer play a prominent role in social networks, one can find someone to communicate with anywhere at any time. Besides, it is not based on compulsion or obligation. Rather, it is entirely based on choice. No one is compelled to accept the friendship of another, nor to respond to an e-mail, comment on a speech, a blog, or a post.

Social networks have emerged popularly in the modern era. They are characterised by features of communication that are rarely paralleled elsewhere, which made them attract a large part of the attention of all various divisions of society members. They are using social networks increasingly even to the extent of relying upon them in their daily lives in a remarkably accelerating manner.

Twitter is one of the most prominent globally- used social networks. "Twitter ranked fifth globally in terms of the number of users or the annual increase in its users, with an average usage time of two hours and thirty minutes per day. As for the Kingdom of Saudi Arabia, it ranked third, outside the United States of America, and fourth globally, reaching 14.35 million active accounts (We Are Social, 2021)

The rapid emergence of COVID-19 virus and the seriousness of its effects and repercussions leading to the cessation of a huge amount of human life activities affected the individuals' social behaviour. Societies as well as individuals differed in interacting with the process of social change accompanying this epidemiological crisis. "The danger that the environment is exposed to has the same characteristics as the war destructive force. Also, it is a democratic danger that affects the rich and the poor in all fields. It is no longer an individual country concern and no country is able to control it alone" (Beck, 2009, p.30).

Moreover, this epidemic causes individual and social anxiety, which necessitates putting in place preventive controls that would dispel societal anxiety, and reassure the souls for the general safety of society based on unfamiliar daily life methods, and particularly in social behaviour such as physical distancing, staying at home, and full adherence to strict health behavioral preventive procedures and requirements.

The positive behaviour appears in dealing with this pandemic with positive preventive measures and in adapting to their requirements positively in behaviour at individual and social levels. In addition to the need to overcome societal tendency over individualism, where the fate of the individual is existentially linked to the fate of society. Herein, the feeling of solidarity is the basis of society coalescence. Therefore, positive social behaviour and adapting to preventive measures is one of the methods of expressing true positivity and good citizenship.

This social behaviour emerges through what the individual offers, poses, or interacts with through these social networks, which in total constitutes a social behaviour characterised by straightness and distinguished by positivity, even if it takes a new pattern or a different form in comparison to what the individual is accustomed to. This keeps pace with the global transformation towards technology and its entry into the various joints of life. Perhaps the world today is described as "a world surrounded by dangers due to scientific and technical progress, which has an adverse effect because of human intervention in the environment. Science and technology are amongst the most important reasons, and hope is placed on them for solutions." (Giddens, 2003, p.19).

Accordingly, there is an urgent need to study this social behaviour, especially through social networks, and the extent to which it appears, and whether individuals reinforce it between each other.

2 Literary reviews and related studies

Researchers' opinions from several fields differed concerning the crisis concept. Oxford Dictionary defines it as "a transitional circumstance characterised by imbalance and representing a turning point in the life of the individual, group and society and often results in significant change" (Oxford Dictionary, 2002, p.194).

It is "a state of tension and a turning point that requires a decision resulting in new negative or positive situations that affect the various relevant entities." (Shaalan, 2012, p.23). In the social patrimony, it was defined as "the situation of irregular and unexpected events and the disruption of traditions and custom, which requires rapid change to restore balance and to form new habits" (Badawi,1982, p.82).

It is distinguished by several characteristics, namely "surprise, shock, lack of information and inaccuracy, the events increase, intertwining, acceleration, a state of panic, loss of control, psychological, social, financial or human losses, and the absence of a quick radical solution" (Steve, 1997,p.3-4). The making and formation of these features and characteristics undergo three stages. The first is the impact, as the lack of information, experiences and habits in dealing with the new crisis do not help organisations, groups or individuals in facing the crisis, since it is a new situation that they have not been previously exposed to. The second is backing down and regression. Organisations, groups or individuals suffer from the lack of organisation in their response to difficult situations and the psychological state of fatigue, excitement and anxiety. The third stage is disintegration and compatibility, through the discovery of new resources that help in facing the crisis or by developing new definitions and a new view of the crisis that helps inventing new unfamiliar solutions or adapting to current situations to face the crisis and seek to solve it. (Francis, T., 1994, p.28-29).

However, the crisis has two contradictory successive positions that are risks and opportunities. Its formation through an intertwined group of derivations of the main problem makes the individual lost in dealing with it choosing between two ways. The first is attention to risks leading to despair, pessimism and frustration, which makes him find himself obliged to find a new way to deal with it and here new opportunities appear for the solution, and hope and optimism comes back instead of despair as a second path. The individual is keen to make effective decisions by acquiring a high degree of vigilance and caution that enables him to access information carefully without bias to reach the most appropriate alternative amongst the available options.

Hence, James suggested "not using formally defined approaches to taking decisions in times of crises, but rather relying on informality, non-pre-determination, and self-situational initiatives as an approach to decision-making in crises." (Al-Faisal, 2006, p.21).

Examination and understanding of sudden and unexpected situations that have severe pressures help guide individuals to how to deal with this crisis and its manifestations in difficult, narrow or severe times. Here, emerges the disparity and variation in the behaviour of individuals according to the social role theory of the individual in dealing with the crisis.

The role theory sees that "the individual's behaviour and his social relations depend on the social role or roles that he occupies in society. In addition, the individual's social status and position depend on his social roles. The social role involves social duties and rights. The duties of the individual are determined by the role he occupies. His rights are determined by the duties and tasks that he performs in society, knowing that the individual does not occupy a single social role, but rather occupies several roles located in different institutions. These roles vary, as there are leading, mediating and basic roles. The role is the structural unit of the institution and the institution is the constructional unit of the social structure. Thus, the role is the link between the individual and society. (Al-Hassan, 2015, p.159).

Accordingly, the social role is what the individual does in his large community or in the group to which he belongs, and the individual usually plays a number of roles. This is because the human being is linked to several social forms with a special role for each form. A person is linked, for example, to a country, to a family, and so on. Besides, since the individual often wants more material or moral benefit, he is not convinced to perform his authorised role, but rather does more than his duty, and therefore the individual had a role authorised to him, and a role that he acquired himself.

However, despite defining the meaning, importance and nature of the role in the study and analysis of the social structure, this concept is one of the most ambiguous concepts in the social sciences, due to its overlap with other concepts. As a result, the role is interpreted as "the total sum of cultural patterns associated with a particular position. It is the dynamic aspect of the position, which the individual is obligated to perform so that his work is sound in his position." (Al-Hassan, 2015, p.167).

There are several determinants of individual behaviour, the most important of which are the common awareness of the position occupied by the individual in the social structure, the expectations that group members hold regarding the behaviour of people who occupy certain positions in the social system, and the social standards and values, which are common expectations shared by society members in the same social system. The process of acquiring social roles is a matter of cognitive and emotional engagement.

The individual's social roles are acquired by empathizing with the important individuals and those around him. It means the ability to perceive the feelings of a person in a particular situation leading to the appropriate behaviour to the social situation. Indeed, the individual's understanding of this role,

specifically in times of crisis, is what pushes, motivates, and makes him strive for his behaviour to be always positive.

However, those who are interested in the concept of positive behaviour notes the difference of views on its concept by many researchers and interested people in this field because "the studies of positive social behaviour are still in the cradling stage. One of the reasons for the differences about this definition is the controversy surrounding the essence and nature of positive social behaviours." (Al-Quraishi, 2012).

Others, however, refer this controversy to the fact "that sociologists focused their efforts on anti-social behaviour, or negative social behaviour and not the positive social behaviour, so deviant behaviour and criminal behaviour received attention, while positive social behaviour remained without any attention." (Dreeb, 2013).

Positive social behaviour refers to "voluntary or optional actions, aiming at benefiting or helping a person, or a group of people, meaning that what distinguishes positive social behaviour is that its actions are voluntary and not coercive. Some other positive behaviours may occur for several reasons such as motivating an individual to help another for personal reasons including obtaining a reward, approval from others, or actually caring for others. Voluntary actions stem from within the individual from an internal motive or internal values and a sense of self-satisfaction, rather than personal gains. The internal motivation here is to love others. It includes belief in the importance of respect, self-esteem, and self-satisfaction, and in return, the individual can punish himself with regret or a sense of inferiority if he does not perform positive behaviour.

For these reasons, some refer the motives of positive social behaviour to selfish values over altruistic ones. Whereas, they believe that each individual acts with his own internal motives, and for his own reasons with a sense of self-enhancement or suitability (Barakat, 2018, p.138). The purest form of prosocial behaviour is "altruism-driven, unselfish interest in helping one person to another and the conditions most likely to elicit altruism are compassion for the individual in need" (Santrock, 2007, p.491).

The positive behaviour of the individual depends on his analysis of the situation according to the bystander intervention decision model, where the individual will consider whether the situation requires his help or not, and whether assistance is the responsibility of the individual, and how to help. This model, describes five things that must happen until the person intervenes, which are that "the individual observes the situation, interprets it as an emergency, develops feelings of responsibility, believes that he has skills to succeed, comes to a conscious decision to help" (Darley, & Latane, 1970, p. 96).

Accordingly, positive behaviour can be described as disciplined, acceptable and normal behaviour that conforms to the customs and traditions of the society in which he lives, and his integration into it through the social and psychological aspect. Positivity is a dynamic integrated set of flexible, free and responsible behaviours based on awareness and insight aiming at bringing about change for the better. Hence, we realise the importance of positive behaviour. A person can decide his behaviour. If he is advised to behave in a positive manner, he can remove many undesirable feelings and things that may hinder the achievement of what is best for the individual, and positive behaviour is closely related to success in all life areas.

Today, the number of the infected and deaths of the COVID-19 pandemic is constantly increasing daily. According to the Saudi Ministry of Health report "the infected reached (482003), including (463004) cases of recovery and (7760) deaths, May God have mercy on them all" (Saudi Ministry of Health., 2021).

These increasing numbers of the infected constitute a real crisis for society, institutions and individuals. Everyone sought to cooperate in solving it. Therefore, security measures were taken including curfews, reducing human gatherings, transforming

distance education and many professional activities as well. Health institutions took preventive and precautionary measures apart from providing infection-preventing vaccines. Moreover, they sought to broadcast the correct ways to deal with this crisis by individuals, and here the role of the individual appears in paying attention to these procedures, which requires him to be a good citizen by supporting them and urging others to strictly follow them.

Herein, appears the positive behaviour of the individual towards his community. Besides, based on the increase in their use, social networks, the first of which is Twitter, have become an integral part of the internet users. In fact, %4bf the total population of Saudi Arabia use Twitter, which is the highest percentage of total users in the world." Individuals sought to carry out and reinforce their positive behaviour through that social network.

Numerous studies have examined the social and cultural effects of social networking in multiple ways. (Tucker.2011) found that with the advancement of technology, the ways in which public health officials communicate with the public have also evolved. Twitter, Facebook, and smartphone apps have become the latest tools in public health and disaster preparedness, because they allow officials to reach quickly a large number of people with important information and it is the most successful means by which public health officials communicate with the community.

The study of (Procon.org .2020) examined the extent of the use of social networks. It found that about seven out of ten Americans (72%) use social networks, showing an increase of (26 %) compared to the year 2008. Thus, communities through social networks, have a decisive role in promoting increased interaction with friends and family; it also contributed to the spread of useful information quickly. It enabled the quick and easy diffusion of public health and safety information from reliable sources as it was used by health-related sectors.

The study of (Hassounah. et al. 2020) shed light on how the Kingdom of Saudi Arabia uses digital technology during the COVID-19 pandemic in the areas of public health, health care services, education, communications, commerce, risk communication, and the use of social networks, websites and SMS as best practice guidelines. It concluded that the framework of Saudi Arabia's Vision 2030 paved the way for digital transformation. The pandemic made it possible to promote, test and prove this transmission. It recommended that reducing the number of mobile applications and integrating their functions could increase and facilitate their use.

The study of (Heena & Hunny.2020) presented a review of the positive and negative impact of social networks during the pandemic on health care professionals and the public. It showed that health care providers are actively fighting simultaneously on two fronts: The virus, and the misinformation associated with it and correcting misconceptions by health care professionals. It has proven the effectiveness of providing and conveying honest facts by health experts. It suggested various ways to correct misconceptions about health using social networks, which include timely expert advice, regular public health education, with periodic communication with the public via social networks. As well, evidence must also be presented and displayed to the public through all these ways. The intellectual and emotional dimensions of the audience must always be addressed during this stage of fear and anxiety.

The study of (González & Tortolero .2020) examined the role of social networks in rapid communication with taking into account its many advantages and disadvantages. The study highlighted that the worst aspect of social networks is the possibility of spreading false, frightening and exaggerated information. This can cause fear, stress, depression and anxiety for people whether they suffer from underlying mental illness or they do not. Responsible use of social networks during a pandemic can help quickly disseminate important new information, share prevention, diagnosis, treatment, and follow-up protocols, and

compare different approaches from other parts of the world to adapt it to the local environment.

The study of (Alnasser et al. 2020) evaluated the use of social networks as a source of awareness of COVID-19 virus in Saudi Arabia. An online survey was conducted with the participation of (3204) people. Snowball sampling techniques were used through a structured online questionnaire. The results showed that (75.4 %) of the participants had a high level of awareness of the pandemic. All participants from all regions of Saudi Arabia showed a high level of awareness except for those from the northern region. The most common source of information was official government social networks, and (44%) respondents reported using Twitter regularly. The results showed that social networks have a positive impact on the transmission of information about the pandemic in Saudi Arabia.

The study of (Siddiquia. et al. 2020) examined the existence of knowledge amongst Saudi and non-Saudi population about COVID-19 and its impact on their behaviour to practice infection prevention protocols. It examined how the population in Saudi Arabia interacts with the government methods and protection measures within its efforts to monitor and eliminate the infection spread. The survey methodology was used and data was collected from Saudi citizens as well as expatriates living and working in five different regions of Saudi Arabia. Non-probability snowball sampling was used. It found that (356) out of (443) respondents knew and implemented the preventive protocols. The results showed that there is a significant relationship between knowledge and practice, but the correlation strength is weak. Knowledge and practices related to the pandemic were followed differently in the five regions of Saudi Arabia, and the level of education of the respondents influenced their choice of practice to protect themselves from infection.

The study of (Al-Shugair.2020) defined the concept of healthy environmental security, introduced COVID-19 pandemic, and tried to link public health represented in health practices in daily life with the issue of environmental security. As well, it identified the level of health environmental awareness in the practices of members of Saudi society to deal with the pandemic. The study sample included (786) citizens aged 18 years and over, according to seven independent variables (region of residence, age, work, educational level, marital status, number of residents with the respondents and monthly income). The study followed the social survey method, using the quota sample method and an online questionnaire. The results of the study showed that (37.%) of the total participants daily follow updates on the new COVID-19 virus. The Saudi Ministry of Health came in first place as a source of guidance for respondents. The levels of awareness of the study community's practice in Saudi Arabia of health environmental security measures appropriate to the emerging COVID-19 virus were high. The study confirmed that females are more committed than males to the practices of healthy environmental security measures to prevent and limit the virus spread.

The study of (WHO.2021) which was achieved in collaboration between the World Health Organisation, Wunderman Thompson, the University of Melbourne and Pollfish, sought to better understand how young people could engage with technology during the crisis. It included (23,500) respondents, aged between 18 and 40 years, in (24) countries across five continents. The findings provided key insights into where millennials seek information about COVID-19, whom they trust as reliable sources, their awareness and actions about fake news, and what their concerns are. The revealed key ideas were that content is seen as shareable, awareness of fake news is high as well as apathy, and millennials have multiple concerns that go beyond getting sick. The idea that young people are "too comfortable" and do not care about the crisis is not reflected in the data, as more than (90) of the respondents were very concerned or concerned to some extent about the risk of infection. It recommended paying attention to ensuring that

policies and recommendations related to youth should be in an atmosphere free of misinformation, scepticism and fear.

The study of (Taso, et al. 2021) examined peer-reviewed applied studies of COVID-19 and social networks during the first outbreak (November 2019 to November 2020). (81) Studies were analysed. Five cross-cutting public health themes were identified on the role of online social networks and COVID-19 focusing on public attitude investigation, identification of information, mental health assessment, case detection or prediction, analysis of government responses to the pandemic, and assessment of the quality of health information in educational videos. The study concluded on the paucity of studies on applying machine learning to data from social networks associated with COVID-19, and the paucity of studies documenting real-time monitoring developed using data from social networks about COVID-19. Social networks can play a critical role in spreading health information and tackling incorrect and misleading information.

Overall, we find that most of the previous studies dealt only with certain angles of dealing with COVID-19 crisis and did not deal with it in an integrative manner. This study, however, tries to be more comprehensive as it addresses it through positive social behaviour during COVID-19 crisis through Twitter in Saudi society. In conclusion, previous studies have been utilised in formulating the study's questions, defining its objectives, and selecting its appropriate statistical methods in addition to the information and theoretical concepts that these studies comprise.

3 The study problem

Through the COVID-19 virus crisis and the high preventive measures that accompanied it, and based on the massive use of social networks, it is imperative for each user to adopt positive social behaviour such as sympathy, sharing and cooperation in order to overcome this crisis. In addition, the individual should highly prove being a valid citizen by carrying out the duties of citizenship through this social network. The study identified its problem as studying the role of social networks and Twitter in particular in promoting positive behaviour to deal with the COVID-19 pandemic as a crisis experienced by all members of society and its institutions amongst a sample of users in Saudi Arabia, users of Twitter as a model.

The importance of this study stems from the importance of the topics it deals with, both the positive behaviour and the COVID-19 pandemic crisis and their related variables. In fact, they got great interest and care by specialists, especially with the unbridled growth of social networks use, focusing on this global pandemic of COVID-19 virus, which has affected profoundly all economic and social joints of life. The importance of the study is also determined from an applied point of view in transforming its results to a set of recommendations. These conclusions may contribute to enlightening those interested in this crisis, from various social, health and media institutions, to the reality of positive behaviour through social networks to enhance its role in a better way through programmes designed to face this crisis.

Accordingly, this study set its objectives as follows:

- Disclosure of the role of social networks (Twitter) in promoting positive behaviour amidst the COVID-19 crisis.
- Identifying the relationship of using social networks (Twitter) to promoting positive behaviour during the COVID-19 crisis.
- Interpreting the differences in the level of positive behaviour through Twitter during the COVID-19 crisis according to the variables of gender, age, social status, residence status, administrative region and the usage frequency.

Then, the study raised the following questions:

1. What is the level of positive behaviour amongst a sample of Twitter users in dealing with the COVID-19 crisis in the Kingdom?
2. Is there a statistically significant relationship between the use of Twitter and the promotion of positive behaviour in dealing with the COVID-19 crisis?
3. Are there statistically significant differences in the use of Twitter and the promotion of positive behaviour that are attributed to the variables of gender, age, social status, residence status, administrative region, and frequency of use during the COVID-19 pandemic in the Kingdom?

4 The study Methodology

Based on the nature of the study, the goals it seeks, and the questions it asked, the descriptive analytical approach was adopted. This approach depends on the study of the targeted phenomenon and the analysis of its data, and the statement of the relationship between its components and the opinions that are raised about it, the processes it contains and the effects it causes. This is one of the forms of the organised scientific analysis and description of a specific phenomenon or problem in reality, describing it accurately and expressing it by classifying and organising information, seeking to understand the relationships of this phenomenon or problem with other phenomena or problems, and reaching conclusions that contribute to the development of the studied reality. This study was conducted during the months of June and July of the year 2021 AD. The study community represents all Twitter users residing in Saudi Arabia. The research sample was taken using the purposive sampling method and it consisted of (586) individuals. After that, the study tool was designed, which is the online questionnaire via the Google Forms application.

To verify the psychometric conditions of the tool, the apparent honesty of the tool was ascertained by presenting it to a group of arbitrators with science, experience and knowledge in the fields of scientific research and sociology for evaluation. Amendments, deletions and additions were made according to the majority of the arbitrators' opinions. The internal consistency was checked by calculating correlation coefficients between the grade of each phrase and the total score of the questionnaire. It was found that the correlation coefficients of each of the scale phrases and the total score of the scale were all statistically significant at the level of significance (0.01), which indicates the availability of a high degree of internal consistency of the scale. To verify the stability of the search tool, the researchers used the Cronbach Alpha standard and the total reliability coefficient of the questionnaire was (0.922). These high values of the reliability coefficient indicate the validity of the tool for application and the reliability and validity of its results. To achieve the objectives of the research and analyse the collected data, (One-Sample T Test), (Independent Samples T Test), (One - Way ANOVA) and (Levene's Test) were used to test the homogeneity of variance, and (Partial Eta Squared) to determine the size of the sample effect, and (Scheffe) as one of the post- tests when there is homogeneity in the variance.

5 The study results and discussion

In light of reviewing previous studies and based on the study importance, topic, the context in which it is applied, and to achieve the desired goals and the questions it seeks to answer, and after verifying that the study tool fulfills all the psychometric conditions of honesty and stability, the tool was applied to the study sample, The results of the study showed the following:

The first question: What is the level of positive behaviour amongst a sample of Twitter users in dealing with COVID-19 crisis in the Kingdom?

To answer this question, the statistical method represented by the arithmetic average and the One-Sample T Test was used at the level of significance ($\alpha = 0.05$), and the effect size was

calculated using Partial Eta Squared according to the following table:

Tab. 1: Approval Limits

Approval degree	Arithmetic Average Range	Level degree
Strongly disagree	1.00 – 1.80	Very low
Disagree	1.81 – 2.60	Low
Neutral	2.61 – 3.40	Average
Agree	3.41 – 4.20	High
Strongly agree	4.21 – 5.00	Very high

Tab. 2: One-Sample T Test

Axis	Arithmetic Average	Freedom degrees	T value	(sig) P.value
The positive behaviour of Twitter users in dealing with the COVID-19 crisis in the Kingdom	3.40	585	11.838	0.000

From the above results, it is clear that there is a consensus and a high approval of the study sample on the positive behaviour of Twitter users in dealing with the COVID-19 crisis in the Kingdom. The effect size was (0.50), which means that it is medium. That is, Twitter has a medium effect on promoting the positive behaviour of individuals in dealing with the COVID-19 crisis in the Kingdom. This leads us to assert that (19.4%) of the positive effects that occur in the behaviour of individuals in behaving positively during the COVID-19 crisis in the Kingdom are attributed to the use of Twitter. The previous table showed that the items of the axis were in descending order based on the opinions average of the study sample, with comparison of the results with the table of the limits of the degree of approval. In general, it was found that the total average of the opinions of the sample members about the positive behaviour of Twitter users in dealing with the COVID-19 crisis was (3.40). That is, there is a consensus and approval of (68.00%) on the positive behaviour of Twitter users in dealing with the COVID-19 crisis. The level of positive behaviour of Twitter users is average in dealing with the COVID-19 crisis. We find that the standard deviation was (0.823) and its value is small, and this indicates that there is no discrepancy in the opinions of the study sample towards the level of positive behaviour of Twitter users in dealing with the COVID-19 crisis.

The results of this question are in many ways consistent with the findings of previous studies that the use of social networks has an active role in positive social behaviour during the COVID-19 crisis, even if it disagrees with it that Twitter is the main tool used to promote this behaviour. This result may be attributed to the nature of the pandemic crisis and the extent of its impact on the lives of society members. Added to that, the nature of their interaction with it, in terms of the passed period that was characterised by staying at home due to quarantine, reducing outdoor hours, working remotely, which provided a tremendous opportunity for users to highlight their positive behaviour reaching the percentage of consensus and high approval. Thus, they achieved their quest for a sense of community, breaking the feeling of loneliness and social isolation, satisfying psychological needs and bonding with members of the group. It may also be attributed to the extent of the expansion of reliance on social networks and the large number of Twitter users in the Kingdom. As for the approval of (19.4%) of users, this may be attributed to the multiplicity and diversity of social networks and the multiplicity of individuals' use of these networks, even though Twitter is characterised by "reliability and high rates compared to the rest of the social networks" (Algarni, 2019, p. 56).

The second question: Is there a statistically significant relationship between the use of Twitter and the promotion of positive behaviour in dealing with COVID-19 crisis?

To answer this question, the Pearson correlation coefficient statistical method of testing was used at the level of significance ($\alpha = 0.05$). The results are shown in the following table:

Tab. 3: Results of Pearson Correlation Test

Axis	Pearson correlation coefficient(R)	Impact size	(sig) P.value
The relationship between Twitter daily use and the promotion of positive behaviour in dealing with COVID-19 crisis	0.393	0.154	0.000
The relationship between Twitter use in one session and the promotion of positive behaviour in dealing with COVID-19 crisis	0.247	0.061	0.000

From the above results, it is clear that there is a positive, medium-strength, correlation between Twitter daily use and the promotion of positive behaviour in dealing with COVID-19 crisis. This means that the greater the daily use of Twitter is, the greater the strengthening of positive behaviour in dealing with the COVID-19 crisis to a moderate degree is, and vice versa. The effect size was (0.154), which means that Twitter daily use affects (15.4%) on promoting positive behaviour in dealing with COVID-19 crisis. Accordingly, (15%) of the changes and positive effects that occur in the behaviour of individuals in dealing with COVID-19 crisis are attributed to Twitter daily use. As for the relationship between the use of Twitter in one session and the promotion of positive behaviour in dealing with COVID-19 crisis, there is a correlation with positive statistical significance of low strength. That is, the more Twitter is used in one session, the more positive behaviour is enhanced in dealing with COVID-19 crisis to a low degree, and vice versa. The effect size was (0.061), which means that the use of Twitter in one session affects (6%) on promoting positive behaviour in dealing with COVID-19 crisis. Accordingly, (6%) of the changes and positive effects that occur in the behaviour of individuals in dealing with COVID-19 crisis are attributed to the use of Twitter in one session.

The results of this question agree in several ways with the findings of (Procon.org 2020), (Hassounah. et al. 2020), (Heena & Hunny. 2020), (González & Tortolero 2020) and (Alnasser et al. 2020) that there is a positive correlation between the use of social networks and dealing with COVID-19 crisis. However, they disagree with it in that Twitter is the main tool used to reinforce this behaviour and the extent of the strength of this relationship to a moderate degree, as previous studies did not measure in depth the strength of that correlation. As for the use of Twitter in one session, the percentage was (6%) of the changes and positive effects that occur in the behaviour of individuals in dealing with COVID-19 crisis. This is due to the frequency of these sessions, the extent of the diversity of the individual's knowledge sources, and the diversity and multiplicity of social networks, which sheds part of its light on the effect of Twitter on the positive behaviour. As well, it may also be attributed to the individual's feelings of new environmental conditions that provided him with a completely different system and thought, so he tries to deal with them with patience, perseverance, and integration, and their quest to stay away from social networks or COVID-19 crisis.

It may also be attributed to dealing with the crisis, which began to reach its third stage. The latter is characterised by compatibility. Therefore, individuals employed Twitter as a new

resource that helps them face the crisis, deal with it, and adapt to it to reach the maximum extent of the solution or contribution from them towards their society as a social role for them in their society. The individuals' awareness of this role, specifically during the times of COVID-19 crisis, is what pushes, motivates, and makes them strive to always have a positive behaviour.

The third question: Are there statistically significant differences in the use of Twitter and the promotion of positive behaviour that are attributed to the variables of gender, age, social status, residence status, the administrative region and the frequency of use during COVID-19 pandemic in the Kingdom?

To answer this question, the following statistical methods were used: Independent Samples T Test at the level of significance ($\alpha = 0.05$), the test of analysis of variance (One - Way ANOVA) at the level of significance ($\alpha = 0.05$), and the effect size was calculated using (Partial Eta Squared), which led to the following results:

First: the gender variable:

The results of the Independent Samples T Test for the gender variable showed the following:

Tab. 4: Independent Samples T Test for Gender Variable

Axis	Gender	Readings Total	Degrees Average	Standard Deviation	T Value	(sig) P.value	Significance
Using Twitter network to promote positive behaviour	Male	256	3.39	0.848	0.252	0.800	Not significant
	Female	330	3.41	0.804			

According Independent Samples T Test for Gender Variable, it is clear that there are no statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour due to the gender variable (male, female), and the impact size was (0.000). Therefore, it can be assumed that the use of Twitter in promoting positive behaviour does not differ according to gender.

Second: the marital status variable:

The results of Independent Samples T Test for the marital status variable showed the following:

Tab. 5: Independent Samples T Test for Marital Status Variable

Axis	Social Status	Readings Total	Degrees Average	Standard Deviation	T Value	(sig) P.value	Eta Squared	Significance
Using Twitter network to promote positive behaviour	Married	354	3.32	0.831	3.082	0.002	0.016	significant
	Single	232	3.53	0.794				

According Independent Samples T Test for Marital Status Variable, it is clear that there are statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour according to the marital status variable. We find that single members of the sample believe that the use of Twitter promotes positive behaviour higher than what married people think. That is, the use of Twitter promotes the positive behaviour of singles over married couples in dealing with COVID-19 crisis. The impact size was (0.016), which is a weak impact. Accordingly, (16%)

of the changes in the level of positive behaviour using Twitter in dealing

with COVID-19 crisis in the Kingdom is attributed to the difference in the social status.

Third: the residence status variable:

The results of the Independent Samples T Test for the residence status variable showed the following:

Tab. 6: Independent Samples T Test for Residence Status Variable

Axis	Residence Status	Readings Total	Degrees Average	Standard Deviation	T Value	(sig) P.value	Eta Squared	Significance
Using Twitter network to promote positive behaviour	Citizen	538	3.38	0.819	2.301	0.022	0.010	Significant
	Resident	48	3.66	0.835				

From the above Independent Samples T Test for Residence Status Variable results, it is clear that there are statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour due to the variable of residence status. We find that the residents' rate who believe that the use of Twitter promotes positive behaviour is higher than what the citizens think. That is, the use of Twitter promotes the positive behaviour of residents above citizens in dealing with COVID-19 crisis in the Kingdom. The impact size was (0.010), which is a weak impact. Accordingly, (1%) of the changes in the level of positive

behaviour using Twitter in dealing with COVID-19 crisis is attributed to the variable of residence status.

Fourth: the age variable:

The results showed the significance of the differences between the opinions of the study sample about the use of Twitter to promote positive behaviour and the age variable as follows:

Tab. 7: One-Way ANOVA analysis for the age variable

Axis	Age	Readings Total	Degrees Average	Standard Deviation	F Value	(sig) P.value	Eta Squared	Significance
Using Twitter network to promote positive behaviour	Under 21 years old	74	3.62	0.728	5.046	0.007	0.017	Significant
	21-40 years old	286	3.44	0.861				
	More than 41 years	226	3.29	0.788				

From the above One-Way ANOVA analysis for the age variable, there are statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour due to the age variable. The impact size is (0.017), which is a weak impact. (9%) of the changes in the level of positive behaviour using Twitter in dealing with COVID-19 crisis in the Kingdom is attributed to the

age variable. In order to determine the age groups that led to the different level of positive behaviour using Twitter in dealing with COVID-19 crisis, the Scheffe test was used.

Tab. 8: Scheffe test for the age variable

Axis	Age Category A	Age Category B	Average differences (A) – (B)	Standard Error	(sig) P. value
Using Twitter network to promote positive behaviour	Under 21 years old	More than 41 years	0.33 *	0.109	0.011

* Statistically significant at the level of significance (0.05)

By conducting Scheffe test for the age variable, there is a significant difference between the sample members of the age category (less than 21 years) and the age category of (more than 41 years) in relation to the use of Twitter in promoting positive behaviour. We find that the mean differences are positive, and this means that the use of Twitter promotes the positive behaviour of individuals with an age group (less than 21 years old) is higher than individuals (over 41 years old) in dealing with COVID-19 crisis.

Fifth: the educational level variable:

The results showed the significance of the differences between the opinions of the sample members about the use of Twitter in promoting positive behaviour and the educational level variable as follows:

Tab. 9: One-Way ANOVA analysis for the educational level variable

Axis	Educational Level	Readings Total	Average	Standard Deviation	F Value	(sig) P.value	Significance
Using Twitter network to promote positive behaviour	Secondary level or Less	86	3.42	0.692	0.296	0.743	Not Significant
	University Level	330	3.38	0.874			
	Post graduate Level	170	3.44	0.783			

From the previous One-Way ANOVA analysis for the educational level variable, there are no statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour due to the educational level variable. The impact size was (0.001). Therefore, it can be asserted that the educational level does not affect (because its value is very small) the level of positive

behaviour using Twitter in dealing with COVID-19 crisis in the Kingdom.

Sixth: the administrative region variable:

The results showed the significance of the differences between the opinions of the study sample about the use of Twitter in promoting positive behaviour and the variable of the administrative region:

Tab. 10: One-Way ANOVA analysis of the administrative region variable

Axis	Administrative Region	Readings Total	Average	Standard Deviation	F Value	(sig) P.value	Eta Squared	Significance
Using Twitter network to promote positive behaviour	Central Region	176	3.38	0.740	3.177	0.013	0.021	Significant
	Eastern Province	44	3.61	0.894				
	Western Region	346	3.36	0.851				
	Southern area	14	4.04	0.662				
	Northern area	6	3.32	0.586				

From the previous One-Way ANOVA analysis of the administrative region variable, it is clear that there are statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour due to the variable of the administrative region. The impact size is (0.021), which is a weak impact. (2.9%) of the changes in the level of positive behaviour using Twitter in

dealing with COVID-19 crisis in the Kingdom are attributed to the variable of the administrative region. In order to determine the administrative regions that led to the difference in the level of positive behaviour using Twitter in dealing with COVID-19 pandemic, the Scheffe test was used to indicate the differences in the level of positive behaviour using Twitter, which is due to the different administrative regions:

Tab. 11: Scheffe Test results for the administrative region variable

Axis	Administrative Regions A	Administrative Regions B	Average differences (A) – (B)	Standard Error	(sig) P.value
Using Twitter network to promote positive behaviour	The Southern Region	The Central region	0.66 *	0.227	0.004
		The Western Region	0.68 *	0.223	0.002
		The Northern Region	0.72 *	0.399	0.001

* Statistically significant at the level of significance (0.05)

By conducting Scheffe for the administrative region variable, there is a significant difference between the study sample in the (southern) administrative region and between individuals in the central, western, and northern administrative regions in relation to the use of Twitter in promoting positive behaviour. The average differences are positive (0.66, 0.68, 0.72) respectively, which means that the use of Twitter to promote the positive behaviour of individuals in the (southern) administrative region

is higher than individuals in the central, western, and northern administrative regions.

Seventh: the duration of Twitter use variable:

The results of the analysis of the differences between the opinions of the study sample about the use of Twitter in promoting positive behaviour and the variable of the duration of Twitter use were as follows:

Tab. 12: One-Way ANOVA analysis of Twitter usage duration variable

Axis	Usage Duration	Readings Total	Average	Standard Deviation	F Value	(sig) P.value	Eta Squared	Significance
Using Twitter network to promote positive behaviour	Daily	358	3.62	0.727	28.47	0.000	0.164	Significant
	Every 2 days	60	3.55	0.793				
	Every 3 days	38	2.98	0.699				
	Every week	10	3.22	0.743				
	From time to time	120	2.83	0.832				

From the previous one-way ANOVA analysis of Twitter usage duration variable results, there are statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour due to the duration of use variable. The impact size was (0.164), which is a large impact. (16.4%) of the changes in the level of positive

behaviour using Twitter in dealing with COVID-19 crisis in the Kingdom are due to the duration of use variable.

In order to determine the duration of use of Twitter, which led to a difference in the level of positive behaviour using Twitter in dealing with COVID-19 crisis, the Scheffe test was used to indicate the differences in the level of positive behaviour using Twitter, which is due to the difference in Twitter use duration.

Tab. 13: Scheffe Test of Twitter Usage Duration Variable

Axis	Twitter usage duration A	Twitter usage duration B	Average differences (A) – (B)	Standard Error	(sig) P.value
Using Twitter network to promote positive behaviour	Daily	Every 3 days	0.64 *	0.129	0.000
		From time to time	0.79 *	0.080	0.000
	Every 2 days	Every 3 days	0.57 *	0.157	0.010
		From time to time	0.72 *	0.119	0.000

By conducting Scheffe Test of Twitter Usage Duration Variable, there is a significant difference between the sample members who use Twitter (daily & every two days) and individuals who use Twitter (every 3 days & occasionally) in relation to the use of Twitter in promoting positive behaviour. We find that the average differences are positive (0.64, 0.79) & (0.57, 0.72), respectively, which means that the use of Twitter enhances the positive behaviour of individuals who use Twitter (daily & every two days) on a higher degree than individuals who use Twitter

(every 3 days & from time to time) in dealing with COVID-19 pandemic in the Kingdom.

Eighth: The Twitter browsing time variable:

The analysis indicated the differences between the opinions of the study sample about the use of Twitter in promoting positive behaviour and the variable of Twitter browsing time, as following:

Tab. 14: One-Way ANOVA analysis of Twitter duration usage variable

Axis	Browsing Time	Readings Total	Average	Standard Deviation	F Value	(sig) P.value	Eta Squared	Significance
Using Twitter network to promote positive behaviour	Less than half an hour	282	3.17	0.814	15.09	0.000	0.094	Significant
	From half an hour to less than 1 hour	144	3.50	0.765				
	From 1 hour to less than 1 hour and a half	94	3.81	0.758				
	From 1 hour and a half to less than 2 hours	26	3.31	0.638				
	More than 2 hours	40	3.78	0.807				

From the above One-Way ANOVA analysis of Twitter duration usage variable results, there are statistically significant differences in the opinions average of the sample members about the use of Twitter in promoting positive behaviour due to the variable of Twitter browsing time. The impact size was (0.094), which is a medium impact. Then, (9.4%) of the changes in the level of positive behaviour using Twitter in dealing with

COVID-19 crisis in the Kingdom is due to the Twitter browsing time variable.

In order to determine the time of use of Twitter, which led to a difference in the level of positive behaviour using Twitter in dealing with COVID-19 crisis, the Scheffe test was used to indicate the differences in the level of positive behaviour using Twitter, which are due to the difference in Twitter browsing time.

Tab. 15: Scheffe test for Twitter browsing time variable

Axis	Twitter Browsing Time A	Twitter Browsing Time B	Average differences (A) – (B)	Standard Error	(sig) P.value
Using Twitter network to promote positive behaviour	Less than half an hour	From 1/2 hour to less than 1 hour	- 0.32 *	0.080	0.003
		From 1 hour to less than 1 hour and a half	- 0.63 *	0.094	0.000
		More than 2 hours	- 0.60 *	0.133	0.000

* Statistically significant at the level of significance (0.05)

By conducting the Scheffe test for Twitter browsing time variable, there is a significant difference between the sample members who browse Twitter for (less than half an hour) and those who browse Twitter (from half an hour to less than an hour, from an hour to less than an hour and a half, more than two hours) in relation to using Twitter in promoting positive behaviour. The average differences are negative (-0.32, -0.63, -0.60), respectively, which means that the use of Twitter enhances the positive behaviour of individuals who browse Twitter for (less than half an hour) less than those who browse Twitter (from half an hour to less than an hour, and from an hour to less than an hour and a half, more than two hours) in dealing with COVID-19 pandemic in the Kingdom.

The results of this question agreed in several ways with the findings of previous studies that there are differences in the positive role of Twitter in COVID-19 crisis, and that it is in great agreement with the (WHO.2021) study in the age variable per category and with the study of (Al-Shukair.2020) which concluded that there are no differences between genders, as the current study highlighted the absence of those differences. It differed with the studies of (Alnasser et al. 2020) and (Siddiquia. et al.2020) for the region variable, where the current study showed differences favouring the southern region more than the rest of the Kingdom's regions. The results of the study highlighted the role of Twitter browsing time and duration of use, as the more an individual is exposed to using Twitter, the greater his role in promoting positive behaviour is.

This result may be attributed to the nature of interaction in social networks through its ability to provide individuals with a sense of the presence of the other with their real social presence despite their lack of physical presence, their achievement of self-confidence and initiative in giving support, assistance and cooperation, views and opinions towards the crisis. The individual became able to positively communicate with his community through this social network. His pursuit of positive behaviour through this network may also be attributed to the nature of the crisis in terms of being a surprise, and the accompanying lack of information about the pandemic and its inaccuracy, the acceleration of events, the emergence of a state of insecurity, loss of life as well as psychological and financial losses, and the absence of a quick radical solution. All this led to relying on informality and self-initiatives of individuals to deal with this crisis. Examination and understanding of sudden and unexpected situations that have severe pressures help guide individuals on how to deal with this crisis and its derivations in difficult, narrow or severe times. Here, there is a disparity and contrast in the behaviour of individuals according to the theory of the individual's social role dealing with such a crisis.

6 Conclusion, recommendations and future work

The study found that Twitter has an impact of 19.4% promoting the positive behaviour of individuals, and that (15.4%) of the changes and positive effects that occur in the behaviour of individuals in dealing with COVID-19 crisis are attributed to the daily use of Twitter. It also found that the use of Twitter in one session affects by (6.1%) on promoting positive behaviour in dealing with COVID-19 crisis. It also found a positive, medium-strong correlation between daily use of Twitter and the promotion of positive behaviour in dealing with COVID-19 crisis. As well as the absence of differences between gender, educational level, and the promotion of positive behaviour using Twitter. However, it showed differences favouring singles in the variable of social status, favouring residents in the residence

status, favouring the category of those under (21 years) for the variable of age, favouring the southern region for the variable of the administrative region, favouring users of the network daily and every two days for the variable of use duration, favouring those who use Twitter more for the variable of browsing time.

The study recommends conducting more studies on positive social behaviour and its various dimensions so that the results can be generalised more broadly, as the results of this study remain limited within its specific objectives and questions. Moreover, there is a need to work on studies concerned with the Internet of behaviour and artificial intelligence to analyse the positive behaviour expected by individuals through various social networks, which creates wide enhancing opportunities. It also recommends contributing to paying more attention to the digital socialisation of children and adolescents, which contributes to preparing community members for active and positive participation in networked communities, and that government and private agencies which provide services to citizens and residents activate their Twitter accounts and have a positive interaction with users' questions and responses to get out of stereotypes in their accounts by creating more interesting interactive patterns to followers.

Acknowledgements

The researcher expresses his great thanks to the Chair of Sheikh Abdul-Aziz bin Saleh Al-Sa'wi for Positivity Development at Qassim University, College of Education, for his financial support for this research under No. (S 0037) during the academic year 1442 AH / 2021 AD.

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Primary Paper Section: A

Secondary Paper Section: AO, BC

EDUCATION TOWARDS “DIALOGUE OF CULTURES” IN THE CONTEXT OF AXIOLOGICAL PLURALISM

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This paper was supported by institutional grant IG-KSV-ET-01-2021/12 Ethics in the context of its implementation into society.

Abstract: The main aim of this paper is the analysis and interpretation of education towards “dialogue of cultures” in the context of an upgraded concept of axiological pluralism. This paper deems multiculturalism as unsustainable as it is not sufficiently elaborate. The concept of this study is comprised of the description of the current state of affairs and the distinction between the possibilities of coexistence in certain societies into commensurable and incommensurable. Axiological monism is being put up against cultural pluralism. The most fundamental problem of the coexistence of various cultures being identified is the incommensurability of values. We believe that culturally incommensurable groups can only coexist side by side, but they cannot live together. This can also be applied to various groups of Christian and Islamic communities, which is why this paper addresses the issue in terms of the values of Christianity and Islam.

Keywords: Man, Values, Education, Culture, Dialogue

1 Introduction

“Different value systems of the world are opposite each other in the implacable struggle” (Max Weber)

“In contact with foreign environment, the encounter of two (or more) cultures is common in situations with an incompatible cultural aspect” (Bílá, Kačmárová and Vaňková 2020: 344). Relations between the *Western* (Euro - Atlantic) and *Arabic* (Islamic) civilizations have - after the terrorist attacks of Islamic extremists in the US and in Europe - reached a stalemate. “We are thus witnessing the so-called ‘securitization’ of the migration crisis in our societies, which is often abused by extremist right-wing parties and increasingly also by mainstream politicians and the media” (Valčová et al. 2021: 210). On the other hand, it should be noted that this was not just about the terrorist attacks in Europe and the US. A serious terrorist attack took place in Egypt, where several hundred Islamic believers were murdered by Muslim radicals. The Boko Haram terrorist organization murdered about 13,000 people in Africa. It is not just a problem that concerns the Euro-Atlantic region. The tension between these cultures is rising up in the context of the current wave of migration and immigration; moreover, it takes the form of outright “Islamophobia” in several EU countries. While Islamic extremists (i.e. the terrorists of Al - Qaeda, ISIL, Taliban, etc.) are calling for an open confrontation with the so-called “godless” Western civilization; extremists on the other side of the spectrum (i.e. “Militant anti-Islamists”) propose a new “occidentalization” across the Middle East.

2 Different cultures, values and their coexistence

“Propagandist slander is focused on the negative portrayal of the other party” (Šoltés 2017a: 109). It may also be other tricks, e.g. so-called calculation - the use of some words with a strong connotation the meaning of which many do not really understand (e.g. fascist), the use of euphemisms (e.g. humanitarian bombing), the spread of the atmosphere of fear, the so-called technique of pre-cooking, that is, slow massaging of the brain by progressively dosed information. “Crowds cannot be rationally argued with, it is necessary to understand the feelings that control them, to pretend to be helpful and to constantly create new needs” (Grečo 2013: 124). As Michel Foucault recalls, a dialectical relationship emerges between new media technologies and the participatory practices of these technologies, which is called dual economy of freedom and constraint (Foucault: 1982).

In both of these initiatives, respectively, the positions being held are - according to the authors of the present study - *misguided* and *mistaken*. Violence only leads to more violence. The solution to the tensions between cultures is not (and cannot) be the even more sophisticated Islamic terrorists’ confrontation with the West, nor any new (*violent*) “occidentalization” of the Islamic world. The solution could and should be the mutually tolerant *dialogue* of the cultures carried out on the basis of commonly respecting the concept of *axiological pluralism* and applying a model of *pluralism of cultures*.

It has already been stated that traditional multiculturalism has used its initial potential. The reason for this situation seems to be because the variety of cultures as an isolated phenomenon has not been appropriately analyzed by axiology. There was no evidence that it would *influence* a value incommensurable, incompatible, and mutually exclusive culture. It was based on a naive belief that the differences between cultures (and their systems of values) could be “solved” by mutual tolerance, empathy, or *consensus* with respect to the so-called “universal human values” that must be accepted by all the participative cultures and so on - compare Sucharek (Sucharek: 2017).

However, the early experience of the current wave of migration and immigration to Europe suggest that the problems arising from the *meeting* of different cultures and their *coexistence* within a single political and legal order cannot be effectively addressed only by the aforementioned traditional vision of multiculturalism.

One of the solutions is to offer a reformulated and reinterpreted concept of *axiological pluralism*, which is based on two assumptions: 1. Quantity (a lot of) value systems, which generally constitute the structural core of the different cultures; 2. People are dealing with a *number* of concrete values that may - within the system - be of *absolute* or relative validity in the individual (specific) systems. While the argument in favor of the first view is the real existence of value-different cultures, as an argument in favor of the second assumption, the division of the values - even within individual value systems - *primary*, *secondary*, *contingent*, *superior*, *excess*, etc., may be mentioned.

The importance of pluralism - as the axiological position - has already been addressed by Isaiah Berlin’s statement: “pluralism, it seems to me, is a truer and more humane ideal than the goals of those, who, within large authoritarian structures, look for the self-managements of social classes, nations, or humanity as a whole. ... Pluralism is more human because it does not deprive people of something that they themselves consider to be essential to their lives, in the name of some distant or imperfect ideal” (Berlin 1969, 68 - 69). Some religions have a tendency to authoritatively enforce moral standards. Plurality can be seen in the context of religion as a legitimate part of scientific and theological discourse (Šoltés 2017b: 73).

Respect for the freedom of the individual as a rightsholder and respect for private property are fundamental pillars of liberalism - compare: (Martín, Rojas and Kralík: 2020). Liberalism cannot be exported to other countries for the purpose of indoctrination. The separation of state and society does not apply in a universal sense. According to Immanuel Kant and John Locke, human rights form the basis for the arrangement of the state - the theory of the treaty - based on respecting them (Do and Valčo 2021: 3). “The human rights and freedoms found in the modern codifications of the 19th and 20th centuries, with a direct result of their incorporation into the immanent part of the constitutions of individual states, have a special standing” (Mosný and Laclaviková 2013: 59). Human rights in Islam are perceived differently than in the Euro-Atlantic region - compare: (Tkáčová et al.: 2021; Paľa 2017). This by no means implies their absence in Islam.

If it is still true that “Of all things the measure is man”, etc. (written by Protagoras), then perhaps the concept of value (and everything that belongs to it) is considered only as the “creation” of man. Each value is attaining the status of a value only for a specific person, and in relation to him/herself. In light of this fact, a value - it’s the broadest definition – is that, which has *significance, validity, meaning, price* for humans. However, Immanuel Kant warned that it is not true that everything which has a price also has a value; which is associated with *dignity*. He documents those words: “the place of something what has some value, can substitute something else equivalent, but this goes beyond any price and therefore it does not allow any equivalent, it has dignity” (Kant 2003: 63). Kant clearly indicates that dignity (as something what cannot be replaced by any equivalent in *value*) relates to the field of morality (Martin, Rojas and Kralik: 2021).

This issue is highlighted also in an interesting way in the study written by Pasternáková *Value orientation influence on quality of life* (Pasternáková 2014: 80 – 100). A *value* is therefore *constituted* by people, their “vision” and “leadership”, their experience and expectation of their spiritual and present-practical activity, etc. The basic source of a *value* is life itself that forces humans to satisfy their basic human needs and thus create or discover the values at the same time. From a certain point of view, it could be stated that *values* belong to the existential *conditions* of human life. From the standpoint of religious belief, values can be perceived as transcendent.

The world of the values is, vertically and horizontally, structured in a very complex manner, and there is a need for a presumption of reflections about the relationship between the *means* and *goals* of human beings. “On the one hand the values in this relationship express the desired state of being and on the other hand it suggests courses of action as a means to achieve them ... there are things on the basis of some quality which are values per self, and things whose value is that they are the means of achieving something what is desirable per self” (Sisáková 2001: 172).

The issue of values and beliefs, their validity, character, and functions is, since the period of classical Greek philosophy, linked to controversy of the so-called *axiological monism* with *axiological relativism*. While monists justified the *absoluteness*, i.e. eternity and constancy of values, *relativists* pointed out that values have not universally valid character; values exist in their semantic diversity, uniqueness, etc.

The position of axiological monism is usually exemplified by Plato’s understanding of *beauty*, or rather that which is “beautiful”. In the Plato’s dialogue *Symposium* – uttered through the mouth of the Mantinean woman named Diotima – he notes: “He, who, on the road to love, can come here and gradually and correctly observes the phenomena of beauty, can suddenly...naturally see something that is remarkably beautiful, and that beauty...which is, firstly, eternal, thus it cannot be created, nor destroyed; it does not grow, nor does it recede; beauty is not from one side beautiful, nor is it from the other ugly, neither is it beautiful at one time, and ugly another time; it is not beautiful when related to one thing, nor is it ugly when related to something else, neither is it beautiful here, nor ugly over there; beautiful for one person, and ugly for another. Beauty is not revealed as something...physical, nor as some speech or science...but like something that is grand, unified of itself, and with itself, and all other beautiful things participate in it, so that when something is created or destroyed, beauty does not grow, nor does it recede, and neither does anything happen to it” (Plato 1986: 256 – 257). These “absolute values” belong - according to axiological monists - to values such as “truth”, “good”, and so on. The concept of axiological monism, as it has been already indicated, constitutes the ideological and theoretical core of the so-called *cultural absolutism*.

Axiological relativists sought (and still seek) arguments against monists by the definition of the value as it is connected with the satisfaction of human needs. Whereas the process of satisfying

human needs is usually *unique*, then everything connected to this process is - sui generis – *unique*, and such *uniqueness* is also embodied in each individual set of values that is bound to a specific process of satisfying one’s needs. Moreover, this process is always carried out at a specific time, in a specific natural and social environment, in society with concrete cultural and religious traditions, with concrete level and form of rationality and emotionality, etc. (Rollo 1993: 100 – 105). The understanding of axiological relativism in this way is the basis of the so-called *cultural relativism*.

It has been already stated that similarly then *the cultural pluralism* “stands” above the *cultural absolutism* and *relativism*, as well as the plurality of values “stands” above the *axiological relativism* and *monism* which theoretically reflects axiological pluralism.

At the beginning on this issue, there is tendency to emphasize that axiological pluralism acknowledges the *absolute* validity of a concrete value only in a concrete system of values and in the concrete culture which creates these values, develops and stores them, while in relation to another system of values (in a different culture) the validity of these values is being relativized. Therefore, the understanding of *the relativism of values* in this way should not be equated with *nihilism*, or rather with the position of “nothing is valid”, even with *naive optimism*, with the position according to which “everything is possible” (Kardis et al. 2021). The axiological pluralism respects the hierarchy of values in different value systems, however, it stresses that what is valid in one system of values may not be valid in another system, which results *the relativity of values*.

If society has a relatively large impact on an individual, it can suppress individual ethics. There is a dialectical relationship between the individual and the social (Bastianel: 2010). As Mamuka Dolidze says, „intentional content of time, place, circumstance, individual psychology and communicative relations – all these factors are responsible for the coexistence of individuals who out necessity seek support in group cooperation and create community as such” (Dolidze 2013: 115).

The questions about the future of the world that can be waiting for us in the inter-religious dialogue are so complex that many renowned researchers consider them open and unanswerable. As an example, Veronika Cibotaru’s opinion may be looked at: “Since one religion opens us towards the extraordinary of our human existence, which is always here and at the same time always beyond our ordinary world, how much more extraordinary should be the world created through the dialogue of several religions? Such a common world through the dialogue of religions remains still a mystery for me. However, this dialogue could perhaps already develop itself around the challenges and issues that we perceive in the world in which we live today and how we face the challenge, it might be on a tiny scale, inspired by the religion to which we belong and the sacred texts that we read. Through this dialogue of religions, we could thus shed light from multiple angles on a new shape of the world in which we live today” (Cibotaru 2014: 91).

Among such values, it seems, belong values such as value of life, value of freedom, and so on. It appears to be only an illusion. However, experience from the conflicts between cultures suggests that even these may not act as a value “beyond the limits” of all different cultures and therefore may not be *universal*. Value of life and value of freedom can, in fact, be considered contextually, and so it is not surprising that there are cultures in which these values are not considered as an “excess”. This is particularly prominent in cases and situations in which - at the expense of life – the value of “victimization”, or the so-called value of “the self-negation of martyrdom,” and so on, is stressed. This could be seen, for example, when Islamic terrorists sent a message to Western democracies (and to indeed to the entire Euro - Atlantic culture) after the events of 11th of September in 2001 in the United States when these events were commented by saying: “We love death more than you love life” (Kuras 2015: 14).

In this context, the political scientist, Jozef Polačko, reminds us that “in the game of life, people have a tendency to choose various, often conflicting values. The reason behind these actions does not arise from relativism. In fact, value inconsistency is natural for humans” (Polačko 2018: 92).

The real possibility and a form of values’ coexistence is - in terms of *the plurality of values* - dependent on their *commensurability* or *incommensurability*. It is understood that the *commensurability* or *incommensurability* of values is a necessary consequence and concomitant feature of *the plurality of values*. There is no *commensurability of values* where values are diverse, different, divergent, or even antagonistic. However, every difference or diversity of values is not necessarily *incommensurable* and does not have to result in conflicting coexistence.

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It is already known that some cultures harboring varied and different value systems can coexist with each other in a *tolerant way*, but some of them cannot. The result of this fact is that there is relatively tolerant coexistence of values within one (common) political and legal system. Max Weber states that “the different value systems of the world are opposite to each other in a bitter struggle” (Weber 1983: 244). It is true only in cases where there is an incommensurable “value order” that is incompatible or even antagonistic. In the case of value incommensurable “world orders,” the so-called “irreconcilable struggle” is not inherently necessary.

The coexistence of different values or the “implacable struggle” between them could be meaningfully spoken of when it is determined (identified and defined) by the boundaries between them and by their commensurability or incommensurability. The truth is that this threshold is based on a point of view about a state where the values are mutually exclusive. This is a condition in which the validity of the parallel two (different) values is practically impossible.

While *commensurability* of values is designated by their *connectedness* and functional *comparability*, according to some - together respected - standards, the *incommensurability* of values is based on their *discontinuity*. Thus, the *commensurability* of values allows for a *bridge* to form between them. *Incommensurable* values - in the collective “world order” - cannot be *bridged* with the *commensurable* ones. Certain “intersections” between them are possible, provided that the given values are not together in the same value system, but function *in parallel* to each other, “side by side”. (The creator of the values is the “man” who is related to “generic” *commensurate* essential forces, spiritual and present-practical layout (thinking, freedom of will, satisfying basic needs), and so on. It follows that, in contacts with the systems of incommensurable values can be found some - human and existentially contingent - “intrusions”). The coexistence of people who *confess* and practically apply *incommensurable* values is only possible in an atmosphere of permanent tension, disagreements, and conflicts. *Incommensurable* values are the result of not only the *incommensurable* way of perception (understanding and reflection) of reality, but also of the *incommensurable* relations towards said reality. There is no doubt that the relationship between *commensurable* and *incommensurable* values is fully reflected in the relationship between those cultures, which will - among other things - also illustrate the actual shape of the current cultural pluralism.

The presented and preferred concept of the pluralism of cultures - which was based on the concept of axiological pluralism - has no ambition to *radicalize* the plurality of values at any cost. If the plurality of values “modifies the practice of evaluation, so the fact of pluralism is perceived as value, the hyperbole of values/means leads to a situation that where final values/goals outgrow, the only absolute is relativity of things” (Sisáková 2001, p. 169). However, the plurality of values can be viewed and interpreted in other ways. Traditional multiculturalism is based on the *compatibility* of cultures as well as the possibility of their cohabitation. The presented pluralism of cultures - with regard to value *commensurability* and *incommensurability* of the cultures - has allowed (and has justified) coexistence of both, the conflicting and non-conflicting cultures. While cohabitation of cultures is related to value *commensurate* cultures, the conflicting coexistence of cultures is linked with value *incommensurable* cultures.

The Slovak sociologist Fedor Gál suggests that multiculturalism can also result in “hostile coexistence of cultures side by side”, which would be - according to him - “nothing pleasant” (Gál 2006: 12). From the point of view of the concept of multiculturalism, which is, in this study, being compared to the concept of the pluralism of cultures, Fedor Gál’s claim about *the hostile coexistence of cultures* “side by side” is of significance.

The view that the actual cause of conflicts is not free and autonomous functioning “side by side” in value incommensurate culture, but it is their coexistence in a common system of generally applicable political, legal, and moral norms and values, has been expressed. This system of political, legal, and moral norms and values which would be truly “common” was not created, on the other hand, it would be mutually acceptable and respectable for all present and value-antagonistic culture as well (at least in the territory of contemporary migration and immigration).

The original multiculturalism succumbed to the illusion that the value incommensurate cultures can *merge*, because apparently all of them follow and respect *human dignity, humanism, human and civil rights*, and so on. However, the development in Europe and worldwide suggests that there is no internationally accepted declaration or legislation - formally guaranteeing respect for human rights - which is able to *fuse the cultures* that are value incommensurable. Perhaps that is why authors such as Jacques Derrida, Jurgen Habermas, Zygmunt Baumann, Václav Bělohorský, Janusz Czerny, etc. are encouraged to seek a new form of *humanism (human dignity)*, and new application of the principle of holism.

The conflicts between cultures can have different forms. Some of them are “solvable” by a dialog. Some of them are - sui generis - “unsolvable”. The understating of axiological pluralism, as stated above - and the understanding of the pluralism of cultures related to it - offers “solutions” on the level of *the dialogue of cultures* and on the level of the coexistence of cultures “side by side,” meaning in separate political and legal systems with a specific hierarchy of values. The so called “territorial separation of the warring ethnic groups” also allows the current political geography as a way to solve the conflicts of ethno-cultural origin (Gurňák, Blažík and Lauko 2017: 83-84).

“The parallel coexistence of cultures,” meaning their coexistence “side by side,” is not the best solution in the 21st century. However, if there is a way that guarantees the individual (incommensurable) cultures to preserve their identity and allows them to prevent violent conflicts between each other (including the so-called “holy wars”), then this solution is not the worst. On the contrary! In this (migration) situation and for this (specific) case (ad hoc), the solution may be quite acceptable, because it is a real solution that gives hope of a dignified coexistence of value incommensurable cultures in the future.

This form of coexistence of cultures, i.e. their functioning “side by side” and *independently* of each other, allows realizing their value in full range and without “restrictions” for each - even

conflicting – culture. It is possible even without “restricting” or “limiting” the concept of human rights and freedoms, because at the very least, a part of the Muslim world – leaning towards the radical version of Islam, the so-called “Wahhabism” – has serious issues with the Euro-Atlantic understanding of human rights. It also does not identify with Euro-Atlantic understanding of *freedom* and *equality*, nor does it identify with various political and legal norms which constitute the basis for the understanding of *Western democracy* itself. In other words: the culture which is based on freedom of expression, freedom of conscience and religion, gender equality, equal rights for men and women, etc. is *incommensurable* in comparison with the culture where these freedoms and rights are not respected. Cohabitation of these cultures (in one legal system) is not possible. This does not mean that the parallel coexistence of cultures “must” always be in a tolerant form.

Several available statistics conclude the results about the causes and nature of the contemporary conflicts - more than 60% of them are conflicts of *ethno-cultural* and *ethno-religious* nature. In this context, the following Francis Fukuyama’s claim seems to be quite unconvincing: “the liberalism prevailed in religion over Europe... Today it sounds bizarre that anyone, even the most avid priest, could be offended by the religious ceremonies of another church. Religion became a private matter - it seems to have more or less permanently left the European political scene that are affected only in respect of distinct themes such as the question of abortion” (Fukuyama 1992: 260).

However, even in this case, the impact of religion – in these conflicts – is not overestimated. It is also said by Hans Knippenberg when he argues that, in the background, even “purely” religious conflicts, the so-called “Holy wars” refers to “secular, political, social, and economic causes and interests” (Knippenberg 2011: 13).

3 Selected aspects of mutual value relations of Christianity and Islam

In its entirety, it is also applicable to the conflicts between Christianity and Islam, although, there are religious causes in this case – factors that have specifically literal and “irreplaceable” importance. It arises from the fact that the very *core* of European, as well as Islamic cultures is occupied by a system of religious norms and values. Because this system is, in Christianity and Islam, largely *incommensurable*, it affects and co-determines the nature of the conflicts between these two cultures and religions.

The French historian, orientalist, and comparative religionist Jean-Paul Roux has written in his work entitled *The conflict of religions. Long war between Islam and Christianity (7th-21st century)*. whether you admit it or not, the fact is that the West is at war with Muslims, and, consequently, Islam... not a year, a month, a week goes by when Christian or Muslim blood is not spilled... the war between Islam and Christianity, whether it is declared and open, or concealed and insidious, is a reality in spite of the often mentioned alliance between Francis I and Suleyman Gorgeous, even despite long periods of truce... this war, in fact, has never actually ended (Roux 2007). Therefore, all three “holy books” of these religions, i.e. the Christian *Bible*, the Islamic *Qur’an*, and Jewish *Torah* come from these sources.

Conflicts between Islam and Christianity have been triggered not only by their differences but also by their common features, characteristics, and elements. It is remarked that as Christianity as well as Islam are classified as so-called *monotheistic religions*, i.e. religion based on faith in *the one* (and only) God, the creator of man, heaven and earth, etc. Both *religions* are, along with the Jewish religion (Judaism), considered to be so-called “heavenly religions”, and “the all heavenly religions”, written by one of the translators of the *Qur’an* into Slovak, Abdulwahab Al-Sbenaty: “come from the same source ... the one Book which is kept in heaven” (Al-Sbenaty 2015: 14). Therefore, all three “holy books” of these religions, i.e. the Christian *Bible*, the Islamic *Qur’an*, and Jewish *Torah* come

from these sources. Christianity and Islam also have a claim for universal mission and force.

Generally, what is “the common” may not be “the same”, or well understood, accepted, cherished the same way, and so on. It applies to one’s own perspective of God (*Yahweh*, *Jehovah*, *the God-Father*, *Allah*) and his son as well, a messenger or prophet (*Jesus*, or *Muhammad*).

At the beginning on this matter, it is necessary to note that *monotheism* could be (and is) perceived in different forms. It has already been mentioned that Judaism, Christianity, and Islam are *monotheistic religions*. All of the three postulated religious belief in one God. However, whereas the *Lord (Yahweh)* is God of “chosen” (Jewish) nation in Judaism, *God* is (i.e. *God-Father* and *Allah*) God of all nations in Christianity and in Islam. Whereas God “speaks” to the people (and declare them to his will) especially through the *prophets* or *messengers* (beginning with Moses and ending with Muhammad) in Judaism and in Islam, the will of God-Father conveys to people (“translates”) his *son - Jesus*, who is not just a “messenger” of God, but he is *Christ*, i.e. *Messiah (Redeemer and Saviour)* in Christianity. Messianism as faith in the salvation of man, nation, or of all mankind through God’s chosen Messiah, i.e. “Anointed” (Hebrew מָשִׁיחַ - „māšîḥ“, Aramaic מְשִׁיחָא - „mšīḥō“, Greek χριστός - „christos“) belongs to the dominant component of the Jewish (Judaist) and Christian spirituality (Dupkala, 2003: 7 – 39). In this context, Mesias Solomon wrote: “Judaism and Christianity are two common beliefs bred by common Scripture. They have a common *vocabulary* derived from the Bible, but they do not always use it in the same way. The Hebrew word *māšîḥ* (anointed), from which the word *Messiah* is derived, belongs to this dictionary. Christians apply it in the name of *Jesus*. Jews do not do that” (Solomon 2002: 6).

According to Judaism, the “real” *Messiah* “did not come”, according to Islam he will never come, because Allah “is the only one God and he is above having a son. All belongs to Him that is in the heavens and on earth” (Qur’an 4: 171) and “only unbelievers can say: *The Messiah, son of Mary, he is definitely the God*” (Qur’an 5:17). Finally, there is request to add that while God in Islam is *explicitly* (or rather *unspeakably*) “transcendent” (*over-terrestrial*, *over-natural*, *over-sensory*, etc.), “Trinitarian” God of the Christian religion is also “transcendent” and “immanent” (he “transcends” the world of people and he “dwells” in this world), and so on.

The most important *factors* giving rise to conflict with the Western (*Christian*) and Arabic (*Islamic*) cultures is rightfully the so-called “Sharia” law, which - according to Islam - is “God-given” (and therefore “immutable”) a set of legal and moral norms (regulations, orders, prohibitions), which *govern* not only the duty of man to God, but also the relationships between humans (including family relations, the status of man and woman, father and mother, patrimonial “action”, dressing up), “right” to *revenge*, “right” for *vendetta*, or even “the right to kill,” and so on. To illustrate at least one, particularly verse 33 of Surah (chapter) 17, concerning “the right to kill” for all of the verses of the *Qur’an*, concerning Sharia, where there is stated: “Do not kill those whom God will not allow to kill unless it is for a reasonable cause (followed by a footnote: death for death, in case of an adultery, and in case of falling away from faith). If you do that, we give the next of kin the right to carry out revenge for an unjust death. Do not exceed his right for the killing, because the offender has some rights” (Qur’an 17:33).

According to it, there is, although only partial – but obvious – conflict of two legal and moral value orientations that are culturally based on Christianity and Islam. On the one hand, Christianity, seeking to “bring” the biblical commandment *THOU SHALT NOT KILL* into legislation prohibiting “the death penalty” and on the other hand, Islam through *Sharia legitimizes* “the law of killing,” the application of the “authorized revenge”. One consequence of this incommensurability of legal and moral values of Christianity and Islam is that “there is no Muslim country which has signed II. Optional Protocol to the

International Covenant on Civil and Political Rights, which expresses the will to work towards the abolition of capital punishment. The breakthrough was made in Turkey in the year 2002, when the negotiations on its accession to the European Union passed a law abolishing the death penalty outside wartime" (Kropáček 2002: 98 – 99). It should be noted here that Turkey is in a state of war quite often.

4. Discussion

The dialogue of cultures will fulfill its mission when representatives of different cultures and different value systems recognize *the pluralism of cultures* without having to resign on their own value orientation, etc. *The dialogue of cultures* should not be (primarily) concerned with who has or does not have the *truth*, this is about attaining a state of mutual respect – the *right for truth* and its *validity* within the limits of the system of values in which the actors of the dialogue are anthropologically and existentially docked. (Finally, what is or what is not the *truth* may not be agreed upon by people with contradictory value orientation, because the *truth* is a valid and accepted always only within the system of values in which it was - as *truth* - formulated, supported by evidence and provided by reason. Therefore, probably, Pilate also responded to the words of Jesus, that He - Jesus – is the truth ... etc. by asking: "What is truth?" (John 18, 38).

In that view, it is necessary to stress once again that *the dialogue of cultures* can complete its mission only if at least these (fundamental) conditions and criteria are respected:

- Full equality of all its stakeholders;
- Guaranteeing and respecting *freedom of thought*;
- The ability and willingness to hear *the other side*;
- Consensus on the content or the thematic focus of the dialogue;
- Determining the common "limits of the dialogue" or agreeing about what should not be "discussed"; (The limit" of the dialogue should be established with regard to the "limits" of freedom of expression. The freedom of one part of the conversation "ends" where the freedom of another begins. The part of the freedom of expression in *the dialogue of cultures* should be a right or obligation "to retain the word" especially if its "vote" led to the induction, or to an escalation of tensions. This right or obligation for example, refers to "eternal truths" like "Allah Akbar", "Resurrection Christian Messiah", "four Buddha's truths" and so on. In the context sought to apply the known principles of Ludwig Wittgenstein, according to which: "*What we cannot speak about we must pass over in silence*" (Wittgenstein 2003, p. 29).
- Mutual helpfulness in dealing with acute existential problems;
- Civilized and fair manner and style of communication;
- Mutual tolerance, etc.

It seems that the power - purpose "experiments", regardless of whether they are "experiments" with *an all-planetary* socialism, liberalism or any fundamentalism; it does not save the *human world*. *The human world* will be probably culturally, religiously, socially and politically differentiated and this differentiation may be due to global accretion of the so-called "horizontal forms of social mobility", and even intensify. Karl Mannheim has already stated that "horizontal mobility, i.e. the human movement from one place to another or from one country to another, shows that different nations think differently. However, the tradition of national or local groups remains intact; people are so strongly in the captivity of their habitual ways of thinking They have no doubt about the accuracy of the own traditions and ways of thinking" (Mannheim 1991: 61).

Raymond Aron has once written: "politics has not revealed the secret how violence can be avoided" (Aron 1955: 205). It seems that this "mystery" - under certain circumstances - may be hidden in the conflicting parties in dialogue, of which the famous French humanist - Jean Bodin was already aware of

when, at the end of the 16th century, i.e. in an atmosphere of religious intolerance, violence, and war, he wrote his spiritual testament - dialogue "Heptaplomeres" - also known as "The Interview of Seven Sages". The interviewed were Catholic, Jewish, Muslim, Lutheran, Calvinist, sceptic and a representative of the so-called "natural religion". The interview has taken a place in a calm mood, because the participants - on the application of tolerance – they are both looking for (and finding) that which brings them together (despite all of the things that separate them) (Bodin 2008).

In another atmosphere, about four hundred years later, the Second Vatican Council commented to promote dialogue between religions, especially in the documents *Lumen Gentium*, *Gaudium et Spes* and *Nostra Aetate*. The Declaration on the Attitude of the Church to Non-Christian Religions (*Nostra Aetate*) mentions: "People are waiting from different religions for the answer to the unsolved riddles of human existence, which, like today, once deeply concerned about the human heart... religions, in relate to cultural progress, is trying to answer these problems... the Catholic Church rejects nothing what is in these religions true and holy. With sincere respect looks at ways of actions and behavior to the rules and doctrines, although differing in many ways from what it keeps and teaches, but nevertheless often reflect a ray of Truth... The Church looks with respect to Muslims and worshipping to one, living, merciful and almighty God... as through the ages have arisen between Christians and Muslims many of strife and hostility, this sacred synod urges all to forget the past, cultivate sincere mutual understanding and together to protect and cultivate social justice, moral values, peace and freedom for all people" (*Nostra aetate* 2008: 569 – 571).

5. Conclusions

Education towards the "dialogue of cultures" should be part of a wider, intercultural education, which aims to prepare man for life in a value-pluralistic society. That objective should be specified and implemented in three areas: cognitive, affective, and psychomotor.

In terms of *cognitive area*: it is important to disseminate knowledge of one's own culture, system of values, symbols, signs, rituals, institutions, etc. In the area of *psychomotor skills*: habits and abilities which one can use in a culturally diverse (asymmetric and contradictory) reality. This is about the ability to perceive events and phenomena in intercultural contexts, the ability to compare the values, ability to make decisions about forms of coexistence with culturally "differently" oriented people, etc. In the field of *affective skills*: it is important to perceive one's own cultural identity, the ability to take attitudes (emotionally contingent) towards "otherness", (towards "other" values, etc.), the expression of the responsibility for own existential attitudes and decisions, the application of tolerance towards "otherness" and also to determine one's own limits, the expression of feelings of togetherness, solidarity, etc. (Tkáčová et al. 2021).

To prepare a person to live in a value-pluralistic society means - among other things - to prepare him for a dialogue with different cultures, which constitute the spiritual core of a particular society. There is no dialogue without talking: an interview, where there are no "free-flowing vibrations" of different opinions is not (and cannot be) understood as being a part of a *dialogue of cultures*. The Slovak philosopher Etela Farkašová, highlights the importance of the *interview* as a dialogic form of communication by saying: "we achieve shaping our ideas, exchange our ideas, and interact with others only in an interview; we have a chance to verify the weight of our own arguments and get to know the weight of other arguments in a conversation, we can move into our own deeper layers, adjust the mirror of self-reflection, which would not exist without the presence of others in interviews" (Farkašová 2004: 229). Each person, as a being that *contemplates*, is *free*, and *responsible*, has the option, but also the responsibility to be the creator and actor of such a

dialogue that, in the end, is nothing more than his inner-most cultural creation and performance.

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Primary Paper Section: A

Secondary Paper Section: AA

CORPORATE TAX RATES IN THE CONTEXT OF MACROECONOMIC INDICATORS IN THE EU MEMBER COUNTRIES

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This paper is a part of research project of the Ministry of Education, Family and Sports of the Slovak Republic VEGA project No. 1/0673/21 Analysis of Economic Perspectives of Industry 4.0 in Terms of the Impact of Intangibles on the Profitability and Market Value of Industrial Companies

Abstract: One of the decisive factors that influence the investor when deciding on the location of investments represents corporate tax rates. This contribution evaluates the importance of corporate tax rates in the context of macroeconomic indicators in the member countries (EU-28). Based on selected macroeconomic indicators, the contribution aims to evaluate an impact of corporate rates on the economy in the EU countries. Data was retrieved from Eurostat database (2019a, b, c, 2020). To meet our aim, we used regression analysis which included seven economic models that monitored an impact of relationship between statutory tax rate and selected macroeconomic indicators. We found that the greatest impact of corporate tax rates is on GDP, employment, export, income (wages), and tax revenues.

Keywords: corporate taxation, tax rates, macroeconomic indicators, employment

1 Introduction

The methods and principles of corporate taxation vary in countries, as each country has a different legislated tax system. Globalisation and effort to harmonise tax systems are gradually reducing disparities between countries, and the movement of capital between countries becomes easier. Tax rates has a significant role in segmentation because they indirectly influence tax revenues and economic performance in a country. Tax rates are also an economic and social tool (Balážová et al., 2016). This means tax rates effect mainly on macroeconomic indicators, such as GDP, employment rate, inflation rate, foreign direct investment etc. These segments have also significant role in company's decisions; however, the crucial aspects are tax rates and the economic orientation of the country (Andrejovská, 2019). Although statutory tax rate is the quickest instrument to map tax burden in a country, to secure the comparability of tax burden in different countries we must consider differences in accounting, as well as differences in tax systems. Therefore, statutory tax rate is not sufficient instrument for comparing tax burden, as the actual tax paid by entrepreneur may be much higher or lower than tax set by legislative. For that reason, effective tax rates are crucial because they examine tax impact in capital more comprehensively. Effective tax rate is defined as a ratio between tax charges and profits, and at the same time, it captures the relationship between tax reliefs that reduce the tax base in relation to profits from the financial activities of companies (Gravelle, 2014). Most authors also prefer effective tax rate in their research (Phillips et al., 2004; Dyreng et al., 2017; Agarwal and Chakraborty, 2019). Effective rates consider investor's statutory taxation and other elements of tax system which effect on tax payable and return on investment. Due to the differences in these rates, it is essential to understand their relationship. There is clear evidence of a positive relationship between these rates because if statutory tax rate increases, effective tax rate increases too, but slower. This relationship is reconciled because companies can limit their financial results in relation to the statutory rate to increase their tax savings (Barrios et al., 2014). In the academic area, there has been not found a consensus on corporate taxation and its level (Mihóková et al., 2016). To identify effects of corporate taxation on the economy more accurately, it would be necessary to look directly at empirical evidence of the effect of these changes in the international context. Various factors, such as capital and labour force (Hassett and Mathur, 2015) caused exogenous changes in tax systems and changes in income after taxation.

Corporate taxation has an impact on changes in prices of capital, labour, and production which affect the general equilibrium welfare of market participants. By now little, if any, agreement

remains who bears the burden of corporate taxation (Harris, 2009). Corseuil et al. (2011) evaluated if there are effects of corporate tax on employment in Brazil where a tax incentive program for small businesses was implemented to reduce monetary and administrative costs for micro-enterprises. As a result, the number of companies leaving the market, which opted for this program, has been reduced. Moreover, number of employees increased due to improved tax conditions. Dhaliwal et al. (2015) and Immervoll (2000) prove that inflation has an impact on actual tax burden, moreover, even a low inflation rate increases corporate tax burden. Gravelle (2014) stated in the past that "for capital and resource-intensive companies, the existence of inflation increases the real corporate tax burden". Davies et al. (2018) prove that lower corporate tax rates increase the attractiveness of countries and regions for foreign direct investments, especially in small and peripheral countries, which cannot benefit from advantages such as location, market size and market access. Innovation also plays an important role in the country (Urbaníková et al., 2020). Becker et al. (2012) measured the relative importance of the qualitative and quantitative effects of corporate taxation on foreign direct investment and concluded a negative impact.

2 Materials and Methodology

The contribution aims to analyse effect of corporate tax rate on macroeconomic indicators in the EU member countries. The first part of the contribution dealt with analysis of statutory and effective tax rates and the differentiation of them in the observed period. The second part of the contribution was focused on seven individual econometric models in which, based on the linear regression, we tested effect of selected macroeconomic indicators and statutory tax rate.

Source for our analysis represents annual data of the EU member countries (EU-28) in 2004-2019. In this contribution, we divided the EU member countries into the old member countries (EU-15) and the new member countries (EU-13) because of the entrance of many countries in EU in 2004.

In the contribution, there was analysed the following variables: statutory tax rate (STR), effective tax rate (EATR), gross domestic product (GDP), corporate tax revenues (REV), income (INC), foreign direct investment (FDI), inflation rate (INF), export (EXP), and employment rate (EMP). Data was retrieved from Eurostat (2019a, b, c, 2020). Linear regression, which determines impact between selected variables, was made in the program R. The input data for regression analysis represents average values for EU, and so also outputs of regression analysis must be interpreted aggregately for EU.

Based on simple linear regression that examines linear relationship between one dependent variable and one independent variable, we formulated seven models (A - G). In each model we explain in details effect of statutory tax rate on macroeconomic indicators. We use the following formula to set our models A - G:

$$Y_i = \beta_0 + \beta_1 * x_{i,t} + \varepsilon_{i,t} \quad (1)$$

The created econometric models have the following form:

$$\text{MODEL A} \\ GDP_t = \beta_0 + \beta_1 * STR_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$\text{MODEL B} \\ INF_t = \beta_0 + \beta_1 * STR_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$\text{MODEL C} \\ EMP_t = \beta_0 + \beta_1 * STR_{i,t} + \varepsilon_{i,t} \quad (4)$$

MODEL D

$$EXP_t = \beta_0 + \beta_1 * STR_{i,t} + \varepsilon_{i,t} \quad (5)$$

MODEL E

$$FDI_t = \beta_0 + \beta_1 * STR_{i,t} + \varepsilon_{i,t} \quad (6)$$

MODEL F

$$INC_t = \beta_0 + \beta_1 * STR_{i,t} + \varepsilon_{i,t} \quad (7)$$

MODEL G

$$REV_t = \beta_0 + \beta_1 * STR_{i,t} + \varepsilon_{i,t} \quad (8)$$

In model A – G and in our analysis, we use these variables:

- STR – Statutory Tax Rate expressed in %,
- GDP – Gross Domestic Product expressed in market prices in millions of EURs,
- INF – Annual inflation rate expressed in %,
- EMP – Employment rate: this variable expresses a ratio of employed people from 15 to 64 years and the active population, expressed in thousands of persons,
- EXP – Export: this variable represents export of all products to the world, expressed in millions of EURs,
- FDI – Foreign Direct investment: this variable represents net inflow of FDI into a country, expressed in USD,
- INC – Income: variable monitors average individual annual income, expressed in EUR,
- REV – Corporate Tax Revenues: this variable represents budgetary revenues from corporate tax, expressed in millions of EUR.

Other variables in models A - G are the following:

- β_0 - the intercept of regression line, constant,
- β_1 - regression coefficient, model parameter that expresses the value of the change of the explanatory variable to the response variable Y_i ,
- $\varepsilon_{i,t}$ - random variable in model that includes another effect which may explain response variable Y_i ,

Models A - G were tested on residual normality, heteroscedasticity, and autocorrelation. These tests met assumptions, therefore, models showed correct results.

We tested normality of residuals by Shapiro-Wilk test. On significance level $\alpha = 0.05$ were tested these hypotheses:

Hypothesis 1 (H1): Residuals are normally distributed.

Hypothesis 2 (H2): Residuals are not normally distributed.

If p-value is greater than the specified significance level, we do not reject the hypothesis H1, and model meets assumption of residual normality.

Based on Breusch-Pagan test we tested homoscedasticity in the model, and on significance level $\alpha = 0.05$ were tested these hypotheses:

Hypothesis 3 (H3): Data is heteroscedastic.

Hypothesis 4 (H4): Data is not heteroscedastic.

We do not reject hypothesis H3 if p-value is greater than significance level, and we conclude that data is homoscedastic in the model.

To test autocorrelation, we use Breusch-Godfrey test. On significance level $\alpha = 0.05$ were tested these hypotheses:

Hypothesis 5 (H5): There is no autocorrelation.

Hypothesis 6 (H6): There is autocorrelation.

If p-value is greater than significance level, then hypothesis H5 is not rejected, and there is no autocorrelation in the model.

The selection of indicators was made on the basis of the theoretical findings of Immervoll (2000), Laffer (2004), Lee and Gordon (2005), Clausing (2012), Federici and Parisi (2012),

Davies et al. (2016), Fuest et al. (2018), Glova and Mrázková (2018) and Glova et al. (2020), who examined, among other things, the effects of the corporate tax burden on these macroeconomic determinants.

To reject or confirm our hypotheses about corporate taxation, we studied previous related literature, such as Devereux and Sorensen (2005), Dyreng et al. (2017), Agarwal and Chakraborty (2019), Clausing (2012), Davies et al. (2016). Our hypotheses are in the following form:

Hypothesis 7 (H7): Corporate tax rates (statutory and effective) have been on a declining trend since the accession of the new EU member countries in 2004. This means that by lowering corporate tax rates, countries try to increase their attractiveness and competitiveness.

Hypothesis 8 (H8): The new member countries and smaller economies choose rather lower tax burden due to their less favourable international economic position and competitive disadvantage. On the other hand, larger economies have more opportunities to lower their tax burden.

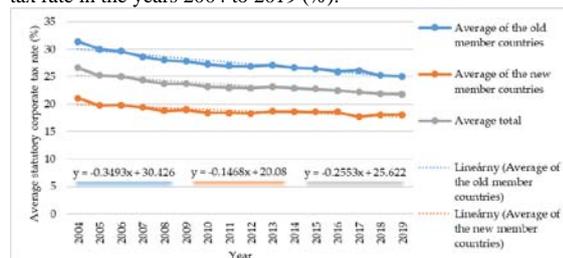
Hypothesis 9 (H9): The greatest expected impact of corporate tax rates is on GDP, export, employment, FDI, and tax revenues (in accordance with Laffer curve). We assume smaller impact on other indicators.

3 Results and Discussion

3.1 The analysis and comparison of tax corporate tax rates

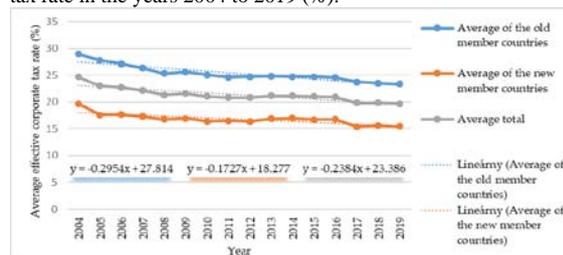
Tax burden can be monitored and compared by statutory and effective corporate tax rates. Generally, as the analysis has shown, statutory tax rates are much higher than effective tax rates. We observed this trend in the old member countries, as well as in the new member countries. There was a change in statutory tax rates during the period. The average tax rates ranged from 11.09% to 36.01%. We can state that the major tax reforms have taken mainly in the old member countries, while the new member countries maintained relatively stable tax rates. On average for the old member countries (EU-15), tax rates ranged from 15.45% to 19.69%. We found that changes in statutory tax rates are caused by various factors, such as effects of economic, financial or debt crisis, and effect of political cycle or other various factors. Based on our findings, we confirmed that legal entities are subject to bigger tax burden in the old member countries and larger economies than in the new member countries and smaller economies. Based on the detailed analysis of tax rates, we can conclude that the Western EU countries achieve the highest level of tax burden. To countries with the highest statutory tax rates belong: France (44.4%), Italy (37.3%), Spain (35%), Portugal (31.5%), and Germany (38.4%). The reason why statutory tax rates are the highest in the Western EU countries is that these countries belong to large economies and their GDP creates significant part of GDP in Europe. Therefore, countries such as Germany, France, or Great Britain, use various instruments of fiscal policy to secure sufficient income, and so they do not need to use tax rates to increase their competitiveness in the same extent as smaller economies. On the other hand, corporate tax burden of countries in the Middle and Eastern Europe, so called transitive economies, is the lowest within the Europe. To these countries belong: The Czech Republic (19%), Poland (19%), Slovakia (21%), Croatia (18%), Romania (16%) and others. As the situation in the transitive economies is the opposite than in countries of the Western Europe, statutory tax rates represent important instrument to increase competitiveness and to harmonize rates with the Western countries. In the Northern countries corporate tax rates are around the level of tax rates of the Western countries and transitive economies. The Northern countries are famous with the advanced social policy. This means that they try to find a balance between suitable conditions for domestic entrepreneurs and sufficient tax revenues.

Figure 1. Development of the average statutory corporate tax rate in the years 2004 to 2019 (%).



Source: own processing according to Eurostat (2019 a, b, c, 2020).

Figure 2. Development of the average effective corporate tax rate in the years 2004 to 2019 (%).



Source: own processing according to Eurostat (2019a, b, c, 2020).

The first figure (Figure 1) shows average statutory tax rates and the second figure (Figure 2) shows average effective tax rates in period of 2004-2019. In both graphs (Figure 1 and 2), there is linear decline in tax rates during the period. Based on this analysis, we can conclude the following findings:

- Average statutory tax rates of the EU countries decreased slightly from 24.64% to 19.69%.
- Total average statutory tax rates decreased around -0.25 pp/year.
- Average statutory tax rates of the old member countries decreased from 28.93% to 23.37%. They declined faster (-0.35 pp/year) than average rates of the new member countries (-0.15 pp/year) which decreased from 19.69% to 15.45%.
- Total decline of average statutory tax rates for the old member countries was 6.33%.
- Total decline of average statutory tax rates for the new member countries was 2.98%.
- Total decline of average statutory tax rates for all EU countries was 4.78%.

Findings stated above effect on real economy in EU differently. The most significant impacts are the following:

- Lower tax rates increase competitiveness of the economy in the international context and influence economic position of countries.
- Lowering tax rates can be positive for improvement of business sector in the economy; therefore, employment and GDP can increase through the development of entrepreneurial sector.
- Favourable tax conditions for business attract foreign direct investment what can lead to stronger economy, infrastructure development in the country, and creation of new work positions. Generally, the centre of large and medium-size companies are countries with favourable corporate tax system.
- Lowering tax rates within EU can help to harmonize tax systems of countries, and so to increase and simplify the international cooperation and international trade.

Table 1. Differences between statutory and effective tax rates (%)

- We evaluate trend of lowering tax rates positively although we do not see full tax harmonization as desirable.

According to analysis, we can conclude that the old member countries and larger economies are subject to higher effective corporate tax burden than the new member countries and smaller economies. As was described, statutory tax rates have different effects on the economy, and similarly, effective tax rates have also impact on the economy. The difference is only in the amount of tax rates. Effective tax rates are based on statutory ones; however effective rates include other elements which adjust their level. This difference is caused by some specifics in tax systems of EU countries, i.e., different tax relief policies and fiscal stimulus, effectivity of tax collection, different methodologies of corporate tax calculation etc.

Hypothesis 7 (H7): Corporate tax rates (statutory and effective) have been on a declining trend since the accession of the new EU member countries in 2004. This means that by lowering corporate tax rates, countries try to increase their attractiveness and competitiveness.

We confirmed hypothesis H7. Indeed, corporate tax rates have a declining trend since the new member countries entered in EU. Based on our findings, lowering corporate tax rates is one of the instruments to increase attractiveness and competitiveness of countries.

Hypothesis 8 (H8): The new member countries and smaller economies choose rather lower tax burden due to their less favourable international economic position and competitive disadvantage. On the other hand, larger economies have more opportunities to lower their tax burden.

We also confirmed hypothesis H8, and indeed, the new member countries and smaller economies choose lower level of tax burden.

3.2 The difference analysis of statutory and effective tax rates

In this part of the contribution, we focus attention to differences between tax rates within analysed period 2004-2019, for each EU country individually.

EU	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Old member states (EU-15)																
IE	1,8	1,8	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,9	1,6	1,6	1,6	1,6	1,6
FI	1,8	1,5	1,5	1,5	1,5	1,4	1,1	1,3	1,2	1,9	1,4	1,1	0,9	0,5	0,4	0,4
UK	0,7	0,7	0,8	0,7	0	0,3	0,4	0,9	1,2	1,3	1,4	1,5	1,5	1,5	1,6	1,2
DK	3,2	2,9	2,9	2,5	2,4	2,4	2,4	2,4	3	3	2,3	2,2	2	1,9	2,2	2,2
SE	4,9	3,4	3,4	3,4	3,4	3,1	3,1	3,1	3,1	2,6	2,6	2,6	2,6	2,6	2,6	2
AT	2,8	2	2	2	2	2,3	2,3	2	2	2	2	2	1,9	1,9	1,9	1,9
NL	2,6	3,1	2,9	2,4	2,4	3,3	3,3	3,2	2,4	3,4	2,4	2,5	2,5	2,5	2,5	2,5
EL	4,6	4,2	3,8	3,3	13,2	4,5	3	2,5	2,5	1,9	1,5	1,5	1,4	1,4	1,4	1,4
LU	3,9	3,9	3,7	3,7	3,7	3,6	3,6	3,9	3,9	3,7	3,7	3,7	3,7	3,4	3,2	3,1
PT	2,9	2,9	2,9	2,8	2,8	2,8	2,8	2,8	3,1	3,1	3,1	2,9	2,9	9,5	10,1	10,1
ES	1,5	1,5	1,5	1,2	2,8	2,8	2,8	1,9	2,4	2,9	2,6	4,7	5,1	5,1	5,1	5,1
DE	2,5	2,6	2,9	2,9	1,2	1,4	1,5	1,4	1,4	1,4	1,5	1,6	1,6	1,1	1	1
IT	5,5	5,5	5,5	5,5	4,1	3,9	3,9	5,5	6,2	6,2	7,1	7,5	7,7	4,1	3,2	3,2
BE	4,5	4,5	3,3	3,6	9,1	9,3	8,7	8,1	7,7	7,5	7,3	6,2	5,7	4,7	4,7	4,6
FR	0,4	0,2	0	0,2	0,2	0,3	1,6	3,3	1,9	3,3	0,3	0,3	4	11	1	1
New member states (EU-13)																
CY	4,8	0,6	0,6	0,6	0,6	0,6	1,6	1,6	1,9	2,7	2,7	0,2	0,6	0	0,5	0,9
BG	2,4	1,8	1,8	1,2	1,1	1,2	1,2	1	1	1	1	1	1	1	1	1
LV	0,7	0,7	0,7	0,7	1,2	1,2	1,2	2,8	2,6	2,9	0,7	0,7	0,7	0,7	3,3	3,3
LT	2,3	2,3	3	2,8	2,3	3,2	2,3	2,3	2,3	1,4	1,4	1,4	1,4	1,4	1,4	2,3
RO	2,6	1,3	1,3	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,3	1,3	1,3	1,3
HU	0,2	0,9	1,2	1,8	1,8	1,8	1,5	1,3	1,3	1,3	1,3	1,3	1,3	1,3	0,3	0,3
PL	1,9	1,9	1,9	1,6	1,6	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	2,4
HR	4,6	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,5	3,2	3,2	3,2
SK	2,5	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,7	2,6	2,4	2,4	2,3	2,3	2,3
SI	3,5	2,9	2,7	2,1	2	1,9	1,8	1,8	1,6	1,5	1,5	1,5	1,5	1,7	1,7	1,7
CZ	3,4	3,3	3	3	2,6	2,5	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
EE	5,6	5,2	4,9	4,7	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,3	4,3	4,3	4,3	6,1
MT	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	10,7	10,6	9,7

Source: own processing according to Eurostat (2019a, b, c, 2020).

Based on the analysis (Table 1), we can conclude that most countries reached higher statutory taxation than effective. Countries with the largest differences in tax rates are Italy, Belgium, Estonia, and Malta. The highest difference was recorded in Greece in 2008 (13.2 pp) what can be associated with the economic crisis. The second highest difference was in France in 2007 (11 pp). To the first three countries belongs also Malta with around 10 pp in the last years of the period. Other countries did not reach such significant values in tax rates differences. Countries with red colouring represent a minority. In these countries, the opposite phenomenon occurred, and thus statutory tax rates were lower than effective. To these countries belong Ireland, Spain, and Cyprus. During the period, a few countries experienced changes from lower statutory rates to lower effective rates (or vice versa), what is described by colour combinations in these countries, i.e., in Great Britain, France, Hungary, and Croatia.

From the above findings concludes that in the analysed countries can be identified a trend which is associated with effectiveness of tax systems, profit spill over in transnational corporates, tax heavens, tax evasions etc. These facts have economic effect on countries, such as:

- Investment allocation in countries with low effective taxation and in countries with various tax reliefs and fiscal stimulus.

- Decline in tax revenues in countries with high tax rates where business entities are reluctant to pay taxes. As a result, there will be tax evasion or relocation to other countries.
- In general, the fact that effective taxation is lower than statutory taxation indicates the efforts of entrepreneurs to reduce tax bases, and therefore it is necessary to reduce the statutory tax burden.
- High statutory taxation stimulates development of grey economy and new ways of circumventing the law.
- Generally, problem with corporate taxation in EU is that business entities are willing to pay taxes until statutory tax rates do not reach marginal value (the theory sets tax limit at the level of 33%). In this case, Laffer curve applies and after reaching the tax limit, corporate tax revenues decrease.

3.3 The regression analysis of statutory tax rates and macroeconomic indicators

As the last method to examine effect of corporate taxation in the EU countries we used regression analysis. In this analysis, we included 7 macroeconomic indicators, i.e., GDP, inflation, employment, export, foreign direct investment, wages, and tax revenues. The following tables (Table 2 and Table 3) and figures (Figure A1) show final outputs of regression analysis.

Table 2. Results of individual models and average values of indicators

Model	Model formula	Average value of indicator for EU
MODEL A: GDP ~ STR	$GDP_t = \beta_0 - 38\,020 * STR_t + \varepsilon_t$	487 476 mil. EUR
MODEL B: INF ~ STR	$INF_t = \beta_0 + 0.514 * STR_t + \varepsilon_t$	2.1 %
MODEL C: EMP ~ STR	$EMP_t = \beta_0 - 106.094 * STR_t + \varepsilon_t$	8 442 thousands of persons
MODEL D: EXP ~ STR	$EXP_t = \beta_0 - 19\,414 * STR_t + \varepsilon_t$	154 774 mil. EUR
MODEL E: FDI ~ STR	-	-
MODEL F: INC ~ STR	$INC_t = \beta_0 - 645.9 * STR_t + \varepsilon_t$	15 721 EUR
MODEL G: REV ~ STR	$REV_t = \beta_0 - 817.1 * STR_t + \varepsilon_t$	12 606 mil. EUR

Source: own processing in the program R according to Eurostat (2019a, b, c, 2020)

Table 3. Results of regression analysis models

Model	GDP ~ STR	INF ~ STR	EMP ~ STR	EXP ~ STR	INC ~ STR	REV ~ STR	FDI ~ STR	
p-value for determinant	2.28*10 ⁻⁶	0.0697	4.03* 10 ⁻¹⁰	1.88*10 ⁻⁶	0.0092	0.0207	0.202	
Parameter estimation β	-38 020	0.514	-106.09	-19 414	-645.9	-817.1	3.673*10 ⁹	
Determination coefficient	0.807	0.2161	0.9433	0.8124	0.3939	0.3265	0.1134	
p-value for model	2.284*10 ⁻⁶	0.06967	4.025*10 ⁻¹⁰	1.877*10 ⁻⁶	0.009246	0.0207	0.2022	
Normality	p-value	0.651	0.583	0.227	0.134	0.104	0.714	-
	result	✓	✓	✓	✓	✓	✓	
Homo- scedasticity	p-value	0.471	0.7885	0.9788	0.8214	0.0096	0.9877	-
	result	✓	✓	✓	✓	X	✓	
Auto- correlation	p-value	0.0041	0.2211	0.341	0.0273	0.3546	0.0085	-
	result	X	✓	✓	✓	✓	X	

Source: own processing in the program R according to Eurostat (2019a, b, c, 2020)

MODEL A represents the output of regression analysis between response variable gross domestic product (GDP) and statutory tax rate (STR), and it is described by formula a0. As we can see, p-value for investigated determinant is 2.28*10⁻⁶. This means that regressor STR is statistically significant because p-value is lower than significance level α (0.05). There is also information about determination coefficient in the table. Its value is 0.8073 what indicates that our Model A explains 80.73% of examined variability of variable GDP, therefore, it is enough precise. P-value for model is 2.284*10⁻⁶ what is lower than significance level α (0.05), and so the model is statistically significant. The assumption of residual normality and homoscedasticity is met. There is a problem with autocorrelation in the model, but it is expected because the level of GDP is directly influenced by statutory tax rate. Also, random components in observations show some similarity and a tendency to remain unchanged. This problem associates with the nature of the data and can be understandable, so we did not try to eliminate it further. The result of the first simple linear regression estimates parameter β that is equal to 38 020. This means that an increase in statutory tax rate by 1% causes a decline in GDP by 38 020 mil. EUR for EU. Our previous results are confirmed, and we can conclude that GDP and statutory tax rate are indirectly correlated, i.e., an increase in corporate statutory tax rate causes a decline in GDP. Average value of GDP for EU during the period is 487 476 mil. EUR, so parameter β represents around 7.8% (i.e., 38 020/487476). This means that an increase in statutory tax rate causes a decline in GDP by around 7.8%. Our findings are supported by Lee and Gordon (2005) which found also negative correlation between tax rate and GDP. Previous studies from

1970-1977 detected if corporate tax rate decreases by 10%, annual economic growth increases by 1%.

MODEL B represents the output of regression analysis between response variable inflation (INF) and statutory tax rate (STR), described by formula b0. P-value for determinant is equal to 0.0697. This means that regressor STR is statistically significant because p-value is lower than significance level α (0.10). In this case, we chose a significance level $\alpha=0.10$ because $\alpha=0.05$ proved to be too strict criterion for analysing data of this nature. The value for determinant coefficient is equal to 0.2161, meaning that this model explains 21.61% of examined variability of variable INF. The accuracy of model is not so high; therefore, it may cause high p-value for regressor estimation. Result is influenced by high volatility of inflation during the period. However, this should be sufficient to assess the relationship between inflation and tax rate, so we decided to continue the regression analysis further. P-value for model is equal to 0.06967 and is less than significance level α (0.10), so our model is statistically significant (there is similar problem as for regressor parameter). The assumption of residual normality and homoscedasticity is met in the model. However, there is problem with first order autocorrelation. Result of the second simple regression analysis estimates parameter β that is equal to 0.514. This means that an increase in statutory tax rate by 1% causes an increase in inflation by 0.514% for EU. Our findings differ from result by Dhaliwal et al. (2015) which clarified a negative relationship between tax rates and inflation in the research.

MODEL C represents a relationship between employment (EMP) and statutory tax rate (STR) and is described by formula c0. P-value for examined determinant is $4.03 \cdot 10^{-10}$, meaning that regressor STR is statistically significant in the model because p-value is lower than significance level α (0.05). Determination coefficient is equal to 0.9433, meaning that our Model C explains 94.33% of examined variability of variable EMP. The accuracy of Model C is very high, so this correlation is described well. P-value for model is equal to $4.025 \cdot 10^{-10}$ and is lower than significance level α (0.05), so our model is statistically significant. The assumption of residual normality, as well as homoscedasticity is met and there is no problem with first order correlation in the model. Result of the third simple linear regression estimates parameter β that is equal to -106.094. This means that an increase in statutory tax rate by 1% causes a decline in employment at average by 106 thousand of work positions for the EU. The average employment rate for all EU countries during the period was 8 442 thousand of persons, so coefficient β represents around 1.3% (i.e., $106/8\ 442$). This means that an increase in statutory tax rate by 1% causes a decline in employment by around 1.3%. Feldman (2011) examines 19 industrial countries in 1979-2005 and his results suggest that an increase in corporate tax rate by 10% is associated with a decline in unemployment rate by 2.1%. We confirm a negative correlation between tax rate and employment.

MODEL D represents a relationship between export (EXP) and statutory tax rate (STR), described by formula d0. P-value for examined determinant is $1.88 \cdot 10^{-6}$, meaning that regressor STR is statistically significant in the model because p-value is lower than significance level α (0.05). Determination coefficient is equal to 0.8124, so our Model D explains 81.24% of examined variability of variable EXP. We consider this value of determination coefficient to be high enough, which increases the relevance of the model itself. P-value for model is equal to $1.877 \cdot 10^{-6}$ and is lower than significance level α (0.05), so Model D is statistically significant. The assumption of residual normality and homoscedasticity is met in the model; however, there is small problem with first order autocorrelation. If we increase significance level $\alpha=0.10$, then problem with autocorrelation is no longer relevant. Result of regression analysis estimates parameter β that is equal to 19 414. This means that an increase in statutory tax rate by 1% causes a decline in export by 19 414 mil. EUR for EU. The average export level for all EU countries during the period is 154 774 mil. EUR, so coefficient β represents around 12.5% (i.e., $19\ 414/154\ 774$). This means that an increase in statutory tax rate by 1% causes a decline in export by around 12.5%. Authors Federici and Parisi (2012) found that a decrease in statutory tax rate can be considered as a reduction in the cost of corporate tax, which can expand business activity and increase export.

MODEL E represents a relationship between foreign direct investment (FDI) and statutory tax rate (STR), described by formula e0. P-value for examined determinant is equal to 0.202, so regressor STR is not statistically significant because p-value is higher than significance level α (0.05). Determination coefficient is equal to 0.1134. This means that our Model D explains only 11.34% of examined variability of variable FDI. The accuracy of Model D is very low. Because p-value for model is 0.202, it is a very high value and does not meet any acceptable significance level α . We can conclude that between FDI and statutory tax rate is no significant correlation that would bring noticeable findings for our aim in this contribution. This situation can be caused by the nature of data or large extreme values in the observed period. We could not use logarithmic transformation in this model either, so we decided to exclude this determinant from the model because it is inadequate and insignificant for assessing the impact of the corporate tax burden on the EU economies. On the other hand, Grubert and Mutti (1991), Hines (2003) and Hines and Rice (1994) found a large and significant negative impact of average corporate tax rate on total capital of companies. Estimates suggest that an increase in effective corporate tax rate by 10 percentage points in one year reduces the investment rate by 2.2 percentage points and the volume of foreign direct investment by 2.3 percentage points.

MODEL F represents a relationship between net annual income/wage (INC) and statutory tax rate (STR), described by formula f0. P-value for examined determinant is 0.00925 and is lower than significance level α (0.05), so regressor STR is statistically significant in the model. Determination coefficient is equal to 0.3939, meaning that our Model F explains 39.39% of examined variability of variable INC. The accuracy of Model F is average and should be sufficient for evaluation. P-value for model is 0.0092 and the model is statistically significant. The assumption of residual normality is met, and there is no first order autocorrelation in the model. However, there is a problem with heteroscedasticity in the model. We tried to eliminate it by logarithmic transformation of variables, but results were almost the same and we could not remove our problem from the model. In a case of heteroscedasticity, the T-test and p-value may be skewed. This means that problem with heteroscedasticity may be caused by the nature of data which we cannot influence. The only solution would be to exclude this variable from the analysis of corporate taxation. We have to say that transformation of the model is not adequate solution because there is only one regressor in the model. We do not have other solutions to remove heteroscedasticity in this model, but nevertheless the graph suggests a certain relation between the variables. Therefore, we decided to analyse this model further and accept the risk that result of regression may be skewed. Result of the linear regression analysis of simple estimates parameter β that is equal to -645.9. This means that an increase in statutory tax rate by 1% causes a decline in average net annual income by 645.9 EUR for EU. The average level of net annual income for all EU countries during the period is 15 721 EUR and coefficient β is around 4.1% (i.e., $645.9/15\ 721$), meaning that an increase in statutory tax rate by 1% leads to a decline in net annual income by around 4.1%. To compare our results with other studies, the empirical literature countries a negative impact. Fuest et al. (2018) found that a 1% increase in corporate tax rate would lead to decline in wages by around 0.3-0.5%. Research by Felix (2009) was focused on the situation in the USA and used individual data from survey of the current population in 1977-2005. The author found a negative correlation between wages and corporate taxes and that a 1% decrease in statutory corporate tax leads to an increase in wages by 0.14-0.36%.

MODEL G represents a relationship between corporate tax revenues (REV) and statutory tax rate (STR), described by formula g0. P-value for examined determinant is equal to 0.0207, so regressor STR is statistically significant in the model because p-value is lower than significance level α (0.05). Determination coefficient is equal to 0.3265, meaning that our Model G explains 32.65% of examined variability of variable REV. The accuracy of Model G is not high. P-value for model is 0.0207 and is lower than significance level α (0.05), so our model is statistically significant. The assumption of residual normality and homoscedasticity is met in the model; however, there is a problem with first order autocorrelation. As with the GDP model, this problem may be desirable. Result of the last linear regression estimates parameter β that is equal to -817.1. This means that a 1% increase in statutory tax rate leads to a reduction in corporate tax revenues by 817.1 mil. EUR at average for EU. The average level of tax revenues for all EU countries during the period is 12 606 mil. EUR. Coefficient β represents around 6.5% (i.e., $817.1/12\ 606$), meaning that a 1% increase in statutory tax rate would lead to a decline in tax revenues by around 6.5%. Clausing (2007, 2012) found a parabolic relationship between tax rates and tax revenues within OECD countries, which is in line with the Laffer curve (the higher tax rate, the higher tax revenues). At higher levels of taxation, the author assumed a likely non-linear negative relationship between tax rates and tax revenues. Overall, corporate tax rate maximizing tax revenues is approximately 33%.

Table 4. Comparison of the impact of statutory corporate taxation on individual indicators

Indicators	Author	Relationship between tax rate and indicator	Expected effect	Result effect	Interpretation
GDP	Lee and Gordon (2005)	negative	negative	negative	An increase in tax rate leads to a decline in GDP.
	Kotlán et al. (2011)	negative			
	Johansson et al. (2008)	negative			
Inflation rate	Gravelle (2014)	positive	negative	positive	An increase in tax rate leads to an increase in inflation.
	Dhaliwal et al. (2015)	positive			
Employment	Wang (1993)	negative	negative	negative	An increase in tax rate leads to decline in employment.
	Halko (2005)	positive			
	Fedeli and Forte (2012)	negative			
	Feldmann (2011)	positive			
Export	Federici and Parisi (2012)	positive	positive	negative	An increase in tax rate leads to an increase in export.
	Alworth and Arachi (2008)	positive			
	Keen and Syed (2006)	positive			
FDI	Grubert and Mutti (1991)	negative	negative	-	Indicator excluded from regression due to insufficient statistical significance.
	Hines and Rice (1994)	negative			
	Davies et al. (2016, 2018)	negative			
	Becker et al. (2012)	negative			
Wages	Fuest et al. (2018)	negative	?	negative	An increase in tax rate leads to a decline in wages.
	Hassett and Mathur (2006)	negative			
	Felix (2009)	negative			
	Carroll and Prante (2009)	negative			
Tax revenues	Devereux et al. (2008)	?	?	negative	An increase in tax rate leads to a decline in tax revenues.
	Clausing (2007)	parabolic			
	Bartelsman and Beetsma (2003)	negative			

Source: own processing.

Table (Table 4) evaluates an impact of statutory corporate taxation on macroeconomic indicators. In this table, we compared findings of other authors, our expected estimation, and result effect. As we can see, all estimations for GDP are confirmed. We assume that inflation is negatively correlated with tax rate; however, other authors had the opposite opinion. Result effect confirmed that inflation is positively correlated with tax rate. Opinions on employment level differ from our findings. We found a negative effect of tax rate on employment. We assume a positive relationship between export and tax rate, what supported also theoretical studies. However, results of regression indicate a negative impact of corporate taxation on export. We expected a clearly negative relationship between foreign direct investment and tax rate; however, we must this determinant excluded from regression. Results of other authors indicated a negative correlation between wages and tax rate, but we did not know to say exactly what is the effect on wages. Our regression showed a negative relationship between statutory corporate taxation and wages. Lastly, we investigated effect of tax rates on tax revenues. Other theoretical findings were not consistent, and we cannot estimate this correlation. Regression showed a negative relationship between statutory corporate taxation and corporate tax revenues.

Hypothesis 9 (H9): The greatest expected impact of corporate tax rates is on GDP, export, employment, FDI, and tax revenues (in accordance with Laffer curve). We assume smaller impact on other indicators.

We cannot confirm the hypothesis H9 because the greatest impact has corporate tax rates on GDP, export, employment, and tax revenues.

4 Conclusion

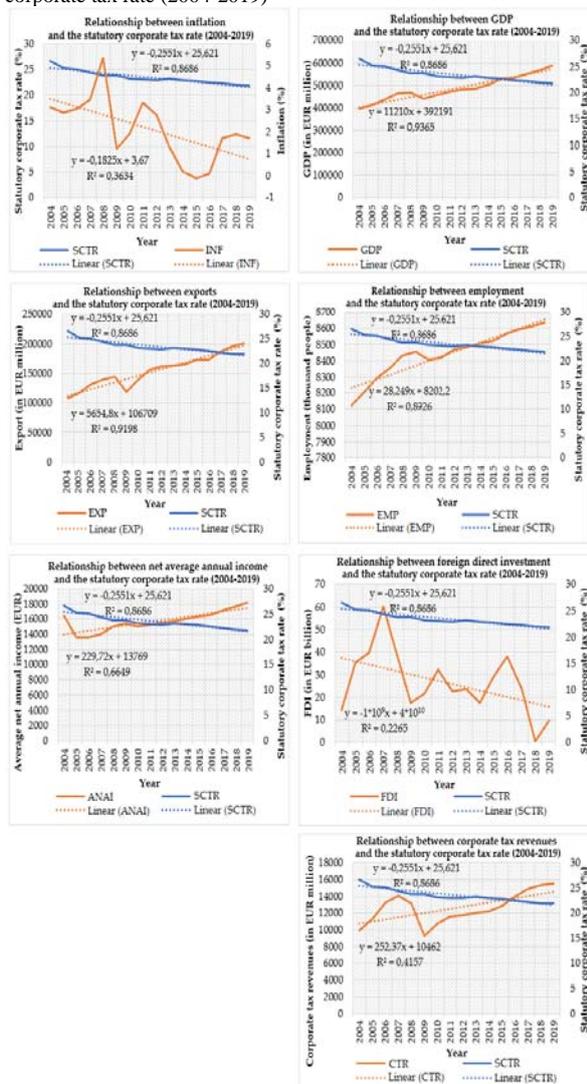
To conclude we can state that potential changes in statutory tax rates are caused by various factors which are specific for each economy. These are effects of economic, financial or debt crisis; however, it also can be an effect of political cycle or other various factors. It was confirmed that legal entities are subject to much higher statutory tax burden than the old EU member countries than the new EU member countries and smaller economies. In our analysis, we found out that the old EU member countries and larger economies are subject to higher effective corporate tax burden than the new EU member countries and smaller economies. As our difference analysis of tax rates have shown, in the EU countries can be clearly identified a trend. This trend is characterized by lower effective corporate tax burden in comparison to statutory corporate tax rates. That may be related to the efficiency of tax systems, the spillover of profits in transnational corporations, the phenomenon of tax havens, tax evasion etc. We have deduced several following conclusions from our investigated models. With the increase in corporate statutory tax rate by 1%, there will be a decrease in GDP by 38 020 mil. EUR for EU, representing around 7.8%. An increase in the corporate statutory tax rate by 1% causes an increase in inflation by 0.514% for EU. An increase in the corporate statutory tax rate by 1% causes a decrease in unemployment by 106 thousand of work positions at average for EU, representing around 1.3%. An increase in the corporate statutory tax rate by 1% causes a decrease in export by 19 414 mil. EUR at average for EU, representing 12.5%. We excluded FDI from regression analysis because this determinant did not meet our chosen criteria either satisfactory level of statistical significance. An increase in the corporate statutory tax rate by 1% causes a decrease in average net annual income by 645.9 EUR for EU, representing around 4.1%. An increase in the corporate statutory tax rate by 1% causes a decrease in tax revenues by 817.1 mil. EUR at average, representing around 6.5%. We confirmed the seventh and eighth hypothesis in our analysis; however, the ninth hypothesis was not confirmed.

Indeed, corporate tax rates have been on a declining trend since the accession of the new EU member countries. Based on our findings, reducing corporate tax rates is one of the instruments to increase the attractiveness and competitiveness of countries. The new member countries and smaller economies choose rather lower tax burden. The greatest impact of corporate tax rates is on GDP, export, employment, and tax revenues where is identified a negative correlation with tax rate.

For further research in this area, we suggest investigating similar studies to analyse the impact of corporate taxation on the economy. It should be researched other macroeconomic indicators or countries individually.

Appendix

Figure A1. Relationship between the development of macroeconomic indicators and the development of the statutory corporate tax rate (2004-2019)



Source: own processing in the program R according to Eurostat (2019a, b, c, 2020)

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Primary Paper Section: A

Secondary Paper Section: AH

FROM WORKPLACE ATTACHMENT AND DETACHMENT TO COMMUTER SATISFACTION

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This research was supported by project No. IVSUPS003, "Current Trends in Human Resource Management", sponsored by the Institute of Technology and Business in Ceske Budejovice.

Abstract: Commuting to and from work can be stressful, tedious and unenjoyable. Previous research has demonstrated the positive/negative relationship between duration of commuting and life satisfaction. Relying on secondary data, the present study applies a quantitative research approach to examine the data. The quantitative results obtained indicate that there is a positive correlation between the indicators of 1-9 minutes and 45-59 minutes of commuting and happiness. This implies that a higher degree of workforce commuting in those periods leads to a higher degree of happiness. Secondly, in some cases employees spend more time commuting than the number of paid vacation days. In seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries, the commute is shorter than employees' permitted annual time off. According to the data, the duration of commuting time can affect our state of happiness. Furthermore, the findings demonstrate that employees spend more time commuting than the number of paid vacation days. The time and stress that appear with a long commute have a big influence when it depends whether the employee prefers free time (shorter commute) or money. Happiness may be influenced by different transportation modes. Clearly, the advantage of lessening this burden makes employees happier. Overall, the study indicates that duration of commuting (short or long) can contribute to being happy, but happiness will only be maintained if the commute is shorter than employees' permitted annual time off.

Keywords: Mobility, happiness, (e-) commuting, e-working

1 Introduction

Senior executives and the workforce have already realized the exposure to work-related stress (Bencsik et al., 2019). Generally, the increase of the workforce's daily commute has different impacts on physical and mental health. Interestingly, higher satisfaction among commuters is found with those who have a higher income and prestigious position (Spies, 2006). Returning the workforce to the workplaces after Covid-19 involves the challenge of improving the commuting experience. Evidently, it will not be as simple as before the pandemic to carry on business as usual. Some employees realised just how much fatigue was caused by the daily commute, as is reflected by Spies's (2006) statement that the commuting distances make daily travelling to and from work unfeasible. For others, the need for safe and reliable transport became important. Additionally, there will be many short/long term changes in workplaces. As stated by Beno et al. (2021), there is still no detailed employee plan for returning to work; others prefer flexibility in the workplace.

The relationship between well-being and transportation has been examined by both academics and policy makers. Commuting differs across OECD countries (OECD, 2016) and is ranked among people's most disliked activities (Kahneman et al., 2004). Stutzer and Frey (2008) found that a long time spent travelling to and from work decreases well-being. Similarly, one study concluded that people with the longest commutes have the lowest overall satisfaction with life (Hilbrecht et al., 2014). Another study highlights that talking to someone else has the strongest positive influence on satisfaction when travelling (Ettema et al., 2010). In addition, there is the advantage of carpooling, which includes monetary and time benefits, reduces congestion and addresses environmental concerns (Olsson et al., 2019). Several scholars studied travelling in relation to well-being, e.g. rail transit (Cao, 2013), public transport (Ettema et al., 2012), level of services in public transport (Friman and Felleeson, 2009), various modes of daily commuting (Gatersleben and Uzzell, 2007), different travel modes and travel groups (Susilo and Cats, 2014) and active travel or public transport rather than driving to work (Martin et al., 2014). Currie et al.'s (2009) research focused on low-income populations and the reduction of their life chances and well-being.

Flexibility at the workplace (four-day work week, e-working) not only minimises commuting time, but also increases the

number of e-workers, which tends to decrease the carbon footprint resulting from transport emissions (Beno, 2021a) and increase productivity (Beno and Hvorecky, 2021). Moreover, flexibility contributes to providing better organizational turnover (Shah and Gregar, 2019). Beno and Hvorecky (2021) stated the importance of employees becoming comfortable with e-working. But not every employee has the opportunity to work remotely or to work close to home.

Commuting may have become both a physical and a mental factor contributing to the growing levels of unhappiness. This points to the importance of exploring the impact of the daily commute on happiness in selected countries. The aim of this study is to analyse the commuting-related flow in 32 selected countries in relation to happiness. This is done by an analysis to identify commuting patterns in relation to the workplace location (cubicle, home or other workplace) and to classify sustainable commuting (average commuting time). It is interesting to note that the contribution of the transport experience to overall happiness is increasing (Mokhtarian, 2019). Workplace location is important in order to establish accurate commuter flows from the place of usual residence to the place of work. The study is based on the outcomes of Eurostat data and the World Happiness Report.

The central research question was: Can every workplace benefit from happy commuting? This is followed by the sub-questions:

- What time slot gives the happiest commuting?
- Do we spend more time commuting than the number of vacation days?

Theoretical views and knowledge from previous studies and sources associated with commuting and the workplace are presented in the next section, followed by a presentation of the methodology. The section after that provides the results of the study. Subsequently a discussion and some brief concluding remarks round off the paper.

2 Literature review

2.1 Work-related commuting

Commuting is the result of a spatial disparity between the residential and occupational locations (Rouwendal and van der Vlist, 2005). We understand commuters as employed workers who travel between their residence and their workplace, with different travel modes and workplaces. In other words, our attention is on the travel distance and time between home and workplace of the individual. Full e-workers will not be considered commuters because of the absence of a fixed destination and proper commuting flows (movements between home and workplace).

The option of driving is the most popular way to travel (Eurostat, 2021). The required element encouraging the modal choice of car to travel to and from work is the travel time difference between driving and alternative modes of travel (Mogridge, 1997). The workforce of inner-city work environments tends to choose walking as a mode of travel, while their counterparts in suburban work environments prefer cycling (Wolday et al., 2019). The rate of regional commuting varies a great deal in the European Union (EU) (Eurostat, 2020a). The urban areas of the EU are considered in terms of public transport. But there is considerable diversity in the nature of the labour force that drives, walks or cycles to work (Eurostat, 2017). Europeans incline towards cars over public transport as travel takes up more time (ECA, 2020; Eurostat, 2021).

Ettema et al. (2010) state that travelling may impact on different sides of subjective well-being (SWB), while De Vos et al. (2013) remark on the short-term and long-term consequences. Anable and Gatersleben's (2005) data show that for work trips, the

participants are inclined to attach greater significance to instrumental aspects (represent overall mobility, and subsistence trips (work and business trips)). These authors also mention emotions evoked by commuting: “stress, excitement, pleasure, boredom and control” (Anable and Gatersleben, 2005, p. 164). The means of transport have been considered as being associated with commuting satisfaction, therefore happiness (Friman et al., 2017; St-Louis et al., 2014; Ye and Titheridge, 2017). Ekkekakis et al. (2008) stress that active travel increases a positive mood, which transforms into happiness. On the other hand, longer travelling reduces it (Ettema et al., 2012; Mao et al., 2016; St-Louis et al., 2014).

Commuting not only wastes time, but also creates costs, causes stress (Sposato et al., 2012) and affects work and family issues (Stutzer and Frey, 2008). According to recent data, British employees commute 492 days at a cost of £37 399 over a lifetime (Lloyds Bank, 2019). Additionally, Sandow (2011) highlights the importance of the psychological perception of commuting distance and time. In our opinion, standards in society, real estate prices, income and other issues affect commuting patterns in society.

2.2 E-commuting

E-commuting (equivalently face-to-display working, teleworking, telecommuting (Beno, 2021a)) means working remotely on a full-time or hybrid basis instead of physically commuting to work. Obviously, the main impact of teleworking is the reduction or elimination of commuting trips as stated in recent study (Beño, 2021a).

For many, e-commuting began with staying at home to work because of distance (de Vos et al., 2018), potential advantages (Beño, 2021b; Beno 2021b), long and costly commutes (de Abreu e Silva and Melo, 2018), Covid-19 (Beño, 2021a; Beno and Hvorecky, 2021; Vyas and Butakhieo, 2020) and other reasons.

Not all work is suitable for e-commuting. De Vos et al. (2018) discovered that those who obtain telework for a certain number of days a week are prepared to increase their commute on the other days by 5%. Other data demonstrate that teleworkers increased their commutes 5-9 times more than non-teleworkers (Gubins et al., 2019). It has been observed that teleworkers are inclined to live further away from the main workplace compared with non-teleworkers (Lachapelle et al., 2017; Rietveld, 2011; Zhu 2013). Zhu and Mason (2014) add that longer commuting trips might convince an employee to decide on e-commuting. De Vos et al. (2019) examine the effect of different occupations on the duration of commutes.

3 Methods

A quantitative research approach was used to examine the data. Leedy and Ormrod (2001) state that quantitative research is explicit in its surveying and experimentation as it relies on current theories.

This paper starts by discussing published information in the area of work-related commuting and e-commuting on one hand and analysis on the other. To analyse the relationships between these, the authors decided to apply the correlations (Pearson and Spearman) to the Two-Sample paired t-test for means.

The analysis was carried out on the following two levels: commuting versus happiness score and average commuting time versus holiday. Before going further, it is necessary to explain and define the aggregates (secondary data) that are the object of this study. Firstly, persons in employment, according to their commuting time, educational attainment level and degree of urbanisation calculated in % and secondly the happiness score from the ninth World Happiness Report for 32 selected countries were evaluated (see Tab. 1). In order to proceed with the correlation, we have chosen 2019 as the reference year.

Table 1: Commuting time in % (minutes) versus Happiness score

Country	0	1	10	15	20	30	45	60 and over	Happiness score
	9	14	19	29	44	59			
Belgium	80	100	122	125	187	200	79	107	6834
Bulgaria	26	33	143	160	231	297	63	47	5266
Czech Republic	39	84	141	146	196	239	70	84	6965
Denmark	54	130	129	134	189	204	78	82	7620
Germany	42	139	141	134	190	204	66	85	7155
Estonia	42	124	165	166	198	199	49	57	6189
Ireland	79	124	122	110	186	204	65	112	7085
Greece	08	151	248	182	176	159	43	32	5723
Spain	26	154	170	143	174	190	46	98	6491
France	63	130	127	133	194	193	75	84	6660
Croatia	68	126	140	163	167	206	60	69	5882
Italy	17	209	198	143	153	163	37	80	6483
Cyprus	56	141	189	192	234	130	32	26	6223
Latvia	27	66	95	102	187	288	90	135	6082
Lithuania	35	86	134	166	264	249	24	41	6255
Luxembourg	54	77	95	109	213	263	100	88	7324
Hungary	54	73	145	111	178	265	68	106	5992
Malta	42	96	134	156	182	226	85	79	6602
Netherlands	71	137	128	129	180	177	80	99	7464
Austria	42	184	135	127	171	193	74	74	7288
Poland	54	103	136	160	197	244	39	65	6166
Portugal	39	213	190	151	149	152	40	66	5929
Romania	29	90	100	133	228	282	80	57	6140
Slovenia	11	128	145	152	171	183	45	59	6461
Slovakia	38	72	155	175	274	202	34	49	6331
Finland	39	163	140	148	195	197	67	52	7842
Sweden	27	143	135	145	185	199	75	91	7363
UK	76	114	127	109	175	196	72	130	7064
Iceland	30	409	182	153	114	85	0	28	7554
Norway	57	177	152	132	168	171	50	92	7392
Switzerland	45	167	130	129	166	194	72	97	7571
Turkey	56	149	150	119	184	219	48	75	4948

Source: Author's own compilation (based on Eurostat, 2020b, Helliwell et al., 2021)

Additionally, paid vacation days regulated by local law were considered (See Tab. 2). Using the original data of average commuting time in selected countries, we calculated average commuting to and from work days as follows: average commute per year (minutes)/ 480 working minutes per working day*2 (see Tab. 2, 3rd column) to assure cases where each data value in one sample has corresponding data value in the second sample.

Table 2: Average commuting time in minutes (days) versus paid vacation days

Country	Average commute per year (minutes)	Average commute per days	Paid vacation days
EU27	6000	25	
Belgium	6720	28	20
Bulgaria	6240	26	20
Czech Republic	6480	27	20
Denmark	6240	26	25
Germany	6240	26	20
Estonia	5520	23	20
Ireland	6720	28	20
Greece	4800	20	20
Spain	6000	25	30
France	6240	26	25
Croatia	5760	24	20
Italy	5040	21	20
Cyprus	4560	19	20
Latvia	7920	33	20
Lithuania	5520	23	20
Luxembourg	6960	29	26
Hungary	6960	29	20
Malta	6240	26	26
Netherlands	6480	27	20
Austria	5760	24	25
Poland	5760	24	20
Portugal	5040	21	20
Romania	6480	27	20
Slovenia	5520	23	20
Slovakia	5520	23	25
Finland	5520	23	25
Sweden	6240	26	25
United Kingdom	7200	30	28
Iceland	3600		
Norway	6480	15	20
Switzerland	6240	27	25
Turkey	5520	26	20
		23	12

Source: Author's own calculation (based on EuroDev, 2020; Eurostat, 2019; Wikipedia, 2021)

This work was developed to provide a better understanding of employees' commuting in selected countries in relation to happiness.

4 Results

Mobility is one of the major issues encountered in global urban zones. Increased traffic movements and traffic jams affect the whole society and environment. But e-commuting represents a way of reducing mobility, more precisely, of decreasing commuting, with potential consequences for the environment (Beno, 2021a).

4.1 Link between commuting and happiness

In today's society, the commuting concept becomes important as commuting can be stressful, tedious and unenjoyable. Based on Cloutier et al.'s (2017) data, the way of commuting can affect our sense of happiness and well-being. Primarily, sustainable commuting is able to decrease bad feelings and lead to greater contentment.

As reported by the Well-Being Index (consisting of five elements: purpose, social, financial, community and physical), the general pattern of results demonstrates considerable differences in European countries. The highest percentage of people in Europe who are classified as thriving (37%) is found in the level of financial well-being (Gallup, 2014). The data also show that more of those who are self-employed are thriving in the level of purpose well-being than full-time employees (Gallup, 2014). Generally, we observe a correspondence between the Well-Being Index and the commuting modes in the purpose and financial elements in the European results, even for our predictor of happiness. Previous study has shown that driving is actually the most stressful mode (Legrain et al., 2015). Authors also found that workers between the ages of 35 and 54 who use active transportation (walking, cycling) performed better in the workplace, which is in line with Ma and Ye's (2019) data. Without reference to commuting mode preferences, Ma and Ye (2019) emphasise that there is an optimal ratio between the amount of time spent travelling to work and performing well and being happy.

The average commuting time in EU27 is 25 minutes (Eurostat, 2019). On the basis of data in Table 1, we calculated average commuting times: a) zero minutes (4.8%), b) 1-9 (13.4%), c) 10-14 (14.5%), d) 15-19 (14.2%), e) 20-29 (18.9%), f) 30-44 (20.6%), g) 45-59 (5.9%) and h) 60 minutes and over (7.6%).

If the normality is met, Pearson's correlation coefficient is used, if not, Spearman's correlation is used. The values of both Pearson and Spearman lie between minus 0.333 (negative correlation) and 0.388 (positive correlation), as shown in Tab. 3.

Table 3: Correlations results

p-value Shapiro-Wilk test	Normality	Correlation coefficient	p-value	Types of correlation
0.0835	Yes	0.155	0.396	Pearson
0.0000	No	0.346	0.050	Spearman
0.0047	No	-0.323	0.071	Spearman
0.8225	Yes	-0.291	0.106	Pearson
0.0140	Yes	-0.263	0.146	Pearson
0.1719	Yes	-0.333	0.063	Pearson
0.0000	No	0.388	0.031	Spearman
0.9081	Yes	0.256	0.157	Pearson
0.4071	Yes			

Source: Author's own elaboration

Spearman's rank correlation shown in Table 3 indicates there is a positive correlation between the indicators of 1-9 minutes and 45-59 minutes of commuting and happiness (highlighted in bold). This implies that a higher degree of the workforce commuting to work in those periods leads to a higher degree of happiness. According to the data, some employees are happier with a longer commute to work (45-59 minutes), since they start thinking clearly and productively before they start their tasks for the day. But longer commutes are linked negatively with

physical activity and cardio-respiratory fitness (Hoehner et al., 2012). As in Hansson et al.'s (2011) data, the authors stress the association of lengthy commuting times with decreased energy, increased stress and higher illness-related work absences. For others, 1-9 minutes is the preferred duration as longer commuting leaves them unhappy. Compare this with a study which found that higher commuting time was clearly related to the fewest social engagements (Besser et al., 2008).

Furthermore, there is reason to believe that planned routes to work, i.e. lower transport costs, correlate with the employee's intentions to increase travel to and from work. In addition, it is more likely that a higher degree of different circumstances, such as e-commuting, that extend/decrease the commuting time influence the employee's decision to select a suitable mobility mode and thereby increase the happiness. The expected relation may be that a high degree of suitable trips to work, including e-commuting, would correlate to a greater number of happy employees. Contentment with work commuting has a substantial influence on overall happiness, especially on the balance between positive and negative effects (Olsson et al., 2013). For example, those who consider commuting to be a positive experience will derive a lesser degree of dissatisfaction with commuting (Ory and Mokhtarian, 2005). Moreover, workers may use travel time as an opportunity to build a valuable phase of transition between home and work activities (Richter, 1990) and to minimise domestic friction (Salomon and Mokhtarian, 1998). But the longer the commute, the lower the degree of satisfaction with life in general (Hilbrecht et al., 2014).

4.2 Commuting versus vacation

Time spent commuting is never paid time. On the basis of recent data, only 40% of respondents are expecting to return to commuting (Coates, 2020). Findings from recent survey data reveal that 42.21% of respondents would prefer to extend remote working for at least 1-2 years (Beno et al., 2021). Commuting is one of the least enjoyable things (Kahneman et al., 2004). In fact, the average American employee will spend 7.4 days getting to and from work (EducatedDriver.org, 2019).

The distribution of paid vacation days varies in the surveyed countries from 12 to 30 days. Two out of the 32 regions have the highest degree of daily commuting times, namely Latvia (33 minutes) and the United Kingdom (30 minutes). If instead we look at the paid vacation days, we notice that Spain (30) and the United Kingdom (28) have the highest number.

We compared two means data samples by a paired t-test, as shown in Tab. 4. According to $p=0.0003$ data, there is evidence that the difference between two quantities is statistically significant. These tests show that employees spend more time commuting than the number of paid vacation days.

Further analysis demonstrates that in only seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries is the commute shorter than employees' permitted annual time off. The workers of the remaining countries commute for longer than their permitted paid vacation.

Table 4: t-Test: Paired two samples for means

	Variable 1	Variable 2
Mean	24.93755	
Variance	12.3185484	
Observations	32	
Pearson correlation	0.217523	
Hypothesised mean difference	0	21.84375
df	31	11.9425403
t Stat	4.0159391	32
P(T<=t) one-tail	0.00017473	
t critical one-tail	1.69551878	
P(T<=t) two-tail	0.00034946	
t critical two-tail	2.03951345	

Source: Author's own elaboration

5 Discussion

As shown in this study, commuting is a necessary and usually disliked daily routine. Travelling to and from work in the UK now takes 5 minutes longer than it did 10 years ago (TUC, 2019). The question remains whether to commute or to e-commute? Many people commute long distances, and the decision whether to do so or not is determined by the worker's preferences and the compensation opportunities in the labour market (Swärdh, 2009). Research also demonstrates pedestrians, train commuters and cyclists are happier than motorists and users of metro and bus services (St-Louis et al., 2014).

Jacob et al. (2019) state that increases in commuting time decrease well-being for women. As noted in the first results section, in the periods of 1-9 minutes and 45-59 minutes a higher degree of commuting leads to a higher degree of happiness. This is reflected by those individuals who optimise and therefore maximise their levels of utility. Interestingly, Redmond and Mokhtarian (2001) identified 16 minutes as the ideal duration of a one-way commute. Their results differ from the outcomes of this paper, which show a preference for a short commuting time (shorter than 4 minutes or no commuting at all). In the end, the right commuting time corresponds with performing well and being happy (Ma and Ye, 2019).

The results of Hilbrecht et al. (2014) demonstrate the correlation between a long commute and low overall life satisfaction. Both these findings confirm the key finding of the reported survey, namely that satisfaction with commuting has a substantial influence on overall happiness (Olsson et al., 2013). A long commute can destroy human beings' happiness in their jobs and their lives (Stutzer and Frey, 2008).

Examination of the countries with regard to granting paid annual vacation reveals a situation of imbalance. In only seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries is the commute shorter than the employees' permitted annual leave.

Is e-commuting the solution? Based on recent data, Barrero et al. (2020) estimate that the pandemic-induced shift to e-commuting has reduced commuting time among Americans by more than 60 million hours per week. Beno and Hvorecky (2021) emphasise that e-commuting makes the workforce happy, therefore more productive. But there is inequality between the possibility for higher- and lower-earning breadwinners to work remotely.

6 Conclusion

The daily commute is a common occurrence for many employees, but deciding on a long commute is usually difficult and often involves problems of balancing work and private life. By means of the analysis of available secondary data, this study evaluates the impact of commuting on happiness in 32 countries. The paper starts by discussing published information in the area of work-related commuting and e-commuting on one hand and analysis on the other (Pearson and Spearman correlations and Two-samples paired t-test for means).

The central research question was:

Can every workplace benefit from happy commuting? The time and stress that appear with a long commute have a big influence when it depends whether the employee prefers free time (shorter commute) or money. Happiness may be influenced by different transportation modes. Clearly, the advantage of lessening this burden makes employees happier.

Additional research questions in this paper were:

RQ1: *What time slot gives the happiest commuting?* Spearman's rank correlation of the results indicates there is a positive correlation between the indicators of 1-9 minutes and 45-59 minutes of commuting and happiness. This implies that a higher

degree of workforce commuting in those periods leads to a higher degree of happiness.

RQ2: *Do we spend more time commuting than the number of vacation days?* Obviously, the distribution of paid vacation days varies in the surveyed countries. Based on $p=0.0003$ data, there is evidence that the difference between two quantities is statistically significant. According to the tests, employees spend more time commuting than the number of paid vacation days. In seven (Spain, Austria, Slovakia, Finland, Portugal, Cyprus and Iceland) of the surveyed countries, the commuting time is shorter than employees' annual leave.

Some employees are happier spending a longer time commuting (45-59 minutes), since this allows them time to start thinking clearly and productively before they start work for the day. Others prefer spending less time (1-9 minutes) on this activity. Clearly, the working place environment without commuting will not disappear, however both employees and employers should work towards alternative arrangements wherever possible. Moreover, this study confirms the tendency of reducing commuting time and being happy, which is ongoing even in the post-Covid-19 period. This applies globally.

It is important to stress that correlation coefficients do not assume causal relationships. Instead it depends on managing the investment in sustainable commuting, flexibility of the work environment, an educated workforce and many other factors. Such analysis may potentially be part of further developments and investigation in the future.

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Primary Paper Section: A

Secondary Paper Section: AE

THE POEM “I WAS ONLY WHAT” AS THE SEMANTIC CENTRE OF BRODSKY’S SUPertextUAL UNITY

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The study was supported by a grant from the Russian Science Foundation № 22-28-01671, <https://rscf.ru/en/project/22-28-01671/>; Russian Christian Academy for the Humanities.

Abstract: This article presents a hypothesis about the functioning of a peculiar unconventional supertextual unity with lyrical metaplot of initiation, cognition and hero's creation by love in I. Brodsky's work. The poem "I was only what" is seen as the semantic centre of this unity: a work that embodies in concentrated form all the main features of the whole cycle. The content and poetic peculiarities of the poem are studied: lyrical plot and subject system, imagological and thematic structure, chronotopical wholeness, intertextual level.

Keywords: Brodsky, cyclisation in poetry, initiation plot, semantic centre.

1 Introduction

The works of Brodsky, poet, essayist, Nobel laureate remains a constant subject of interest for researchers, offering new aspects in the recognized classic areas of lyric studies. Among the latter is the phenomenon of poetic cyclization, significant for the development of Russian literature. The urge to create overt textual forms in poetry and their theoretical comprehension by literary theory becomes especially active at the turn of the 19–20 centuries: in the works of A. Blok, V. Ivanov, N. Gumilev, B. Pasternak, M. Tsvetaeva, etc., it becomes more active. In the second half of the 20th century the connection with the heritage of the Silver Age is actualized, including through personal contacts of young creative intelligentsia with representatives of the older generation, intensified activities of writing studios, changes in the overall socio-cultural situation, requiring search and experiment, synthesis of tradition and innovation. All this contributes to the formation of Brodsky as a poet, who was able to combine in his work the highest achievements of the preceding Russian and world poetic process with an individual author's view and an original system of poetic means and techniques. The tendency to create a supertext in Brodsky's work showed itself in different ways: the use of the genre of the large poem, the formation of poetic collections, the creation of texts in the form of diptychs, etc. However, we do not exclude the possibility of considering the poet's work as a potential non-traditional supertextual phenomenon, characteristic of both the classical poetic tradition and the contemporary postmodernist one.

2 Literature Review

Within the study of overt textual formations in Brodsky's poetry there are mainly works devoted to traditional forms of cyclization, especially the author's cycle and the poetic collection, which are studied in various aspects.

In his book «The Poetics of Russian Classical and Non-classical lyric poetry» Broitman (Broitman 2008) devotes the section to correct the established views on the detachment of the poet's speech subject and presents the complex interpretation of the system of lyric utterance forms.

E. Semyonova (Semyonova 2000) considers the collection «Part of Speech» as unique genre of poem-cycle connected with the tradition of Silver Age.

Among the non-traditional supertextual formations of Brodsky, scholars are primarily interested in topical or thematic texts: St. Petersburg text, ancient text, Italian text, Christmas text, studied in the works of A. Ranchin (Ranchin 2001), V. Gudoniene (Gudoniene 2000), T. Savchenko (Savchenko 1993) and others. However, these scholars consider each of these phenomena immanently, without questioning the possibility of including them in a broader poetic context.

The most productive idea for the study of non-traditional cyclical unities can be considered an observation made by K. Taranovsky, who proposed to include the poem “in a wider context” on the basis of recurring themes and images in the poet's work (Taranovsky 2000, 18). The scholar applied this method of interpretation to the poetry of O. Mandel'shtam, without leaving a detailed theoretical description, but it is worth considering this direction of philological study of non-traditional cycles as promising for the poetic heritage of other poets.

Thus, we can conclude that there is a constant and unceasing interest of researchers to the multiple issues of cyclization in the works of I. Brodsky. However, not all aspects of non-traditional cyclization have been fully studied, the question about the status of non-traditional supertextual unity, its boundaries, formative tendencies, content-poetological features remains open.

The aim of the article: to put forward a hypothesis about the possibility of forming a special phenomenon in Brodsky's poetic work – an unconventional supertextual unity and to study the main content and poetological features of the poem “I was only what” as its potential semantic centre

3 Materials and research methods

This paper is devoted to the study of I. Brodsky's poem “I was only what” (1981), which is included in the collection “New stanzas for Augusta” compiled by the poet himself in 1983. The author studies the basic content and poetological features of the text as a potential semantic centre of the selected supertextual unity, which primarily involves a comprehensive philological analysis of the poem in terms of thematic and image unity, interpretation of chronotopic content, description of subject structure peculiarities, and singling out the features of the poem's subject. The connections of the features highlighted at these text's levels with other works of I. Brodsky, which are part of the potential supertextual unity, are also actualized.

4 An unconventional supertextual unity of Brodsky's poetry

For Brodsky's literary legacy, drawn towards cyclization in its various forms, the desire for a particular wholeness, which cyclization embodies on the poetological level is extremely important. The restoration of a broken or unattainable in reality, but necessary unity in the potential state of being, becomes one of the main impulses of the creative act. At the same time, the integrity being formed does not require obligatory explicit expression in traditional cyclic form, the latter being particular in relation to the general. What is fundamentally important is the specific perspective of perception which implies the active participation of the reader's consciousness.

Within Brodsky's poetry, the cycle-forming units are special texts representing large constituent parts of a single mythopoetic space. Such texts can include topical (antique, Petersburg and Italian texts), Christmas and love texts. The correlation of these texts within a separate poetic work, a traditional cycle or a collection may be different, but the idea of wholeness action as an incentive to form a supertext implies accentuation of exactly secondary formations formed in the framework of the creative

co-acting act of the reader and the author. Obviously, such aesthetic event should result in a special supertextual unity with a number of content-poetological features that provide a dynamic balance of the whole and the parts. These features include a common lyrical metaplot, a system of lyrical subjects, a chronotopical system and a thematic, figurative, symbolic, intertextual and mythopoetic complex.

Potentially, in the work of one author there can be various supertextual cyclical formations, built up in diverse systems of hierarchical and equivalent relations. However, it is possible to speak of a meaningful dominance of a single supertext in relation to the peripheral ones. Within Brodsky's poetry a set of works is combined by the unity of a lyrical metaplot where a lyrical subject undergoes a number of initiatory experiences – he gets the feeling of love and lives through it, acquires a voice and creative ability, crosses the border of time and space that is correlated with the transition from the world of living to dead and gets special knowledge for his existence.

5 Functions of the semantic centre of supertextual unity

The reader's reconstruction of the development's stages of the supertextual unity's metaplot includes the actualisation of the so-called semantic centres. The latter are understood as works in which the features of the whole supertext's integrity are fully realized, in a kind of concentrated form. Their role and significance in the supertext functioning is particularly marked, as they can be metonymically representative of it. One manifestation of this specific significance could be the confirmed status of the work in reader perception as a text of deliberately complicated meaning or a recognized masterpiece. The latter includes Brodsky's poem "I was only what I was".

Especially important is the famous metapoetic commentary on the collection: "Unfortunately, I have not written The Divine Comedy. And apparently, I never will. And here it turns out to be a kind of poetry book with its own plot according to the principle of prose rather than any other" (Volkov 2000, 317).

The tendency towards disjointedness is embedded at the level of the author's consciousness, when the collection formed by the poet is perceived as an unwritten large text with an aspiration for the future, where such a task is still relevant. Thus, poems with a dedication to M. B. will be created by the poet afterwards. A number of these poems will belong to different contexts at the same time. The fact of dedicating a poem from the Christmas cycle to M. B. allows us to speak of an intersection of the meanings with some love text's poems. The reference to the "Divine Comedy" and a number of other features orient "The New Stanzas for Augusta" towards the poetics of the Italian text. Thus, one can potentially speak of multiple intersections of private texts in the poet's work, which should eventually organize a unity formed by a particular integrity.

The poem "I was only what" is an example of a semantic centre, also because it actualizes all paradigmatic semantic connections and the leading poetic contexts of Brodsky's work. Its place in the composition of the collection "New Stanzas for Augusta" as the concluding text is no coincidence. It is well known that in any cycle there are different relations between the part and the whole. The ending of the collection can then be seen as a meaningful silence, a pause which, with the finale of the poem "I was only what", marks the anticipation of its continuation. The possibility of the latter within Brodsky's poetry has already been mentioned with the later creation of the poems addressed to M. B.

Thus, the finale of the collection "New Stanzas for Augusta" suggests the open structure of this cycle and the possibility to form a larger unity within the act of reception by the reader where "I was only what" has the role of the semantic centre.

The poem's lyrical plot reproduces the main stages of the supertextual unity's metaplot with the main events of initiation, acquisition of special knowledge or skills, crossing the border in space and time, resulting in a meaningful transformation of the subject, whose comprehension occurs in the process of a creative act.

6 Composition of the poem "I was only what"

The dedication to M.B. should be singled out, which not only defines dialogicality as one of the semantic and poetic dominants, but is also a linking element between the three texts. The love text will be directly expressed and signified in this poem, while the Italian and Christmas text, presented in subtext and as elements of poetic, supported by previous experience of other Brodsky's poems reading. Already on the level of dedication, one can establish a connection between this poem and the Christmas cycle, in which the work "25.XII.1993", also addressed to M. B., is presented. The dedication of "25.XII.1993", in turn, makes it part not only of the poet's Christmas text, but also of his love text.

The very fact of dedication makes it possible to identify the connection between the texts already identified and another – the Italian one, which in the poem "I was only what" functions within the framework of explicit expression, but enters the composition of the poem at different levels, determining its content and poetological features. In this case, we can talk about different aspects of the Italian text, diverse in Brodsky's poetry, above all the intertextual level, where one of the central places for the poet is occupied by the name of Dante and his main creation. "The Divine Comedy" as an affirmation in the mass reading consciousness and cultural space Dante's love for Beatrice influences multiple components of Brodsky's poem. These components can include the development of the lyrical plot and poem's composition, the thematic integrity and the subject structure's peculiarities. At the same time, all the highlighted levels of the text will be characterised by an accentuated trinity, which is also a continuation of Dante's meaningful symbolism.

The triple division of the composition is the most significant. The accentuated anaphora and the partial syntactic parallelism of the constructions clearly distinguish three groups of stanzas, corresponding to the three compositional poem's parts and the subject system's triple division. The first group includes the first, second and seventh stanzas, dominated by the sphere of the lyrical hero; the second group – the third and fourth stanzas, marked by the presence of the pronoun "you" and a number of his active actions in relation to the object "I"; the third group consists of the sixth and seventh stanzas without explicit pronoun forms and a symbolic subject of the big world. This ternary division raises the question of the stanza's number: seven instead of the canonical nine. However, the number of stanzas in Brodsky's poem is not coincidental, it has symbolic semantics and paradigmatic links with Dante's work.

Thus, in terms of the composition's structure and the subject system's development, the architectonics of the stanzas is no less significant: the three stanzas of the first part reveal the lyrical hero's predominance in the plot movement, which is explained by the main lyrical event's nature as initiation in which he takes part. At the same time, the number of the first- and second-person pronoun forms – the spheres of the lyrical hero and his interlocutor lover – are quantitatively equal: there are twelve in total. Moreover, the stanzas within the first part, a kind of sphere of the lyrical hero's being, absorb the second part – the sphere of his beloved's "you" action, and then merge with the third part, which introduces the final lyrical event – the creation of worlds. Moreover, the last stanza's final verse, which belongs to the sphere of the lyrical hero, may be considered as a borderline verse, referring to both parts simultaneously, owing to the syntactic parallelism and anaphora. In the fifth stanza, then, there is a peculiar meeting of the three distinguished spheres.

From the point of view of the number's semantics it is possible to see a meaningful juxtaposition of the seven and the nine, which will also be supported by the semantic difference in the compositional-architectural form of Brodsky's poem as part of the unwritten "Divine Comedy" and therefore impossible to reproduce its form.

Interestingly, the peculiarities of the poem's lyrical plot (respectively, the entire supertextual unity) implement this same concept of the subject system's main images. The ideas of creation, authorship and perception, intension and its realisation will constitute the leading lyrical events and set the main trends of chronotopical development.

7 Poetics of the poem "I was only what" as a semantic centre

The first stanza opens the plot's first stage, from which the absolute predominance of the past tense with the meaning of processualism and repetition within the chronotope begins. The verb which introduces the state of the lyrical hero: "was" (Brodsky 2001, 226) is accentuated. The very fact of presence, existence, which in the absolute beginning of the poem is not connected to the sphere of the hero's past, but is immediately set in direct correlation with the heroine's action, is emphasized. In the architectonics of the first stanza, "I" and "you" occupy parallel positions to the absolute beginnings of the first and second verses, but their differences are revealed in the ratio of verb forms corresponding to them. Thus, the state of the lyrical hero is not just passive and devoid of activity, but the very fact of its possibility is fully determined by the heroine's activity.

From the first stanza, the poem is deliberately constructed as an erotic poem, and the main lyrical event is duplicated in the motif of the rapprochement, including the physical encounter of the lyrical characters. The meeting of the characters, their acquaintance, etc., takes place in other parts of the overttextual unity, meanwhile the references to these preceding stages are easily recovered and occur throughout the poem "I was only what". The second verse of the first stanza is already a retrospection of the lyrical hero, created in the word in the present moment, which each perceiver actualises in the act of reading.

The attempt to define the form of the lyrical hero's being, which both serves as a kind of material for creation and at the same time limits him within these borders occurs in the descriptive – pointing paraphrase "that which" (Brodsky 2001, 226), which receives no further clarification in the first stanza. Indication without designation, without referring to an object or phenomenon can be linked to the motif of creation out of a kind of emptiness, an emergence from non-existence.

The motif of creation, which results in the acquisition of form, evokes associations with numerous myths, the main one for European culture being represented in the myth of Pygmalion and Galatea. However, what is significant for the poem is the emphasis on the transformation of the motif of form, which in myth is associated with a perfectly embodied material form, whereas for Brodsky it is that indefinable which can only be indicated in correlation with the creative gesture of the heroine. The motif of touch in the context of Brodsky's poetry is one of the most important among the motifs denoting action and movement. It also takes on a special significance in the framework of the supertextual unity's development, primarily because the lexeme itself and its variants suggest a connection with the idea of wholeness – actually present or potentially possible or impossible to implement. The verb "touch" and its derivatives assume in its direct meaning the realisation of two valences, which directly connect the subject, the active producer of an action and the object to which this action is directed.

An important sense in the meaning of the motif of touch is lightness, combined with the attribution of the action to the palm – potential tenderness, care, generated by the desire to protect. This motif complex is connected with creation directly through the actualization of mythological semantics: the accentuation of raised hands in various hypostases of the archaic Goddess Mother and her variations in pagan religions, in the image of the Mother of God in Christianity. The unexpressed motif of the beloved's relationship to the lyrical hero is realised in the subtext – creation is accompanied by protection and caress. However, the image of the palm can be significant in another respect due to the system of parallels between the subjects in the development

of the lyrical event in the following stanzas. The creation of the palm in the act of touch-forming potentially correlates with the significance of the naming of this part of the human body for the traditional image of the writing person, and the gesture of writing as analogous to the touch of the pen to paper. Such an assumption is possible in the context of the poem's lyrical plot development, in which the priority of possession of knowledge, skill and direct existence belongs to the heroine.

The second part of the first stanza continues the chronotopical development of the main event of the highlighted poem's first part, introducing an indication of the time's specification in the procedural past, as well as the spatial arrangement of the subjects. The idea of verticality, of a movement encompassing up and down, enveloping or absorbing into itself in the subtext could already arise in connection with the gesture of touch-creation by the woman's hands. Explicitly, however, this motif of space is introduced in verse 3 in the second repetition of the turn "than", with the accentuation of the motif separating the spheres of top and bottom by the preposition "over". In addition to the erotic implication of the physical proximity of the subjects, the motif of dividing space into two spheres in which the bottom belongs to the hero, who is in the process of becoming, and the top to the heroine, who is creating, is significant. Such an attribution of spatial spheres appears justified in the context of the mythopoetic story of creation, where the heroine belongs to the sphere of sacral top (heaven, eternity), and her moving in space from top to bottom corresponds to the motif of descending, bestowing the bottom (earth) with her goods. In the collection of national mythologies, heaven is not only the sphere of supreme god's action – the thunderer (male principle), but also in some cases the female principle's sphere, as it is represented in the Egyptian version (a number of key images of which will be developed later by Christian culture). The crouching face and the palm's touch create a visual image of the heroine that enhances her perception as a sacral figure, while remaining intimate: images of goddesses of various religions, heroines of world literature, dominated by the image of Beatrice from Dante. The high status of the beloved is also accentuated by the archaic form of her face's nomination, represented in Brodsky's poetic heritage in a small number of ways.

The deepening of the temporal development of the poem's first part – the reference to night with two characteristic epithets in the enjambement ("in a deaf, ravening / night") (Brodsky 2001, 226) – is similar to the Christmas text in Brodsky's poetry. Night retains its traditional ambivalent meanings: on the one hand, it is a time of unclean power's actions, associated with danger and light's absence, a halt of habitual life, on the other hand, it is a time of waiting, solitude, a time of intimate and innermost doings, magically marked. The main action in the poet's Christmas works unfolds at night or in the late evening. Brodsky's night can be a time of total stupor, sleep, silence, a processional state, a time of special action and heightened activity, a hidden life, or a combination of these two possibilities in their dynamic transition, realised or potential.

Night as the time of lyrical plot's action is also linked to the world of Dante's *Divine Comedy*. It is known that Dante's journey begins at six o'clock on Good Friday's evening and ends at six o'clock on Good Saturday's evening. This particular temporal development suggests precisely Hell as the total dominance of night as opposed to Paradise as the realm of day and the different relation of the day's parts in Purgatory. The juxtaposition of different stages of the hero's spiritual path and the dynamic development of diurnal time will also be preserved in the lyrical plot "I was only that". Thus, the first stanza, which opens the first of the three compositional parts, is the kingdom of night, corresponding to the first stage of Dante's journey. Brodsky's choice of two epithets to describe this time – state is also appropriate.

"Deaf" night implies the sound's absence in space and the perceiving subject's ability to hear. Deafness in Brodsky's mythopoetic picture of the world, like night, is an accentuated

ambivalent concept that combines the motifs of sound's absence, voice, movement, potential emptiness, lifelessness with the motifs of hidden potential, birth and formation, the elements, etc.

The second epithet of the night "raven" simultaneously introduces a number of manifold characteristics that define the night of the beginning of creation. Thus, referring directly to the raven in the context of Brodsky's work realises a stable series of traditional mythological-symbolic meanings, emphasised as ambivalent. The raven as a talking bird is associated with the voice's motif, sometimes a poetic one, as in different cultures the raven is capable of giving voice to prophecy. However, at the same time, the sound motif associated with the raven is a cry, often foretelling death and destruction. In such a context, the appearance of the raven motif in the first stanza can be seen as a similar event at the beginning of Dante's journey, who not only meets the vices allegorically embodied in the three beasts, but also receives further prophecy from Virgil.

However, unlike medieval culture, Brodsky's emblematic is not allegorical, but accentuated symbolic, which causes an ambivalent semantic multiplicity. The night of the raven is simultaneously imbued with connotations of anxiety, restlessness, potential death and disappearance and ominous prophecy, but it also has connotations of the opposite, affirming the value of knowledge, enlightenment and initiation. Raven in a number of national traditions acquires the qualities and functions of a cultural hero who obtains important knowledge or values, as well as acting as a world-creating demiurge. The latter correlates with the main lyrical event of both the first stanza and the entire first part, within the boundaries of which the lyrical hero's creation takes place.

In the second stanza, the heroine's action is not physically active, but intellectual and spiritual: to discern – that is, to recognise something, to distinguish it from another. The motif of distinction as a variant of the recognition's motif is one of the most common motifs in world literature, associated with the transition from ignorance to knowledge and usually coinciding with the decisive peripeteia in the plot. The recognition's motif is also significant in the "Divine Comedy". Dante at the beginning of "Inferno" does not immediately recognise Virgil, which finds its realisation by the polysemous motif of sight that pervades the entire text: "Quando vidi costui nel gran deserto" (Dante 2014, 11). A similar situation is presented in detail within the Song XXX of Purgatory, where Dante and Beatrice meet. In both cases recognition is not possible until the new person to the protagonist starts talking and identifies himself.

The initial stage of the hero's transformation – the emergence of a vague image – is presented as an accentuated process over time. At this stage of the plot's development, the lyrical hero becomes a work (creation) of the heroine, which does not immediately acquire its completed and embodied form. The vague appearance may be a stage of conception, while the manifested features are the fixation of content in form. The epithet of appearance implies the idea of a vague vision combined with the lack of form in the lyrical hero's creation. In the diurnal chronotope of the poem, the possibility of the transition in perception from vague appearance to features can suggest the change from the dull raven night to the coming dawn, which corresponds to the dynamics of Dante's hero's journey in "The Divine Comedy".

In the first verse of the third stanza, the motif of a new sensual perception, the tactile one, emerges. At the same time, the motif of physical perception turns out to be the heroine's first explicit characteristic. On the one hand, hot as a sign is one of the most expected and explainable in the logic of the erotic plot's development. On the other hand, hot as one of the gradations of warmth, as opposed to cold, is the main stable feature of a living rather than a dead being by most cultural traditions. However, the sign of hot is, like many other important qualities and properties in the context of supertextual unity, fundamentally ambivalent. Hot can be the highest degree of warmth, the active and creative presence of life, intimacy and affection, but it can

also be a destructive heat, a burning passion, a symptom of illness and discomfort, etc.

For "I was only what" the motif of hotness realises a different range of potential meanings. As we know, by the mythological ideology, the transfer of power, life energy, etc. is most often possible as a literal transfer within direct physical interaction: physiological or intimate contact, eating, drinking, etc. In this case, we can assume that touching the lyrical hero's beloved's hot palm endows him with her same ability, in this case we can speak of a kind of animation accompanied by the acquisition of form (body part).

The actualisation of the auricle's creation as a paired organ is significant. In addition to the already mentioned motif of parity as an emphatically feminine element, the chronotopic context is also developed in this case. On the one hand, the creative gesture of the protagonist's auricles suggests a close intimate contact linking the subjects in a limited space. On the other hand, the idea of embracing space with the heroine's gesture both on the left and on the right sets up an implicit motif of all-embracing, expanding space, its integrity within the unity of different parts.

In the poem "I was only what" the image of the shell becomes the first embodied gift of the beloved to the lyrical hero. Until now, her actions have had no objectified result. The first creation, however, turns out to be dual (two auricles), which is motivated by both the femininity of its creator and his essence. On mythopoetic level, the shell is linked to a number of motif's complexes of the poem and its actualised private texts. Thus, the love story, apart from its obvious participation in the interaction between hero and heroine (she creates him directly), is also set in the implicit context of the myth of Aphrodite, whose images evoke the context of Italian culture, which left the most famous representations of the myth (Botticelli, Titian, Tiepolo, etc.).

The sea shell also evokes an associative link with water and the sea. There is an accentuation of mythological ideas, according to which the world's creation, the transition from non-existence to existence is expressed in the appearance of sound, light, motion, heat within or near the water. In Christianity, the shell becomes an attribute of the Mother of God and John the Baptist, signifying the idea of rebirth, purification from new sin, the beginning of a new life. At the same time, the understanding of the shell as an erotic symbol is no less important for the poem's context. Thus, the lyrical hero undergoes his initiation (baptism), joins the new life and new knowledge and is purified from all sinfulness, which is facilitated by unity with the heroine and mutual love.

The creation of the auricle is accompanied by the motif of sound – whispering. Within the mythological and Christian tradition, the act of creation, of embodiment requires not only a gesture, but also the naming of a word. Whispering is an important motif in the context of Brodsky's poetry, whispering is not every sound, it is special speech, intimate and personal, accentuated by the motif of address, the convergence of the speaker and the addressee, the particular importance of the reported, etc. It also foreshadows the main event of the fourth stanza – the appearance of the hero's voice.

The voice as a further heroine's gift is made possible both by the previous acquisition – the appearance of the ears, and by the principle of isomorphism: the heroine's whisper (the ability to speak) is transmitted to the hero. Linguistically neutral, within the context of Brodsky's poetry the lexeme «voice» is between the most important concepts, forming one of the leading mythopoetic and philosophical ideas with its multitude of meanings and possibilities of usage. The voice is a way of the poet's metaphysical language's expression, finding its form in sound, a direct manifestation of life, a living being (in some cases the voice belongs to the soul, however, it can also characterize an animated personified death), a metonymic designation of the subject and a leading characteristic of the lyrical hero and his interlocutor, both real and potential.

The voice as a transmitted gift also has its spatial definition: "raw mouth" (Brodsky 2001, 226). The motif of dampness, on the one hand, is associated with a complex of meanings of insufficient readiness, incomplete processing, unfinished, etc., and, on the other hand, with meanings of dampness, contrasting dryness. As a defining characteristic, raw in Brodsky's work can be attributed to a variety of realities, both subjective and objective. In the poem's context "I was only what" the epithet raw in relation to the oral cavity is not so redundant and obvious in view of its opposition to the state of dryness, the absence of moisture in the mouth. The dampness of the mouth in the story of love and eroticism can be explained by the lyrical hero's particular emotional state, correlating with the motif of hotness as a characteristic of his beloved in the preceding stanza. At the same time, there is a kind of repetition of the motif of filling body parts with moisture created by the heroine, for in the preceding stanza the main event was the creation of hearing in the form of the ears themselves. As we know, the latter are just the outer part of the ear, the organ responsible for hearing, where sound collects, while its inner parts are filled with liquid. There is an obvious actualization of mythological semantics, motivated by the cosmogonical plot, when creation implies water's emergence, filling the empty space with liquid; in some cases, the water's prevalence is the initial state, necessary for subsequent creative acts of the deity.

The motif of the mouth cavity, which, like the auricle, has terminological precision as an anatomical definition, is also associated with an ambivalent range of meanings. A cavity is both a space in the body for various organs, bounded by internal surfaces, suggesting the idea of filling, a receptacle for something, and at the same time it is an emphatically empty space, capable of potentially being a repository for something, but associated with the idea of emptiness, absence.

With the lyrical plot's development the cavity of the lyrical hero's mouth, possibly created, as well as his whole form, also within the heroine's action of the first and second stanzas was empty, probably dry, with their proximity emotional and physical acquires the quality of humidity (becomes damp) and is filled when the lover puts her voice there. Obviously, symbolically, this part of the poem represents the culmination of the two's erotic rapprochement and is also the central part of the creation's plot, which grants the lyrical hero the ability to speak (potentially, also to create, in particular, to be a poet, which is evidenced by his creation of this poem). However, the first act and a kind of this gift's function is the possibility of communication, the addressee of which is the beloved: «calling out to you» (Brodsky 2001, 226).

The choice of this particular lexeme is due to the actualization of some motifs, above all, a motif which is absent in the synonymous variants – to call by name. In this case, there is an implicit question for the reader about the beloved woman's name. On an explicit level, the reader's answer could be a dedication, but outside the biographical context of the poem, this only strengthens the motif of communication, in particular of address and calling, suggesting personification, a particular person, and in the poem itself, the dialectic of the concrete-personal and the generalized-symbolic. The minus-principle associated with the absence of a name, yet its implied use with the lyrical hero's gaining a voice, can be regarded as an apophatic motif. The appearance of the latter logically follows from the general concept of beloved's sacral status, her higher supernatural functions and manifestations and the idea that the apophatic negation of deity definition (including her name, which is the determinant of essence) is one of the main conditions for human-god personal contact.

The result of the lyrical hero's ability to be active in the poem is the possibility of independent participation in communication with the heroine, a kind of approaching her, real or potential, which is witnessed by the first and only appearance of the object form of the pronoun denoting the heroine. It is no coincidence that this form appears in connection with the possibility of possessing the voice and the word, and is alluded to in a sacral

genre of prayers in various religious traditions. For example, Christian culture primarily embodies this in the Psalter, which is a collection of such hymns (prayers, eulogies) with multiple invocations.

This concludes the second part, devoted to the sphere of the heroine-lover, and opens the final part, which includes both the sphere of the lyrical hero and the world sphere. The first three verses of the fifth stanza are a continuation of the already familiar plot of the first and second stanzas, which accounts for the syntactic structure's parallelism, but the first verse of the fifth stanza differs from the corresponding verses in the initial stanzas of the poem. First of all, the composition of the first two verses lacks the enjambement, while the boundaries of the first verse and the syntactic sentence ending in a full stop coincide markedly. So far in the textual development of the poem, there has been no other such case of a coincidence of verse and sentence boundaries, whereas afterwards such a coincidence of boundaries will be used twice more: in the last verse of the fifth stanza and in the first verse of the sixth, i.e., three times in total. Taken together, they form a kind of peculiar gradation: "I was simply blind" – "so leave a trace" – "so create worlds" (Brodsky 2001, 226). It is obvious that the last two verses will be part of a series of four verses with the anaphora "so", referring to the cosmogonical plot, while the marked one is the first verse, characterizing the lyrical hero.

The fifth stanza completes the creation plot of the lyrical hero, and the first three verses are devoted to another significant acquisition, with the explicit motif of a gift appearing in the poem's context for the first time. This is preceded by the first of the three verses, a kind of statement by the lyrical hero of his condition preceding the impact of his beloved on him. In contrast to the first two statements, in this case the description of his state is not accompanied by a strengthening of the restrictive particle, but the word form "simply" appears, marked as colloquial, distinguished from the neutral one not only by stylistic connotations, but also by an additional semantic complex. In its direct and primary meaning "simply" means literally, elementally, artlessly, etc. In this case, the lyrical hero gives a kind of motivation to his assertion of blindness, suggesting that the search for other definitions and characteristics is meaningless, unnecessary. His state before he met his beloved can be defined in a very "simple" way, without the need for other, more complex or more figurative expressions. It is likely that a similar clarification is also necessary to explain the categorical, maximum degree of "negativity" of his status in the past: exactly blind, that is, with a complete lack of the ability to see. Taking into account that the first verse of the fifth stanza is a statement of the lyrical hero, who already has a form, a voice and sight, this comprehension of his past appears to be prepared. The motif of a deaf night in the first stanza, that is, devoid not only of sound, but also of light, also corresponds to it.

However, at the same time, the motif of simplicity emerges, which is set by the word form associatively, developing its direct meaning and actualizing the etymology of the particle. It is worth noting that the use of the particle "simple" and its derivatives is characteristic of Brodsky's work and is associated with the already indicated ideas of the clearest, most unambiguous and not in need of additions or variations of the idea (motivation, reason), state, action, etc. No less important is the motif of simplicity, set more often as a characteristic of some reality – both subject and object.

At the same time, Brodsky's attitude to simplicity is fundamentally ambivalent, which, on the whole, corresponds to the ambiguity of this quality in the mentality of different nations. Russian traditional culture perceives simplicity as a special state of purity and pristine quality, and as potential stupidity and superfluous naivety that could be harmful or hindering. For the lyrical hero, both of these meanings come together. He is characterised by simplicity as ignorance, lack of true knowledge, ignorance and limitation in a state of blindness before he met the heroine, and simplicity as a special wisdom, a vision revealed to him and a clear understanding of "simple" truths afterwards.

The main revelation of this simplicity for the lyrical hero is the knowledge of his blindness in the state preceding the meeting with his beloved. For Brodsky, blindness as a subject's or an object's quality is a marked characteristic associated with a fundamentally inherent ambivalence rooted in the mythological tradition. This understanding of the motif of blindness is elaborated in the work "Poems about Blind Musicians".

Blindness in various archaic traditions can realise two sets of meanings with opposite semantics. Thus, a positive series is associated within the separation of "outer" and "inner" vision with the value priority of the latter as an opportunity to comprehend sacred knowledge and disregard for the earthly world. According to this tradition, most epic poets or performers are depicted as blind. Blindness also appears as an attribute of fair impartial judgment. More often, however, a negative series is realized, suggesting the idea of ignorance, delusion, loss, limitedness, etc. Multiple examples of such symbolic semantics can be found in biblical myths: the blinded inhabitants of Sodom, the blinded Samson, the blindness of Paul, etc. In the latter case, as in a number of other situations in the Bible, blindness is represented as a temporary condition preceding transformation, the acquisition of the true way or knowledge, at least potentially possible in the future.

The motif of blindness as a lack of vision is also connected to the significant motif of light, and this connection is already set at the lexical level in the derivative motif of dazzling – the highest manifestation of light, capable of taking away vision. The motifs of darkness and light that emerge from the first stanza and the motif of the dead night become particularly important in connection with the hero's sightlessness. Such a semantic relationship, as has already been noted, is characteristic of the "Divine Comedy", where the motifs of night-day and darkness-light play a key role in the hero's journey. As we know, light as a metonymic signifier of the Sun is a manifestation of the Divine presence. Given the sacralized status of the beloved in Brodsky's poem, her gift of vision to the lyrical hero is logically motivated. The third gift, in the poem "I was only what", linked to the sphere of the lyrical hero's senses, transforms him as Dante, whose transformation and journey from darkness to light was in many ways, in turn, guided by the plot of Paul's vocation. On the one hand, it is in the fifth stanza, after the plot's completion by the beloved's creation, that the heroes are equalized in status, become full and equal to each other. In textual terms, this is witnessed in the verse architectonics of the stanza, where both subjects occupy the same position of absolute beginning, as they did in the first stanza, but now their interdependence, suggesting enjambement, is absent and graphically they are equated: I – You. In the fifth stanza, for the first time the hero's form of address to his beloved is given in a capital letter, preceded by an urgent for the heroine and an uppercase for the "I" of the subject. It is possible to suggest that the significant change is linked to a qualitative change in the subject's point of view, which required the acquisition of sensory organs and abilities for hearing, voice and especially sight. And as a logical development of this, the hero's becoming enables him to see his beloved adequately and to realise not only himself, but also her as a subject, the other-self.

In turn, if we consider the main lyrical event of the fifth stanza as the lyrical hero gaining sight and vision of his beloved, then a series of motifs characterizing the image of her action becomes clear: "arising, hiding" (Brodsky 2001, 226). In most of the interaction's plots between man and deity, the latter is often not given to the gaze constantly and unhindered, it requires effort from the believer, etc. One can speak of an epiphany that is not immediately revealed to the beholder. For the lyrical hero, the completion of this process is the acquisition of sight, but it is with this gift that the beloved disappears from the text. The fact of her full-fledged appearance can only be assumed as potential, as it does not receive explicit expression, but its probable possibility is evidenced by the last verse of the fifth stanza, connecting the two parts.

Verse 20 in the composition of the poem turns out to be consciously actualised by dual semantic and logical relations: as the outcome of the creation's plot by the hero's beloved and as the beginning of the cosmogony plot. There are various motivations for this juxtaposition of scales: the concept of the identity of micro- and macro-cosm with the idea of man as a world's model, the idea of love as the driving force that completes Dante's "Divine Comedy", and the formation of man as creator, capable of directing his gifts towards creating worlds, above all verbal ones. The cosmogonical plot, the main events of which are denoted by the anaphoric "so", fundamentally involves the correlation of two partial plots: a love plot with the lyrical hero's meaningful centre of creation, and the plot of the world's creation.

The present timeless, the time of eternity without end, is the time by which creation is described. And it is capable of being reproduced both in the repetition of the world-creation event itself (the form of the present timeless, the motif of the frequency of action's repetition) and in the multiplicity of creation objects (the plural form "worlds"). In this case the context of philosophical comprehension of the cosmogonical plot emerges as a possible source for Brodsky's poetic representation. In this connection, the poet's reference to Parmenides in the poem from the cycle "Twenty Sonnets to Mary Stuart": "He shall not create – according to Parmenides – twice" (Brodsky 2001, 226) becomes relevant. However, the possibility of specific creation's in "I was only what" turns out to be entirely motivated by a fundamentally different, non-metaphysical concept, which can be seen as a continuation of the polemic with the philosophical position of the distant ancestor who does not take into account the operative power of love.

This is why Brodsky's extended comparison is constructed in such a way that the cosmogonical plot, which implies a larger scale, occupies a subordinate position. However, its analogy as a dependent subject of love is traceable in a similar composition: the first three repetitions of "so" introduce the poems dedicated to the creation's events, and then there is the result-sequence, marked by the fourth stage. It is known that, summing up the development of ancient culture, Proclus proposed to consider the structure of the universe as a triad: staying – coming – returning. This concept presupposes a view on the world as complete and limited. For Brodsky, however, one of the main culminating events of the lyrical plot, the poem as well as the entire supertextual unity, is the essentially unlocking of borders – their intersection by the lyrical hero within the framework of the love story and the plot of creation (which can be regarded as a kind of initiation), and their openness in time and space within the cosmogonical plot, which denies Parmenides, rather suggesting an affinity with Heraclides' dialectic (with the important overcoming of any theory in immediate life, whose driving energy is love).

The four-part scheme of the poem's final part is set within the framework of an extended comparison of the first two parts with the creation's plot and corresponds to the main stages of the mythological plot scheme in its vegetative version. Taken together, these are the stages of initiation that the lyrical self undergoes with the active help and complicity of the beloved, who assumes the functions and significance of Godhead. Thus, Brodsky's first and second stages (disappearance and suffering) correspond to blindness, lack of form, the possibility of perception. As has already been noted, the lyrical hero is associated with a position of spatial lowering and a deaf night, which finds a parallel in the mythological hero's departure underground. The third and central stage – the quest – in this case is carried out not by the lyrical hero himself, but by his beloved, who in creation realises the hero's discovery of himself, which corresponds to the final stage of creation.

Creation is associated with the motif of completeness and inexhaustibility, harmony as a dynamic balance of all possible manifestations, which evokes the enumeration, introducing a series of alternating elements-states (heat – cold – darkness – light) and the most perfect form for world culture – a sphere.

Interestingly, the implicit motif of loneliness appears twice in the final section: “left to rotate”, “lost in the universe” (Brodsky 2001, 226). However, now we can talk about the transformation of this motif, which is significant for Brodsky’s poetic context, into a motif devoid of negative connotations, associated with the self-sufficiency of the created object and its possibility for a fully autonomous existence. The idea of the circle, also set twice in the motifs of rotation and sphere, suggests an allusion to the theory of the heavenly spheres, associated in Pythagoreanism with music. The lyric as originally sung reinforces this analogy between the creation of the world and the poetic text, right up to their absolute coincidence: the world as text (the reverse is also possible). This also finds a parallel in Dante’s “Divine Comedy”, seen as a kind of poetic *summae theologiae*.

8 Conclusion

Thus, the perspective of singling out and modelling the supertextual unity is extremely fruitful, allowing us to reconstruct the logic of the author’s artistic thinking and reconstruct his mythopoetic worldview, which cannot be fully and adequately understood in the immanent analysis of a single work. However, functioning as part of the whole, the poem actualises multiple contextual connections, allowing us to see new possibilities of interpreting motifs and images of complex meaning.

The poem recognised as the semantic centre of this unity helps the reader to reconstruct the intended model of the whole lyrical plot, the individual work acts as a metonymic representation of the whole, further guiding the perception of the author’s other texts.

In Brodsky’s poetic work the author’s intention potentially implies the possibility of forming a special supertextual unity with active reader’s reception. The main components of this phenomenon are thematic texts: Christmas, topical (Italian) and love, which form a complex series of content and poetological intersections. However, the supertextual unity can be embodied in its main features within a single poem, which acquires the function of the semantic centre. For such a unity with the subject of the hero’s initiation into love and creativity, the poem “I was only what I was” becomes the semantic centre. Dante’s *Divine Comedy* appears to be the model of a large text form, which dominates the intertext and determines the integrity of the poem at all levels.

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Primary Paper Section: A

Secondary Paper Section: AJ

DIVERSITY WITHIN CORPORATE EDUCATION AT THE SLOVAK LABOUR AND WELFARE ADMINISTRATION: A CROSS-SECTIONAL QUESTIONNAIRE SURVEY

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Abstract: Diversity of the workforce encourages innovation. In order to maintain the workforce, it is necessary to adapt the company's training with regard to the needs of individual employees. Organisations that understand the relationships between diversity, inclusion and education have the potential to set up a culture of lifelong learning and thus improve quality of life for their employees. Diversity can strengthen work involvement, improve the organisational climate, promote inclusion, and contribute to increased productivity and the quality of life of employees. We researched the question of diversity by questionnaire; an online survey was conducted at the Slovak Labour and Welfare Administration, investigating the dimensions of diversity, inclusion, quality of life, and education. We identified the subjective perception of the dimensions of education, diversity and inclusion by employees in relation to the criteria of quality of life, job positions or time spent working in the institution. Our results showed that education has an impact on the self-esteem of the respondent's personal and professional life, and that the quality of personal and professional life is influenced by the position and length of time spent in the organisation.

Keywords: lifelong learning; diversity; inclusion; corporate education; quality of life.

1 Introduction

In Lifelong education, or lifelong learning, is a purposeful learning activity that aims to improve knowledge and competencies for all individuals who wish to participate in learning activities. This learning focuses on their contributions to sustaining or advancing the viability of their workplaces, and collectively to securing national social and economic goals [1, 2]. A highly skilled and knowledgeable worker is an asset for any organisation, and skill sets are always associated with promotion and salary hikes, as well as career success [3].

The term diversity in the context of our study is used to mean a variety in styles or approaches within education and the workplace. Diversity is fuel for recombination, and recombination has far more potential to drive innovation than incremental improvement or luck [4]. Diversity management is a tool for the integration of different groups of the workforce; it is implemented through a process of creating and supporting working conditions that respect the similarities and diversities between people and recognises their specific needs to enable them to use their potential and be beneficial to the organisation. Inclusion is the practical implementation of diversity, equal treatment and respect into reality [5, 6]. During the last few years, the research topic 'diversity in corporate education' has become increasingly relevant to ensure and sustain successful employee engagement and satisfaction, both for corporate universities and family business models [7 -10]. Individuals construct their corporate identity through corporate education. This makes it important for various institutions or business organisations to focus on developing the capabilities of employees through corporate education training programmes [11, 12]. A recipe for change is entrepreneurship education [13, 14]. This means that the perceived value of corporate education will be based on the involvement of individuals in learning programs [15]. For sustainability, businesses are increasingly utilising corporate education [16]. More businesses are utilising education as a way to respond to the pressing needs imposed by changing workplace trends [17].

There is a lack of studies examining the influence of lifelong learning on the employees' quality of life, especially on employees of the state administration in the Slovak Republic. Even though some studies [18-21] described the impact of learning on the quality of life of employees in different contexts or proposed a possible linkage between lifelong learning and

quality of life, no empirical studies have been conducted to test and explore the relationship between these constructs. No prior studies have looked into the exploration of diversity within corporate education at the Slovak Labour and Welfare Administration. However, the Slovak Government-initiated paper Lifelong Learning Strategy and Consulting for the Period 2021-2030 [22], states its main goal is to ensure every citizen has lifelong access to opportunities for education, to enable them to develop their skills and competences at every stage of their life and with regard to individual needs and circumstances, thereby empowering individuals to realise their potential in personal, work and civic life. It is the starting point for opening up lifelong learning at all levels of organisations and companies for the next period. Diversity in the field of corporate education in Slovakia is currently a challenge due to a lack of experience and research in this area; thus, we will explore diversity within corporate education at the Slovak Labour and Welfare Administration (SLWA) and describe the impact on the employees' quality of life. In this article, which is intended to be descriptive and exploratory in nature, we present the empirical results that show the answers to the research questions:

RQ1: What is the subjective perception of the dimensions of education, diversity and inclusion in relation to the quality of life of the respondents in this organisation (SLWA)?

RQ2: What is the subjective perception of individual dimensions in relation to their position and length of employment in this organisation (SLWA)?

2 Materials and Methods

2.1 Context of Study

This study was carried out in the Slovak Labour and Welfare Administration. The Slovak Labour and Welfare Administration (SLWA) is established and coordinated within the competence of the Ministry of Labour, Social Affairs and Family of the Slovak Republic. The SLWA manages, controls, coordinates and methodically directs the performance of state administration in the field of the social and legal protections of children, coordination of family policy, social affairs and employment services. These institutions were the target group of the research. The number of employees as of 31.12.2021 was 664. There were considerable fluctuations in the number of employees, as well as organisational changes, during the year. The online questionnaire survey was approved by the SLWA Headquarters. 500 questionnaires were sent out during October - November 2021, and 262 were returned (n=52%).

2.2 Research design and instrument

This study utilised a cross-sectional, quantitative, descriptive design. A cross-sectional questionnaire survey is a tool that can be used in any type of research and is the main means of collecting quantitative primary data. A questionnaire enables quantitative data to be collected in a standardised way so that the data is internally consistent and coherent for analysis [23].

The research instrument used for this survey was a questionnaire consisting of several sections. Section A provided demographic details such as age, gender, education, job position, region (five questions); the following four sections covered respectively: quality of working and personal life (B – fifteen questions); education (C –fifteen questions); diversity, anti-discrimination approaches and the working environment (D – thirteen questions); and, inclusion (E – ten questions).

Each of these constructs was made up of five to fifteen open or closed questions. Face validity of the questionnaire was achieved by a review of its format and content by university researchers and also through initial pilot testing with 20 respondents who were not included in the main study. The questionnaires yielded

quantitative data: in section A it was demographic details and in sections B to E a descriptive method was used. For quantitative analysis the statistical package STATISTICA was used [24].

The 58-item questionnaire consisted of five parts, with the first 12 questions related to demographics. The questions in each section of B-E were simple statements rated on the Likert scale from 'strongly disagree' to 'strongly agree'. The tool was assessed in terms of reliability, internal consistency and validity of convergence. We used Cronbach's alpha (which allots a value from 0 to 1) to calculate the reliability of the data. We calculated Cronbach's alpha (= 0.91) in the STATISTICA program; as the value of Cronbach's alpha approaches one, it indicates a very high reliability and validity of the data obtained by the questionnaire method. In addition, we examined the correlations between the individual dimensions. Since the assumption of a normal distribution of observed traits (four dimensions) is not substantiated, we used a nonparametric Wilcoxon signed rank test, which is a nonparametric analogy of a paired parametric t-test, to verify the statistical significance of differences in the level of observed traits. In this study we presented partial data in connection with the research questions.

2.3 Participants and Procedure

An online questionnaire was sent by email to 500 employees between October and November 2021. A total of 262 employees (81,9% women and 18,1% men) voluntarily and anonymously completed the questionnaire. After eight weeks, at the point analysis, the total response rate was more than 52 % return (number sent / number included in the study).

2.4 Ethical issues

University ethical clearance and research permission from the Labour and Welfare Administration was obtained for the study. Enclosed with the online questionnaire was a cover letter informing the employees about this research study and ensuring anonymity and confidentiality of both the employees and their data. Contact details were given in the contact letter in case employees required further information before deciding to participate or if they wanted to be kept informed of the results of the study. Employees were free to return the questionnaire or not and could withdraw their data from the study at any time without affecting their relationship with the employer - Labour and Welfare Administration. Return of the questionnaire, however, implied consent to participate in the study.

3 Results

3.1 Characteristics of respondents

In total, 262 people (52% of the survey recipients) responded to our study. Table 2 shows the distribution of gender, age, education and time spent in employment. Of the respondents, (n=6) were 24 years or younger (2,3%) and were female (83%). The majority (57%) were in the 25-45 years age group and 79% female. In the 46-65 years age group, (n=105) were female (86,6%), (Figure 1).

In this study, we will focus on three identified indicators affecting individual dimensions: education, position, and time spent in the organisation, related to both research issues.

Respondents perceive the quality of personal and professional life and diversion, the quality of personal and professional life and inclusion, education and diversity, as well as diversity and inclusion, statistically significantly differently according to their age, gender, education, the spent time in organisation and their position. The calculated value of the probability 'p' was less than the selected level of significance: alpha = 0,05 in four cases. The probability value is only greater than 0.05 (p = 0.200) in one case - when comparing the dimensions of education and inclusion. This means that there is no statistically significant difference in the perception of these dimensions by respondents - all dimensions are perceived by respondents in the same way, (Figure 2).

Figure 1. Participants' socio-demographic characteristics (n=262).

Gender	n%
Women	81,9
Men	18,10
Age	n%
18-24	2,3
25-45	57
46-55	21,20
55-65	19,20
Education	n%
High school	5,80
1st degree university	6,50
2nd degree university	85,40
3rd degree university	2,30
Time spent in organisation	n%
less than 1 year	15,80
1-3 years	13,50
4-6 years	19,20
7-9 years	10
more than 10 years	41,50
Position	n%
Clerk, Counsellor	50,8
Social Worker, Methodologist	12,1
Director, Head	12,7
Assistant	8,9
Manager	7,4
Coordinator	8,1

Figure 2. Wilcoxon single-sample test.

Dimensions	Z	p
quality-diversity	13,094	0,000
quality-inclusion	10,649	0,000
education-inclusion	1,281	0,200
education-diversity	6,935	0,000
diversity-inclusion	9,683	0,000

3.2 Education

We used the nonparametric method of Kruskal-Wallis test, a nonparametric analogy of one-factor analysis of variance, by testing the statistical significance of differences between four groups of respondents (secondary education, 1st to 3rd degree universities) in the context of quality of personal and professional life. It is a direct generalisation of Wilcoxon's two-sample test for the case of independent samples. We performed the calculations using the STATISTICA program. After entering the input data for each dimension in the output report, we obtain the following results for the selected Kruskal - Wallis test: the value of test criterion 'H' and the value of probability 'p', the latter being the probability of error we make when we reject the tested hypothesis. If the calculated value of p is too small (p <0.05 and p <0.01, respectively), we reject the tested hypothesis about the equality of the mean levels of the observed signs (at the significance level of 0.05 or 0.01, respectively); otherwise, we do not reject the hypothesis, and the observed differences are not statistically significant.

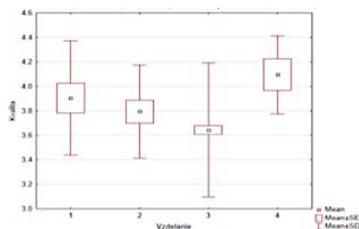
The statistical significance of differences between groups of respondents (created on the basis of their education), in the dimension of quality of personal and professional life, achieved the test criterion value H = 7.821920 and p value = 0.021. Since the calculated value of the probability p is less than 0.05, we reject the null hypothesis at the level of significance, which means the difference between the four groups of respondents with respect to the observed trait (quality of personal and professional life) is statistically significant. This proved that the self-assessment of the dimension of quality of personal and working life is influenced by the respondent's education. From Table 2 we can see that there is a statistically significant difference in the group of respondents with the 3rd level of university education, who perceive the quality of personal and private life differently to the respondents with the 2nd level of university education.

Figure 3. Results of Kruskal-Wallis multiple comparison test (p-values).

Education	1st degree of university	2nd degree of university	3rd degree of university
High school	1,000	0,404	1,000
1st degree of university		1,000	0,950
2nd degree of university			0,021 ¹

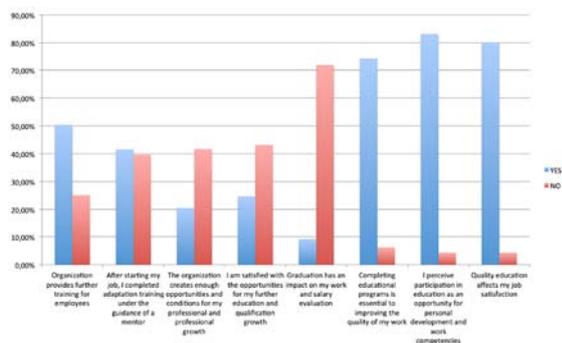
¹ The results are statistically significantly different.

Figure 4. The values of education.



Statistically significant indicators showed that the education of respondents has an impact on the self-assessment of the dimension of quality of personal and working life. In the conditions of the researched subject, for example, the following was found for comparison within the training:

Figure 5. Respondents' views on education in the surveyed organisation.



3.3 Time spent in the organization

Assuming that respondents with different time spent in the organisation perceive individual dimensions differently, we tested the statistical significance of differences between five groups of respondents (less than 1 year of employment in the organisation, 1-3 years, 4-6 years, 7-9 years, more than 10 years) in the dimension of quality of personal and working life.

The results of these different groups of respondents showed statistically significant differences in the dimension of quality of personal and professional life, specifically: the value of test criterion $H = 10.32895$ and $p = 0.0352$. This shows that self-assessment of the quality of personal and professional life is influenced by the time spent in the organisation. The results of multiple comparisons show that diversity $H = 11.16553$, $p = 0.0248$, inclusion $H = 11.99794$ and $p = 0.0174$ is a statistically significant difference between the group of respondents who have been working in the organisation for less than one year and those who have been working for more than ten years, with the graph showing the quality of personal and professional life.

Figure 5. Results of Kruskal-Wallis multiple comparison test (p-values).

Time in organization	1-3 years	4-6 years	7-9 years	More 10
less than 1 year	1,00	1,000	0,607	0,024 ¹
1-3 year		1,000	1,000	0,979
4-6 years			1,000	1,000
7-9 years				1,000

¹ The results are statistically significantly different.

Figure 6. Values of time spent in the organisation in the dimension of quality of personal and working life.

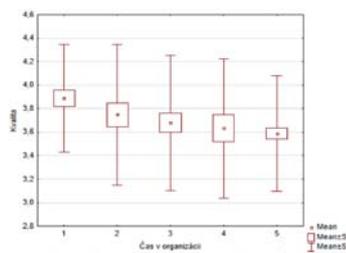
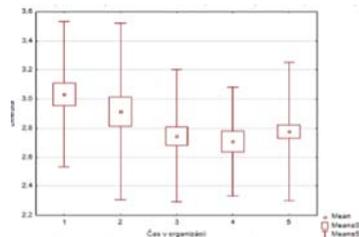


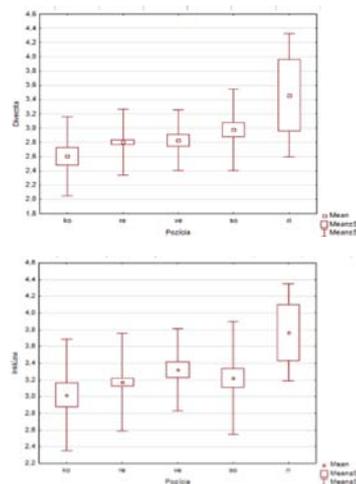
Figure 7. Values of time spent in an organization in the dimension of diversity and inclusion.



3.4 A company position

A company position refers to the role that an employee plays within an organisation. Each position comes with a particular set of duties that ultimately helps the overall operations of the company. By testing the statistical significance of the differences between the six groups of respondents (Director, Manager, Clerk, Consultant, Methodologist (Social Worker), Coordinator) in the diversity and inclusion dimension, we noted the statistical significance of the director position compared to all other positions with the following results: diversity $H = 9.194623$, $p = 0.0464$ and inclusion $H = 5.201913$, $p = 0.04672$, thus demonstrating that the self-assessment of the diversity and inclusion dimension is influenced by position, namely the position of the director compared to other positions in the organisation.

Figure 8. Values of position in the organisation in the dimension of diversity and inclusion.



4 Discussion

In terms of effective diversity and inclusion, less importance is placed on the amount of diversity an organisation has rather than the quality of the organisational culture that is created through the diversity implementation process, which determines whether the benefits are fully realized [25]. Diversity in society must be maintained in order for the system to be strong and to withstand

all changes. The principle of inclusion can be solved with a personalised approach; each employee represents a unique case, especially in corporate education. Additionally, the lifelong learning phenomenon is directly related to innovations and technologies [26]. Effective diversity and inclusion management should support a heterogeneous mix of employees, including through training, which our research has shown affects quality of life. The acceptance of diversity, whether on the part of employees or organisations, has a direct impact on the way employees are selected, developed, trained and are given opportunities to participate in public life as stated in the Common Assessment Framework (CAF). The Mor Barak inclusion model was generally supported, with evidence linking inclusion with increased perception of diversity, job satisfaction, quality of life, as well as reduced stress and reduced employee turnover [27].

One of the principles of the Lifelong Learning Strategy and Consulting for the period 2021-2030 is to build a flexible and open system of educational paths and an effective system of adult education [22]. The report by the Public Services and Administration Sector Council [28] states that adult participation in education decreases with age and increases with education, which was corroborated by our research in an organisation with a highly qualified workforce (more than 80% of staff have a tertiary degree). The results of our research have proved that the identified interest of employees and possibility of lifelong learning is not sufficiently used, which results in a gradual, research-confirmed reduction in job satisfaction and thus a subjectively assessed quality of life.

According to the annual reports [29], education in the researched organisation focuses on personal development, vocational education, management education and education in the field of information technologies. According to statistics, the most important motivating factors in the case of administrative positions are, in addition to finances, the demand for personal development, gaining experience, a good team and the possibility of time flexibility [30]. The current Lifelong Learning Strategy and Consulting for the Period 2021-2030 focuses on key objectives such as increasing efficiency and flexibility, strengthening inclusiveness, increasing adult participation in education, focusing on the individual's individual career, and strengthening their motivation to learn. In order to enrich their employees' working life, and to improve their own productivity, it is necessary for organisations in Slovakia to focus and implement the objectives described in the Lifelong Learning Strategy. Currently a commitment to these aims is lacking.

The comparative study 'A Conceptual Content Analysis of 75 Years of Diversity Research in Public Administration' [31] examined how the focus of diversity has changed over time and how diversity research in public administration has progressed. The authors concluded that if diversity studies are to reflect 21st century society, scientists must more than ever understand and empirically study the intersection of diversity dimensions in a comparative context. These studies should include those that can examine the effects of inclusion on turnover, job satisfaction, performance, organisational commitment to assess management impact, employee involvement, organisational climate, and other variables. In our research, we focused on comparing the dimensions of diversity, inclusion, education, and subjective assessment of the quality of life.

The government paper Lifelong Learning Strategy and Consulting for the Period 2021-2030 aims to strengthen the role of public employment services as an active mediator in overcoming economic and social change [22]. This requires people to have access to quality professional counselling services that actively contribute to the development of career management skills, skills development and a meaningful link between people's individual needs and specific job opportunities. The pandemic has also shown the need to create a flexible business knowledge system with the support of technology, the implementation of innovation, the development of a lifelong learning culture, new forms of work and the use of LMS

(learning management system). An important contribution to understanding the theoretical link between adult learning and well-being in adult learning can be found in Field's [32] report; this emphasises that, while we tend to focus on the economic benefits of adult learning, the evidence that learning promotes well-being is overwhelming.

The self-assessment of the quality of personal and professional life is influenced by the time spent in the organisation. The results of the multiple comparison showed that there is a statistically significant difference between the group of respondents who have worked in the organisation for less than one year and those who have worked for more than ten years, while the perception of the dimension of diversity and inclusion is declining. A company position refers to the role an employee has within an organisation. By testing the statistical significance of differences between groups of respondents (Director, Manager, Officer, Consultant, Methodologist, Social Worker, Coordinator) in the diversity and inclusion dimension, we noted the statistical significance of the director's position compared to other positions, demonstrating that self-assessment of the diversity and inclusion dimension is affected by position.

Harnessing the potential benefits of a diverse workforce requires new types of leaders - leaders who are inclusive, flexible, self-aware, attentive and able to build lasting and trusting relationships with others so that employees feel part of the organisation. Based on the findings of the study, inclusion is strongly associated with overall employee satisfaction, so organisations should take active and deliberate actions that are synonymous with authentic, respectful, and inclusive leadership. Doing so is likely to result in better performance, organisational commitment, and achievement of organisational goals by increasing overall employee satisfaction [33].

More than 80% of employees who work in the Slovak Labour and Welfare Administration, based on the theory of Strauss-Howe [34], are described as Generation Y and Generation X. Generation X is the most educated, characterised by hard work, communicativeness, self-sufficiency, and the need to grow. Generation Y currently makes up about one third of people of working age. They are identified as valuing loyalty, they do not recognise the directive way of management, they do not enjoy assignments without the possibility of discussion, they perceive work as fun and the concept of work-life balance is not as important for them as for Generation X, they need to see the meaning of the task, and they are valuable team members [29]. More than 50% of respondents from our research were representants of Generation Y. Generation Y (millennials) have a strong focus on education, and when organisations are unable to meet their expectations, they prefer to leave. It is therefore necessary to strengthen activities to sustain them. One of the hallmarks of Generation Y employees is the need for learning and development; they appreciate the continuing education opportunities offered by organisations to facilitate their professional growth. They desire to acquire work-related knowledge and skills. One way to support their development needs is to develop competencies. Mentoring is a development initiative that appeals to Generation Y because they constantly crave personal and professional development, development support and feedback. The emphasis on lifelong learning and career development opportunities, mentoring, strategic leadership, knowledge sharing, and social media reflects a long-term commitment to invest in talent development and is essential to retain Generation Y staff [35]. Factors affecting the retention of Generation X employees include job content, skills utilisation, career advancement, work-life balance, remuneration, safety needs, leadership, career advancement, and motivation (including financial). They prefer learning in the workplace.

New technologies and the digitisation of public administration can help maintain the principles of diversity in education through an individual, personalised approach and at the same time can be more cost-effective in promoting a culture of lifelong learning. It is not possible to create a universal system of lifelong learning for all; everyone needs to create a learning

space to enable opportunities in their life and professional journey.

4 Conclusion

The findings of this study contribute to a better understanding of the relationship between the quality of life and education of staff and the need to promote a culture of flexible lifelong learning, the relationship between the position in the institution and the length of working life in the institution affecting the quality of life. Therefore, there is a need to work to increase the awareness of diversity in corporate education, especially for Human Resources at the Slovak Labour and Welfare Administration. Additionally, these findings have implications for lifelong education and the enhancement of employees' quality of life. Further investigation with larger heterogeneous samples or smaller in-depth interviews with employees is recommended.

Acknowledgements

Thanks for prof. RNDr. Anna Tirpakova, CSc., who did not accept the co-authorship of this study, but processed and evaluated data from the statistics survey and is the author of tables and graphs.

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Primary Paper Section: A

Secondary Paper Section: AM

DEVELOPING STUDENTS' ABSTRACT THINKING IN SECONDARY SCHOOLS

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Abstract: Abstract thinking is realized in the level of concepts, which are presented in a verbal form and are the result of a higher form of generalization and abstraction. Abstract thinking and the associated abstraction process has great importance for students' progress. Mathematics as an abstract science abstracts from the specific nature of the object, thus paving the way for new theories that are applicable in various specific practical applications. Developed abstract thinking is an important ability for students to solve problems not only in mathematics. Parameter tasks is a suitable tool for students to learn about the process of abstraction in mathematical cognition.

Keywords: abstract thinking, teaching, student, parameter, teacher

1 Introduction

Thinking generally refers to brain activity and working with data to formulate concepts, solve serious problems and questions, make inferences, and form one's own decisions. Thinking is generally considered to be the highest product of evolution and is the essence of human existence. Stržbenec (2008) defines thinking as a connection between memory performance and logical abstract processing of symbols. Thinking as a mental process is a way for the exercise of human intelligence. When we think, we simultaneously perceive all the stimuli around us, classify their characteristics, and combine the relevant data (Výrost, Ruisel, 2000).

According to cognitive psychology, thinking has three distinctive characteristics:

1. Thinking takes place in consciousness, but can be inferred from observable behaviour.
2. Thinking is a process that manipulates knowledge in an individual's cognitive system.
3. Thinking is directed toward solving problems that preoccupy the individual (Mayer, 1981).

Ruisel (2008) defines thinking as a cognitive process based on the manipulation of concepts through which an individual analyzes stimuli, solves problems, makes inferences, achieves goals, and interacts with the environment.

Human thinking evolves gradually as part of human development. According to Piaget (1958), the development of thinking is divided into four stages:

1. Sensomotor stage (from birth to 2 years) - The child gradually begins to create symbols for objects in his environment.
2. Preoperational stage (up to about 6 years) - The child gradually develops abstraction. Symbols are formed not only for the external but also for the internal world. There is a significant development of language, which is of great importance for the development of symbolic activities. Words begin to represent things and concrete activity can replace thinking.
3. The stage of concrete operations (up to 10 years) - The child develops working with symbols and the ability to mentally handle objects. However, he/she can still only act on concrete objects in the immediate environment with his/her newly acquired abilities. He does not yet master more complex symbolic though operations.
4. Formal operations stage (from about 10 years of age) - The child begins to apply concrete operations to hypothetical situations. It is no longer necessary to have real objects or even their names. By moving from concrete operations to abstract ones, the young person gradually develops the

skills necessary for logical reasoning. Child at this age is even able to formulate hypotheses by which he tries to explain an unknown phenomenon. Professor Hejny (1990) says that abstract strokes occur at this stage, since it is the stage where the transformation of quantity changes into quality, represented by a new knowledge or concept. The abstraction of the new concept induces a rebuilding of the knowledge structure. In fact, every discovery of a regularity or some new idea generating into a new concept is an example of an abstract stroke (Hejny, 1978).

According to Piaget's theory of human cognitive development, students around the age of 12 are already capable of abstract thinking. Abstract thinking is realised in the plane of concepts, which are presented in verbal form and are the result of a higher form of generalisation and abstraction. Abstract thinking and the abstraction process associated with has a great importance for students' progress (not only in mathematics). Several research studies have found that students use abstraction processes to gradually acquire conceptual knowledge from previously learned practices (McBride, 2015; Gonda & Emanovský, 2017). This finding is very important as it points to the fact that it is possible to supplement students' predominantly procedural knowledge with conceptual knowledge. This achieves the necessary balance in pupil's knowledge and to enable them to solve unfamiliar tasks independently. Professor Hejny (1990) considers the development of students' abstract thinking in conjunction with the ability to deduce to be one of the fundamental aims of mathematics teaching. At the same time, he points out the danger of students' formal cognition of mathematics being an obstacle to the development of abstract thinking. Developed abstract thinking is a prerequisite for achieving mathematical literacy, the level which is measured in OECD countries by the PISA test. Mathematical literacy is a person's ability to express, apply and interpret mathematics in a variety of contexts. It involves mathematical thinking, using mathematical concepts, procedures, facts and tools to describe, explain or predict phenomena. It helps to realize the role of mathematics in the real world, and to make sound judgments and decisions on this basis, as it is required from a constructive, engaged, and reflective citizen (Niss, 2015). In terms of problem solving, the student is expected to know basic mathematical concepts, knowledge and skills. Basic mathematical skills are considered to be: communication, visualisation/representation, strategy design, mathematization, reasoning and argumentation, use of symbolic, formal and technical language and operations, and use of mathematical tools (PISA, 2012). In terms of problem solving, student is expected to know basic mathematical concepts, knowledge and skills. Basic mathematical skills are considered to be: communication, visualisation/representation, strategy design, mathematization, reasoning and argumentation, use of symbolic, formal and technical language and operations, use of mathematical tools (PISA, 2012). Since 2003, a persistent low level of mathematical literacy can be observed overall in OECD countries. In 2003, 66.5% of tested students in the OECD achieved a level of mathematical literacy at level 3 or below (the highest level is level 6). In 2015, 68.7% of OECD students tested reached level 3 and below in mathematical literacy. Only 4.0% of OECD students tested reached Level 6 in 2003, and in 2015 this was almost halved to 2.3%. On the other hand, Level 1 and below was achieved by 21.4% of students in 2003. In 2015, this was 23.4% of students tested. In addition to the persistently low levels of mathematical literacy, the data above also show a slight decline in the percentage of students who achieved level 6 and an increase in students at level 1 and below.

It is quite alarming that the majority of students tested do not exceed level 3 mathematical literacy. According to the results of the above mentioned testing, it seems that the main goal of mathematical education has not yet been met, which according to the SPO: "The main goal of mathematical education is for the student to acquire the ability to use mathematics and mathematical thinking in his/her future life"(SPO, 2015). If

students are to use mathematical thinking in everyday life, we consider that it is necessary to set up mathematics teaching in such way that it will purposefully develop each level of thinking. From about the age of 12, it is appropriate to direct mathematical teaching primarily towards the development of abstract thinking. The acquisition of abstract thinking is the end of a developmental journey, where at the end of which stands a young person who can think logically and interact with the world around him. Already the adolescent acquires the tools that will enable him or her to move forward in the process of cognitive maturation (Ruisel, 2008).

Within mathematical symbolic notations, students are first confronted only with numbers, where prime numbers playing an essential role in mathematics (Đuriš et al, 2021). In addition to numbers and symbols of mathematical operations, they also encounter letters later on. These letters mostly represent some numerical values. If a letter in mathematical notation represents one particular numerical value, it is called a constant. A constant denotes a fixed number whose notation is too "complicated", a number whose exact value we do not know (e.g., Ludolph's number π), or a number whose value we do not yet know. In expressions, we often encounter a letter that we call a variable. A variable represents an arbitrary number (object) from a pre-specified set. When an expression with a variable occurs in an equation, we are talking about an unknown whose specific value is to be determined so that the equation becomes an equality. Thus, we are trying to transform the equation into the form unknown = known number. Another possibility represented by a letter in a mathematical problem is a parameter. A parameter is an indeterminate but fixed element that determines the value of a variable. The paradoxical epistemic nature of this algebraic object rests on its apparent contradiction: it is a fixed concrete number, yet it remains indeterminate in that it is not a real number (Ely & Adams, 2012). To make matters worse for students, in some cases we refer to letters as coefficients (e.g., the coefficients of a quadratic equation). However, coefficients are essentially parameters.

2 Learning the concept of a parameter

The biggest problem for students is understanding the very nature and function of a parameter and the related problems of distinguishing it from the unknown in an equation. The causes of pupils' misunderstanding of the concept of parameter have been addressed by number of researchers (Bardini, Radford, & Sabena, 2005; Martinez et al, 2011; Bardini & Pierce, 2015; Emanovský & Gonda, 2020). These researches show that students often confuse the concepts of variable, unknown and parameter. A variable is often understood by students as a 'potentially determined' number. Thus, they see it as a temporarily unknown number that will be determined at some point in time. This is probably the source of the frequent confusion between the term variable and the term unknown, by which we mean an unknown number that is determined when solving an equation or inequality. Bardini et al. (2005) introduce a parameter as a new algebraic object - an unknown, but at a given time the fixed element chosen from a set of variable values. In this context, a parameter is closer to the notion of variable than to the notion of unknown. Students encounter the concept of parameter most often in secondary school within the unit of solving equations and inequalities with a parameter. A problem containing a parameter is essentially a set of problems of the same type. A concrete problem is obtained by replacing the parameter by some number. If we add a parameter to the problem, the type of the problem does not change (the quadratic equation remains quadratic). Therefore, the procedure for solving the problem is essentially the same as for a problem of the given type without a parameter. This is until the next step of the solution depends on the value of the parameter. Although the parameter in the problem statement does not make it a new type of problem requiring also a new method of solution. However, in pedagogical practice, serious problems are often encountered by pupils when solving problems with a parameter.

A new unit often evokes for students the need to learn new procedures, which is related to the prevailing tendency of students to learn mathematics by memorizing computational algorithms. The research finding is that mathematical teaching is dominated by the teaching of procedural knowledge. This is surprising because there is a largely held belief among practitioners that conceptual knowledge should be developed before students begin to acquire the relevant computational procedures and algorithms (Baroody, 2003; Kilpatrick et al., 2001). Therefore, it is important to recognise the difficulties that students have in acquiring the concept of a parameter. It is compounded by students trying to know the solution procedure without understanding the individual steps of the algorithm. Understanding the nature and function of a parameter represents a long-term task from a methodological point of view. According to Hejny (1990), it is not possible to explain to students what a parameter is in one go if they have no experience with it. This fact requires a different approach to the acquisition of the concept of a parameter by first providing students with procedural knowledge of a parameter and gradually trying to develop their conceptual knowledge of the concept of a parameter. According to several researches, this "reverse" approach of acquiring a new concept is possible (Karmiloff-Smith 1992; Siegler and Stern, 1998; Canobi 2009; McNeil et al., 2014). In acquiring the concept of parameter, student apparently has to go through this way so that subsequently the concept of parameter can be used in the development of the learners' abstract thinking.

Example 1 Solve the inequality $(x + 2)(4 - x) \leq 0$ on the set \mathbb{R} .

Solution. For example, we use the zero-point method to find that the solution of the given inequality is $x \in (-\infty; -2) \cup (4; \infty)$. We perform the test by replacing the unknown x in the input inequality by the expression $-2 - a$, where $a \in (0; \infty)$. With the formed expression and the chosen admissible values of the parameter a , we verify in one computation that all elements of the interval $(-\infty; -2)$ are solutions of the given inequality. To verify the correctness of the interval $(4; \infty)$ we replace the unknown x in the inequality by the expression $4 + a$, where $a \in (0; \infty)$. These assumptions follow from the execution of the test in the previous two examples. In the first case, after indentation, we get

$$LS = (-2 - a + 2)(4 + 2 + a)$$

and after modifications

$$LS = (-a)(6 + a).$$

The right side is equal to 0. According to the equation, $LS \leq RS$, it should be valid

$$(-a)(6 + a) \leq 0.$$

We are looking for values of the parameter a for which the expression LS will have negative values or will be equal to zero. Again, using the zero-point method, we determine that the given condition is satisfied for the values of the parameter $a \in (-\infty; -6) \cup (0; \infty)$.

According to the previous examples, we expect to solve $a \in (0; \infty)$. But by performing the test, we found that the condition $LS \leq RS$ is still satisfied also for parameter values belonging to the interval $(-\infty; -6)$. It is a natural question to ask what values the unknown x , which has been replaced by the expression $-2 - a$, takes for values of the parameter $a \in (-\infty; -6)$. The equality of $x = -2 - a$ implies $a = -x - 2$ while $a \leq -6$ stands. Substituting in the inequality for the parameter a , we get

$$-x - 2 \leq -6 \quad \Rightarrow \quad x \geq 4.$$

This confirms that the given inequality is also satisfied for values of the unknown from the interval $(4; \infty)$.

By evaluating the previous performance test of the solution of the inequality using the parameter, we come to a certain difference compared to the current test of the correctness of the equations. If we have multiple solutions of an equation, the correctness test is performed by a separate calculation for each solution. If the solution of an inequality is the union of two intervals, a single calculation for both parts of the solution of the inequality is sufficient to perform the correctness test using the parameter.

We verify the universality of this "discovery" on different types on results of inequality.

Example 2 Solve the inequality on the set \mathbb{R} $(2-x)(x^2-9) \geq 0$.

Solution. Using the zero-point method, we find that the solution of the given inequality is $x \in (-\infty; -3) \cup (2; 3)$. To perform the correctness test, we use the "discovery" from the previous Example 3.3. We perform the test by replacing the unknown x in this case by the expression $-3 - a$, where a is a parameter and represents all numbers in the interval $(0; \infty)$. We will see if this also verifies the correctness of the interval, which is bounded on both sides. After fitting to the assignment and making adjustments, the following stands.

$$LS = a(a+5)(a+6).$$

At the same time, according to the assignment, $LS \geq RS$ should be valid, so we solve the inequality

$$a(a+5)(a+6) \geq 0.$$

Using the zero-point method, we find that LS takes nonnegative values for parameter values $a \in (-6; -5) \cup (0; \infty)$. We see that the admissible values of the parameter are values from the "expected" interval $(0; \infty)$, thus confirming the validity of the $x \in (-\infty; -3)$ part of the result. We now examine what values the variable x takes for the remaining calculated values of the parameter a . For a , the following holds

$$a = -x - 3 \quad \wedge \quad (a \in (-6; -5) \Rightarrow -6 \leq a \leq -5).$$

On the basis of the above

$$-6 \leq -x - 3 \leq -5$$

and after modifications

$$2 \leq x \leq 3.$$

That is $x \in (2; 3)$, which also verifies the correctness of the second part of the solution set of the given inequality.

In the following example, we examine how the test using the parameter turns out if the solution of the inequality is an interval except for one number.

Example 3 Solve the inequality $x^2(x-3) < 0$ on the set \mathbb{R} .

Solution. The solution of the given inequality is found by means of the zero point method. All $x \in (-\infty; 3) - \{0\}$ satisfy the given inequality. We perform the correctness test by exploiting the parameter by replacing the unknown x by the expression $-3 - a$, where a is a parameter that represents numbers from the interval $(0; \infty)$. The parameter is set as if the solution of the inequality were the interval $(-\infty; 3)$. The goal of the following validation steps is not primarily to perform the test itself. The focus will be whether, even in this case, a single computation is sufficient to detect an inadmissible value for the unknown x in the interval $(-\infty; 3)$. After replacing the unknown by the above expression with the parameter and after adjustments, the following stands

$$LS = a(3-a)^2.$$

According to the assignment, $LS < RS$ must be valid, so we solve the inequality

$$a(3-a)^2 < 0.$$

LS takes negative values for $a \in (0; \infty) - \{3\}$. In a simple way, we find that if $a = 3$, then $x = 0$. It can be stated that even in this case, one calculation is sufficient to verify the correctness of the result of the inequality as a whole.

In the final example, we will verify whether one calculation is sufficient to test correctness even if the inequality has a solution consisting of more than two parts.

Example 3 Solve the inequality on the set \mathbb{R} $\frac{(x-3)(x+4)}{x(6-x)} \leq 0$.

Solution. Using the zero-point method, we arrive at a solution of the inequality $x \in (-\infty; -4) \cup (0; 3) \cup (6; \infty)$, which can be naturally split into three subsets. We construct an expression to replace the unknown as if we were going to check the correctness of only one of the intervals, for example the interval $(6; \infty)$. All elements of this interval can be replaced by the expression $6 + a$ where a is a parameter that can be replaced by any number from the interval $(0; \infty)$. After the above substitution and after adjustments, the following stands

$$LS = \frac{(a+3)(a+10)}{-a(a+6)}.$$

From the definition of the inequality $LS \leq RS$, so we solve the inequality

$$\frac{(a+3)(a+10)}{-a(a+6)} \leq 0.$$

LS takes non-positive values for $a \in (-\infty; -10) \cup (-6; -3) \cup (0; \infty)$. We know that for $a \in (0; \infty)$ the unknown takes values from the interval $(6; \infty)$. Based on the experience from the previous examples, we assume that to complete the correctness test, it is sufficient to find out what values the unknown takes if the parameter represents numbers from the intervals $(-\infty; -10)$ and $(-6; -3)$. Based on the substitution used, $a = x - 6$. The interval $(-\infty; -10)$ can be replaced by the inequality $a \leq -10$, after substituting for the parameter and after adjustments we get $x \leq -4$, which corresponds to the first part of the solution, i.e. the interval $(-\infty; -4)$. The interval $(-6; -3)$ can be replaced by the system of inequalities $-6 < a \leq -3$. Substituting for the parameter and after simple modifications, we have the notation $0 < x \leq 3$. This notation corresponds to the second part of the solution of the inequality, which is the interval $(0; 3)$. This confirms to us that even for a result of an inequality that consists of more than two parts, it is sufficient to set the parameter to cover one part of the result in order to perform the overall test.

3 Process of abstraction

The aim of the previous examples is to learn the notion of parameter and to get the first experience for students with this mathematical concept. It is a suitable tool for the process of abstraction. The correctness test is only a "mathematical backdrop" to introduce the new concept into the students' world of knowledge. As we mentioned above abstract thinking is realized in concepts that are presented in verbal form and that are the result of a higher form of generalization and abstraction. Abstract thinking and the abstraction process associated with it, has a great importance for students' progress. Mathematics as an abstract science abstracts from the concrete nature of an object, thus paving the way for new theories that are applicable in a variety of concrete practical applications. Abstractness allows mathematics to capture the variety of forms of real objects and consequently to reveal the relatedness between different objects (Šedivý et al., 2001). The parameter problems are a good tool for students to learn about the process of abstraction in the context of mathematical cognition. With this intention, parameter tasks

will become a powerful tool for developing students' abstract thinking because they will be directly initiated into the mathematical mode of abstraction. The process of abstraction can be made accessible for students in the form of graded tasks, with the gradual incorporation of a parameter or several parameters into an initially 'concrete' task. When a parameter (or multiple parameters) is used in solving a particular problem, there is a move away from calculating that particular problem to finding a solution to that problem in general. With parameters, it is possible to discover various dependencies between values affecting the final outcome of the problem. A common product of "parameterizing" a problem is a formula that can be "entered" into a computer, which will do the necessary calculations after retrieving the specific values of each parameter. Parameterization of the task leads to the creation of a solution for the entire task system. The ability to parameterize a problem and then solve the resulting parametric problem is a significant benefit and an extension of students' problem solving skills and abstract thinking. Another benefit of problems solved by parameterization is the further development of the correct concept of a parameter as a substitute for numbers, in the search for an efficient way to solve the given problem. Teaching mathematics enriched with graded problems associated with parameterization develops students' ability to solve a specific problem with general insight. Through the parameterization of problems, students become aware that a particular equation is a mathematical model of a given specific situation, but the corresponding parametric equation is a mathematical model of the whole system of problems. We think that this knowledge has a great benefit, for example, for future programmers. Their task is often to create a complex solution to a problem (preferably creating a formula), which is the core of a given program. The computer retrieves the necessary values (parameters) from the requestor of the specific request and offers the desired result in a short time. This is an example where a person has created a solution method and then "taught" the computer to calculate specific tasks from the given task system. This fulfils society's requirement for teaching of mathematics: man creates - computer computes. In the following we present some sample graded problems associated with parameterization, which aim to support the development of students' abstract thinking.

4 Conclusion

We are living in the time of the fourth industrial revolution (IR 4.0), which is changing the way we live, work and communicate at a relatively rapid pace. This trend is likely to continue. According to the World Economic Forum, an estimated 65% of children enrolling in primary education today will end up working in jobs that have not yet been created at that time. At the same time, there is constant emphasis on education being geared towards preparing young people for their future working lives. Thus, education needs to be responsive to the current needs of practice. The response to the needs of IR4.0 is the educational vision of Education 4.0, whose primary objective is to match human skills and new technical capabilities in order to prepare students for new opportunities in the constantly evolving labour market. In today's companies, humans are needed to be able to consider a lot of disparate information and combine it into a single solution. The expected creativity of a graduate is linked to divergent thinking, which opens the mind to the knowledge that there may be multiple possibilities of the right way to solve a problem. Given the relatively easy and quick availability of the necessary information, the Education 4.0 vision recommends that education should focus more on developing the skills that will enable students to actively use the information they have acquired. This is the brain's ability to switch seamlessly between different modes of thinking, e.g. creative, abstract, critical thinking, etc. The more fluently you can do this, the more likely it is that new patterns and associations will be formed. This ability requires sufficiently developed abstract thinking so that the graduate trainee (future employee) is able to abstract important knowledge from the situations and objects which he or she acquired and is able to adapt to new, often very distant, conditions. Teaching mathematics with a focus on the development of critical thinking

creates the preconditions for being able to transfer the acquired knowledge from one object to another, which can be regarded as signs of cognitive flexibility. Cognitive flexibility helps to maintain attention or to shift it to something else depending on the changing demands of the environment or to take a different approach to different situations. At the same time, students are expected to solve problems independently with which they have not encountered before. To do this, they need to be able to form an overall picture of the problem in the context and, through the process of abstraction, to identify the essential features of the problem and relate them to other abstractions in their minds. An important factor is the ability to notice details, which are often crucial in finding the right solution to a problem. It is the parameterization of the problem, i.e. the attempt to solve the problem in a general way, that often leads to the discovery of these key details, which are often the decisive factor for the effective solution of the given problem. We believe that current mathematical education does not need primarily a change in content, but rather a change in the forms of teaching and the goals of mathematical education. In the upgraded ISCED 3 state curriculum for upper secondary education, the term 'parameter' no longer appears. Thus, the teaching of problems with a parameter has been omitted from the mathematical teaching. The notion of parameter is a difficult concept, but it has potential to develop the necessary abstract thinking and in our opinion, a sufficient argument for its reintroduction into teaching of mathematics.

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Primary Paper Section: A

Secondary Paper Section: AM

SELECTION OF TOOL FOR GLOBAL LITERACY ASSESSMENT

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The paper presents partial results of the project KEGA No. 026EU-4/2021 "Development of Global Business Literacy of Students of Economics and Management" in the frame of the granting program of the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and Slovak Academy of Sciences.

Abstract: Global literacy is usually associated with knowledge on contemporary political, economic, and social issues, enabling individuals to fulfill their role as active global citizens. Several approaches to assess global literacy or global competence can be found in the existing literature. The present paper is aiming to provide critical content comparison of selected approaches to global competence/ literacy assessment and to select appropriate tool, especially for the use in the higher education context. The selection is conducted on a basis of multicriteria decision-making approach, namely analytic hierarchy process. Possible modifications of the selected tool are further discussed.

Keywords: assessment, decision-making, global competence, global literacy, tool.

1 Introduction

As the world becomes more interconnected and global, so do the demands to prepare people for life and work in this world. Professionals working in a global business environment are expected to have specific competences related to the countries where they operate, including understanding the history, culture, laws, economy, business practices and trade patterns of the target country. It also includes a broader understanding of issues common to any international work as traveling around the globe, risk mitigation, international contracts and much more. However, these expectations do not only apply to people working directly in business, but the need to integrate them into the curriculum has long been recognized in other professions (e.g., engineering) in order to be better prepared for global practice (e.g., Lohmann et al., 2006; Ortiz-Marcos et al., 2020).

Various policy institutions have recognized these trends and have developed some tools designed to assess the level of preparedness of people to live and work in the global world. A good example in this regard is the OECD, which developed a metric to assess global competence of 15-year-old pupils and added it to its Program for International Student Assessment (PISA) in 2018 and subsequently released first outcomes in 2020 (OECD, 2020). The OECD thus apparently wanted to secure its position as global governor of education by mastering comprehensive global assessments of national education systems (Robertson, 2021) and to take the role of a leader in assessing such a key interest (Andrews, 2021). However, after the introduction of these initiatives, a huge critical discussion has emerged, raising doubts especially about the methodological aspects of the concept and the universality of its use (e.g., Grotlüschen, 2018; Engel et al., 2019; Cobb, Couch, 2022).

There are also other institutionally or even individually developed approaches to assess readiness to operate in a global business context, but many of them remain unduly in the shadow of the OECD's assessment. Hence, in an effort to find the best tool for assessing global knowledge, skills and attitudes, researchers continue to look for new tools, despite the existence of a relatively broad portfolio of existing, already validated approaches. However, these approaches remain fragmented and often lack consistency especially from terminological, methodological, content as well as application point of view.

This paper aims to present and critically compare selected existing approaches to assess the readiness of young people for global practice and to provide an example of selection of appropriate approach, especially for academic purposes. The

paper follows this structure: In the following part, the notion of global competence as a broader concept in relation to global (business) literacy is introduced followed by overview of the tools designed for its assessment. The next part explains the methodology of the selection process with its subsequent implementation and discussion of the results in the follow-up part of the paper.

2 Notion of Global Competence and Global Literacy

Globally competent people are generally described in the literature as having the ability to discover the world outside their immediate environment, recognize their own and other perspectives, communicate thoughts effectively with culturally different counterparts, and take steps to improve living conditions (Mansilla, Wilson, 2020). This indicates multidimensional facet of the global competence construct that is revolved around specific components, namely knowledge, skills and attitudes as indicated in the literature even more than a decade ago. Students should first acquire in-depth knowledge about the world, especially about targeted foreign culture (Bresciani, 2008) that should be supplemented by skills consisting at least of the ability to use acquired knowledge to think critically and solve practical intercultural problems (Deardorff, 2006). Finally, students should also have positive attitudes toward other cultures formed through respect and recognition of the benefits of learning about foreign cultures (Mansilla, Jackson, 2011). Moreover, the OECD's global competence framework at the theoretical level adds the component of values that go beyond attitudes and transcend specific objects or situations (Schwartz, 2012); however, it is beyond the scope of the PISA assessment. Contentual dimensions of the global competence are traditionally built on the components of knowledge, skills and attitudes, and there is not a big discrepancy in the existing literature in this respect. On the other hand, constitution of the particular dimensions and their content that would form operational definition of global competence is far from conclusive and is reflected in various approaches to the assessment of the global competence.

Within PISA assessments the general term "literacy" is also used and indicates the ability of a person to apply knowledge and skills in key areas and to effectively analyze, justify and communicate in identifying, interpreting and solving problems in different situations (OECD, 2020). Similarly, Cakmak, Bulut and Taskiran (2017) consider global literacy to be based on knowledge associated with accessing and understanding contemporary political, economic, and social issues, enabling individuals to fulfill their role as active global citizens. The importance of the global literacy was highlighted also by King and Thorpe (2012) who included this ability among the nine most important skills that a graduate should have.

Taking into account discrepancies with regard to the content of the concept of global competence as well as its significant overlap with the concept of global literacy, for the purpose of this paper, we will not strictly separate these two concepts from a terminological point of view.

3 Comparison of Assessment Tools

Within this section of the paper, we provide the descriptive comparison of the selected approaches and tools designed for assessment of the readiness of young people for life and work in the globalized world. The selection of the tools presented below was motivated primarily by availability of the concept in the relevant literature underpinned by results of its practical application within school/ academic environment. We included two institutionally developed and two individually developed assessment tools into our furthermore detailed analysis, namely:

3.1 Global Competence Aptitude Assessment

One of the best-known dimensional approaches originally based on the study by Hunter et al. (2006) is the Global Competence Aptitude Assessment (GCAA), which is based on a joint effort of Delphi panel of experts from various fields. The model includes eight dimensions that are routed around internal readiness, namely self-awareness, risk taking, open-mindedness, and attentiveness to diversity, as well as external readiness, namely global awareness, historical perspective, intercultural capability and collaboration across cultures (Global Competence Associates, 2022). Despite the fact that it was originally intended to assess global competence of employees working in multinational companies without taking into account other target groups, it later found its application also in the academic field (e.g., Kaushik et al., 2017). For example, Schenker (2019) used this instrument to study the effects of a short-term study abroad program on university students' global competence. The GCAA is available through purchase and a web-based instrument takes from at least 30 minutes to an hour to complete, depending on individuals' knowledge about a global world. The instrument besides Likert-scale self-appraisal items includes also scenario-based and behavioral-based items to avoid bias in self-reporting. However, one of the shortcomings that restricts applicability of this instrument in its original form on a wider international scale is its focus on the U.S. environment.

3.2 OECD Global Competence Framework

Another institutionally developed approach that gained significant attentions in the literature especially in the recent years, is the concept of global competence introduced by the OECD's Program for International Student Assessment (PISA) in 2018 (OECD, 2020). The original, already conducted survey was aimed to evaluate the level of global competence of 15-years-old students in 66 countries. Hence, both instruments, namely a questionnaire bringing self-reported information and a cognitive test based on problem solving related to the intercultural and global issues, have found their transnational applicability. The questionnaire itself is publicly available and it consists of eighty items that take into account the testing time, the sensitivity of the questions and are adapted to the abilities of the target group of 15-year-old students.

3.3 Global Business Literacy Assessment Framework

A study by Arevalo et al. (2012), based on existing literature on global business education, developed a 58-item survey and applied it to evaluate undergraduate Global Business Literacy (GBL) learning outcomes reached through traditional classroom-based approach. After testing the original 58-item scale, the authors presented (within annex of their study) and applied new 40-item scale covering five dimensions of global business literacy, namely self-efficacy, willingness to learn, relationship development, technical competence and self-awareness. The authors consider their concept of global business literacy to be appropriate for assessing effective and congruent learning outcomes of university students. At the same time, this concept was recognized in the review study by Seno-Alday and Budde-Sung (2016) as the only one focusing on global business literacy assessment, in terms of content or skills.

3.4 Student Global Competence Concept

Another individually developed instrument focusing on cultivating student global competence is a three-dimensional taxonomy concept to measure global attitudes, skills and knowledge introduced and applied by Li (2013). The author believes that while the global competence of an individual is influenced by the same sets of characteristics of attitudes and skills in the similar way regardless of the respective foreign culture, the actual knowledge needed for a particular communication scenario is culturally specific. Hence, attitudes and skills were measured indirectly via 17 items questionnaire list of which is stated in the study and knowledge was measured directly by 20 multiple-choice questions focused on the context

of China and the U.S. The author believes that the instrument can be easy to use in a classroom setting to provide teachers with an idea of the actual global competence level of their students. The proposed three-dimensional structure was subsequently supported also by other studies (e.g., Liu, Yin, Wu, 2020).

4 Methodology

The aim of the present paper is besides critical comparison of selected existing approaches to global competence/ literacy assessment provide an example of selection of appropriate tool, especially for academic purposes, namely for application of this tool on a sample of students of economics, business and management within European universities. Due to existence of several partial aims of the assessment as well as some time and resource limitations, the multicriteria decision-making approach is applied. Following criteria (C) were selected and applied:

- C1: degree of coverage of global issues related to the economy and business,
- C2: applicability of the instrument in the European environment,
- C3: suitability for use in the higher education context,
- C4: costs of availability,
- C5: time for completion.

The first three criteria are rather qualitative, while the remaining two are quantitative. In order to determine the weights of the criteria, the method developed by Saaty (1980) was used. First, we compared the criteria between each other and determined the preference relationship of each pair of criteria. Besides direction of the preference, we determined also the intensity of this preference using scoring scale as suggested by Saaty (1990) and recommended also by other authors (e.g., Fotr et al., 2010). If the criterion in the row is more significant than the criterion in the column, the number of points expressing the size of the preference of the criterion in the row with respect to the criterion in the column is entered in the appropriate field. Conversely, if the criterion in the column is more significant than the criterion in the row, the inverse value of the selected number of points is entered in the appropriate field. Second, we determined the geometric means of the values in the rows of the pairwise comparison matrix (table 1) and which values we subsequently normalized to obtain the final weights of the criteria.

Tab. 1: Pairwise comparison matrix

	C1	C2	C3	C4	C5	Geometric means	Final weights
C1	1	5	3	3	1	2.14	0.34
C2	1/5	1	1/3	1/3	1/5	0.34	0.06
C3	1/3	3	1	1	1/3	0.80	0.13
C4	1/3	3	1	1	1/3	0.80	0.13
C5	1	5	3	3	1	2.14	0.34

Source: own processing

Subsequently we worked with following alternatives, namely selected global competence/ literacy assessment tools that are introduced above:

- A1: Global Competence Aptitude Assessment
- A2: OECD Global Competence Framework
- A3: Global Business Literacy Assessment Framework
- A4: Student Global Competence Concept

Again, the approach proposed by Saaty (1980) was used to evaluate the individual alternatives. The overall evaluation of individual alternatives is determined as a weighted sum of the partial evaluations of the alternatives with respect to the individual criteria. This is analogous to the procedure for determining the weights of the criteria mentioned above. However, the compared objects are not criteria, but decision alternatives. For each criterion, we created a matrix based on a pairwise comparison of variants. In the case of the first four criteria, the size of the preference of all pairs of alternatives was determined on the basis of the assignment of points from the recommended scoring scale (Saaty, 1990). In the case of the last

criterion, we assessed the time for completion of the instrument according to the number of surveyed items, while the partial evaluation of alternatives corresponds to the ratio of the number of items among each other.

5 Results and Discussion

In the table 2 we first present partial evaluations of individual alternatives with respect to individual criteria. For this purpose, five pairwise comparison matrixes are constructed, based on which partial evaluations are counted as normalized geometric means of the values in the rows of the matrixes.

Tab. 2: Partial evaluations of alternatives

	Alternative	A1	A2	A3	A4	Geometric means	Partial evaluations
C1	A1	1	1/3	1/3	1	0.577	0.119
	A2	3	1	1/5	1/3	0.669	0.138
	A3	3	5	1	3	2.590	0.536
	A4	1	3	1/3	1	0.999	0.207
C2	A1	1	1/3	1	3	0.999	0.175
	A2	3	1	3	5	2.590	0.454
	A3	1	3	1	3	1.732	0.303
	A4	1/3	1/5	1/3	1	0.386	0.068
C3	A1	1	3	1/3	1/3	0.760	0.150
	A2	1/3	1	1/5	1/5	0.340	0.068
	A3	3	5	1	1	1.968	0.391
	A4	3	5	1	1	1.968	0.391
C4	A1	1	1/5	1/5	1/5	0.299	0.064
	A2	5	1	1	1	1.495	0.312
	A3	5	1	1	1	1.495	0.312
	A4	5	1	1	1	1.495	0.312
C5	A1	1	0.825	0.412	0.381	0.599	0.138
	A2	1.213	1	0.5	0.463	0.728	0.167
	A3	2.425	2	1	0.925	1.455	0.334
	A4	2.622	2.162	1.081	1	1.573	0.361

Source: own processing

Since we dispose with quantitative data only with respect to the criterion 5, the partial evaluation of the alternatives was done on a basis of the ratio of the number of items in each questionnaire. In all other cases, we used relative pairwise evaluation, going out from the information provided in the part 3 of this paper. The calculation of the overall evaluation of the respective alternatives presented below (table 3) is realized as a weighted sum of partial evaluations using the weights calculated in the part 4 of this paper.

Tab. 3: Overall evaluation of alternatives

Criterion	Weight	A1	A2	A3	A4
C1	0.34	0.119	0.138	0.536	0.207
C2	0.06	0.175	0.454	0.303	0.068
C3	0.13	0.150	0.068	0.391	0.391
C4	0.13	0.064	0.312	0.312	0.312
C5	0.34	0.138	0.167	0.334	0.361
Overall evaluation		0.1257	0.1803	0.4054	0.2886
Final order		4.	3.	1.	2.

Source: own processing

Results of multicriteria decision-making show that most suitable for our purposes is the instrument aimed at evaluation of global business literacy developed by Arevalo et al. (2012) followed by instrument developed by Li (2013). It is done especially by their relatively high degree of coverage of global issues related to the economy and business as well as time efficiency of completion of the instrument. Some previous studies (e.g., Greer et al., 2000) have shown that, in general, shorter questionnaires are more likely to be answered than long ones. Other important aspects are also public availability of the instrument and its previous use in the higher education context, especially for the purpose of classroom-based approaches. On the other hand, relatively short compact construct of the questionnaire can lead to omission of some aspects that can be relevant in the context of global competence/literacy. Taking into account also the time of its creation, there seems to be a need to revise the instrument in the light of current development tendencies and trends.

In recent decades, we have witnessed many radical changes taking place in the external environment, which have fundamentally influenced and shaped the views of especially young people on the global world. In this regard, it is necessary to mention especially digital communication technologies, such as online networks, social media or interactive platforms, which make it easy to connect people on the one hand but can also be a source of inappropriate content or even false news, on the other hand. Hence, cultivating media literacy, which is traditionally understood as a set of critical thinking-based skills (Bulger, Davison, 2018), can be considered an important element of engaged global citizenship (Mihailidis, Thevenin, 2013).

Another important aspect in the development of global competence is also risk-taking tendency, which is explicitly included among internal readiness personal characteristics of the Global Competence Aptitude Assessment (Global Competence Associates, 2022). In this regard, brave individuals who are willing to cope with unfamiliar environments and situations are considered to be better prepared to operate in today's global world. However, the risk-taking question when assessing global competence can be found also in other studies (e.g., Meng, Zhu, Cao, 2017).

6 Conclusion

The aim of the paper was to present and critically compare some of the existing approaches to assessing the readiness of young people to live and work in a global world and to select the most appropriate tool that we will use in our future research. Naturally, the preselection of the tools was motivated especially by our needs and limitations. Hence, we focused on tools that have already been applied on a sample of students and are relatively easily available. Taking into consideration these specific criteria, by application of analytic hierarchy process, we selected global business literacy assessment framework proposed by Arevalo et al. (2012) as the one that the best fits our requirements. However, based on different criteria, or after assigning different weights to the individual criteria, we would most probably come to a different choice.

The tool we have chosen best meets our current requirements; however, it is not without limitations. We consider it important to review the framework properly, taking into account in particular the changes in the external environment that have taken place over the last decade, and possibly to add some important new aspects, such as digital media literacy or risk attitudes. At the same time, we have to point out to the fact that we restricted our attention on tools that explicitly assess "global" competencies or literacy and omitted other tools used for evaluation of similar, closely related aspects, such as "intercultural competence", "global citizenship" etc. Hence, future research can be directed toward broader consideration of other related approaches and tools to assess these phenomena.

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Primary Paper Section: A**Secondary Paper Section: AE, AM**

CAPITAL STRUCTURE OF COMPANIES APPLYING PRINCIPLES OF CIRCULAR ECONOMY

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Abstract: This paper concerns the capital structure of companies that apply the principles of circular economy. Such companies inquire information about this more sustainable approach. The objective of the paper is to find out what is the capital structure in companies that operate in the field of agriculture and are also actively involved in the circular economy system. The paper examines statistical characteristics and basic items of financial statements related to companies that apply and those that do not apply the principles of circular economy. The difference between these types of companies is thus sought. There is an analysis that includes data taken from the Cribis database of the CRIF - Czech Credit Bureau a.s. An abbreviated financial analysis focusing on absolute indicators of financial statements is used as well.

Keywords: Capital, capital structure, financing, agriculture, circularity

Introduction

The main topic of the paper is the capital structure in companies that deal with circular economy. In general, the basic economic element is a company, whose goal is usually to satisfy the needs of its customers. It does so in order to achieve and maximize its profit. Thus, each company must carefully analyse its asset and capital structure.

The current economic situation is very challenging for companies. It is therefore important to draw sufficient attention to this topic and be successful in terms of one's competition in the market. The principle of circular economy is increasingly emphasized due to current conditions as it can be a suitable tool for sustainable resources.

Companies must begin to respect nature and the environment so that there is no need to address resource scarcity in the future. The sooner they move to this environmentally friendly system, the sooner they will overcome certain barriers and problems associated with this approach. This system will then significantly benefit companies over their competitors. Environmental friendliness appeals to more and more people and hence to customers.

Better corporate culture leads to a positive effect on profitability (Fay, Feng, Patel, 2022). Thus, the paper will primarily deal with the capital structure of companies that follow the principles and methods of circular economy. In order for a company to have such a positive effect on the environment, it must have the capital to spend on this activity.

Ecosystem restoration translates into an increase in natural capital and thus human well-being. This activity must also be integrated into circular economy (Alba-Patino et al., 2021).

1 Paper Objective

The objective of this paper is to find out what is the capital structure in companies that carry out their business activities in the field of agriculture and are also actively involved in the circular economy system. In order to meet the objective, two research questions were formed:

1. What was the structure of own resources of agricultural companies applying the principles of circular economy in the Czech Republic between 2016 and 2020?
2. What is the composition of external resources of financing in relation to these companies?

2 Literature Review

The ability to create circular economy means adopting its principles at all stages of the value chain. Borrelli (2018) stated

that it is necessary to consider how the circular economy principles are integrated into agricultural companies. It is definitely necessary to draw attention to the principle of renewability in the quality and size of capital stock, as it is related to welfare sustainability. Cappelletti, Rossi and Germani (2022) outlined the main obstacles to making circular economy a reality. The most critical issues include operating costs and human potential. In general, however, it follows that the production process based on circulation aims to create a closed loop system and to use resources as efficiently as possible while reducing waste and negative impact on the environment. De Pascale et al. (2021) stated that it is necessary to correctly define a specific context and to effectively apply the principles to it.

Ghafourian et al. (2022) emphasized the fact that the transition from the linear model to the circular economy model has intensified in recent years. Considerable effort has been put into evaluating circular systems, but less attention has been paid to the economic aspect. In order to propose the best option for economic profitability, cost analysis and project life cycle analysis must be performed. After their completion, it turns out that the investment in the project is economically viable. Companies confirmed medium to high success of the implementation into circular economy. According to Piyathanavong et al. (2021), it is implemented at the departmental level rather than within a company as a whole. The main driving forces are internal motivation and long-term sustainable development. Shortcomings include little knowledge and low support from top management.

In an investment project analysis, Donia, Mineo and Sgroi (2019) assessed economic feasibility with regard to investments of total capital self-financing. In circular economy, every waste product actually becomes a resource again. Restoration of these substances creates sustainable agriculture, e.g. it preserves soil fertility. Fabbri et al. (2021) highlighted the fact that soil is a natural non-renewable resource. The current rate of its use leads to degradation and loss of land for agriculture. The sustainability of agriculture considerably fell from 1950 to 2015. This was observed by Smit (2020) who also pointed out that the scenario of sustainable agriculture in 2040 strongly recommends a very significant reduction in energy and raw material consumption in combination with replacing a large amount of labour capital. Agricultural policy should be based on systematic changes. A sustainable agricultural system brings about higher labour costs and large savings in input purchases. Costs can be eliminated by purchasing local materials and involving local stakeholders. In their analysis, Kuipers et al. (2022) stated that if reusable materials are available in sufficient quantities, it can actually contribute to circular economy in agriculture. Co-operation between farmers is another way to circular economy. The areas of bio-economy and agriculture are also interconnected, where the former contributes to the development of the latter. The current and future goal of the European Union is to move from green to circular economy. Mary and Mariana (2022) analysed production costs, number of employees or turnover, and underlined the necessity of concrete and unified measures by Member States. Barros et al. (2020) aimed to compile a currently available literature review intended to contribute to the introduction and expansion of circular economy practices in agriculture.

With the growing demand of the human population for products, bio-waste from various agricultural sectors is rapidly increasing. It is usually disposed of unprofessionally. Ravindran et al. (2021) documented that this creates serious environmental problems, loss of nutrients and resources. They analysed several effective methods of using industrial biological waste. In agriculture, waste can be converted into clean energy. Fernando et al. (2022) looked into chain values as a prerequisite for circular economy capabilities. They suggest that strategic opportunities are explored in agriculture to benefit from clean energy while protecting the environment. Zadaokar, Darwai

and Mandavgane (2022) support a concept where crop cultivation and animal farming complement each other and lead to a sustainable agricultural system. Here, the impact of one system is used as a resource for the other. Two basic human needs are related to agriculture. Therefore, sustainable agriculture is in the interest of humanity.

Regarding the available scientific sources, it is clear that circular economy is currently a highly addressed topic. Appropriate methods are being sought to put its principles into practice. At the same time, the economic efficiency of the entire system is widely consulted, along with interconnectedness with other sectors, environmental impacts, costs of circular principles or the need for human capital. However, the issue of capital, its intensity and composition, which are necessary to enter circular economy, are addressed almost to a minimum. That is the reason why the author of this paper selected the capital structure of companies applying the principles of circular economy as the main topic. Following from her work, the author wishes to contribute and help companies make the transition from linear to circular economy. Data in this paper will be evaluated with the use of an analysis.

3 Data a Methodology

The basic data source shall comprise the Cribis database of the CRIF - Czech Credit Bureau a.s. Information on agricultural companies is also available to general public in the Collection of Documents, where companies publish their financial statements every year. The data used shall be processed in Microsoft Excel. There will be two files, with the first one including 10 companies that apply the principles of circular economy (the companies are approximately the same size and they were searched for on their websites), and the second one including 10 companies that do not participate in circular economy. The files shall contain columns with ID number, company name, year, total liabilities, own resources, share capital, capital funds, profit funds, economic result (profit or loss), external resources, reserves, bank loans, short-term liabilities and long-term liabilities, with all analysed data being in thousands of CZK and relating to the period of 2016-2020. Results show that companies in circular economy have a higher capital intensity than companies in linear economy.

First, certain formulas in Excel shall be used to calculate the basic statistical characteristics, i.e. arithmetic mean, median, maximum and minimum. The formulas are as follows:

$$1. \text{ arithmetic mean: } \bar{x} = \frac{1}{n} (x_1 + x_2 + \dots + x_n)$$

$$2. \text{ median: } Me(X) = \frac{n+1}{2}$$

The calculations shall be performed for both files of selected companies in relation to their total liabilities, own resources, share capital, economic result (profit or loss), external resources, short-term liabilities and long-term liabilities. The resulting figures are in thousands of CZK and are mathematically rounded. The data obtained shall be classified and presented in Excel tables 1 and 2. Based on the data, a comparative method shall be used to examine whether there are significant differences in the capital structure of the companies being compared, whether external resources or own resources prevail, and how does the capital structure of the companies change in the period under review? What is the structure of own resources of agricultural companies that apply the principles of circular economy? What is the composition of external resources of these companies?

4 Results

Results are presented in tables. As regards companies involved in circular economy, total liabilities average from CZK 248 201 to CZK 392 144, reaching their maximum in 2017 and their minimum in 2016 and 2018. Own resources are similar in 2016-2018 (around CZK 115 000) and increase slightly in the next two years (up to CZK 130 000). External resources prevail over

own resources, but only slightly. Share capital is almost identical in the first three monitored years (approximately CZK 77 000), increasing slightly in the next two years up to around CZK 79 000. The capital structure of such companies has a growing trend in the period under review. Their economic result is positive and at the same time it is growing in the monitored years. In 2016, it reaches its minimum of CZK 25 612 and its maximum of CZK 41 707 in 2020. External resources are, on average, higher than the companies' own resources. In 2016 and 2018, external resources are of a similar value (approximately CZK 130 000), reaching their maximum of CZK 277 079 in 2017. Short-term liabilities are lower than long-term liabilities. It is interesting that short-term liabilities are always below CZK 100 000, whilst long-term liabilities are above CZK 100 000 (except in 2016), being the highest (CZK 155 786) in 2019.

Total liabilities have their minimum value in 2018 and their maximum value in 2017. Own resources also reach their minimum in 2018 and yet their maximum in 2019. In 2017, external resources are at their minimum value in the period under review and yet reach their maximum value in 2019.

Additionally, median values for each year are given in Table 1 as well. The maximum median value of total liabilities may be seen in 2017, whereas their minimum median value in 2016 and 2018. As for own resources, their median value is the same in 2016-2018 (CZK 105 242) and in 2019-2020 (CZK 110 125). The median value of share capital is 75 847 CZK in 2016-2018 and CZK 77 280 in 2019-2020. The economic result's median value ranges from CZK 20 513 to CZK 29 007. The lowest median value of external sources may be observed in 2016 and 2018 and the highest in 2017. When regarding short-term liabilities, their median value is at its minimum in 2017 and at its maximum in 2016, whilst long-term liabilities are the lowest in 2016 and 2018 and the highest in 2017, 2019 and 2020.

Table 1: Basic statistical characteristics of companies applying principles of circular economy

Arithmetic means of companies applying principles of circular economy							
Year	Total liabilities	Own resources	Share capital	Economic result	External resources	Short-term liabilities	Long-term liabilities
2016	248274	117307	77679	25612	130648	74575	95585
2017	392144	115308	77915	27787	277079	13888	147424
2018	248201	116452	77950	28985	131621	24253	105787
2019	297120	125421	79402	32047	172264	19450	155786
2020	296784	130852	79405	41707	166140	24586	144160
Maximums and minimums of companies applying principles of circular economy							
Year	Total liabilities minimums	Total liabilities maximums	Own resources minimums	Own resources maximums	External resources minimums	External resources maximums	
2016	210520	279300	95120	135306	95400	156420	
2017	280490	452100	96260	142500	180510	297540	
2018	198520	298410	93250	148510	95420	156941	
2019	205120	356400	105200	168500	104120	196360	
2020	205630	364580	107600	143500	105640	188450	
Median values of companies applying principles of circular economy							
Year	Total liabilities	Own resources	Share capital	Economic result	External resources	Short-term liabilities	Long-term liabilities
2016	214812	105242	75847	20513	105048	66875	90522
2017	356251	105242	75847	22152	198520	10152	120103
2018	214812	105242	75847	22152	105048	20542	90522
2019	285621	110125	77280	28042	125412	17052	120103
2020	285621	110125	77280	29007	125412	20542	120103

Source: Own processing based on own data selection

As regards companies that do not participate in circular economy, total liabilities average from CZK 228 374 to CZK 362 254. These and the following figures are shown in Table 2. Own resources

range from CZK 105 018 to CZK 122 317 in the period under review. Share capital is stagnant in the first three monitored years and yet increases slightly in 2019 and 2020. The economic result of such agricultural companies is always positive, reaching its minimum in 2016 and its maximum in the last year. External resources are at their lowest in 2016 and so are short-term liabilities and long-term liabilities. The highest mean of external resources is in 2017, the highest mean of short-term liabilities is in 2018 and the highest mean of long-term liabilities is in 2017.

Total liabilities are the lowest in 2018 and the highest in 2017. The minimums of own resources range from CZK 94 320 to CZK 105 200, whereas their maximums range from CZK 126 306 to CZK 152 510. External resources have their lowest minimum in 2016 and the highest minimum in 2017, whereas their lowest minimum is in 2016 and their highest maximum in 2017.

The median values are in the range from CZK 213 802 (in 2016) to CZK 326 351 (in 2017). Own resources have their median values almost comparable in the monitored years (they range from CZK 101 925 to CZK 105 425). Share capital had the lowest median value in 2019 and the highest one in 2018. Also, these agricultural companies reported a profit as their economic result (being the lowest in 2016, similar in 2018 and the highest in the last monitored year, i.e. 2020). External resources grew in 2017 and 2018 and yet decreased in the next two years. Short-term liabilities are the lowest in 2016 and the highest in 2018. Long-term liabilities are significantly higher than short-term liabilities, reaching their minimum in 2016 and their maximum in 2017.

Table 2: Basic statistical characteristics of companies not applying principles of circular economy

Arithmetic means of companies not applying principles of circular economy							
Year	Total liabilities	Own resources	Share capital	Economic result	External resources	Short-term liabilities	Long-term liabilities
2016	228374	122317	67129	15302	106308	15075	82085
2017	362254	105018	68156	17157	257129	14088	126024
2018	236211	114152	68156	22085	122621	23653	92507
2019	282320	115321	72158	28447	167214	20140	123086
2020	249845	121652	73140	35607	126130	20286	94160
Maximums and minimums of companies not applying principles of circular economy							
Year	Total liabilities minimums	Total liabilities maximums	Own resources minimums	Own resources maximums	External resources minimums	External resources maximums	
2016	200120	278301	94320	126306	94300	161420	
2017	310490	422130	96810	131500	171510	217540	
2018	196510	289410	96350	152510	95300	152911	
2019	203210	326300	102310	152500	103220	183310	
2020	204660	345180	105200	151500	103140	182400	
Median values of companies not applying principles of circular economy							
Year	Total liabilities	Own resources	Share capital	Economic result	External resources	Short-term liabilities	Long-term liabilities
2016	213802	105242	70817	19013	100028	10170	80156
2017	326351	102041	70817	21022	208120	11840	119420
2018	215802	103262	73407	19252	215148	22670	102450
2019	275521	105425	69150	23152	145012	19450	101523
2020	215601	101925	70180	30427	113402	21521	95143

Source: Own processing based on own data selection

5 Discussion of Results

Total liabilities of agricultural companies that apply the principles of circular economy are higher than those companies that do not support the principles. The analysed data indicate answers to the previously established research questions.

1. What was the structure of own resources of agricultural companies applying the principles of circular economy in the Czech Republic between 2016 and 2020?

As can be seen from Table 3, own resources of companies with circular economy are higher than those of other companies. Own resources and share capital thus allow them to better focus on the sustainable use of resources and deepening circularity in a number of activities. The use of own resources in the transition to circularity is one of the important sources of financing.

2. What is the composition of external resources of financing in relation to these companies?

Agricultural companies in circular economy also have their external resources in higher figures than other companies. In particular, short-term liabilities and long-term liabilities are significantly higher. The transition to circular economy is costly and external resources must be taken into account. Banks play a big role here. In general, it may be stated that the bigger the company, the higher the costs. The transition to circular economy requires significant changes in a number of processes that must be set in order to be profitable in the long run. SMEs are more flexible and at an advantage in the transition to circularity. The system will not do either without the financial support of the state and the European Union. As stated by Borrelli (2018), the size of capital stock is crucial. Nowadays, many companies underestimate circular economy. However, it is certain that the sooner they abandon linear economy, the better. Ghafourian et al. (2022) emphasized the fact that in recent years, the number of companies in circular economy has been growing. Agricultural companies often perceive the principles of circular economy as an order from the EU, whereas for other companies ecology is already the norm, and for some other companies these principles are a competitive advantage. According to Piyathanavong et al. (2021), the principles are implemented at the departmental level rather than within a company as a whole.

By 2015, the sustainability of agriculture had fallen considerably. Smit (2020) pointed out the need to reduce energy and raw materials. He mentioned the involvement of local materials and co-operation between farmers as the necessities. At the same time, linking bio-economy and agriculture is a suitable way. According to Mary and Marian (2022), the European Union's current and future goal is to move to circular economy.

Circular economy has already been addressed in the European Green Deal, which was issued by the European Commission in December 2019. Subsequently, The Circular Economy Action Plan: Cleaner and More Competitive Europe was introduced in March 2020. The plan focuses on the sustainable use of resources, follows on plans from previous years and is the basis for the transformation of all sectors. One of its aims is to ensure that all packaging on the EU market be recyclable by 2030 (Ministry of Industry and Trade, 2021).

The author's findings coincide with previous analyses and will serve as a source of information for companies that are considering and preparing themselves for the transition to circular economy.

Table 3: Comparison of arithmetic means in relation to agricultural companies for the year 2020

Arithmetic means of companies applying principles of circular economy							
Year	Total liabilities	Own resources	Share capital	Economic result	External resources	Short-term liabilities	Long-term liabilities
2020	296784	130852	79405	41707	166140	24586	144160
Arithmetic means of companies not applying principles of circular economy							
Year	Total liabilities	Own resources	Share capital	Economic result	External resources	Short-term liabilities	Long-term liabilities
2020	249845	121652	73140	35607	126130	20286	94160

Source: Own processing based on own data selection

The paper contributes to emphasizing the necessity for long-term sustainable agriculture and its financing. The objective was to analyse own resources and external resources of agricultural companies that apply the principles of circular economy, with 2016-2020 being selected as the period under review. Using specific formulas in Excel, arithmetic means, median values as well as minimums and maximums were calculated for total liabilities, own resources, share capital, economic result (profit or loss), external resources, short-term liabilities and long-term liabilities in relation to companies involved in circular economy and companies involved in linear economy.

Above all, companies need support in the transition phase to circulatory system. The whole transformation must be well processed and secured. Companies therefore face financial challenges where banks play a key role. The government should raise awareness of the need for circular economy, motivate agricultural companies, provide them with more subsidies and guarantees and also amend laws and regulations that will protect the circular business. Circular economy is a great opportunity as well as challenge for agriculture and the whole society.

6 Conclusion

The objective of the paper was fulfilled, the structure of own resources and external resources of agricultural companies in circular economy between 2016 and 2020 was analysed in the Results section with the use of individual calculations of arithmetic means, median values, maximums and minimums. Certain limits of the research were found while collecting data and searching for agricultural companies that apply the principles of circular economy. It was difficult to distinguish between companies that apply and those that do not apply circular economy. The limit of the research was also in the subjectivity of selecting the calculation sample. Only specific companies, which may not have the same characteristics (and may show some differences on their own), were selected. Moreover, included in the paper are contributions with regard to the environment, society and economy. In terms of the environment, it is the idea of supporting the conservation of national natural resources and recycling of raw materials. The social contribution can be seen in the realization that the goal of entrepreneurial activities is not only profit, but also a sustainable solution to a given problem. As for economy, the emphasis is put on the competitiveness of companies and opening up space for innovations.

Circularity is increasingly discussed as a topic. The practical benefit for this scientific field as well as for the professional community is seen in analysing the capital structure of companies in circular economy. Own resources and external resources of such companies are higher than of companies without circular economy. The reason is observed in the cost of establishing and maintaining the circulatory system. Particular numbers are the subject of this paper. Firms that are actively

involved in sustainability must be inevitably supported by the state and the European Union in terms of financing.

As a theoretical enrichment of knowledge in this area is the fact that circular economy must be associated with corporate social responsibility. Sustainability must become the standard not only for agricultural companies. Apart from circular economy, there are not many other alternatives of how to make better use of resources. However, this also requires clear, direct policy and simple legislation.

The topic for the author's next paper could consist, for instance, in monitoring of subsidy titles in relation to circular economy, the EU's approach to circular economy and how this affects companies and their economy.

Acknowledgement

The article was supported by the IVSUZO001 project "Benchmark of the world economy in the context of the principles of the circular economy and the determination of business value".

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Primary Paper Section: A

Secondary Paper Section: AH

ACCOUNTING FOR WORKS OF ART AND COLLECTIONS – TANGIBLE FIXED ASSETS – IN ACCORDANCE WITH THE CZECH LEGISLATION IN FORCE AND THE PROPOSAL OF NEW ACCOUNTING PROCEDURES

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Abstract: The paper deals with the analysis of current Czech accounting procedures in the case of accounting for the works of art and collections, which are tangible fixed assets. The aim of paper is to assess the current accounting procedures of this issue and the proposal of new procedures. The method of process analysis examines the valid methodological procedures and characterizes their pros and cons. It has been found out that charging the works of art, which are tangible fixed assets, is in contradiction to the Accounting Act in accordance with the Czech legislation in force, as the result is not a faithful representation of the current value of entity's assets. The works of art – tangible fixed assets, are represented in acquisition price in accounting. If the works of art are a part of structure, they are depreciated simultaneously with it. If they are represented independently, their value never changes in accounting in the course of time. Current accounting fails to reflect the increase of artwork value in the course of time. Therefore, it fails to provide a true image of entity's assets and financial situation. The advantage of this way of charging is a fact that it is not demanding for an entity in terms finance and labor. New accounting procedures, which would enable the representation of the current artwork value, both its increase and its decrease, e.g. damage, are proposed in the paper. It would be possible to account for the increased market value on the basis of expert opinion in the given asset account in relation to the account in the group 58 in the 4th account class. It would be possible to account for the temporary decreased value with the help of adjustments, in the case of a permanent value decrease, in accordance with the expert opinion, the value of the given asset account would decrease in relation to the account in the group 54. The pros and cons of the proposed methodology are defined. The user would obtain current information about the value and structure of given entity's assets. However, the adoption of the new methodology would be significantly demanding for an entity in terms finance and time.

Keywords: tangible fixed assets; depreciation; works of art and collections

1 Introduction

All of us happen to be surrounded, either to a greater or a lesser degree, by works of art. Such works form our attitudes, influence our mood either in a positive or a negative manner. Accounting or professional accounting literature unfortunately fail to deal with such type of assets enough.

In a perspective of accounting, the assets may assume several forms. For instance, should a work of art be the part of a structure, it has been given in the project, then we do not account for it and we depreciate it simultaneously with the structure. If it is not a part of the structure, it has been additionally affixed, out of the project, therefore it is tangible fixed assets, non-depreciable, which is registered in the active balance sheet account of 032 works of art and collections. For an artwork dealer it is current assets. The value of artwork alters in the course of time, it increases in vast majority of cases. However, accounting utterly fails to take this fact into consideration, despite the fact that the current market price of the individual work of art often amounts to several millions. In certain exceptional cases, in contrast, the value of artwork may be decreased due to its irreversible damage, a total destruction or loss.

One of the essential obligations of an entity is to keep accounts in such a manner to provide a basis for a comprehensible annual account presenting a true and fair representation of the subject of accounting and the financial situation of an entity in such a way that a person using such information could make economic decisions on its basis. The representation is faithful as long as the content of annual account corresponds with the actual situation and the used accounting methods are permitted and appropriate (Accounting Act No.563/1991 Sb., section 7).

In the case of works of art this obligation is undoubtedly not fulfilled, as in the case of the work of art having been tangible fixed assets whose value is not increased in accounting in the course of time. If the work of art is registered in the account of 032 – works of art and collections, it is registered in its

acquisition price for the whole period of time. If the work of art is a part of a structure, its accounting value even decreases as a consequence of being depreciated within the whole structure.

The aim of the paper is to evaluate the accounting procedures of works of art in accordance with the Czech legislation in force and to outline proposals representing the current value of works of art more accurately.

The following research questions are put in the work:

Are the valid Czech accounting procedures regarding the works of art and collections – tangible fixed assets – currently in compliance with the Accounting Act No. 563/1991 Sb.?

In what way could the accounting procedures be adjusted so that the annual account would represent the assets true and fair?

2 Literature research

The work of art is an object created by a human on purpose. Its primary function is esthetic, it can also have an educational, entertaining and economic function (Mocník, 2019). Dimitriu and Hurduzeu (2020) agree with this statement to certain extent claiming that a work of art can be viewed from three perspectives, i.e. esthetic, economic and sociologic. Authors further add that esthetic, artistic and cultural values are socially constructed in accordance with sociology, while their appreciation depends on the social context in which they are perceived. Velthuis (2003) mentions that the value of artwork is not based on the work of art itself, but it is produced and constantly reproduced by the artist, agents and the public. In accordance with the statement of Reinstaller and Schonfeld (2005) the quality of artwork cannot be proved by any scientific method. Instead, the value in art is determined by a social consensus, where the opinion of experts exerts a greater impact.

Cao (2019) states that a work of art is not a creation of a genius who is endowed with a special gift, but a mutual product of people who cooperate and project global artistic conventions into their own works. In accordance with professional literature, art may be assumed as a collective activity that influences the consumption and production of art, i.e. there need to be an ownership of certain material and artistic education for a creation of artwork and, subsequently, there need to be collectors, galleries, commercial galleries, etc. for its distribution (Zhang et al., 2019).

Nozari (2022) states that the selection of artwork takes place within the art market. In an economic point of view, the objects circulating in the market are perceived as goods whose value is linked to price. Price is a monetary expression of the value of goods. The value may be derived from production costs, utility value of goods, quality and further indicators (Vochozka a Vrbka, 2018). In the case of work of art, its quality is linked to its artistic quality. Artistic quality consists of esthetic values and further factors, e.g. the circumstances of its creation or its influence in the context of the history of art (Moore, 2020).

The price of works of art is often talked about upon their loss or damage. The media often refer to the fact that the value of the object cannot be calculated. The 'incalculability' of art is based on its uniqueness, preciousness and irreplaceability. Artistic creating reflects the testimony of times, it is an individual account (Marecek et al., 2019). In accordance with Klerman and Shortland (2022) it is possible to include the works of literature, visual art, music, sculpture, drama and film into the body of artwork.

The crucial issue of artwork construction is the way how we, as its potential perceivers, encounter it, how we intentionally realize and specify it (Ingarden, 1989).

A work of art resembles, in its multi-layer and mutual interconnection, a living organism, which affects an individual in a complex manner on several levels (Ptáčková, Stíbral, 2002). The esthetic function of artwork must draw attention as much as possible, induce pleasure in the observer and it ought to have an ability to represent further functions, which the work has lost in the course of (Mukařovský, 1966).

By this I do not intend to say that the purpose of art is to arrange something like an idyll, polish a lovely shop window composed from them, garnish its great face with a mottled silk bow. The task of art is not embellishing; its very essence is beauty itself. The relation of art to life is poetic precisely and only by the fact that art, in its relations, emanate directly from the spiritual core of this artistic beauty. In genuine art, the beauty's commands are fulfilled by truthfulness, which is based on an artist's expression, and by harmonies, which are achieved by nobility and purity of artistic means. The realization of this truthfulness and harmony elevates us into the spiritual highs of art and it is the summit that art can provide us with (Čapek, 2018).

The objects of cultural heritage proclaimed by the Ministry of Culture of the Czech Republic are movable and immovable things, or the sets of things which constitute the significant evidence of historical development, way of life and social environment since ancient times till the presence, as the expression of human creative abilities and work from various fields of human activity, for their revolutionary, historical, artistic, scientific and technical values, and also those which are directly related to important personalities and historic events (Act No.20/1987 Sb., On state heritage protection, section 2). The objects of cultural values are natural objects or objects made by humans, or the sets of them which are significant for history, literature, art, science or technology, and fulfill the criteria in accordance with the Act No.71/1994 Sb., On the sale and export of culturally valuable objects, as amended.

The works of art and collections are a special type of assets. They are movable objects of cultural heritage, objects of cultural values and similar corporeal movable things, or the sets of them, defined by a specific legislative instrument, regardless the sum of valuation, the objects of museum or gallery values, and the sets of them, permanent exhibition sets and library collections, objects formed by precious stones and metals. Works of art and collections may be acquired by purchase, gratuitous acquisition (donation), creation on own account or by reclassification from personal ownership into entrepreneurship.

Tangible fixed assets, regardless of their valuation and the period of useful life, are works of art that are not a part of structure, collections, the movable objects of cultural heritage and the objects of cultural values. The works of art that are not a part of structure, collections, the movable objects of cultural heritage and similar movable objects, which are stipulated by a specific legal instrument, are not depreciated. Goods are corporeal movable things, which have been purchased for the purpose of further sale, unless the entity trades with them (Ryneš, 2021).

Accounting for the works of art and collections has certain specifics (Vochozka a Kabourkova, 2008). In accordance with the Regulation No.500/2002 Sb., sec.7, the works of art that are not a part of structure, collection, the movable objects of cultural heritage, objects of cultural values and similar corporeal movable things stipulated by specific legal instruments, or the sets of them belong to the item Other tangible fixed assets.

The Regulation No.500/2002 Sb., sec. 49 stipulates that the costs related to the acquisition, mainly transportation costs, commissions, customs duty or premium are a part of purchase price. It excludes the interests from credits and loans provided for their acquisition, differences of exchange rates, contractual

finances, due date interests and other sanctions resulting from contractual relations.

Act No.563/1991 Sb., On accounting, states in section 25 that tangible assets (except the assets created by own activity), inventory (except the inventory created by own activity) are valued by purchase prices. The objects of cultural heritage, collections of museum style, objects of cultural values and ecclesiastical structures, unless their price is known, are valued at the amount of CZK 1.00.

The Czech Accounting Standard for Entrepreneurs No. 013, i.e. intangible fixed assets and tangible fixed assets, states that, in terms of assets within the accounting unit 03, non-depreciable tangible fixed assets are not accounted for technical improvement. Its disposal is accounted on the side of MD accounts in unit 54 – other operational costs, and on D side of the given account in the case of sale, donation or other gratuitous transfer, shortage or damage.

Act No. 586/1992 Sb., On income tax, states, in section 27, that tangible assets excluded from depreciation is a work of art that is tangible assets and is not a part of structure and building, further, the objects of museum and gallery values, or the sets of them in museums and heritage sites, permanent exhibition sets and the library collections of single system.

The GFR guideline No. D-22 stipulates that the works of art excluded from depreciation are also the works of art (individual movable things) whose rights have been the subject of lapse of time in accordance with Act No. 121/2000 Sb., On copyright, on rights related to copyright and on the alteration of certain laws. However, the concept of 'work of art' is not related to a corporeal object, in which the result of author's creative activity is materialized, but to its form.

Act No. 586/1992 Sb., On income tax, in section 24 (1) zf states that recognizable taxable costs are the costs incurred after 1th January 1997 for a restoration of artwork, however, if they do not exceed the purchase price of artwork. Non-tax costs are, e.g. a rent for artwork.

The works of art are to be a subject of inventory. In terms of museum style collections, it is necessary to proceed in compliance with the Act No. 122/2000 Sb., On the protection of museum style collections and on the alteration of certain laws, as amended, and the Regulation No. 275/2000 Sb. (Svobodová, 2013).

3 Data and Methods

First, the process analysis of the current methodology for accounting for the works of art and collections in compliance with the Accounting Act and the Czech accounting standards will be carried out. The works of art and collections, i.e. tangible fixed assets, may have two forms, i.e. a work of art as a part of structure, which is depreciated simultaneously with the structure, and a non-depreciated work of art. The permitted accounting procedures will be examined in these cases. The currently valid pre-contacts will be an outcome.

The analysis of strengths and weaknesses of current methodology will be the next step. The outcome will be an assessment, whether the current accounting procedures are in compliance with the Accounting Act and whether a user accesses updated information about an entity's property and financial situation.

The next step will be the proposal of new methodological procedure. The outcome will be pre-contacts and the proposal of alteration in the Czech accounting standards.

The comparison of current and proposed accounting procedures will follow. The strengths and weaknesses of current and proposed accounting procedures will be defined.

4 Results

Accounting for the works of art and collections is governed by the Act No. 563/1991 Sb., the Accounting Act, and by the Czech accounting standards.

Regulation 500/2002 Sb. stipulates that tangible fixed assets non-depreciated including works of art and collections is regarded as extra tangible fixed assets. The provisions of the Czech Accounting Standard for Entrepreneurs No. 013 – tangible and intangible fixed assets applies to it.

The Act No. 586/1992 Sb., On income tax stipulates that the work of art that is tangible assets and is simultaneously a part of structure, building, is depreciated simultaneously with this structure and, therefore, the Czech Accounting Standard for Entrepreneurs No. 013 – fixed tangible and intangible assets applies to it.

Inventory differences regarding works of art and collections are a subject of the Czech Accounting Standard No. 007 – Inventory gains and losses, within the norms of natural stock withdrawals.

The work of art that is tangible assets and has been affixed to the design of structure is kept in accounting records as a part of this structure in the 021 active balance sheet account of structure. These assets are depreciated in accordance with the Act No. 586/1992 Sb., On income tax. In case that the work of art is a part of a fountain, structure for sport or leisure, etc., it is included in the fifth depreciation group. The assets belonging to this group is depreciated in accordance with the above act for the minimum period of 30 years.

If the work of art were, for instance, the part of a hotel structure, administrative building or a department store building covering a sale area larger than 2, 000 m², it would belong to the sixth depreciation group. The depreciation period in this group is in accordance with the Income Tax Act at least 50 years.

The work of art that is a part of structure, is depreciated in terms of accounting as well, in accordance with the Accounting Act No. 563/1991 Sb., section 28. It is possible to use the Regulation No. 500/2002 Sb., section 56a, the component depreciation of assets method, when the work of art is excluded from the structure and it is depreciated independently. However, it does not make a difference to the fact that the work of art being a part of structure decreases its book value. It is in contrast to the fact that the vast majority of artwork increases its value in the course of time.

The result from the above mentioned is that accounting, in the case of artwork being a part of structure, fails to reflect the reality true and fair and thus fails to fulfil one of its crucial tasks. There is a contradiction to the Accounting Act in section 7. There, it is stipulated that the items of annual account are to correspond to the real situation. The book value of artwork that is a part of structure is even decreased in the course of time, although, the market value of assets increases in the reality in most cases. The real market value of individual work of art may be a crucial item in the overall value of entity's assets, however, it bears no influence on the balance sheet. The only possibility how to represent the real value of a specific work of art that is a part of structure is to include this fact into the appendix of annual account. However, I am afraid, in reality, no entity deals with this issue, examines the current market value of assets and presents it in a document.

Table 1: Accounting for the work of art that is a part of structure – in accordance with the Czech legislation in force.

Economic operation	Pre-contacts – valuation
Acquisition of work of art that is a part of structure - by purchase	042/321 – purchase price – acquisitive
Registration in use	021/042 purchase price
Sale of building including the work of art – exclusion from accounting	081/021 – purchase price
Charging sales for sold building including the work of art	311/641 – selling price - market
Additional depreciation of sold building including the work of art	541/081 – carrying amount
Depreciation of building including the work of art	551/081 – annual depreciation according to depreciation plan

Source: Own processing

The corporeal work of art that isn't a part of structure belongs to non-depreciable tangible fixed assets, works of art and collections 032 account. The specific assets are registered in this account in acquisition price, which can also be a purchase price. For the entire ownership period this price is not changed regardless the fact that the real market price of the assets significantly increases in the reality of most cases. There is a contradiction between the Accounting Act section 7 and the reality again, as the work of art is registered in the entity in an acquisition price regardless the rise of market price.

Table 2: Accounting for the work of art – tangible fixed assets that are not a part of structure – in accordance with the Czech legislation

Economic operation	Pre-contacts - valuation
The acquisition of artwork that is not a part of structure – by purchase	042/321 – purchase price – acquisition
Registration in use	032/042 - acquisition price
The sale of artwork – exclusion from accounting	541/032 - acquisition price
The recognition of sales of the sold artwork including the work of art	311/641 – sale price - market
The acquisition of artwork by a transfer from the personal use of individual entrepreneur to business activity	032/491 – expert estimate
Inventory surplus – a newly found work of	032/413 – expert estimate
The acquisition of artwork by non-monetary deposit into business corporation	032/353 – expert estimate
The exclusion of artwork - donation	543/032 – acquisition price
The exclusion of artwork that has been stolen	549/032 – acquisition price
The exclusion of artwork that has been transferred to the personal use of entrepreneur	491/032 – acquisition price

Source: own processing

Where there is a temporary decrease of assets value, it is necessary to express this fact by adjustments, which are defined by the Czech Accounting Standard for Entrepreneurs No. 005 - adjustments.

In case the work of art that is a part of structure has been damaged and can be repaired, it is possible to create adjustments in accordance with the standard. The Regulation No. 500/2002 Sb., section 55 states that adjustments can be created on the basis of assets inventory to be charged to the costs, and to be credited to the account in 09 group.

As for as the works of art that are not a part of structure, they are not depreciated, there is not a possibility to create an adjustment in the case of temporary value decrease in any legal rule. In reality, there are situations when the work of art is damaged, however, it can be restored. In such a case it would be appropriate to create an adjustment and cancel it after the restoration again.

It is obvious that in the case of damaged artwork registered in 032 account, the Czech legislation fails to distinctly enable to present the temporary decrease of assets value until it has been restored. This results in a wrong manifestation of assets value at the moment of annual account.

The current valid accounting procedures to account for the works of art – tangible fixed assets, are cheap for an entity from a financial perspective, as the entity is not required to spend additional resources on the acquisition of expert opinions. It is not required to seek experts who are competent to make an expert opinion in the field of artwork. It is clearly positive.

However, from a perspective of Accounting Act, this process is utterly wrong, as the users of annual account will not acquire the updated information about the real value of artwork, and thus accounting fails to fulfil one of its most important tasks, i.e. the true and fair representation of reality. This misrepresentation of artwork value – tangible fixed assets, can fatally influence the decision of the interested party.

In my opinion, the remedy for this situation would be the duty for an entity to re-valuate the works of art and collections – tangible fixed assets.

The entity would be obliged to re-valuate in due time of doing an annual account on an annual basis, or at regular yearly intervals. The whole process would be governed by an internal directive. On the basis of the expert opinion, the entity would increase or decrease the value of the given assets.

In case that the work of art were a part of structure, it would be necessary to register it in a separate analytical account 021/xxx at the value that has been determined by expert opinion.

The increase of artwork value, a part of structure in 021 account, would be carried out by increasing its value, registered in a separate analytical account 021/xxx, in relation with the account in the group 58.

In this case, however, there is a problem with depreciations, as the original depreciation plan is made on the basis of acquisition price, which is increased as a result of this. The depreciation plan would need to be updated.

In the case of artwork registered in 032 account, the account value would rise in relation to the account in the group 58.

In the case of temporary decrease of artwork value that is a part of structure in 021 account and is registered in the analytical account 021/xxx, an adjustment to this analytical account would be created. In the case of re-increasing the market value of given assets, this adjustment is extinguished.

In the case a permanent decrease of artwork value, when the work of art is a part of structure in 021 account and is registered in the analytical account 021/xxx, the value of given analytical account 021/xxx would be decreased in relation to the account in the group 54. Thus the non-reimbursable damage that has been caused to the work of art would be determined. For this reason, the total value of 021 structure account would be decreased and the depreciation plan of the assets would need to be re-assessed.

The temporary decrease of market value would be determined by an adjustment in the case of artwork separately registered in 032 account. After re-increasing the market value the adjustment would be decreased or revoked.

If the work of art registered in 032 account sustained an irreversible damage the result of which would be a permanent decrease of value, the value of 032 account would decrease in relation to the account in the group 54.

In the case of artwork that is not a part of structure, it is not depreciated, it is registered in 032 account, there is not a problem in the change of depreciation.

In the case of increasing the value of artwork it is also possible to consider the recognition of this fact in the appropriate asset account in relation to the increase of equity – establishing a special account in the group 4.

Table 3: The proposal of pre-contacts – accounting for the work of art that is a part of structure

Economic operation	Pre-contacts - valuation
The increase of artwork value – on the basis of expert opinion	021/xxx/58x,4xx – determined by expert
The temporary decrease of artwork value – expert opinion, market price - adjustment	55x/09x – determined by expert , market value
The permanent decrease of artwork value – expert opinion, market price - damage	54x/021/xxx

Source: Own processing

Table 4: The proposal of pre-contacts – accounting for the work of art that is not a part of structure

Economic operation	Pre-contacts - valuation
The increase of artwork value – on the basis of expert opinion	032/58x, 4xx – determined by expert
The temporary decrease of artwork value – expert opinion, market price - adjustment	55x/09x - determined by expert
The permanent decrease of artwork value – expert opinion, market price - damage	54x/032 – determined by expert

Source: Own processing

The current methodology of accounting for the works of art – tangible fixed assets, is not in compliance with the Accounting Act, as it fails to represent the reality true and fair, to provide the true representation of the entity's assets. However, it is in compliance with the Czech accounting standards. The entities are not required to seek an expert, who would determine the current value of the given work of art, and to spend additional resources on this purpose. Accounting is not laborious.

If the methodology were changed in accordance with the presented proposal, the annual account would be in compliance with the reality, and it would provide the true and fair representation of the asset value in due time of a specific date. The users of annual account would obtain relevant information for their decision. However, a duty would be established for an entity to seek an expert, spend additional resources and accounting would be much more demanding in terms of time and labor. It would also be necessary to prevent over-valuation of the assets with malicious intent.

5 Discussion of Results

The first research question was whether the current accounting procedures of charging the works of art and collections – tangible fixed assets, are in compliance with Accounting Act No. 563/1991 Sb. It was discovered that this Act stipulates in section 7 (1, 2) that entities are obliged to do accounting in such a manner so that the annual account done on its basis would provide a true and fair representation of the subject matter of accounting. The representation is faithful if the content of items of annual account corresponds with the real situation.

The Czech Accounting Standard for Entrepreneurs No. 013 – fixed tangible and intangible assets, stipulates that tangible fixed assets are depreciated in accordance with section 56, Regulation No. 500/2002 Sb. It is stipulated there that the works of art that are not a part of structure are not depreciated.

The Czech Accounting Standard for Entrepreneurs No. 005 – adjustments, stipulates that adjustments for depreciated fixed assets are created in in the cases, when their utility value determined during the inventory procedure is significantly lower than their valuation is in accounting, after the subtraction of accumulated depreciation, and this decrease of value cannot be regarded as definite.

Accounting Act, section 27 stipulates what type of assets is to be valued by real value. However, the works of art and collections are not mentioned there.

The result of the above mentioned is that the works of art registered in 032 account, which belong to non-depreciated tangible fixed assets, cannot be re-valued in accordance with the current market value. Their value is currently permanently set in the form of acquisition price in compliance with the methodology in force. Therefore, accounting fails to reflect the reality and the data obtained from it may be misleading during making a decision.

As for the works of art that are a part of structure, their book value decreases by depreciations simultaneously with the structure. This probably contradicts the reality, as in most cases, the value of artwork is likely to increase in the course of time.

Therefore, the answer to the first question is that the legislation currently in force in the field of accounting for the works of art – tangible fixed assets, is in contradiction.

The answer to the second question is in the previous part of the paper. The possible ways of accounting for the assets are proposed there. However, certain problems are mentioned, especially regarding the works of art that are a part of structure, which the entities would need to address in case of the change of legislation.

6 Conclusion

The aim of the paper is to assess the accounting procedures for artwork and collections – tangible fixed assets – in accordance with the Czech legislation in force, and the proposal of procedures to represent the current value of artwork more accurately.

It was discovered that the Czech Accounting Standards for Entrepreneurs and the Accounting Act No. 563/1991 Sb. and the Regulation No. 500/2002 Sb. are in contradiction in this field.

The works of art and collections, if they are registered as tangible fixed assets, are registered in acquisition price. When they are a part of a structure, they are registered separately, they are not depreciated at all.

In practice, the value of artwork and collections is increased, however, it is not possible to determine this fact in accounting.

The paper proposes an accounting procedure for the temporary or permanent decreasing of artwork value or, on the contrary, for determining the increase of its market value – it is especially for the work of art that is a part of structure and even for a separately registered work of art. The aim of paper is fulfilled.

The accounting procedures proposed in this paper would certainly be demanding for an entity in terms of finance and labor, if they were put into practice. However, the data obtained from the annual account would enable the user to adopt a right investment decision.

The substantial part of entities does not probably possess any works of art, otherwise, the entity owns a significant financial value. However, the changes of market values of these works of art can crucially influence the total value and the structure of the entity's assets.

The change of methodology of charging the works of art and collections – tangible fixed assets, would certainly mean a problem for the owners of these assets at the beginning. The consequence of this change would be an accounting that would provide a true and fair representation of the entity's assets and financial situation.

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Primary Paper Section: A

Secondary Paper Section: AH, AE

COMPARISON OF LAND ACCOUNTING ACCORDING TO CZECH LEGISLATION AND INTERNATIONAL ACCOUNTING STANDARDS

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Abstract: The article analyses the currently valid accounting procedures for accounting for land that is not a commodity, according to both Czech legislation and International Accounting Standards. The method of process analysis and subsequent comparison is used. It is found that the accounting and valuation of land in the Czech Republic does not reflect reality as land is valued once and for all at historical cost and does not consider the effect of land price increases in the market or possible damage to the land as a result of an environmental accident. In the case of forest land, the value of the land and the forest cover is not accounted for separately. Increasing value due to a growth in timber mass is not taken into account. In contrast, under International Accounting Standards, the value of land must be revalued periodically in response to changing circumstances. In the case of forest land, this involves separate accounting for the land itself under IAS 16 Land, Buildings and Equipment, and for the forest cover under IAS 41 Agriculture. The procedures defined in the International Accounting Standards are more demanding and arduous but give the user significantly more accurate and up-to-date information on the market price of land than the procedures required by Czech legal standards. This enables users to make the right economic decisions. However, the obligation to revalue land periodically in Czech accounting could create a problem in terms of ensuring a sufficient number of qualified valuers.

Keywords: accounting; depreciation; land; plots

1 Introduction

According to Czech legislation, land is a fixed production factor that is not subject to wear and tear, and therefore cannot be depreciated. However, the real market price of land changes over time, both upwards and downwards. Nonetheless, the literature does not often deal with accounting for land that is not a commodity but a tangible fixed asset. Yet defining the accounting and valuation procedures so that the accounting gives a correct picture of the subject of accounting is essential, because, based on the accounting data, citizens and businesses decide on their next strategy when acquiring or using the land.

Accounting in the Czech Republic is regulated by Act No. 563/1991 Coll., On Accounting, Decree No. 500/2002 Coll., and Czech Accounting Standards. As the transnational market integration is becoming increasingly intense in Europe and the world, the need to harmonize the accounting and financial statements of entities in individual states arose several decades ago. It is necessary to achieve comparability of reported data, which is a fundamental requirement of potential investors. Therefore, several financial reporting systems have emerged. One of the most important is International Financial Reporting Standards - IFRS. The companies which issue securities registered on regulated markets of the European Union must prepare financial statements in accordance with IFRS.

Czech accounting has already approached IFRS in some minor areas, for example when accounting for provisions to be used in the event of a temporary decrease in the value of an asset. For the most part, there are nevertheless many differences between the two accounting methods.

The aim of the article is to characterise the differences between accounting for land that is not a commodity, according to both Czech legislation and International Accounting Standards.

The following questions are asked:

What are the differences in the accounting and valuation of non-commodity land, according to Czech legislation and International Accounting Standards?

Which system gives more accurate and more up-to-date information on this type of property?

2 Literature research

According to Pirngruber (2017), land as such can be viewed from several points of view. For example, from a literary point of view, land is often understood as the earth, while from an economic point of view, land as a factor of production has a much broader scope. According to the influential economist Marshall, land can be defined as "the materials and forces that nature freely provides to help man, in the earth and in the water, in the air, in the light and in the heat" (Boomgaard, 2009). According to Ortiz (2017), land is a resource that is a useful factor in production but is available in limited quantities. Land as a production factor can take various forms, from agricultural land to commercial real estate to resources available from a certain piece of land (oil, gold).

According to literature, economists have considered land (along with its related natural resources) as a key production factor for centuries (Rowland and Vrbka, 2018). Already the economist Smith (1776) in his book "The Wealth of Nations" argued that land, capital, and labour form the basic inputs from which all the economic value of convertible commodities is derived. While, over time, the economic literature has expanded to include the scope and role of these factors, the land, according to Krulický et al. (2020) remains a critical part of our economy and the environment on a larger scale.

Vochozka and Kabourkova (2008) believe that land plays a key role in economic and environmental accounting. Wentland et al. (2020) add that as an asset it occupies a unique position at the intersections of the System of National Accounts (SNA), the System of Environmental-Economic Accounting - Central Framework (SEEA-CF), and (as a spatial unit) the SEEA Experimental Ecosystem Accounting (SEEA), thus naturally becoming a kind of starting point for the development of natural capital accounts in general. However, despite its economic and environmental importance, land as an asset is significantly lacking in the national economic accounts of many countries around the world (Kabourkova et al., 2011).

Industrialised countries treat the world's resources as if they were disposable goods. With this approach, they ignore one of the world's basic economic assumptions - land, labour, and clean water are scarce commodities and their price must be reflected in every business decision. If governments were forced to include the consumption of natural resources in their calculations of economic activity, it would undoubtedly have a major impact on the strategy used (Epping, 2004).

It is very likely that the value of land in the world will increase significantly due to its limited size and the rising demand for land due to the growing needs of the ever-increasing population. We are already noticing an increasing trend in investing in land (Zdenek, Lososová, 2020).

Pursuant to Act No. 256/2013 Coll., on Cadastre of Real Estate (Cadastral Law), a plot is a part of the Earth's surface that is separated from adjacent parts by the boundary of a territorial unit or cadastral territory, the property boundary, the administration boundary, the boundary of the lien, the boundary of construction right, or the boundary of the type of land use. Act No. 89/2012 Coll., The Civil Code, states that a plot includes the space above and below its surface, buildings and other facilities set up on it (except temporary buildings), including all what is embedded in the land or fixed in the walls. However, Czech accounting regulations and tax laws strictly separate the land and the buildings on its surface.

Land does not include growing units of permanent crops, mineral deposits, cost of opening new quarries, sand pits and clay pits, the main water supply system, small construction, fencing, or construction of vineyards and hop gardens. Land is

reported and evaluated separately and cannot be depreciated. (Ryneš, 2021).

According to Kouřilová (2015), accounting currently appears to be in the dimension of data manipulation. This is evident from the fact that revaluation of assets can be purposeful. Earlier strict procedures, where the property was valued exclusively at historical prices, eliminated any doubts about the intentions of the property owner. Kovanicová (2012) states that the primary task of accounting is to provide users with reliable information about how an entity is economically viable, and its financial situation for a given accounting period.

When acquiring land with construction as a part of the purchase price, it is necessary to evaluate both and to record the building and the land separately in the accounting. Determination of acquisition prices for the land and construction can be done either by a proportional distribution of the purchase price according to expert opinions, or it is possible to value the land, for example, based on a local price map and the remaining part of the purchase price will be the price for the construction. The evaluation of the acquired land includes forest or planting of trees and shrubs unless they are growing units of permanent stands (Ryneš, 2021).

According to Decree No. 500/2002 Coll., land - unless it is a commodity - is a tangible fixed asset regardless of the estimated value. This does not include those parts of land that are depreciated and reported as constructions. Land itself is not depreciated.

The Czech Accounting Standard for Entrepreneurs No. 013 states that technical improvement is not accounted for in the case of assets in account group 03 - Tangible fixed assets not depreciated. Land is included in this group.

The accounting entity determines the actual condition of land by inventories, which must take place in both physical and documentary form, on the same date (Svobodová, 2013).

According to the Property Valuation Act, building plots are valued by multiplying the land area and the price per square meter in accordance with the price map of the municipality. Agricultural land is valued on the basis of rated soil ecological units. Reservoirs, streams and others are valued according to the relevant decree.

According to valid Czech legislation, land is reported and valued separately and is not depreciated (Ryneš, 2020). As a result, in some situations accounting does not give a true and fair presentation of an entity's assets. In reality, the value of the land is sometimes reduced, for example as a result of an environmental accident, when the land is temporarily or permanently damaged. Here it would be appropriate to account for either provisions or depreciation.

The International Accounting Standards in part IAS 16 define land as assets that an enterprise holds because of the need to use those assets in its production process. The useful life is longer than one accounting period. It is expected that these assets will bring economic benefits to the company in the future. It is necessary to measure reliably the cost of acquisition and thereby determine the cost when the land is included in the accounts. The land is valued at acquisition costs, which also include allocated costs. After initial recognition as an asset, the land is reported at a revalued amount, which is determined by the market price based on the estimate of a qualified expert. Revaluations should be performed on a regular basis.

The International Accounting Standards Board has developed a revised Conceptual Framework for Financial Reporting, according to which there are two valuation bases, namely historical cost and present value.

The historical cost is based on the transaction price, while the present value includes fair value, value in use, and current costs. (www.iasplus.com).

A significant violation of the rule of a fair presentation of reality in Czech accounting is evidenced by accounting practices in accounting for forest land. In the case of a forest, the value of the land and the vegetation on it is recorded as a single item and does not change over the years. Bartůňková states that the interested party can obtain more detailed information only in an annex to the financial statements.

According to Bartůňková, if the principles of the current Czech legislation are followed, it is not possible to obtain a true picture of the management of the accounting unit in the case of accounting for forest stands, as it is not possible to capture the actual value of the growing stock of timber on forest land.

Čermáková (2013) states that the presentation of forest in Czech accounting is based on the definition of forest according to the Forest Act. In it, a forest is defined by forest stands with their environment and land intended to fulfil forest functions (Section 2, paragraph 2 of the Forest Act).

The generated forest production, i.e., harvested timber, self-grown seedlings, Christmas trees, etc. is accounted for in the accounting unit in the category of inventories - products (Čermáková, 2013).

In contrast, International Accounting Standards recognise and value forest land and vegetation separately. Here, forest land is treated as a biological asset up to the point of harvest and must be revalued to its current value at the time the financial statements are prepared.

It is obvious that according to the valid Czech legislation, the value of land, and especially the value of forest land, is not stated in accountancy statements in the updated real amount. This violates Act No. 563/1991 Coll., On Accounting Section 7.

The aim of the article will be achieved by a procedural analysis of the accounting procedures for land according to the Czech Accounting Standards, and a comparison with the procedures that are valid according to the International Accounting Standards. According to Act No. 563/1991 Coll., on Accounting, a presentation is fair if the content of items in financial statements corresponds to the actual situation, and the presentation is in accordance with the accounting methods set out in this Act.

3 Data and Methods

First, using the process analysis method, the currently applicable accounting and valuation procedures for land in the Czech Republic will be analysed. The relevant parts of Act No. 563/1991 Coll., on Accounting in Section 7, Czech Accounting Standards in Section 005 Provisions, 013 Tangible and Intangible Fixed Assets and 019 Costs and Income will be analysed. The output will be valid account codes.

Furthermore, it will be examined how the price of these assets develops over time, in the event of temporary or permanent devaluation of land or, conversely, as a result of rising land prices in the market. The output will be an assessment of the current situation.

The next step will be to analyse this issue according to International Accounting Standards, namely IAS 16 - Property, Plant and Equipment and IAS 41 - Agriculture. The output will be a comparison of Czech legal standards in this area and International Accounting Standards.

4 Results

Accounting for land in the Czech Republic is regulated by Act No. 563/1991 Coll., on Accounting, and the Czech Accounting Standards for Businesses. It states that land is a tangible fixed asset that is not depreciated. The Accounting Act is implemented

by Decree No. 500/2002 Coll., according to which land is a tangible fixed asset regardless of valuation, unless it is a commodity. These assets, unless self-invested, are valued at the cost of the price at which they were acquired, including related costs. When land is added to the entity's assets, or in the case of newly identified assets not yet recognised in the accounts, the replacement cost shall be used.

Table No. 1: Accounting for land according to Czech legislation

Economic operation	Account code - valuation
Purchase of land from the supplier	031/321 - purchase price - acquisition
Land addition in the company by an individual entrepreneur	031/491 - purchase price determined by an expert opinion
Sale of land - decommissioning	541/031 - purchase price
Revenue recognition for land sold	311/641 - selling price - market
Activation of wood mass in the forest after harvesting	1xx/58x - calculated own costs
Issued invoice for the sale of timber	311/601 - market price

Source: Own processing.

For the entire period since the acquisition of land and its recognition in the entity's assets, plots of land are recorded in the balance sheet account 031, and there is no change in the valuation. Upon their sale, they will be derecognised from account 031 at their acquisition cost, and the costs will be increased through account 541 - long-term intangible and tangible assets sold. At the same time, the price at which the land was sold is recorded in the revenue account 641 of sales of intangible and tangible fixed assets. The difference between accounts 541 and 641 is the profit or loss from this economic transaction (Czech Accounting Standard No. 019 - costs and revenues).

Czech Accounting Standard No. 013 for Entrepreneurs states in Part 4 that tangible fixed assets are depreciated according to Decree No. 500/2002 Coll., § 56. However, this legal standard does not allow land to be depreciated, and therefore there is no way of documenting the impairment of land.

It is not possible to deduce from any legal norms whether it is possible to create provisions for land. The Czech Accounting Standard for Entrepreneurs No. 005 - Asset Provisions states that provisions can be made for depreciated fixed assets, the value of which is commonly reduced by wear and tear. This would therefore preclude the possibility of creating provisions for land. In practice, however, there may and do occur situations where the land is permanently or temporarily degraded, for example, because of an environmental accident.

The opposite is such a situation where the actual market value of the land has become much higher now than when acquired and registered. This is quite common nowadays, as there is consistently high interest in land purchases.

A fundamental discrepancy between the accounting price and the actual price arises in the case of forest land. When forest land is acquired, the entire purchase price, including the cost of the forest cover, is charged to the account 031 Land. Here, the price of the land itself and the price of the forest cover can be separated in the form of analytical records. However, it is not possible to account for the increase in price due to the growth of the timber mass in Czech accounting.

One of the important tasks of accounting is to show the true state of an entity's assets. However, it follows from the above that the current Czech accounting system is in fact in contradiction with Act No. 563/2001 Coll., on Accounting § 7. It states that accounting entities are obliged to keep accounts in such a way that the financial statements are drawn up based on the accounts in a comprehensible manner, and that they give a true and fair view of the subject matter of the accounts and the financial position of the entity so that the person using the information can make economic decisions based on it. However, according to the current Czech legislation, land is booked once and for all at historical prices and changes in its value cannot be captured in accounting according to Czech standards. The only option is to

include significant differences between the book value and the market price in the appendix of the financial statement.

The objective of the International Accounting Standards was to harmonise the reporting of accounting entities in individual countries so that the data presented are comparable. Since the end of 2003, new and updated standards have been issued under the IFRS designation. Land, and forest land where applicable, is governed by International Accounting Standard IAS 16 - Land, Buildings and Equipment. Timber harvested from forests is covered by IAS 2 - Stocks. The established forest stand, the growing stock of timber and the harvested forest stand at the time of harvest are biological assets under IAS 41 Agriculture.

IAS 16 Property, Plant and Equipment values land at acquisition cost, which is the purchase price including taxes, at the time of recognition. Land is recognised as an asset when it is probable that future economic benefits associated with it will flow to the entity and the cost of the item can be measured reliably. The cost of an item of land represents the cash equivalent of the cost at the date of recognition. The carrying value of land may be reduced by government grants.

Land whose fair value can be reliably measured is subsequently recognised at a revalued amount upon initial recognition as an asset. This should be the fair value of an asset at the date of revaluation less subsequent propositions. Revaluations should be made with sufficient regularity so that the current carrying amount is not significantly different from the fair value that would be determined at the end of the reporting period.

The real recorded price of the land should correspond to the market price based on an estimate prepared by a qualified expert. When an item of land is of a special nature and its market price cannot be substantiated, as similar items are rarely sold, the fair value of the land will have to be estimated.

The frequency of revaluation depends on the frequency of changes. In some cases, it is necessary to revalue land annually, in others an interval of up to five years is sufficient.

Because land has an indefinite useful life, it cannot be depreciated (IAS 16 - paragraph 58). However, there are exceptions where the land itself may have a limited useful life. In such a case, it shall be depreciated in a manner that reflects the benefits derived from it. This is the case when there is a building on the land that will be removed, and the land will be restored.

If the land is impaired, IAS 36 Impairment of Assets is applied. This paragraph defines an impaired asset as an asset whose carrying amount is greater than its recoverable amount. If there is an indication that an asset may be impaired, the entity formally estimates the recoverable amount. If the recoverable amount of an asset is less than the carrying amount, then the carrying amount shall be reduced to that amount and the reduction shall be an impairment loss. Where there is an indication that an impairment loss recognised in prior years is no longer justified, the loss is reduced or reversed.

The calculation is quite complex and therefore IAS 36 does not require an annual test. In preparing the test, an entity must consider all information available, both internal and external, such as changes in the legal or market environment.

IAS 41 defines farm-managed biological conversion. It defines the above-mentioned as the processes of growth, degeneration, production, and reproduction, when qualitative and quantitative changes occur in a biological asset, which is a living animal or plant. In the case of a forest, this is the stage of stand establishment and growth, and ends when the timber is harvested. The forest is considered a consumable biological asset as it is intended to be harvested, and thus the growth of the trees ceases.

According to IAS 41, biological assets should be measured at fair value at the time of recognition based on market prices, less estimated costs to sell. In the Czech Republic, however, this is a problem as there is no active market for forest land.

It is clear from the above that the International Accounting Standards, unlike Czech accounting, allow the actual value of land to be shown in the accounts by increasing or decreasing it.

Table No. 2: Comparison of Czech legislation and International Accounting Standards

Czech legislation	International Accounting Standards
Does not give a true picture of the current value of the land	Does give a true picture of the current value of the land
Significantly less time-consuming and costly	Time-consuming and costly
Out-of-date information can harm the user	Up-to-date information will help the user make the right decisions
No need to secure a qualified valuer	Need to work with a qualified valuer
Does not provide a true picture of current land value	Provides a true picture of current land value
Significantly less time-consuming and costly	Time-consuming and costly

Source: Own processing.

5 Discussion

The first research question dealt with the comparison of the differences between the accounting and valuation of land that is not a commodity according to Czech legal norms and International Accounting Standards.

According to Czech legislation, land is recorded at its historical cost and there can never be a change in the valuation of the land. It is not possible to account for a decrease in the value of the land, e.g., as a result of an environmental accident, nor for an increase in the value of the land resulting from the market situation. Utterly false figures occur in the case of forest land, where the land itself and the forest cover are not separated and where there is no accounting at all for the increase in timber mass, and the following increase in the value of the respective land.

Thus, the financial statements do not give a true and fair view of the subject matter of the accounts.

International Accounting Standards, on the other hand, directly require updating land prices in the accounts according to the market price. A qualified valuer reassesses the market price of the relevant land according to its current condition and the market situation.

In the case of forest land, International Accounting Standards distinguish between the land itself and the forest stand, which is considered a biological asset. An established forest stand, growing stock of timber and harvested forest stand is a biological asset that an entity must measure and recognise at fair value, less estimated costs to sell at the time of harvest.

The second research question asked which of the two systems provides more accurate and up-to-date information. It is clear from the above that the Czech accounting system does not provide current data in the area of land accounting, as it does not reflect the current physical condition of the land or its present market price at all. As far as forest land is concerned, the user does not get separate information about the value of the land itself and the value of the forest cover.

In contrast, International Accounting Standards require regular updating of the value of land in the accounts. The users receive information on the real value of land and, in the case of forest land, separate information on the value of the land and the growing stock of timber. The information provided here is therefore much more accurate and up-to-date, and the users can make the right decision based on it.

6 Conclusion

The aim of the paper is to analyse the accounting procedures for accounting for land according to Czech legislation and International Accounting Standards, and to compare both procedures.

It was found that according to current Czech regulations, land is registered once and for all at the price at which it was acquired, regardless of possible changes in the physical condition of the land and the changing situation on the land market. In the case of forest land, the current state of the land and the vegetation cover on it is not taken into account at all.

This approach is advantageous to entities because they do not have to deal with revaluations and incur the costs associated with the services of a qualified valuer. However, users of the financial statements receive less and less current information and may make incorrect economic decisions as a result.

According to the International Accounting Standards, it is necessary to assess the current value of relevant land regularly, and then include the data in the accounting. In the case of forest land, the land itself and the forest vegetation - the biological asset - on it must be separated in the accounts.

This provides users of the financial statements with up-to-date information about the entity's financial position and enables them to make the right economic decision. The problem however may be securing the services of a qualified expert and the fees charged.

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Primary Paper Section: A

Secondary Paper Section: AH

MUSIC AND DRAMA ACTIVITIES IN LEARNING ABOUT THE FOREST AND ITS IMPACT ON COMMUNICATION WITH YOUNGER CHILDREN OF PRIMARY SCHOOL AGE

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Abstract: We can integrate children's learning about the forest and the topics of the forest environment as part of environmental education into any educational area. The educational areas of Art and Culture, or Language and Communication, and their specific activities connected with musical, literary or dramatic activities, are no exception. By reading about the forest environment, targeted perceptions of nature, or musical-dramatic games, we can also influence the emotions or behavior of children and their communication skills. Musical-dramatic activities in connection with the literary template on the topic of the forest were the subject of our research in children of younger school age, who are placed in alternative institutional care - in the center for children and families. We investigated the potential of music-dramatic activities for children's communication and socio-emotional skills, if we apply them as part of extracurricular activities in the process of preparing children for performance.

Keywords: Musical activities, musical-dramatic activities, literary text, forest environment, communication, socio-emotional skills.

Introduction

Through activities with the adults closest to the child - parents or grandparents, the child learns to understand the differences that they sense, and find in the surrounding country. It can be a problem if the child does not grow up in a biological family, but is placed in alternative institutional care - a center for children and families. The article brings us some research findings from pedagogical-artistic work, which we carried out with children who have not grown up in a biological family. As part of out-of-school education - in hobbies and activities, we regularly carried out musical and dramatic activities with them. We used them from a screenplay whose literary motif was the theme *How the Forest Roars*. The subject of our pedagogical research was the potential of music and art activities for communication skills, also the socio-emotional qualities of the personality of a child of younger school age. In our study, we present partial results of the research. We focus on the potential of artistic activities for the development of the child's communication.

In the introductory part of the article we deal with the essence of aesthetic education and its intersections with environmental education. We relate art-educational activities to the perception of natural beauty. Specifically, we focus on the beauty of the forest environment and its importance for humans. In this way, we can lead children to beauty, cultivate them, but also lead them to think about the need to protect all living things. In the next part we explain how we proceeded with children - participants in research in our pedagogical-artistic research activities. We implemented it with children from the center for children and families as part of their extracurricular activities. In this chapter, we explain specific musical-dramatic activities which are based on our script. The final part of the paper is devoted to research. In it, we have described the methodology of our pedagogical research and we bring some results that are related to the development of children's communication skills through targeted musical and dramatic activities.

1 Links between-aesthetical and environmental education

Music, literary and dramatic education are part of aesthetic education and educational areas Art and culture (music-dramatic activities) and Language and communication (literary and

literary-dramatic activities). Aesthetic education can be considered a pedagogical approach, in which we focus on highlighting the beauties all around us. The beauty of the natural environment, specifically the forest environment, is no exception. It is in the forest that we can discover unique

creations of nature. Many trees are original works of art. The sight and perception of such peculiar natural phenomena are connected with experience, with emotions, but also with imagination, memory, thinking and speech. These perceptions, which are part of cognitive processes, stimulate the child not only to seek beauty, but also to be able to create and protect it.

A literary template on the topic of the forest, which we can process into a script and then work with it through musical-dramatic activities, can be a suitable didactic tool, but also a suitable research tool to find out if we know through these creative aesthetic games and activities to support children's communication, including socio-emotional skills.

1.1 From aesthetic perception to aesthetic experience and values

Mistrík (2007) considers aesthetic education to be a pedagogical and deliberate influence on aesthetic taste, aesthetic value orientation, and helps to develop aesthetic perception, the result of which is an aesthetic experience. Aesthetic experiences that result from the perception and observation of particular natural phenomena can lead to expressive aesthetic activities and aesthetic attitudes. It also satisfies our aesthetic needs. Musical-dramatic activities in connection with literary-dramatic activities, the central motif of which is the forest, can bring the child an aesthetic experience. The condition is that the child actively engages in creative activities. This process will bring the child not only an aesthetic experience, but also the formation of value orientation and the opportunity to improve in communication skills.

Henckmann and Lotter (1995) define aesthetic experience as the readiness of a person to maintain and develop aesthetic experiences. In accordance with Mistrík (2007), we would like to remind that in this way we can also create an aesthetic value orientation for children. Later, they can appreciate and respect aesthetic values, i.e. the relationship of human to objects and phenomena that he creates through aesthetic experience.

Průcha, Walterová and Mareš, (2007) state that aesthetic education develops especially aesthetic abilities and feelings, the ability to observe aesthetic values in human products, both in everyday life and in nature, and cultivates the relationship to art and beauty. That is also why, in accordance with Mistrík (2007), we can distinguish between natural artistic and non-artistic aesthetics or beauty. We can consider unique natural formations or events as aesthetically natural, or if we create works of art from bark, fruits, or tree roots, etc. The artistic aesthetic is the result of creative artistic activity (literary text, ceramics, musical composition, choreography, etc.). By non-artistic aesthetic, we mean discovering beauty through fashion accessories, through design, or in sports performances, etc. When we want to develop aesthetic education in children, we try to implement it mainly through aesthetic-educational activities - music (singing, instrumental, perceptual, music-movement or music-dramatic), art (drawing, painting, modelling, graphics, photography, etc.), literary (play with word, rhythm and rhyme, children's verbal folklore, poetry, prose, literary-dramatic), dance (also as part of music and movement activities).

In all aesthetic-educational areas of education, we enable children to perceive, experience and create beauty through an encounter with art, i.e. through artistic-educational activities, which also develops their ability to create and process aesthetic taste. Through their own creative aesthetic games, children express their view of the world. It is this ability that is necessary in the perception and evaluation of the surrounding reality, including the natural environment.

We lead children to environmental protection through environmental education. Činčera (2007) states that the

philosophy of environmental education is based on environmental ethics. We consider environmental education to be an important element in the upbringing of every child, because in the future it will influence the state of its immediate environment through its daily actions. One of the areas of specific socio-emotional goals of environmental education in primary education are also goals that aim at:

- the beauty of nature,
- to assess the natural environment,
- the protective attitudes towards nature.

Here are some of them: to sensitively perceive the beauty of nature, its charm and uniqueness, to evaluate the natural environment, to express relationship and protective attitudes to the natural environment and to express them through various artistic means of expression, practically apply habits of nature care, share feelings, experiences, impressions from care for nature and view them.

1.2 The forest and its (aesthetic) value for humans

As we stated in the introduction, in our contribution we narrow the natural environment to the forest environment. We dare to say that just by discovering the beauties of the forest environment, through its colours, sounds, shadows, movement, unexpected natural still lifes of the plant or animal empire, we can discover natural and artistic and non-artistic means in the forest environment with children. These can become the basis for the expressive level of aesthetic activities in education. At the receptive level, we can stimulate children with illustrative didactic means. They can be fairy tales with a forest motif, or poems, illustrations, photographs, or recordings of animal sounds that depict the environment of the forest.

The forest is therefore a topic, respectively also a source of topics, which significantly affects the educational field of Arts and Culture. It can be assumed that if we mediate the child's life in the forest through artistic means, when entering the real forest environment, the child will be more sensitive to this environment's specific stimuli. It can also be assumed that the child will form a relationship with the forest and will want to return to it and get to know it better.

The topics in which we teach children about the forest environment - wildlife, deciduous and coniferous trees, animals in winter, anthill, etc., should probably be based on the idea that the forest is one of the most valuable assets that mankind has for its own renewable capabilities. The forest also brings us aesthetic stimuli. Čaboun et al. (2011) recalls that the forest also has specific psycho-aesthetic effects on humans, created by a combination of light and shadow, colours, shapes, smells, sounds, etc. Forests are no longer just trees and their primary function is not only in the extraction of wood raw material. Foresters take care of the forests.

Foresters are also interested in cooperating with schools. They can be developed as part of further education in the accredited program Forest Pedagogy. Forest pedagogy is learning on the principle of activating methods and forms of experiential learning - Learning about the forest in the forest. We therefore involve as many senses as possible in learning and build on the principle of learning through our own experience. We not only provide children with knowledge, but we also develop the psychomotor and socio-emotional side of their personalities. We lead children to the importance of protecting forests for humans, not from humans. It is children who are often prone to sensitively perceive every cut tree, so it is necessary to show that farming is a part of our lives. For this reason, we consider it enriching for children and teachers, if some topics at school can be taught by a forester - forest teacher, because they know the environment of the forest intimately. When they understand these contexts as young children, they are less likely to be subject to one-sided views in adulthood when they have the opportunity to influence public events.

2 Music and Drama activities in developing the topic of the forest

Every art-educational activity significantly contributes to the cognitive, psychomotor and emotional development of the child. Examples are dance, or more precisely physical activities of children, in which they express the wind, flight and fall of leaves, a wedding dance of bees, or a dance in the air of maple fruits. The child can express their flight by angled or arched dance movements. Motivation for dance variations can also be a theme through fairy-tale motifs - the dance of forest fairies, the dance of mushrooms in a clearing, or the motivated walking of forest animals in various situations. We will add a dramatic expression to the dance or movement expressions, because its condition is the child's decision-making. In this way we can stimulate their communication and social skills. In the following section, we will describe some of the procedures we followed in our research of scenario and selection of musical-dramatic activities.

2.1 Music and drama activities when working with a scenario

The expressive level of art-educational activities helps the child to cope with psychophysical tension. The child must decide how to express their idea. An example can be movement in the forest - walking, running, successful overcoming of natural obstacles. We know how to gradually integrate musical-dramatic activities into these physical activities. In this way, we also proceeded in our pedagogical-research extracurricular activities. We worked with the screenplay *Crying Toadstool* (Kollárová, 2000), which inspired us to choose musical-dramatic activities. As part of the research, we held 10 meetings. Attention was paid to the development of the forest theme, especially the application of musical and dramatic activities.

In the forest we find many topics and ideas for aesthetic (or attempts at artistic) expression of children's ideas. When children meet art and beauty, we soften them. This is a humanistic approach to education, no special strategies of educator are needed. The children had a variety of information about the forest. Our task was to reflect on this information within the hobby and to use it adequately in extracurricular practice so that they know what topic we are going to develop together. We helped them to incorporate the new information about the forest that they gained in our creative process into their knowledge system using appropriate activating methods. It was not enough to explain to children that people often make inappropriate and dangerous interventions in the environment, but we motivated them to feel the need to get involved in solving these inappropriate interventions. To feel the need to protect the environment.

To facilitate environmental education through musical-dramatic activities within the framework of education outside teaching, we can also use the dramatic activity of children. We also used a game with an object - a fabric and a mimic puppet. This was inspired by Kováčová (2014), who considers her puppet to be a suitable didactic tool for developing emotional education and building relationships. The story of the chosen fairy tale, which we worked with in our research, took place in a forest environment. We prepared a theatrical performance with the children. In the research, we focused on the creative process, not on its final form and public presentation. We used the literary text by D. Mrázková *How the Forest Roars* (1971), from which we wrote the screenplay *Uplakaná muchotrávka* (Kollárová, 2000. Urbanová (In Králová, 2002) reminds us that a child needs the art of theater to help him. The literary treatment of themes from the forest environment is close to children, they are still relevant, but their didactic grasp is more problematic. It can be topics like: rescue of animals or plants, felling of forests, soil loading and construction, hunting animals for leather or furs, pollution of rivers, forests, etc. We also processed some of the mentioned topics in scenarios (more specifically Kollárová, Leitmannová, 2014).

In the introductory meetings, we assumed that if we want to acquaint the child with art and aesthetic stimuli as much as possible, this teaching must be based on trust. Musical-dramatic activities are built on survival. So we also included games and exercises for trust. We thought of relationships - teacher and child, teacher and children, child and children. We were inspired by the themes from the book *Can You Talk About Trees?* (Wohlleben, 2017) and together we discovered an imaginary journey through the forest by poems, pictures, sound recordings.

We also used blind exercises in dramatic activities to get to know and build trust. On top of that we used a game with tones. The children were conducted in pairs over a specified melodic interval. Through movement exercises or pantomime, they expressed the butterflies of the family, beetles, flies, while the movement was accompanied by their own melodic vocal expression, later they were inspired by listening to music. This is how they experienced smaller adventures - they watched, compared, learned to respect in space, to feel the group. It brought them joy and a positive experience.

In the next meetings, we always focused on the voice warm-ups in the stories. Each vocal warm-up was included at the beginning of the meeting including games and breathing exercises, phonation, articulation and rhythmic exercises. We gradually involved phonation. Through vocal plays, we explained how the leaves breathe. By movement and staccato rhythm, then by a bound melody in the legate, we expressed by dance the movement and falling of leaves from a tree - serrated or with a straight edge. Their musical-movement expression of coniferous or deciduous trees was interesting. By playing instrumental instruments, they expressed a notched bark, or its peeling from a tree. The needles of the trees motivated them to stand upright and walk in the tempo of the music recording. We used the game with a decreasing melody when the bark falls from the trees, when the cones fall. For the graceful movement of children, we helped each other with scarves and colored ribbons. We used the fabrics and their colors to express the gait and character of the animals. We completed the walk with rhythmic instruments or a melodic motif. Interesting melodic motifs were created when the seeds of the cone were carried by the wind. The fruits of the beech were a grateful impulse for the play with the rhythm and Orff's instrumentalist. The children invented rhythmic and melodic motifs while playing squirrels while picking and eating and hiding nuts. Suggestions for games with children's instruments and rhythmic instruments can also be found in Vančová, Osvaldová (2019). The script also inspired us to perform circular music and movement games. The music game *Miracle Wheel* helped us to convey to the children how a tree grows and increases its trunk circumference. In a musical-dramatic etude, we explained that the roots of a tree are like a pump. It pumps water through the trunk to the top of the tree. This was also the subject of a melodic play with an emphasis on changes in dynamics and tempo.

In spring, not only mushrooms but also animal families can be seen in the forest. They have become our motivation for musical and dramatic activities. The children expressed a pace-rhythmically motivated walk - an adult and a young, or sneaking in the woods so as not to scare the animal family. Trees or forest animals were the themes for playing with rhythm and rhyme, either in melody or in words. In the preparation of our performance, we used rhetorics, rapotanks, reproaches, riddles, in connection with vocal plays. For children, static activities focused on attention and perception were also inspiring - standing like a tree (straight, crooked), like a rock, being in the ground like a root.

The singing of birds is also inspiring for the musical expression. Birds emit tones, or melodic or rhythmic motifs. They are attentive and sing when they feel another bird's singing pause. It is at regular intervals. We used these exercises as perceptual activities. At the same time, we taught the children that we should let someone talk, finish singing, before we start singing ourselves. We have also enriched musical-dramatic games with word games. Proof of this was the play of dialogue games -

children in the clearing, meeting a toadstool, a wolf with a hunter, a wolf with a fox or a snake. These are excellent exercises for psychomotor skills and for developing attention and listening. Some expressions of the birds' speech served us as tongue twisters, but also as themes for a song. We used the game of bird singing for vocal improvisations - they are happy to see a friend or an enemy-expression in high or low tones, ascending or descending melody. In the echo game, we used the objects we had in the room. In pairs, they had a melodic dialogue - two toadstools, a toadstool and a tree - using singing, rhythm, dynamics, tempo-rhythm. The other couple guessed what they might be talking about.

We presented only some musical-dramatic plays, exercises and improvisations, which we proceeded in our research, in order to observe and reflect - group interview after meetings with participants to find out what potential musical-dramatic activities have for the development of communication, including socio-emotional children's skills.

3 The research about applying the forest theme musical-dramatic activities with children from the center for children and families.

As part of our voluntary activities, we found that children are interested in participating in several leisure activities with an artistic focus. For this reason, we decided to offer specific children from the center for children and families actively used free time through cultural and artistic hobby activities. These were musical-dramatic activities, which also included other musical activities. We decided to carry out applied pedagogical research with children, with the premise of enriching their social, communication and emotional aspects of personality development. In our case, it is applied pedagogical research, the aim of which was to explore the potential of musical-dramatic activities for stimulating and developing social skills and emotional experience of children.

We carried out musical-dramatic activities with the children - participants of the research regularly during their leisure activities in the afternoon hours. We worked with the whole educational group on the screenplay by D. Kollárová *How the Forest Knocks* (1999), which we wrote on literary motifs from D. Mrázková's book *The Weeping Toadstool* (1981).

3.1 Theoretical background to research

To explore the potential of musical-dramatic activity - we decided because the social side of personality is closely linked to the emotional development of the child. According to Langmeier and Krejčířová (2006), their emotional development is behind the social side of the personality. It is also proven by many experts (Petty, 2013, Helfert, 1930, Daněk, 2019) that art influences emotions, but also determines human behaviour, which is reflected in other communication, respectively. social skills.

In the HDČ research, but also in the pedagogical-didactic level have devoted themselves Hatřík (1997), Felix (2013), Langsteinová (2002), Kollárová (2014), Pírníková (2004), Sondorová (2020). We dare to say that very little attention is currently paid to them and that they are represented rather seldom in research. At the research level, the enriching knowledge for us was the stimulating work of Hatřík (1992, 1997), who, according to Kupková (2001), had a natural tendency towards a child participant. He creatively applied a number of impulses and themes in integrative musical-dramatic projects, which he implemented in the environment of children in the Children's Town of Trenčín - Zlatovce. Hatřík was the author of several cycles of musical fairy tales (*Mechúrik Koščúrik* with friends, *Ballads about wood*, *The legend of the birch*, *Dwarves*). He was the author of not only the text but also the music component.

The interest in musical-dramatic activities is also confirmed by the research of Evjaková (2016), who focused her research field on pupils of the basic art school. The author of the research

states that the musical-dramatic activities contributed to the development of the pupils' personalities and adds that in their implementation it is good for the teacher to have knowledge in the field of basic directing procedures. We would like to draw attention to the fact that this work with children from an art school is carried out within the scope of hobby activities, and therefore we would like to draw attention to the fact that with children from CDR, music and drama activities are carried out within the educational group and during their compulsory afternoon activity. In addition, the fact that they are participants who are handicapped or have a weaker communication ability must be taken into account.

Kaščáková's (2019) research also became stimulating for our research. The results of the research point to different perceptions of music in children. She found that children have well-developed rhythmic and singing-reproductive skills. Musical play, play motifs, playful elements are a natural and at the same time the most engaging means of direct contact with music. These results also became the starting point for further research.

Research studies related to the operation of musical activities in the environment of institutional care are found more in the Czech Republic. Daněk (2014, 2016, 2018) offers several research data that were the inspiration for our research. During the collaboration, the author's effort was to improve the quality of life of children in institutional care. The results of the research confirmed that the cooperation of the orchestra enabled these children to increase their musical education. However, the author highlighted in his research the phenomenon of the family, which is absent in these children. In our case, this factor was not decisive.

3.2 Research problem, objectives and issues

At the beginning, we approached the pedagogical diagnosis of children. Eight children were involved in the research. We diagnosed at the beginning and end of our study, paying attention to all participants in the group and comparing our findings with the data we obtained from an interview with their educator.

In the research, we focused our attention on identifying the potential of musical and dramatic activities for the development of children's communication skills. We decided to solve this problem through a qualitative methodology of pedagogical research. We used methods:

- semi-structured interview (with the educator) - this selected method offered us a broad interaction and a deeper look at the approach between the researcher and the participants;
- observation (during 10 meetings) - we placed a great importance to this method. Because it allowed us not only to observe and make field notes, but also to analyze the process;
- group semi-structured interview (after each meeting with children) - we obtained research data, which we collected from participants' direct reflections on interactions in the creative process.

We met with the participants once a week for 10 weeks. One meeting lasted 90 minutes. Our research tools were observation sheets and interview protocols. An important variable in the research was musical-dramatic activities - specific preparations for meetings - creative pedagogical-artistic work with children and script. When evaluating the data, we proceeded with a qualitative content analysis of the text - written protocols from interviews, observations and interviews. We analyzed these by open coding and then we proceeded to selective coding. By synthesizing categories and their relationships, we have tried to enrich the theory.

In the study, we present results that answer our one research question - What changes can we notice in children's communication if we apply regular musical and dramatic activities?

3.3 Research results - verbal and non - verbal speech

We approached the evaluation of the collected research data by content analysis of the text. These were texts - written protocols from the observation, from group interviews after individual meetings and from the entrance and exit interview with the educator of the researched educational group. The results showed that we can agree with the theory that music and dramatic activities are an adequate opportunity in the environment of institutional care to improve children's communication and social skills.

From the analysis of the above-mentioned research data, we can state that we noticed the greatest shift from non-verbal to verbal communication in a participant with an autistic spectrum. In the introductory meetings, the mentioned participant expressed himself non-verbally - by gesture, facial expression, eye contact. We noticed his involvement in the activities and the change during the instrumental activities on Thursday's meeting. At the subsequent meeting, he also manifested himself in verbal communication. Here we hypothesize that if we integrate musical-dramatic activities into educational work, we can positively influence the communication of children with special educational needs.

In our case, this was shown in a child with a confirmed autism spectrum. The mentioned participant in the introductory meetings did not answer to us, he did not engage in communication at all. The resulting data showed that in verbal communication he used simple sentences, compound sentences. These were sentences that reflected his opinion on something. These were not sentences towards the partners in the game. In non-verbal communication, these were more gestures towards the group. The final interview with the educator also confirmed that after the implementation of the research, the participant really changed in communication for the better. She also appreciated his active involvement in musical and dramatic activities in the group. The participant had previously rejected the group organizational form.

The communication of the participants with the researcher was active during the research, but the participants responded in the introductory meetings only to our invitation. We did not reach a significant change, where they got involved and did not come up with ideas until the fifth meeting. Observation data in conjunction with the interview showed that some participants respected their communication partner and stopped jumping into speech, were able to listen, followed each other in communication, and respected someone else's opinion. Observation and an interview with the educator confirmed that children's screaming and loud communication were minimized, which was very common in the introductory meetings.

We dare to say that behind the positive development of verbal communication is not only musical-dramatic activities, but also group interviews. We realized this after every meeting with children. Participants needed someone to hear their opinion and to know that their opinion was of interest and respected. It is questionable whether group interviews were not a dependent variable in this research. Through a joint conversation, the participants learned to perceive the evaluation of their own level of abilities, which according to Geldard and Geldard (2008, pp. 245 - 267) are crucial from the developmental point of view in children of younger school age. The authors further state that evaluating the level of one's own ability and comparing oneself with the performance of others adds to children's self-awareness.

Children's musical instruments - Orff's instrumental - have also become a means of communication for children. With them, the participants expressed the characters from the script. At the seventh meeting, the participants began to actively respond to dramatic situations from the forest environment and were interested in more information about the forest environment. As part of musical and dramatic activities, we applied role-playing games. In them, the participants gave the forest environment human characteristics (old and lazy tree, proud and fast wind,

etc.). Verbally and non-verbally communicated in the role of trees, animals. An example is when they took on the role of a mushroom or moss, they softened their vocal expression and gestures. This is proof that they understood proportionality, characteristics and actively used their imagination in thinking and speech.

The participants also underwent an active change in the articulation and modulation of the voice. Research participants showed better articulation, which we focused on in vocal-intonation, rhythmic and musical-dramatic plays. We devoted ourselves to breathing exercises to support diaphragmatic breathing, vocal exercises in which we experimented with the voice in its natural and unnatural position. We varied its strength, height with practice texts. The script contains several word games with rhyme and rhythm, funny phrases and tongue twisters. They gave them confidence and courage, as they began to develop and improvise their own ideas to enrich the script on the topic of the forest. We can therefore confirm that musical-dramatic activities also support children's verbal creativity.

In conclusion, we will only summarize that musical-dramatic activities within leisure activities can rightly be considered a significant factor in the development of verbal and non-verbal communication in children of younger school age. It has also proven in our research to be positive for promoting communication with children with impaired communication skills. However, this would deserve further investigation. The strongest manifestations that we recorded by comparing the obtained data were from non-verbal communication - making contact by touching the forearm, shaking hands, touching the elbows and shoulders to the sign of interplay. In facial expressions, it was maintaining eye contact during communication and a smile. In verbal communication, the most frequent of positive changes were the formation of sentences. At the beginning, it was more about words, phrases, or a simple sentence. The biggest problem for them was listening to one-another and not interrupting the communication. However, we consider it highly positive that they were not afraid to ask for help and formulated their request in a cultured way. They clearly and comprehensibly formulated their ideas for further creative-artistic activity, while developing the topic. This is proof that they were fully involved in these activities and did them with interest.

4 Conclusion

By motivating children through art-educational activities, we cultivate their narration, but also their non-verbal expressions. Through art-educational activities, therefore also musical-dramatic activities, we develop the ability of inherits to perceive and individually evaluate stimuli from the external environment. After all, natural phenomena are a frequent inspiration for the creation of artists. By approaching education through children's own creative experiments, we lead them to form their own opinion, to the ability to present it and gain confidence in this presentation. For aesthetic education in conjunction with environmental education, the basic denominator is perception and experience. An unsuitable relationship with the protection of the environment may later manifest itself as a predatory relationship from which only man will benefit. We should therefore seek and find educational strategies that will enable us to lead children to a responsible, humane and rational approach to the natural environment. Our research has also shown that one of such strategies is the opportunity to get to know and form a relationship with the natural environment through art and educational activities, specifically through music and dramatic activities. We can only protect a forest if we understand its value to humans. It is a continuous process by which we reveal to children not only the beauty and values of the living, but also current and future environmental problems. Our task is to show them how we can improve these relationships not only with nature but also with people.

The fact that musical-dramatic activities can be one of the means that can also help children with disabilities, specifically with the autism spectrum, at least in support of their verbal

communication, should be considered valuable findings. For this reason, we dare to express the opinion that musical-dramatic activities deserve their attention in pedagogical research. Through music-pedagogical research, we brought findings in the field of music-dramatic activities carried out in the conditions of spending free time in centers for children and families. The centers are a substitute of institutional care for children who do not grow up with biological parents. Our research can be an inspiration for deeper scientific research in the field of musical-dramatic activities in the conditions of education outside teaching.

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Primary Paper Section: A

Secondary Paper Section: AJ, AL, AM, DO

INTELLECTUAL VIRTUES – ESSENTIAL CHARACTERISTICS FOR TODAY'S TEACHER

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The paper was developed with support of project: VEGA 1/0174/20 The integration of moral judgement and critical thinking into undergraduate teacher training.

Intellectual virtues are very important abilities of a future teacher. They play a major role in cultivating character and stimulating the critical thinking of the student. The intellectual virtue of rationality (trust in reason) is required for a person to develop a network of interconnected virtues – intellectual and moral, in which critical and moral thinking is integrated at the same time. The aim of the study is to identify how students of teaching perceive their own level of development of intellectual virtues. To discover the opinions of respondents, we used R. W. Paul's scheme of affective strategies (1992), which we integrated with specific intellectual virtues. The research was carried out by n = 241 students of teaching at Prešov University in Prešov. It was the available sample. Due to the fact that the issue of intellectual virtues had so far been studied in Slovakia only in theory, we bring descriptive research and analysis of primary data. The results of the research indicate a lack of training for future teachers in this regard. We consider the absence of such research and, consequently, the absence of the development of the necessary skills in this regard to be the main reason.

Keywords: intellectual virtues, fair critical thinking, research into intellectual virtues.

1 Introduction

The World Economic Forum described a critical and moral mind, as the most desirable mind of the future. The reason for this need is "intelligent stupidity" and its particularly pernicious action in today's world. The idea of "intelligent stupidity", attributed to Prof. Ruiseľ (2018) is not based on a lack of intelligence, but on a failure of intelligence. This form of stupidity is a real disease in contemporary civilization. At the same time, egotism and intellectual vices are destructive factors.

The development of a morally reasonable individual is long and strenuous. It takes time and practice. If we have nothing to build on, we have a big problem, because then the place in society is occupied by intellectual vices, which result in a lot of suffering and negative consequences. These undisciplined traits occur naturally in a person's mind; it is possible to intervene by cultivating intellectual virtues. They are what enable us to make the right choices. The main intellectual virtue is rationality (practical wisdom – *frónésis*), which Aristotle, even in his time, combined with the concept of good judgment.

The aim of this paper is to present current findings on the level of intellectual virtues in future teachers. The basic means of measurement was the scheme of the affective area of critical thinking by Paul (1992). The basic resource was knowledge from authorities such as R. W. Paul, L. Elderová, V. Čavojská, I. Ruiseľ, M. Zelina and others.

Paul (1992) introduced a scheme of 35 strategies to develop a fair-minded critical thinker. The first 9 strategies relate to the development of affective dispositions, which are related to intellectual virtues (see. table 1). We focused our attention as a matter of priority on specific aspects important in integrating critical thinking and moral judgment:

- *Independence of thought.* A critically thinking student is one who formulates their own opinions, attitudes and beliefs on the basis of their own moral autonomy.
- The basis of a critically thinking person is to be *unbiased*. Unbiasedness is a prime requirement in solving serious moral dilemmas and other situations.
- *The ability to respect sociocultural differences in others.* We must realise that it's not the case that good is only what we consider to be good and bad what we consider to be bad.

- *All human emotions are founded upon ideas, and all ideas generate a certain level of emotion.* Moral emotions play a major role in most of the moral choices people make. Most people don't realize the extent to which emotions guide their moral choices. Research shows that inwardly oriented negative emotions (guilt, embarrassment and shame) often motivate people to act ethically. Outwardly oriented negative emotions focus on discipline or punishment. For example, people often direct anger, disgust or contempt towards those who have acted unethically. This discourages others from behaving in the same way. Positive emotions (gratitude and admiration) can be felt by people when they see other actions with compassion or kindness; they can encourage people to help others.
- *Developing intellectual modesty and abstention of judgment.* This is about realizing your own limits of knowledge and being objective against judging the opinions of others. From a moral point of view, we should be particularly careful about conflicts of interest. This occurs when what is in the best interests of one person is not in the best interests of another person or organization. A conflict of interest can also occur when a person has to respond to two different individuals whose needs are in conflict.
- *Developing intellectual courage.* Do not accept information as is, but critically examine it from several perspectives. We have already mentioned above that this should be done in a way that is fair regardless of the consequences.
- *Faith in integrity.* Do not underestimate or overestimate yourself and others, learn to take responsibility for your own actions.
- *Developing intellectual perseverance.* Learn to overcome obstacles in an honest way.
- *Developing trust in rationality.* Reach moral conclusions with the support of relevant arguments. Moral knowledge – studying the role of the brain in moral judgment and decision-making – is also an interesting element. As a new social science, it involves understanding rationalizations and biases that influence moral decision-making. Scientists who study moral knowledge seek to provide social and biological explanations of how our brains process information and make moral or immoral decisions. Some scientists examine genetic and molecular influences, others use neuro-imaging to map areas of the brain that guide people's choices. Moral thinking seems like a complicated process. There is no single place of moral activity in the brain. However, it seems that a network of different areas of the brain is constantly involved in moral decision-making.

The components mentioned were integrated through active dispositions of fair-minded critical thinking (Paul, 1992) and concepts were associated with moral reasoning through the Ethics Unwrapped portal of the University of Texas at Austin (2020). In Table 1 (see methodology section) we present areas of affective strategies that form part of intellectual virtues.

In the following text, we present intellectual virtues (Paul and Elder, 2014) as different features that lead to a fair mind and indicate how they contribute to depth and quality of thought. With the thorough development of critical thinking with a strong mind, the virtues of an individual's mind are internalized. In this way, a number of skills and insights are acquired, which are lacking in the critical thinker with a weaker mind. The interconnectedness of intellectual habits leads to disciplined self-control:

- Intellectual integrity – an individual who exhibits this characteristic treats others with kindness, so as not to cause harm, and outwardly projects this characteristic. This characteristic excludes double standards and hypocrisy.
- Intellectual autonomy – the person trusts their abilities and can think critically. A future teacher with intellectual autonomy will ask questions about new possibilities for how to teach effectively, critically rethink all stages of teaching

and can determine the consequences of using effective methods for students. They don't have to rely on others to make decisions.

- Intellectual perseverance – this habit can be described as “never give up” and it encourages individuals to overcome any difficulties.
- Intellectual empathy – an individual can empathize with another in terms of thinking and feeling.
- Intellectual humility – the individual admits that they are only human and that they do not know everything. As they get older, they are constantly learning and growing. They acknowledge their limitations. The students appreciate a teacher, who has no problem admitting that they do not know something and can suggest that they study it and discuss the findings at the next meeting.
- Intellectual courage – an individual with courage defends their belief and the conclusions they have reached responsibly, especially if it is not exactly a popular idea. This was often the situation at the inception of many fundamental changes.
- Trust in reason and honesty – an individual possessing this characteristic looks at all evidence and relevant opinions responsibly in order to reach relevant conclusions.

A good critical thinker is a person who masters the tools of critical thinking, is equipped with the dispositions of critical thinking (the ethics of a critical thinker), knows how to use them and takes sufficient care to use them well and fairly. In simple terms the person has developed intellectual virtues – critical thinking with a strong mind (also called a fair-minded critical thinker). The reason why we devote substantial emphasis to the development of intellectual virtues is the fact that even the best (cognitively proficient graduates) leave university without intellectual virtues and often behave like cognitive egotists in practice. They can therefore be very intelligent and informed, but at the same time sloppy, arrogant, egotistical, etc., precisely because they do not have developed intellectual virtues.

2 Methodology

Based on the theoretical background, we formulated the basic research problem: What is the state in terms of the development of intellectual virtues in future teachers? The basic descriptive issue is to determine the level of development of the intellectual traits of students of teaching.

The research sample consisted of students on bachelor programmes in teaching from three faculties of Prešov University in Prešov: the Faculty of Humanities and Natural Sciences (FHPV), the Faculty of Philosophy (FF) and the Faculty of Sport (FŠ). Testing took place at the start of the academic year 2020/2021. The sample of $n = 241$ consisted of an available selection of 2nd and 3rd year students.

The evaluation of strategies aimed at the intellectual development of virtues was performed through the scheme of intellectual traits of a critical and moral thinker according to Paul (1992). The original scheme presents 35 strategies: 9 in the affective field, 16 cognitive macro-skills and 9 cognitive micro-skills. We adjusted affective strategies according to individual intellectual virtues (tab. 1). The level of development of individual strategies was assessed by respondents on a scale ranging from 1 (positive assessment) to 7 (negative evaluation). The values indicated in the table for components with the asterisk symbol (*) were given in reverse form in order to prevent stereotyping in the assessment. It took approximately 15 minutes to complete the shortened version.

Tab. 1 Diagram of intellectual traits of a critical fair thinker (Paul, 1992)

Intellectual virtues	P. No.	Description of the areas of strategy	Range						
			1	2	3	4	5	6	7
Intellectual Autonomy	1.	Thinking independently	1	2	3	4	5	6	7
Fair-mindedness	2.	* Developing insight into egocentricity or sociocentricity	7	6	5	4	3	2	1

Intellectual Empathy	3.	Exercising fairmindedness	1	2	3	4	5	6	7
	4.	Exploring thoughts underlying feelings and feelings underlying thought	1	2	3	4	5	6	7
Intellectual Humility	5.	* Developing intellectual humility and suspending judgment	7	6	5	4	3	2	1
Intellectual Courage	6.	Developing intellectual courage	1	2	3	4	5	6	7
Intellectual Integrity	7.	Developing intellectual good faith or integrity	1	2	3	4	5	6	7
Intellectual Perseverance	8.	Developing intellectual perseverance	1	2	3	4	5	6	7
Confidence in Reason	9.	Developing confidence in reason	1	2	3	4	5	6	7

Legend: * – reverse scale.

3 Research results and discussion

Paul and Elder (2014) note that the affective field in particular is at the heart of the ability to know and accept objective reality; in such cases/situations, one is open to the values or opinions of others. For example, Chao et al. (2003) state that intellectual traits include curiosity, openness in thinking, flexibility, systematicity, etc. They are also defined as person's dispositions or attitudes towards external reality. We consider them to be very important, because without them, critical thinking and moral judgment are not at all possible.

When assessing the level of intellectual virtues of students studying combinations including teaching, we used the methodology of the arbitrary process¹ set out in tab. 2.

Tab. 2 Success criteria expressed in terms of average values in individual scales

Range	1	2	3	4	5	6	7
Average range of scale	1 – 1.85	1.86 – 2.71	2.72 – 3.57	3.58 – 4.43	4.44 – 5.29	5.30 – 6.15	6.16 – 7.01

¹ The transformation key for the average range of scales was determined in advance.

The development of the ethics of a critical thinker can also take place through the promotion of intellectual virtues, in particular through the application of strategies aimed at stimulating the systematization and contextualization of knowledge, reasoning, cooperation and problem solving. In the implementation of the research, each virtue was explained and only afterwards did the students proceed to evaluate it. Students on teacher programmes assessed their level of development of intellectual virtues with an average value of $M = 4.50$ ($SD = 1.34$; see table. 3), representing a range of 5 (rather a negative rating; see table 2). The unfavourable results in this field of research carried out are confirmed by other studies which also found low levels of critical thinking, lack of inclination to rational reasoning, etc. (e.g. Čavojova and Jurkovic, 2017 and others). On this basis, it can be concluded that underestimating the problem of critical thinking in the academic training of future teachers has been evident for a long time and still persists.

Tab. 3 Descriptive statistics for assessing the development of intellectual virtues

Intellectual virtues	P. No.	Description of the areas of strategy	M	SD	Min	max
Intellectual Autonomy	1.	Thinking independently	4.43	1.29	1	7
Fair-mindedness	2.	* Developing insight into egocentricity or sociocentricity	4.24	1.26	1	7
Intellectual	3.	Exercising	4.84	1.33	1	7

Empathy	4.	fairmindedness Exploring thoughts underlying feelings and feelings underlying thought	4.14	1.21	1	6
Intellectual Humility	5.	* Developing intellectual humility and suspending judgment	4.51	1.26	1	7
Intellectual Courage	6.	Developing intellectual courage	4.47	1.48	1	7
Intellectual Integrity	7.	Developing intellectual good faith or integrity	4.61	1.48	1	7
Intellectual Perseverance	8.	Developing intellectual perseverance	4.43	1.41	1	7
Confidence in Reason	9.	Developing confidence in reason	4.83	1.21	1	7
Total score Average			4.50	1.34	1	7

Legend: * – reverse scale, N – sample size, M – average, SD – standard deviation, min – minimum value, max – maximum value.

The descriptive information shows that the most negative assessment was recorded for strategies aimed at applying unbiasedness ($M = 4.84$; $SD = 1.3$). These are classified in the area of *intellectual empathy*. Paul and Elder (2014) see it as the ability to understand the opinions of others and reconstruct them precisely. It is the counterpoint to each person's egocentric tendency to identify the truth with their long-standing prejudices, stereotypes or beliefs. Egocentrism is considered one of the greatest barriers to critical thinking and moral judgment. Practice and current negative trends only confirm what inappropriate and unfortunate decisions it can bring across a range of areas of life in society.

Another negative evaluation was found for *intellectual trust in reason*, i.e., strategies aimed at developing confidence in rationality ($M = 4.83$; $SD = 1.21$). The desired manifestations of those strategies include not being subject to manipulation or counterfactual thinking. Part of the intellectual virtue of rationality is also the ability to evaluate arguments and distinguish the relevant ones from irrelevant ones. Čavojević and Jurković (2017), Kosturková (2022) and others emphasize how important it is to be able to make one's own decisions rationally, independently, unbiasedly and based on as much relevant information as possible.

A negative evaluation was also recorded for strategies for intellectual autonomy ($M = 4.90$; $SD = 1.13$). Klooster (2002), a professor of American literature at Hope College in the USA, argued that independence of thought is the first criterion of a critically thinking person – a person who is curious, constantly formulates new questions, appreciates the claims and arguments of others, but has no problem rejecting them if they are wrong. Other strategies are also linked to independence of thought, such as those that develop intellectual courage, perseverance, integrity or autonomy.

Critical and moral thinking is based on developed intellectual virtues, attitudes and the ability to collect and assess relevant information, draw reasoned conclusions, solve problems based on relevant criteria, or evaluate the assumptions and consequences of decision-making (Snyder and Snyder, 2008). In the context of developing critical thinking and moral judgment, the most important thing is to learn to apply the elements and standards of this thinking (Castellano et al., 2017).

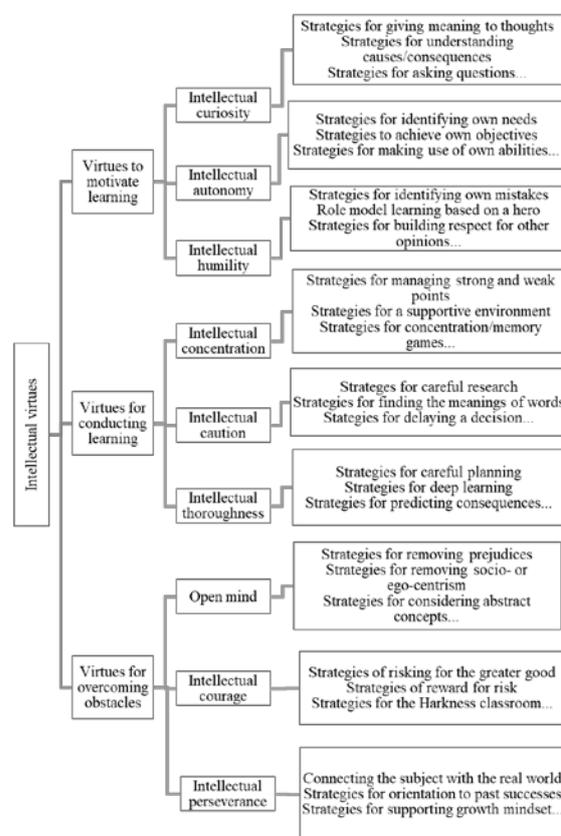
The preparation of a teacher for future teaching activities requires preparation not only in the pedagogical psychology component, but also in terms of methodology. A large amount of diverse knowledge forces us to organize our knowledge systematically into logically connected structures; it is possible

to talk about logic that pursues reasoned knowledge, formulates rules for fair critical and moral thinking, and for the process of reasonable argumentation.

Especially in undergraduate training for the teaching profession, intellectual virtues should be a permanent part of education, in order that:

1. future teachers are able to teach these virtues to their pupils, and
2. they themselves have been able to resist the characteristics of an undisciplined mind, which is a source of misunderstandings, manipulations and misinterpretations (misjudgements, incorrect reasoning, etc.).

Kosturková (2021) recommends implementing a number of principles and processes in educational practice that will provide learners with an opportunity to cultivate their character and critical mind. For the original scheme, Baehra (2015) proposed different strategies for the development of intellectual virtues (see. scheme 1).



Scheme 1 Strategies for the development of intellectual virtues (Kosturková, 2021)

4 Conclusions

A virtuous mind is needed not only for teaching programmes, but also in primary and secondary schools. The modern information society, legal systems, social norms and regulations, interpretation of the world, the current socio-legal system, meaningful human activity, etc. needs the fair formulation of ideas. We often realise that our ideas are vague or problematic in these areas. But in order to lead a good life, we need to be strong thinkers in the fairest sense of the word.

Using Paul's Assessment Scheme (1992), aimed at finding the level of development of intellectual virtues in the undergraduate training of students of teaching (in our case), we found that the type of teaching that promotes intellectual virtues is quite

underrated in the selected faculties with teaching programmes. The analysis found that students perceive the level of support the university devotes to this issue as rather insufficient.

In the current situation of society and the school education system, on the one hand, there is a global demand for a critical and ethical mind and, on the other, there are facts that hamper its development (Rusnáková, Kučerková, 2021). The results of both older and current research in Slovakia indicate that it is not easy to ensure that the development of critical thinking and moral judgment becomes an established part of the educational process in our schools. The shortcomings analysed in the critical thinking of respondents can be considered to be the result of the learning model used over the long-term. Petlák (2019) notes the need to create a suitable environment that will lead to a change in teachers' attitudes towards planned changes in school. Likewise, the higher education of future teachers needs to be adapted to the requirements of international standards and the creation of continuous teaching education programmes oriented towards current global trends (Kučerková, 2021). Zelina (2017, 2018) has long encouraged a vigorous "cognitive revolution" in Slovak education.

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Primary Paper Section: A

Secondary Paper Section: AM, AN

A COGNITIVE-PRAGMATIC STUDY OF AUSTRALIAN ENGLISH PHRASEOLOGY

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Abstract: Taking the intertwining of culture and cognition in a holistic nature of phraseologisms as a starting point, we investigate 400 units in Australian English from cognitive and pragmatic perspectives. It is argued that phraseologisms are formed on certain cognitive models that schematically represent real-world situations and shape the inner form of the expressions. The objectives of the study are to find out these models, explain how they configure the image component motivating the idiomatic meaning and pragmatic value of phraseologisms. The findings indicate that the flexibility of metonymy- and metaphor-based models allows a diversity of the inner forms which motivate idiomatic meanings and provide pragmatic efficiency of phraseologisms.

Keywords: Australian English, cognitive model, inner form, phraseology, pragmatic properties.

1 Introduction

Phraseology constitutes a significant part of a national language reflecting the unique history of its speakers, their social and cognitive experience, cultural values, traditions and the national ethos. Many studies on phraseology start with intertwining "cultural patterns and ways life" (Colson, 2008, 192) with language and cognition (Langlotz, 2006), because phraseology is a product of the national culture that reflects its deep core and uniqueness.

At the same time there are interesting observations on the cross-linguistic character of many idioms that are functioning in "much larger linguistic areas than that of one individual language" (Piirainen, 2008, 243-244). Having investigated phraseologisms across languages and discourses, researches advanced towards discovering words and patterns that frequent idiomatic structures (Hoffmann, Fischer-Starcke, Sand, 2015; Miller, 2020; Piirainen, 2008; Piirainen, 2020; Stubbs, 2007). Similarities in idioms were demonstrated by Piirainen (2012) in 74 European and 17 non-European languages. The cross-linguistic and cross-cultural dissemination of idioms was explained by lingvocultural exchange and intertextuality as well as by shared aspects of mental and social culture (Kozlova, 2019). These and other findings on phraseology have proved that "the nature of our *experience* in many instances favours certain construals over others. ... [although it] does not constrain human conceptualization" (Croft, Cruse, 2004, 72).

Understanding the significance of conceptualization in linguistic expression has caused phraseological studies to divert from traditional to cognitive perspective in order to consider how idiomatic images originate and emerge in formulaic language (Langlotz, 2006; Zykova, 2016). Cognitive scientists have emphasized that linguistic creativity can be realized in the formation and use of phraseological units. A pragmatic approach to the study of phraseology has taken on a challenge to examine the creative use of idioms conveying and expressing extra meanings (Batirkhanova, 2021; Jaki, 2014; Liu, 2012; Murar, 2009; Zubareva, Siddikova, 2021).

Comparative, cognitive and pragmatic studies on phraseology have revealed widespread and specific images that constitute the inner form of phraseologisms in individual languages and their varieties, English in particular. However, the questions remain as to how such diversity of knowledge about the world is packed and converted into the inner form (i.e. the image component) of phraseological units; how the inner form motivates the actual meanings and influences pragmatic features of phraseological units. A cognitive-pragmatic study of phraseology will help to discover cognitive structures underlying the inner forms of phraseologisms, explain their deployment in achieving certain communicative goals.

It is hypothesized that despite their diversity and distinctiveness, phraseologisms are based on certain cognitive models motivating representations of real-world situations in the inner form of the expressions.

The purpose of the study is to find out these models, explain how they configure the image component motivating the idiomatic meaning and pragmatic value of phraseologisms.

The study was carried out on phraseology of Australian English which is accepted as "one of the core global varieties of English" with a standard form whose influence is increasing in East Asia (Cox, Palethorpe, 2012, 294). Having evolved in a multicultural environment, Australian phraseology reflects the unique national ethos, speakers' cognitive and sociocultural response to challenging conditions of life. Phraseology constitutes a significant part of informal usage of Australian vernacular, or "*the Lingo...* [as] most important signifier of [Australian] cultural identity" (Seal, 1999, VIII).

The studies on Australian English phraseology have drawn attention to the description of its roots and history (Wilkes, 1986). While there exist numerous lexicographic collections of Australian words and phrases including phraseologisms, colloquialisms and slang (ANDS, 2017; Butler, 2017; Hughes, 1989; Jonsen, 1999; Miller, 2015; Ramson, 1988; Wilkes, 2014), very few works provide an insight into semantic, functional or rhetorical properties of Australian phraseologisms, considering either individual cases (Laugesen, 2012; Langlotz, 2006, 122) or a particular group of Australian phraseologisms, for example, similes and evaluative expressions (Peters, 2017). Although there has been some growth of interest in Australian phraseology, it still remains understudied.

In this paper, Section 2 outlines our research methodology and materials. Section 3 presents the analysis of cognitive models that motivate conceptualizations of speakers' experience and their manifestation in Australian English phraseology. It also explains the pragmatic value of the units in question.

2 Research methodology and materials

2.1 Methodological approach

Taking a holistic nature of phraseologisms, and the intertwining of culture, cognition and communication as starting points, we consider phraseology at the crossroads of cognitive and pragmatic frameworks. The methodology of the research adheres to the Conventional Figurative Language Theory (Dobrovolskij, Piirainen, 2005); multifactorial view of phraseology (Baranov, Dobrovolskij, 2009); theories of knowledge organization in language, cognitive models that structure our thought, metonymic and metaphoric reasoning (Croft, Cruse, 2004, 40-109; Kövecses, 2015; Lakoff, 1987, 1-153); the theory of cognitive and societal synthesis in language (Marmaridou, 2000), the theory of idiomatic creativity that interprets cognitive mechanisms of idiom use in discourse (Langlotz, 2006) along with the properties of language units manifesting "in communication and remain[ing] hidden in the systemic-structural description" (Nesterova, Shutova, Khromov, 2020, 201). The basic ideas that constitute the theoretical frame of this study can be summarized as follows:

- phraseology is a significant part of the heterogeneous lexical layer embracing among others idioms, fixed collocations, proverbs, lexicalized metaphors, figurative compounds, etc.;
- phraseology itself is a broad class of multi-word expressions, therefore, the terms *phraseology*, *phraseologism(s)* and *phraseological unit(s)* are used in this paper synonymously as umbrella terms to refer to subsets of idioms (phraseological fusions), phraseological unities, phraseological combinations / collocations, and proverbs;

- a broad view of phraseology allows representativeness of the sample including lexical units of different degrees of motivation, semantic opacity (idiomaticity), and structural fixedness;
- phraseologisms are distinguished from free expressions according to the frequently cited criteria of compositeness (having multi-word structures), institutionalization (being memorized and currently reproduced for specific meanings and pragmatic functions), non-compositionality (semantic indivisibility), fixedness (relative structural stability);
- phraseologisms are complex units made up by multiple interacting aspects – the inner form / the image component, actual (idiomatic / figurative) meaning, structural / syntactic and functional (stylistic / discursive) properties;
- the inner form of phraseologisms is most pivot constituent of their content and is modelled in a particular way to anticipate the actual meaning (Baranov, Dobrovol'skij, 2009, 23-25);
- cognitive structures and mechanisms shape the interaction of content, form and function of phraseological units responding to cognitive and sociocultural preferences of language users.

This study pertains to the cognitive-pragmatic analysis of phraseological units, the role of cognitive structures in the formation of their inner forms. The inner form of phraseologisms is considered to be the invariant of their content structure that shapes actual and extra meanings created during communication.

2.2 Methods of data collection and analysis

For the purpose of this research, we made the sample of 400 phraseologisms selected according to three criteria: availability of sources, grammatical description, and representativeness.

The sample was extracted from good-quality dictionaries and other sources which we could easily access. It was composed of multi-word units registered in several sources and labeled as *phr* (*phrase*) or *comb.* (*combination*), for instance, “Special Comb. *tin arse*, an unusually lucky person” (Hughes, 1989, 582). This appeared a useful limitation for the sampling and enabled us to distinguish compound words from phrases. Cf.: the compound *out west, adv., n. and a.* “Eastern States” (*ibid.*, 386) and the phrase *up east* “along the coast of W. A., north and east of Broome” accompanied by the label *in the phr.* in (*ibid.*, 606). Compounds were not considered in this study. The third criterion for the sample selection was its representativeness in the sense that we took into account the semantic and structural diversity of Australian phraseology.

The selected phraseologisms were analysed and systematized according to the type of their syntactic structures, patterns of their formation and conceptual models underlying the inner forms (image components).

In certain cases, Australian data were compared to those in other languages or English varieties in order to find out how different language tools and varied conceptual models are used to perform universal cognitive tasks, indicate speakers' cognitive and linguistic preferences.

The next step was to analyse the use of the phraseologisms and examine pragmatic effects along with extra meanings produced by creative use of the units in various spheres of communication. The final stage of the research involved examining the rhetorical means used in Australian phraseology, explaining their correlation with the cognitive-pragmatic features of the expressions.

3 Results and discussion

The results presented below show that the inner forms of Australian phraseologisms are diverse and modelled on the basis of metonymy and metaphor. The cognitive structures are flexible enough to vary their manifestation in actual meanings, syntactic structures and pragmatic functions of phraseologisms.

3.1 Metonymy-based models

Metonymy is efficiently used as a cognitive model to organize speakers' practical knowledge as a “stand-for” relationship between the source and target domains ... [It is] primarily used for reference ... to an entity by means of another entity” (Fan, Liao, Lou, 2017, 1721). The metonymy-based models which manifest themselves in the inner form of Australian phraseologisms deal with the part-whole relations.

The cognitive metonymy “a category member > a whole category” is based on the interpretation of the whole category of entities in terms of their representatives. The application of this model can be instanced by the inner form of the idiom *brownie gorger* which is used in Australia to refer to shed-hands, usually young boys with big appetites. As the idiom conveys an idea of extreme wanting or needing of food, the metonymic cognitive model stimulates the mapping between two cognitive subdomains of the sphere “human”: “an insatiable eater of brownies” > “an insatiable eater”.

The idiom *brownie gorger* is a binominal structure combining two nouns. One of them is the leading component that carries a hyperbole (*gorger* “someone who eats until s/he is unable to eat any more”), whereas the other is the attributively used noun (*brownie* “a piece of bread sweetened with brown sugar and currants, a kind of typical shearers food”). The expression manifests the practical knowledge of shearers' lifestyle at Australian stations (homesteads): “We were shearing out Hungerford way. Joe was one of the ‘brownie gorgers’” (Adam-Smith, 1982, 403). Shed-hands used to travel along shearing routes in search of work in the Australian outback: “Click go the shears boys, click, click, click, / Wide is his blow and his hands move quick... / Roll up your swag for we're off on the tracks” (Anonymous. *Click Go the Shears, Boys*) (More, 2021, 31-32). Probably because the occupation of shearing implied very hard and unskilled manual labour during a seasonal employment on the rural property, shearers' food was really crude. Brownies, in particular, were made of flour and water, without any yeast, and baked on a fire. Cooked simply to give a nourishing feeling, brownies were not a kind of delicacy, but something one was supposed to be satisfied with in the deserted areas of Australia, beyond the limits of settlement, in a camp shelter roughly constructed near a creek (a watercourse).

Due to the intentional overstatement, the idiom *brownie gorger* expresses speakers' impression of the situation when tiring work causes need to eat. Such inexactitude of measurement results in intensification. When exaggeration accompanies metonymical rethinking, it produces significant pragmatic effects and contributes to the favourable attitudes of speakers to those who were able to stand the hardships of life, survive in the challenging natural and social environment of the nineteenth century Australia.

It is noteworthy that the feeling of extreme hunger is almost universally verbalized by means of colourful exaggerations. For example, there are hyperbolized expressions in English (*eat a horse* “used to describe someone very hungry”), German (*einen Bärenhunger haben* “to be very hungry, to have a big appetite”, lit. ‘to have a hunger of a bear’), and many other languages which associate extreme hunger with the ability to eat something huge, such as a horse (Spanish, Canadian French, Portuguese), a cow (Argentinian Spanish), a bull (French) (Ramraj, 2009) or an ox (Italian, Portuguese (*ibid.*) and Chinese (Chen, Chen, 2011, 132)). However, these are all cognitive metaphors revealing conceptualization of an intensive feeling in terms of a big animal. Cultural differences determine the specificity of features motivating the above-mentioned conceptualizations, such as greediness in Chinese (*ibid.*), and the prototypes of big entities (various animals kept for meat and milk).

The case of *brownie gorger*, when compared to its approximate equivalents in other languages and cultures, is a convincing evidence of how different language tools and varied conceptual models are used to perform universal cognitive tasks, yet indicate divergence in speakers' pragmatic preferences. While

“an insatiable eater” is cross-culturally interpreted as “an eater of an enormous animal”, the Australian English idiom is different. The hyperbole in *brownie gorgier* is an indicator of the Australian masculine culture and national ethos to treat difficulties with humour and enthusiasm, without any fear of deprivation, or a sign of weakness.

Another instance of cognitive metonymy is found in the inner form of *within cooee* “within earshot” (Hughes, 1989, 135). The idea of nearness is conceptualized as “a part standing for its whole”, that is “a unit of measure for the distance”. The word *cooee* is a loan from the Aboriginal language Dharuk (*guuu-wi*) (ibid.) meaning a call made by tribesmen to communicate at a distance. The cry was adapted by the first settlers to be used in the bush, i.e. the area which remained unsettled and in its natural state. The metonymic model of the idiom formation relies upon speakers’ previous experience of signaling someone who is not near: “*In calling to each other at a distance, the natives make use of the word Coo-ee [italicized], as we do the word Hollo [italicized], prolonging the sound the sound of the coo [italicized], and closing that of the ee [italicized] with a shrill jerk*” (P. Cunningham. *Two Yrs. in N.S.W.* (rev.ed.) II, 1827, 23) (cited in Ramson, 1988, 166). The mechanism of the metonymic conceptualization activates the target domain which is the whole situation (being near) by appealing to the source domain (a constituent of the situation that is a call heard).

From the mid-19th to the mid-20th century, the idiom *within cooee* occurred in fiction and mass media stories with reference to the amount of space between two points, places, or people. Cf. the instances we selected from the quotes in the Australian National dictionary on historical principles: “*He ... managed to crawl within coo-ee of the camp*” (R. Porter. *Hist. Story*, 1836, 12), “*... no one else, could come within coo-ee of him*” (*Quiz*, (Adelaide) 4 Apr. 3/1, 1890), “*... their chief city of Constantinople just within ‘coo-ee’*” (R. H. Knyvett. *Over there with Australs*. 1918, 125), “*... some white men ... should never come within coo-ee of them [the natives]*” (A. E. Farrell. *Vengeance*, 1963, 188) (cited in Ramson, 1988, 167).

The second half of the twentieth century, however, marks the tendency to the metaphoric shift from spatial reference “not far in position” to more abstract ideas: temporal “not far in time” (“*Holland was our only hope within cooee of winning an Olympic gold medal at Montreal*” (*Nat. Times* (Sydney) 6 July 50/2, 1984) (cited in ibid.)) and completion “finishing the final stage” (“*Murdoch within cooee of Dow*” (*Australian Aug.*, 31-32) (cited in Kirkpatrick, 2007, 1)).

In addition to conceptual and semantic modifications, metaphors generate important pragmatic effects. To find out about the pragmatic effects of the idiom use enhanced “due to an activation of a cognitive base of meaning” (Colston, 2021, 77), it is necessary to consider the contextual factors that influence the pragmatic awareness of speakers (Infantidou, 2013, 116). Among others, they include the topic of conversation and the intentions of participants. Let us examine the use of the idiom *within cooee* in the Australian English-speaking mass media discourse, because it best reflects the “social dimensions of the communicative process” (Dijk, 1985, 6).

The findings prove that the idiom frequents pragmatically strong parts of stories presented in mass media, namely headlines of articles and blogs. For instance, in the context of climate change and its possible catastrophic consequences, the idiom *within cooee* agrees with the reporter’s intention to warn recipients of the approaching environmental disaster, and to stir anxiety over the real threat posed by climatic changes: “*Climate change: within Cooee of the 2050 generation: the seriousness of climate change has become unavoidable. Nonie Sharp asks if it will be enough to stir us into action...*” (Sharp, 2007). Thus, spatial meaning triggers the activation of the target domain “unavoidability”.

Another article examines social hardships of single-parent families living in the rural suburbs of Melbourne: “*Almost*

within Cooee’: The Implications, for Sole-parent Families Living beyond Melbourne’s Suburban Edge, of Long-term Poverty and ‘Duty’-based Interventions” (Holmes, 2018, 729). The author expresses worries about impoverished members of contemporary Australian society, “which is among the world’s wealthy nations” (ibid.). Alternatively, the title “*Swimming spots within cooee of Melbourne*” appears in the idealized discourse of the blog relating to joys and pleasures of blissful rest on Melbourne beaches (Amanda, 2018). Spatial meaning “not far in space” is transferred to the target domain “ease of accessibility”.

In the article entitled “*Not within cooee*”, R. Hussey (Hussey, 2002) did not try to hide his bitter disappointment about closing Adrian Newstead’s gallery of Australian Aboriginal art. It took Newstead over 20 years of complete dedication to travel thousands of miles (“*not within cooee*”) to keep in touch with Aboriginal communities and artists in order to proclaim the indigenous art. As was stated in the article, Newstead would not stop his hard toil in spite of the obstacles posed by the government. Hopefully, the diminishment of Newstead’s genuine endeavour was *not* going to be *within cooee*. In cognitive-pragmatic terms, the activation of spatial meaning aroused a positively evaluated processual meaning of “continue without any change or pause”.

Providing scarce information on the events and “increasing audience’s curiosity” (Jaki, 2014, 36), the phrase *within cooee* influences the reader’s opinion in the way to comply with that of the author’s. The pragmatic effect of persuasiveness shapes the readers’ assessment of the described situation, their attitudes towards the events approaching in space, time, performance, accessibility, etc.

The same metonymy-based model shapes other Australian and American phraseologisms with meanings similar to *within cooee*. The American idiom *within the sound of my voice* “nearby” (Jonsen, 1999, 129), its Australian equivalents *within a bee’s dick* “very near” and *within a bull’s roar* “not too far away” together with the semantically opposite negative *not within a bull’s roar* “nowhere near” (ANDC, 2017) interpret distance in terms of something that stretches or travels not beyond that. With the intention to add expressivity and persuasiveness to the utterance, speakers suggest that something is coming near to something else in space, time or quality: *not within a bull’s roar from home, not within a bull’s roar from winning* (Butler, 2017, 202), “*Not surprisingly John Howards reckons WA Labor leader Mark McGowan wouldn’t come within a ‘bull’s roar’ of Colin Barnett as a person*” (Foster, 2017).

Other manifestations of the metonymy-based model include mappings within such domains as:

- “Emotion” (“a trigger of the emotion > emotion”) as in the idiom *to give (one) the sterks* “to frighten, to give a fit of exasperation or depression”, where *sterks* is probably formed on pertaining to excrements (Hughes, 1989, 543);
- “Termination” (“to break connection, or lose an essential part > to stop existence”) as in the idiom *to snap one’s hobbles* “to die” (ibid., 257), cf. Russian *отдать концы* (*otdat’ kontsy*), Ukrainian *віддати кінці* (*viddaty kintsi*), lit. ‘to give the ends’, Ukrainian *віддати Богови душу* (*viddaty Bohovi dushu*), lit. ‘to give your soul to the God’; or as in *to drop one’s bundle* “to go to pieces” (ibid., 89); *to go bung* “to go bankrupt” (ibid.), where *bung* pertains to “die”;
- “Drinking” (“a part of an action > a whole action”) as in *to blow the froth off* “to drink beer” (ibid., 54);
- “Involvement” (“to begin to be involved > to become involved”) as in *to bog into* “to engage (in a task or activity) with vigor or enthusiasm; esp. to begin eating” (ibid., 60), where *to bog* “to sink” is reinterpreted as “to get stuck into”, to name but a few.

The findings show that the metonymy-based model which is relying on the contiguity between the source of conceptualization “a part of action, activity, procedure, and situation, or an attribute or feature of the situation, etc” and the

target concept “a whole action, activity, procedure, or situation” is a highly productive basis for the inner forms of Australian phraseologisms: *to put (or sink) the boot in, to put in the boot* “to attack savagely, or in a manner which is otherwise conventionally unacceptable” (ibid., 66); *to put (push, stick) one’s bib in* “to interfere” (ibid., 40), where *bib* is a figurative use of “upper garment”; *to hoist one’s bluey (or Matilda, drum)* “to set off on a journey as a swagman” (ibid., 258), where *bluey, Matilda* and *drum* mean “a swag, blanket, luggage”; *to give smb kurrajong* “to hang smb with a rope made from kurrajong tree” and *to go kurdaitcha* “to embark on a mission of vengeance” (ibid., 297) from *kurdaitcha* “shoes worn by Aborigines on a mission of revenge which are made from emu and turkey feathers to make wearer’s tracks invisible” (ibid.); *to make a welter of it* “to engage (in an activity) to excess”, where *welter* is a loan from British dialects meaning “something exceptionally big or heavy” (ibid., 624).

The synecdoche, in which the whole of something is interpreted in terms of its part, has provided the cognitive base for a variety of images, such as:

- “the container > the substance contained” in *to boil the billy (billy “a kettle”)* “to brew tea” (ibid., 42), *to bring a plate* “to bring some food in order to contribute towards the catering at a social gathering” (ibid., 415; ANDC, 2017);
- “one of the parts of the body > a single human, animal, or a whole group” as in *a ball of muscle* “a physically-fit person” (Hughes, 1989, 25); *wooly back* “a sheep” (ibid., 42), *the hands of the government* “the official custody” (ibid., 252);
- “a single unit > the whole amount, thing, utterance” as in *not to like the bar of* “to dislike completely, be unable to tolerate” (ibid., 28), where *bar* pertains to “a long, thin piece”; *to put the hard word on* “to make an importunate request” (ibid., 253).

The second type of metonymy-based models relies on the enumeration of the constituents of some set to stand for a whole:

- enumeration of similar or related things (*stiff and swagless* “without money and possessions”, lit. “penniless and without a swag” (ibid., 545, 561));
- enumeration of different possibilities or opposites (*Sydney or the bush* “all or nothing; with reference to the extremes of urban and rural life” (ibid., 567));
- enumeration of the first and the last items of a set (*from go to whoa* “from start to finish” (Ramson, 1988, 275), *to and from* “a pom, an immigrant from England” (Hughes, 1989, 584)).

In other instances, *A and B* model conjoins: *A* “container” and *B* “contents” (*the whole box and dice* “everything, the whole lot” (ibid., 73)); *A* “exemplar 1” and *B* “exemplar 2” (*tea and sugar burglar (bandit, bushranger)* “a swagman; a petit thief” (ibid., 575)); *A* “exemplar” and *B* “everything else” *boots and all* “without reservation, with no holds barred” (ibid., 67)).

Enumerations also include *A* “cause” and *B* “effect” model: *he went mad and they shot him* “a jocular reply to an enquiry about somebody’s whereabouts” (Wilkes, 1986, 43) which a coordinated sequence of clauses representing the order or stages of the whole situation development. The constituents of the expression metonymically explain the reason of someone’s absenteeism.

Phraseological enumerations can be extended structures *A, B and C*. For instance, *hell, west and crooked* “all over the place; in disarray” (Hughes, 1989, 256); *a cup of tea, a Bex and a good lie down* “the need for a rest in order to settle down, solve a problem, etc.; a panacea” (ANDC, 2017).

While the conjunction *and* coordinates similar and related entities, the conjunction *or* in the structure *A or B* conjoins different possibilities: *not know whether you are Arthur or Martha* “to be in a state of confusion” (ibid.) and similar phrases meaning “someone stupid”, for instance, *wouldn’t know*

if it was Tuesday or Bourke, wouldn’t know if it was Pitt Street or Christmas, wouldn’t know if it was Thursday or Antony Hordens (ibid.; Wilkes, 1986, 63).

From a pragmatic point of view, phraseological enumerations realize intensification which is a significant part of verbalized concepts and is added to the actual meanings of idioms. The enumerative metonymy-based model is pragmatically valuable, because emphasis, expressivity and elaboration work usefully together for better conceptualization of a certain idea. In the following extract, the Governor-General addressed the election meeting and used a coordinative enumeration of *A and B* type to excite the patriotic feelings towards Australia: “...he [Fischer] urged all Australians to entertain the kindest feelings towards the mother country. ‘Should the worst happen’ after everything had been done that honour would permit, Australians would ‘stand beside our own to help and defend her to our last man and our last shilling’ ” (Clark, 1997, 448).

Another context demonstrates the use of *populate or perish* which is the coordinative enumeration of *A or B* type. The expression was coined by the Minister for Repatriation and Health to draw the audience’s attention to the problem of decreasing birth-rate in Australia and advertise the idea of its necessary increase: “Australia must advance and populate, or perish” (*Sydney Morning Herald* 2 Feb. 10/4, 1937) (cited in Hughes, 1989, 423). The above discussed contexts demonstrate how the use of the metonymy-based phraseologisms help to echo the solemn voice of the officials and move from social values to argumentative strength and the importance the speakers’ ascribe to the events or changes.

3.1 Metaphor-based models

Metaphor is an efficient cognitive tool that deals with different domains of speakers’ knowledge. The metaphoric model maps the schema of the source to the target and interprets an entity in terms of another entity. Metaphor-based phraseology employs a wide range of realistic images, such as *to be on the wrong tram* “to be pursuing an unproductive course” (Hughes, 1989, 591), and unrealistic ones, for instance, *Blind Freddie could see that* “it must be the reach of the lowest intelligence” (Wilkes, 1986, 57), *didn’t come down in the last shower* “not without experience” (Ramson, 1988, 589-590). The metaphor-based models which manifest themselves in the inner form of Australian phraseologisms include image-schemas, cohered (complex) images, and prototypical comparisons.

According to Kövecses (Kövecses, 2010, 42-43), image-schemas map relatively little from the source domain to the target one as the mapping involves the constituents of the schemas, but not the conceptual constituents of speakers’ knowledge. Schemas result from our visual, orientational, or motor experience. For instance, *tall poppy* “a person who is conspicuously successful; frequently one whose distinction, rank, or wealth attracts envious notice or hostility” (Hughes, 1989, 423). The idiom manifests the visual image of a tall plant with a bright red flower on top. This image is mapped to a prominent and successful person: “height” (“tall”, that is “some such that sticks out from a surface, hence noticeable” > “prominent”) and “colour” (“bright red”, that is “full of colour” > “full of success”).

In sociocultural reality, the use of language integrates both cognitive and pragmatic aspects of phraseologisms. As a result, the pragmatic meaning is realized “as part of cognitive structure and not external to it” (Marmaridou, 2000, 13). Assumed that metaphors make a systematic use of image-schemas, the metaphor-based phraseologisms result from our “meaningful experience” in structuring the world, framing our experience, and “constructing social reality and self” (ibid., 61-62) in a given culture. In the above considered case of *tall poppy*, the image-schema of verticality (up – down) is employed to frame speakers’ knowledge about something prominent and to structure their cultural experience of denying the validity or importance of something: “The ‘tall poppies’ were the once it was desired to retrench, but fear was expressed that, as usual,

retrenchment might begin at the bottom of the ladder, and hardly touch those at the top at all" (H.L. Nielsen *Voice of People* 8, 1902) (cited in Ramson, 1988, 494). The expression *tall poppy* was intended to condemn pretentious, self-important people as well as those who are eminent for any reason: "Our national immaturity led us to cut down tall poppies and denigrate achievements" (*Canberra Times* 26 Jan. 1/5, 1986) (ibid.). The phrase *tall poppy* has a special meaning in Australian ethos not for the feeling of disdain, but for equanimity and stoic endurance as the typical physical and emotional response to the hostile environment, Australian "put up with" attitude and romanticized "low expectations of life in general" (Wilkes, 1986, 50-51).

As our bodily experience enables image-schemas framing speakers' cognitive and cultural practices. The schematized packages of knowledge are based on orientational, container, contact, and motion metaphors:

THE VERTICAL SCHEMA

- "up" is "periphery" (*up the county* "away from a centre of population; into the inferior of the country"; *up (in, to) (the) bush (or mulga)* "away from a major centre of population" (Hughes, 1989, 605);
- "down" is "center" (*to go (or come) down* "to travel from the country to a capital city"; *down south* "in a more southerly part of the country; with reference to the urban population of especially Melbourne or Sydney" (ibid., 175));
- "up" is "success" (*up there Cazaly* "a cry of encouragement or approbation" (ibid., 111);

THE HORIZONTAL SCHEMA

- "front" is "near and visible" (*to front up* "to make an appearance, to turn up" (ibid., 218);
- "back" is "far and invisible" (*at (out) the back* "most distant from the homestead or from permanent water" (ibid., 19);

THE CONTAINER SCHEMA

- "in" is "confinement; presence; involvement" (*in the tin* "in a tight spot" (ibid., 582); *in the pooh* "in trouble", used euphemistically for 'in the shit' (ibid., 322); *in the pool* "in trouble"; *in(to) holts* "in conflict, at grips" (ibid., 258);
- "out" is "absence" (*to go out to* "to die" (ibid., 384); *on (or of) the outer* "disadvantaged; ill-favoured; excluded" (ibid., 385); *out of the pool* "out of trouble" (ibid., 322));
- "out" is "exceeding the limit" (*out of the box* "unusually good" (ibid., 73);
- "body" is "container" (*to work the soul-case off* "to vex, to drive, to punish" (Ramson 1988, 611);

THE CONTACT SCHEMA

- "take and hold" is "possessing an object or a particular quality" (*to get (hold, pass) the flute* "to monopolize a conversation" (Hughes, 1989, 210); *(are you) getting any?* "is your sex-life satisfactory?" (ibid., 225); *to get up* "be successful in an endeavour" (ibid.); *to take out* "to win a prize" (ibid., 570); *to take it out* "to undergo a punishment; esp. to serve a sentence of imprisonment instead of paying a fine" (ibid.); *(how) are you holding?* "possessing money; in funds" (Ramson, 1988, 310);
- "give" is "start" (*to give it a burl* "venture an attempt, give something a try" ANDC, 2017);

THE MOTION SCHEMA

- "movement" is "change" (*fair go* "reasonable chance" (ibid.); *to go troppo* "to become mentally disturbed; to go crazy or wild" (ibid.); *to go crook on* "to become angry; to vent one's anger" (Hughes, 1989, 147);
- "movement" is "communication" (*to come it (on)* "to inform (upon someone)" (ibid., 152); *to come at* "to agree to do" (ibid.)).

Numerous phraseologisms are based on more complex imagistic reasoning than simple image-schemas. They result from cognitive coherence of metaphors, or metaphors and metonymies for the same target domain.

Consider the domain of deviant behaviour, eccentricity and mental unbalance. Although it is interpreted in spatial terms as "being away/far from position or place", the source domain employs several more specialized packages of knowledge: "Remoteness" and "Verticality". In specialized domain "Remoteness", the feature "off, away from a place or position" is interpreted as "when an element of the whole is missing, or out of place, the whole becomes disordered and uncontrolled" as in *to be off one's kadoova* "to be mentally unbalanced" (ibid., 284), where the word *kadoova* is of uncertain origin (Ramson, 1988, 341), though might be connected to *cady*, *kadi* "hat" (Wilkes, 2014). In the specialized domain "Verticality", the highest place is associated with head, and craziness can be interpreted in spatial terms as "the highest place in riot, hence uncontrolled" and represented in *(to have) kangaroos in your top paddock* "to be crazy or eccentric" (Hughes 1989, 286), *to be mad as a gumtree full of galahs* "to be completely crazy" (ANDC, 2017).

The third productive model for metaphor-based phraseology in Australian English manifests in similes. From a grammatical perspective, they are most common comparative structures:

- *as + noun* (*full as a goog* "extremely drunk" (Hughes, 1989, 219);
- *as + adjective + as + noun* (*as miserable (poor, bald, blind, hungry) as a bandicoot* "very unhappy" (ANDC, 2017);
- *like + noun* (*like steam* "furiously" (Ramson, 1988, 631); *done like a dinner* "comprehensively outwitted or defeated" (ANDC, 2017));
- *like + noun phrase* (*to shoot through like Bondi tram* "a hasty departure or speedy action" (ibid.); *off like a bride's nightie* "leaving immediately; making a hasty departure; at full speed" (ibid.));
- *adjective-er + than + phrase* (*better than a poke in the eye with a burnt stick* "used to greet piece of good fortune in a low-key way" (Wilkes, 1986, 60);
- *so + adj + clause* (*so bare you could flog* (occasionally *hunt*) *a flea across it* "drought-bare land" (ibid., 51).

Phraseological similes express resemblance between two things. Hence, their structure, (*A is*) *like B* or (*A is*) *as adj as B*, consists of three constituents. The first constituent (*A*) is *premium comparisonis*, i.e. the thing that is compared to something. The second constituent (*B*) is *secundum comparisonis*, i.e. the thing to which something is compared. The third constituent is *tertium comparisonis*, i.e. the quality or feature the constituents have in common. The first constituent is supplied by speakers.

From a cognitive theory approach, a simile can be presented as a mapping between the source, that is the second element of a simile (*B*), and (*A*), which is the target of conceptualization. Unlike metonymy-based idioms, metaphor-based expressions link two different knowledge domains. The source is always known, although may appeal to a complex of subcategories. The target domain is less predictable because it is introduced by speakers in communication.

Let us consider the simile *fit as a mallee bull* which is typically used to describe male state of fitness: "Graham Chandler was 'fit as a Mallee bull... I was about 85 kilos of just rippling muscle. I was really, really fit'. Laurie Sullivan used the same analogy, being 'fit as a bull' on his return..." (Yule, 2020, 49). The simile is formed on the exemplar-based model in which a *mallee bull* is a creature that lives in an arid region with scattered mallee (eucalypt) trees. An animal that survives under such poor conditions would be really strong and not easily damaged. The simile relies on the best exemplar (*mallee bull*) of physical strength and prime health, especially as a result of exercise: "Grant wasn't in need of a rest, he was as strong as a mallee bull and could keep up a jogging pace for hours at a time"

(Moylan, 2013, 39); “*He’s as fit as a Mallee bull and he’s had months of training*” (Challinor, 2019, unpag); “*I [speaker’s dad] w’s as fit and as strong as a mallee bull in them days (which you had to be to handle them dunny cans without spilling ’em) and a pretty fair horseman too, even if I say so m’self*” (Lindenmayer, 2012, 6). The typicality effect arises from that the particular member of the category metonymically stands for the whole category and accounts for possible subcategories (Evans, Green, 2015, 278). Therefore, the source of knowledge mapping is evaluated as the prototype licensed by speakers’ cultural experience. For instance, the word *bandicoot* has accumulated associations with misfortune and is emblematically used in multiple similes alluding to deprivation: *as poor (bald, blind, hungry, ignorant, lousy, lugubrious, miserable, orphan sad) as a (blanky, misanthropical, widowed) bandicoot (on a burnt (out) range (ridge)* (Peters, 2017, 244, 246; Ramson, 1988, 33; Wilkes, 1986, 51).

The conceptual metaphors involving exemplar-based comparisons (*A is (like) B*) vary within and across cultures. As the exemplar categories are based on our cultural experience, they appeal to a set of conceptualized features. The degree of linguistic elaboration is evidenced by a range of idiomatic similes: *mad as a cut snake* and *mad as a meat axe* “very angry”; *full as a goog* “extremely drunk, replete with food; extremely full, packed” in Australian English, and *full as a tick* with similar meaning in British English (ANDC, 2017).

Phraseologisms that refer to “overflowing, intoxication or overcrowding” employ various images of entities conceptualized as containers with the amount of substance that cannot or can hardly fit them, like in the examples below (Dale, 2010, 50; Miller, 2015, 74). Having become a recurrent theme, “overflowing” stimulated an elaboration of *full as + noun/noun phrase* by means of incorporating the names of:

- an object holding as much substance or people as possible (*goog “egg”; a Bourke Street tram; a Corby boogie board bag*);
- an object which is too big or taking too much space (*bull; bull’s bum; a fat lady’s sock, bra, undies, gumboot*);
- someone taking as much as one wants (*butcher’s pup*);
- common and frequently attended places (*a Catholic school, a State school; a seaside shithouse on Boxing Day*);
- something incessant (*a fairy’s phone book* alluding to the long list of desirable things; *a pommy complaint box* appealing to the stereotypically fretful behaviour of immigrants from Britain).

In addition to linguistic elaboration of concepts (Kövecses, 2015, 28), cultural experience of speakers leads to alternations in conceptual metaphors. The expression *as Australian as a meat pie* means “quintessentially Australian” (Ramson, 1988, 391), whereas *as American as apple-pie* (Wilkes, 1986, 61) describes something typically American. The idiom *as Kiwi as kiwifruit* is applied to exemplars of New Zealand culture, the similes *as English as apple pie (fish and chips)* and *as Scottish as haggis* represent typically British way of life, while *as Canadian as maple syrup* involves most typical examples of Canadian lifestyle (McNair, 2015). For instance, “*Weems’s book is “as American as apple pie, or spoon bread, or baked beans”*” (Furstenberg, 2007, 130); “*...Canada would, at first glance, appear to be an unlikely place for anything exciting to happen. So, what’s a poor kid to do if he’s Canadian as maple syrup...*” (Atkey, 2006, 3). Speakers of different English varieties interpret things that best represent their cultures as “a national dish” by addressing the gustatory domain as the source of metaphorical representation: “*People use this expression [as American as apple pie] when talking about things like blue jeans, baseball, and rock-n-roll music*” (Ruthie & Madeliene, 2021).

The pragmatic value of this iconic construal and prominence of a national dish is to convey an idea of something unique, very famous or popular, especially when it is to represent a particular culture, lifestyle, beliefs and opinions. The proof is found in a selection of contexts describing actors, entertainers, social

leaders, events etc., reflecting Australian spirit and inciting national pride. The idiom *as Australian as a meat pie* occurs contextually close to words and expressions carrying positive connotations:

- “being the only existing of its type, very interesting an exciting” as in “*Rolf is a unique entertainer. ... with a voice that’s as Australian as a meat pie, he captures an audience...*” (*The Sun-Herald*, Sydney, NSW 10 Apr., 1966) (cited in Tréquer, 2021);
- “very skillful in dealing with local conditions” as in “*...you quickly become assimilated (As Australian as meat pie and Tomato Sauce)... [and] make cars that master local conditions*” (*The Bulletin*, Sydney, NSW, 4 March, 1967) (ibid.);
- “honest and sincere” as in “*...his face as genuinely Australian as a meat pie*” (*The Bulletin*, Sydney, NSW, 13 May, 1972) (ibid.);
- “famous” as in “*...If you haven’t heard of the Balzary Cup you should be ashamed of yourself as we hear it is as Australian as meat-pie’n sauce*” (*The Sun-Herald*, Sydney, NSW, 20 May, 1973) (ibid.);
- “open, sincere and demonstrative” as in “*Blunt as the rear end of a timber cutter’s axe, bush-raised, as unashamedly Australian as the meat pie, earthy but perceptive...*” (*The Bulletin*, Sydney, NSW, 16 Oct. 1976) (ibid.);
- “smiling, happy, and motivated” as in “*... his wide grin and fierce desire to win as Australian as a meat pie*” (*Sunday Austral.*, Sydney, 16 Apr. 4/6, 1972) (cited in Ramson, 1988, 391).

Harmonizing with a normative set of Australian culture, phraseological similes can acquire negative pragmatic meanings because there is always the need to reflect anti-values as an inevitable product of social practices. The disapproving images of a tiny but potent thing in the idioms *dressed like a sore finger* “dressed with unusual care” (ibid., 611) and *flash as a rat with a gold tooth* “ostentatious” (ANDC 2017) are a predictable response to a showy style that is not trusted, considered superficial and evokes dodgy assumptions in Australian society. For instance, using “*A rat with a gold tooth*” as a headline, *The Saturday Paper* blames “trust and fear” policy, misinformation, unpopular political decisions and many other social concerns: “*Morrison [the minister] has been shown to have lied on many occasions, has failed to deliver his promised national integrity commission, and has corruptly allocated public monies to various sports, car parks and other rorts, in the hope of buying electoral support*” (Hewson 2021-2022).

Along with extreme evaluations, Australian phraseologisms may work for ambivalent attitudes in the scenarios of partial social agreement depending on the factors that determine what is regarded to be fair and approved. Consider the idiom *done like a dinner* “completely defeated, outwitted, demolished”. Although it usually occurs in disapproving contexts (see quotes in (ANDC 2017; Ramson, 1988, 205; Tréquer 2021)), it may add some embellishing details to the situations described. In the essay (Zengos, 2010) that addresses social adaptation in Australia, national culture and ethnicity, the author explores what it means to be Australian made. Trying “to earn Aussie identity” (ibid., 322), immigrant minorities experience injustices, suffer from isolation and marginalization. The main character of the story, who was trying to get rid of his ethnic background and avoid speaking his native language, ironically became an ethnic photographer. In the struggle for social recognition, multiculturalism wins as “*the film industry has done the bush like dinner*” (ibid.). From the vantage of someone who achieves in a competitive situation, the idiom evokes positive senses of “social competence”, “appropriate response”, “successful interaction”, etc. The disapproving senses will appeal to those who are defeated or outwitted: “*Garry won’t be forgiven for this... it sits there. The sheer unprofessionalism of it is what galls me. Paul had to carry the huge burden of getting done like a dinner by John Howard. You don’t expect this sort of thing as well, as people reposition themselves*” (Oakes, 2009). To sum, the pragmatic value of

phraseological similes is reinforced by that metaphors turn into persuasive comparisons and become efficient argumentative means.

The cognitive-pragmatic features of Australian phraseologisms correlate with their rhetorical value. Verbal eloquence is created by powerful decorative means that strengthen speakers' ludic imagination. Articulatory devices found in numerous idioms enhance emotionality and offer indispensable playfulness of speech. Some idioms exhibit alliteration, that is a consonant recurrence: *done like dinner* "completely defeated" (Hughes, 1989, 166), *stiff and swagless* "without money and possessions", lit. "penniless and without a swag" (ibid., 545, 561); *home and hosed* "having safely and successfully completed a task, journey, sporting contest, etc." (ibid., 259).

Other idioms are ornamented with assonance which is the repetition of the same vowel in proximity: *full as a goog*, *full as a boot* "very drunk", *a whale in the bay* "a person with money to spend", *to play the whale* "to vomit" (ibid., 625), *to go off pop* "to explode into angry speech" (ibid., 423). The use of alliteration and assonance in complex with bright idiomatic imagery may add solemnity and seriousness, or mockery and abuse to the utterance.

Sound repetitions, such as rhyming reduplications, provide rhythm, playfulness and humor in addition to mnemonic impact of making some points easier to remember. Appealing to speakers' auditory faculties is a means of sense elaboration: *Things are crook in (at) Tallarook (Muswellbrook)*, *Things are dead at Birkenhead*, *Things are weak at Julia Creek*, *There is no lucre at Echuca*, *There's no work at Bourke*, *The girls are bandy at Urandangie*, *(I) got the arse at Bulli Pass*, *In jail in Innisfail*, *Bugger all at Blackall*, *Everything's wrong at Wollongong* "bad; inferior; unpleasant; unsatisfactory" (Wilkes, 1986, 50).

Lexico-semantic means help to withdraw speakers' neutrality or indifference to what is said. Such is the inclusion of proper names as cultural markers into the structure of idioms. The proper names provide transparent reference to Australian cultural environment represented in:

- place names (*Albany*, *Esperance*, *Fremantle*, etc. *doctor* "a cool refreshing breeze with considerable inland penetration, which brings relief at the end of a hot summer day" (Hughes, 1989, 168); *Cobar*, *Wilcannia shower* "a dust storm" (ibid.; Ramson, 1988, 124, 734), also see the examples above);
- names of establishments (*to dodge Pompey* "to evade detection; avoid carrying out one's responsibilities, especially malingering, out of the sight of one's supervisor" from *Pompey* "a name for a house of correction or reformatory" (Hughes, 1989, 422));
- iconic personal names (*Buckley's chance* "no chance at all"; *up there, Cazaly!* "a cry of encouragement", *to do a Melba* "to make repeated farewell performances", *in like Flynn* "seizing an opportunity" (Wilkes, 1986, 54-55)).

Being prototypical in nature, anthroponyms and toponyms carry presuppositional meanings: "associative (introduced either via the name of a bearer or via the name form), [and] emotive senses" (Langendonck, 2007, 6-7). For instance, the idiom *as game as Ned Kelly* "fearless in the face of odds; foolhardy" (Hughes, 1989, 364) commemorates the Australian bushranger whose gangs were active in the southern state of Victoria in the second half of the 19th century. According to Basu (2012, 95), "Kellyana" has become synonymous with Australian national consciousness making the idiom *as game as Ned Kelly* part and parcel of national identity, language and pride as well as the highest rank of Australian esteem: "*He's branded on our culture (try a Kelly Country soft drink – Larrikin Lime, or Reckless Raspberry) and our language ('game as Ned Kelly' is still a compliment)*" (*The Sydney Morning Herald*, 30 Sept., 2000) (cited in Tréquer, 2021). There is more evidence to the fact that metaphoric mappings are made into other domains

than "Human". In particular, the mapping is aimed at something of great strength or ability to deal with difficult situations: "*The Holden and Ford are excellent machines for running down ordinary roads. Both ride and handle good and bad roads with ease plus a fair degree of enthusiasm and a tonne of balance. Both are as game as Ned Kelly in the rough*" (*Courier-Mail*, Brisbane, 8 Dec., 2004) (cited in Ludowyk, 2009, 2).

At the same time, when "*anyone tells you you are as game as Ned Kelly consider yourself insulted*" (*The Sydney Herald*, 1949) (cited in Basu, 2012, 95). The use of the idiom suggests that Ned Kelly and his characteristics are perceived with high ambivalence (Laugesen, 2012; Ludowyk, 2009, 2). The motivating properties of a national icon, his boldness and criminality, lead to evaluative inconsistency that "divides a nation" (Mercer, 2013) in Australia.

However, the idiom has entered the British English lexicon where its uses suggest positive connotations of "being very spirited or brave" (Ludowyk, 2009, 1). *The Collins Dictionary* (COUED, 2021) describes the meaning of the idiom *game as Ned Kelly* as "extremely brave; indomitable". Differences in evaluations revealed by Australian and British uses of the idiom (*as game as Ned Kelly*) could be explained by a set of factors. It might be the degree of cultural competence that determines the treatment of historical facts, elements of culture, attitudes, beliefs, etc. The polarizing attitudes to Ned Kelly's audacity are mirrored in Australian contexts as a result of cultural introspection, the inside life-embedded percept, whereas glamorizing British applications are shaped by the external approach to Australian cultural heritage and probably reinforced by associative parallels with mythical skills of Robin Hood, England's best-loved outlaw: "... the phrase 'Game as Ned Kelly' became a proud citation and persisted, unsupported by the myth. ... the literature was overwhelmingly anti-Kelly, but in folk songs and often wildly inaccurate oral traditions, a Robin Hood-like figure" (Jones, 2008, unpag); "...[due to] the tradition of sympathy for the underdog, stronger even than that which exists in Britain... The exemplar of this attitude is the great Australian underdog hero, that sardonic Robin Hood figure, Ned Kelly. The phrase 'He's game as Ned Kelly' was the highest praise you could bestow" (McInnes, 1965, 100).

Ambiguity plays an important role in idiomatic creativity. Not only do puns occur for the sake of speech playfulness, they significantly contribute into rhetoric and pragmatic effects leading to the increase of expressivity as well as intimacy in communication. As demonstrated above, metonymy- and metaphor-based phraseologisms result from mental mappings between the source domain (relating to a literal sense of the expression) and the target domain (relating to a figurative sense of the expression). Manipulations with polysemy, i.e. relations between literal and figurative senses, is another opportunity for successful production and use of phraseologisms. For instance, *to be off like a bride's nightie* "to make a hasty departure" (ANDC, 2017) ambiguates *off* when it is used with the action of removing something from another thing and the action of doing away from a position or place. In this idiom, the semantic relations of *be off* are employed to identify a situation and represent it in emotionally charged, expressive way: "... *if a horse starts off first from a barrier a race commentator is likely to say: 'He's off like a bride's nightie' – it's got a certain amount of innuendo about it...*" (Luck, 1989, 100).

Lexico-semantic means used in phraseologisms help to establish the intracultural links between interlocutors, create unique "domestic" interpretations of things and situations, render communication as an in-group interaction. By doing so, phraseologisms help to reinvigorate social solidarity and cultural integration.

On the syntactic level, repetition and its variations appear to be especially important for phraseological expressivity in Australian English. Pragmatic and rhetoric effects are generated by enumeration of elements coordinated by polysyndeton (*Hay and Hell and Booligal* "a place of great discomfort" (ANDC,

2017; Wilkes, 1986, 58-59)) or repetition and parallelism (*the last man and the last shilling* “everything at the disposal of someone” (Wilkes, 1986, 64)).

Emphasis is also increased by syntactic parallelism in the expressions dating back to World War II: *he went for a crap and a sniper got him* “a humorous reply to a superior’s questioning about the place where a person is” (Wilkes, 1986, 43). On the syntactic level, the compact form of parallel clauses operates towards organization and representation of information. The recurrence of structure becomes a rhetorical strategy employed to realize the speaker’s intentions and influence recipients. In addition to its rhythmic and esthetic values, parallelism integrates two different parts into the whole and expresses the speaker’s emotional attitude to the situation.

4 Conclusions

The results proved that the distinctiveness of Australian phraseology was motivated by the sociocultural and cognitive experience of speakers. However, its diversity was enabled by the flexibility of cognitive structures that motivated the inner forms of phraseologisms. Our findings are in line with the multifactorial model of phraseology explaining interactions among content, structural and functional properties of phraseological units. Moreover, our data suggest that the diversity of the image component in phraseology is formed on a few cognitive models that schematically represent real-world situations and also shape the semantic, structural and functional features of phraseologisms. The metonymy-based inner forms of Australian phraseology manifested part-whole relations in representing a structure of a category, entity, process or situation by means of enumeration conceptually contiguous things or ideas. The metaphor-based inner forms employed image-schemas, cohered (complex) images, and prototypical comparisons. The rhetorical power of phraseologisms is enhanced by alliteration, assonance, repetitions and rhymes, employment of proper names, polysyndeton and parallelism. These appeared to be operating towards argumentative, ludic and esthetic effects in addition to expression of speakers’ sociocultural solidarity.

Our results should be validated by the corpus analysis into the prevalence of cognitive models underlying phraseologisms. These models may appear preferable in certain conceptual domains, hence frequent particular spheres of communication and influence the pragmatic features of phraseological units.

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Primary Paper Section: A**Secondary Paper Section: AI**

FURTHER PROFESSIONAL EDUCATION OF THE SOLDIERS OF THE ARMY OF THE CZECH REPUBLIC

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The paper was developed as part of the solution of a long-term strategy of the organization development Lannd operations.

Abstract: The article presents some results of research. It deals with identifying the participation degree of military professionals in educational activities and identifying decisive motivational factors and barriers affecting participation in educational activities. The article is also aimed at analysing the influence of selected characteristics of age and the economic status of individuals. The analysis results show that no significant distinction in the representation of individual motives between the age groups has been proved. Statistically significant differences have been shown in the frequencies of responses expressing the evaluation of the significance of selected barriers by respondents with higher and lower military ranks.

Keywords: lifelong learning, motivation, human resource management, adult education, soldiers

1 Introduction

Lifelong learning of professional soldiers is becoming an important condition for adapting military personnel to the development and trends of the 21st century. Most present studies focused on military education agree that military education is important and needs to be researched (Martin & Yaeger, 2014; Murray, 2014). Similarly, the studies agree that military institutions must actively consider how to deal with the education of their members (Hurbišová & Davidová, 2016; Kozáková & Saliger, 2019). Zhao (2019) emphasizes the importance of active participation of professional soldiers in education and their interest in self-improvement. With his claims, Zhao et al. identifies himself e.g. with the results of a prior study by Thain et al. (2008) that states that increasing the level of motivation to study in professional soldiers is crucial. Not only Thain et al. (2008), but also Martin and Yaeger (2014) believe that soldiers should be allowed to attend seminars or specialized practice that correspond to their career goals. According to Fletcher (2009), in consideration of the cost and importance of a well-trained and educated army, effective training of soldiers is crucial for fulfilling defensive tasks. As early as in 2000, the same author stated that the changes in technology, tactics and missions, which are characteristic of military operations, required adequate flexibility in the design and development of training and educational programs. These changes must be made quickly and efficiently (Fletcher, J. D., & Chatelier, 2020). Lamb and Porro (2015) and Martin and Yaeger (2014) recommend the institutions that are involved in the organization of military training courses to receive regular feedback from professional soldiers regarding their experience with military education.

2 Methodology of Research

The system of training the personnel within the Ministry of Defence is a partial system of further professional education of adults in the Czech Republic and, at the same time, it is an important component of human resource management within the Ministry of Defence. If we consider further professional education, in accordance with Průcha and Veteška (2012, p. 12), as the preparation "after professional training and preparation within initial formal education", all types of training can be described by the same token as further professional training of professional soldiers implemented within the framework of career, language and professional education.

The aim of research carried out from 2016 to 2019 was to identify the opinions and attitudes of the respondents to selected aspects of further professional training. The theoretical basis of the research project was the concept of lifelong learning and the economic-sociological theory of rational choice. The authors of research were inspired with a research project published by Rabušicová and Rabušic (2008). For the determination of pedagogical facts, a questionnaire method was chosen, which contained a total of 21 questions focused on ascertaining the opinions and attitudes of the respondents. The questionnaires also included a request to fill in socio-demographic data on the rank level, age group, the highest educational attainment and the period of practice. The questionnaire contained a combination of closed-ended and semi-closed questions; in some of the responses, the respondents were offered to make a choice of several options. We use only selected questions to present the research results in this article. The basic set consisted of 23,184 professional soldiers of the Army of the Czech Republic (The Statistical Yearbook, 2018). The sample encompassed a total of 687 randomly selected professional soldiers of the Army of the Czech Republic. A total of 438 questionnaires were included in the final set for evaluation. Based on the respondents' answers, a data file was processed.

Table 1. Total number of respondents according to individual levels of military ranks.

Level of military ranks	SO	JO	WO	NCO	EP
Absolute frequency	1	86	62	201	88
Relative frequency (%)	0,2	19,6	14,1	45,8	20,1

Source: Authors' own elaboration

Designation of military rank levels, i.e. the rank level of Senior Officers (SO), the rank level of Junior Officers (JO), the rank level of Warrant Officers (WO), the rank level of Non-Commissioned Officers (NCO) and the rank level of Enlisted Personnel (EP).

The first step of the data analysis was to determine the relative frequency of responses; in selected items, the Chi-Square Test and Bonferroni correction for multiple tests were used to specify the statistical significance of the quantitative difference. The main research problem was to identify the opinions and attitudes of respondents relating to further professional training in the areas specified by individual research questions.

The determination of research questions was based on variables already defined in previous similar research conducted e.g. by Šedřová and Novotný (2006, p. 143); these variables were marked as "identified, namely realized and unrealized educational needs". The research proceeded from the assumption that the degree of adult participation is influenced by motivation. We asked respondents about their participation in educational activities. Participation in education was defined as a period of 12 months before the date of interviewing. With regard to the fact that the decision to participate in further professional education is a process that interconnects the motives, objectives and experience of an individual with the requirements of the work environment (Průcha & Veteška, 2012), one of the partial research objectives was to identify respondents' motives for participating in further professional training. In view of the fact that the motivation of individuals changes over the course of their lives, we aimed at verifying the fact whether a difference in the representation of individual motives can be demonstrated between the age groups of respondents. When examining the area of motivation to learn, it was necessary to consider possible barriers that reduce the likelihood of achieving success. An important conclusion of previous research was the fact that in work-oriented education

"the assumption of an increasing degree of participation in relation to the complexity of the activities performed is maintained" (The Czech Statistical Office, 2018, p. 34).

According to the authors of research, it is possible to consider the reverse assertion that with the increasing complexity of the respondents' activities, the number of perceived barriers will be significantly reduced. In the search for an appropriate equivalent to this characteristic in professional soldiers, the characteristic of military rank was selected. Definition of military rank levels and military ranks used in the paper. Military rank level of Enlisted Personnel (EP)-military ranks: Private, Lance Corporal. Military rank level of Non-Commissioned Officers (NCO)-military ranks: Corporal, Sergeant, Staff-Sergeant. Military rank level of Warrant Officers (WO)-military ranks: Warrant Officer 3rd Class, Warrant Officer 2nd Class, Warrant Officer 1st Class, Chief Warrant Officer, Staff Warrant Officer. Military rank level of Junior Officers (JO)-military ranks: Second Lieutenant, First Lieutenant, Captain. Military rank level of Senior Officers (SO)-military ranks: Major, Lieutenant Colonel, Colonel (par. 7 of Act No. 221/1999 Coll.) In the environment of the Army of the Czech Republic, the military rank expresses the economic position from the point of view of the income group (the above-mentioned characteristic was reduced only to the area of income).

Based on the above-mentioned research problem and starting points, the following research questions (RQs) were formulated:

- RQ 1 What was the participation degree of respondents in further professional training courses in the past twelve months?
- RQ 2 What motivated the respondents to participate in further professional education?
- RQ 3 How did age affect the motivation to participate in further professional training activities?
- RQ 4 How did the economic position affect the assessment of the significance of barriers to participation in further training?

3 Research results

Selected results of the research survey are presented in the text below.

RQ 1 What was the participation degree of respondents in further professional training courses in the past twelve months?
The basic indicator for evaluating the participation of adults in education is the participation degree of respondents, which expresses their share in participation in education in the previous twelve months. In order to determine the degree of participation, a question was put to respondents whether they participated in professional training courses in the last twelve months.

A total of 435 valid responses were evaluated. A total of 225 respondents (51,7%) stated that they had participated in professional training in the past months and a total of 210 respondents (48,3%) stated that they had not participated in professional training.

RQ 2 What motivated the respondents to participate in further professional education?

Respondents were asked to make a choice of four basic motives influencing their decision-making for participation in further professional training.

It was possible to mark more variants in the case of this question and a total of 435 respondents validly answered. A total of 62,5 % of respondents identified the acquisition of new knowledge as a motive for participation in further professional training; another motive, which a total of 30,1 % of respondents stated, was the possibility of changing their job classification.

In view of relative frequency, another motive was to extend the employment relationship (26,0%) and a total of 12,4% of respondents indicated a superior request.

RQ 3 How did age affect the motivation to participate in further professional training activities?

Age is one of the important input determinants of educational processes (Průcha, 2014) in view of the fact that the educational needs of individuals change over the course of a lifetime. We divided the group of respondents in terms of age into age groups for the needs of calculations of individual tests. Based on the responses to the previous respondents' question, we assigned the frequencies of responses to the individual age groups.

Table 2. Motivation to participate in further professional training activities in relation to age.

Frequency/ motive	Request of a superior	New knowledge acquisition	Extension of employment relationship	Possibility of changing job classification	
Age	19-30	31	159	62	84
	31-40	18	83	39	33
	41-50	4	20	8	12
	51-60	0	5	2	1

Source: Authors' own elaboration

To identify the significance level of motives, it was found out whether there is a significant difference in the representation of individual motives between age groups. With regard to the frequency of reasons, we merged two age groups (41-50 and 51-60).

Table 3. Comparison of homogeneity across age groups

Homogeneity test across age groups (merging 41-50 and 51-60)	x2 statistics	p-value
	3,1553	0,78912

Source: Authors' own elaboration

We do not reject homogeneity at the significance level of 0,05, no significant difference in the representation of individual motives was proven between age groups.

For the second homogeneity test, the age groups of 31-40, 41-50 and 51-60 years were merged and the group was marked as "older". The younger group was formed by the group of respondents in the age of 19-30. To identify the significance level of motives, it was found out whether there is a significant difference between the motivation of the younger age group and the motivation of the merged age group of older research participants.

Table 4. Comparison of homogeneity across "younger" and "older" age groups

Homogeneity test across young (19-30) and older (31-60) respondents	x2 statistics	p-value
	2,0165	0,569

Source: Authors' own elaboration

We do not reject homogeneity at the significance level of 0,05, no significant difference in the representation of individual reasons was proven between age groups.

RQ 4 How did the economic position affect the assessment of the barrier significance to participate in further professional training?

One of the key prerequisites for the development of adult education is the identification and subsequent elimination of barriers that prevent adults from participating in education. In the overview, we present the summary results of the respondents' answers according to relative frequencies, which express their assessing the significance of selected barriers according to the division into the military rank levels.

Table 5. Barriers to participation in relation to the levels of military ranks

Frequency		Military rank				
		SO	JO	WO	NCO	EP
Barrier to further professional training	Superior's Disagreement	0	12	7	75	43
	Unwillingness	0	0	1	4	1
	Fear of failure	0	0	0	12	11
	Impossibility to apply one's knowledge	0	20	10	48	23
	Devoting time to hobbies	0	1	3	16	5
	Lack of time	1	47	36	59	23

Source: Authors' own elaboration

A total of 394 respondents identified barriers to participation in further professional education. When selecting the barriers, a choice of six types of barriers was possible. A total of 42,1% of respondents determined the lack of time as the most significant barrier, a total of 34,8% of respondents identified superior's disagreement, and 25,9% of respondents determined the impossibility to apply their knowledge. A total of 5,8% of respondents indicated fear of failure as a barrier. A total of 3,7% of respondents identified the impossibility to devote time to hobbies as a barrier and a total of 1,5% identified unwillingness to learn as a barrier.

For verifying the assumption that with the growing complexity of the respondents' activities, the number of perceived barriers will be significantly reduced, we joined individual military rank levels together in view of the demands of the activities required for the individual tests performed.

Table 6. Comparison of the assessed barriers across all levels of military ranks

Homogeneity test	x2 statistics	p-value
	71,9167	< 0,001

Source: Authors' own elaboration

Table 7. Comparison of the assessed barriers across the levels of military ranks when merging SO+JO and WO+NCO+EP

Homogeneity test	x2 statistics	p-value
	31,6372	< 0,001

Source: Authors' own elaboration

Table 8. Comparison of the assessed barriers across the levels of military ranks when merging SO+JO+WO compared to NCO+EP

Homogeneity test	x2 statistics	p-value
	63,0709	< 0,001

Source: Authors' own elaboration

For comparison of the assessed barriers across the levels of military ranks listed in Tables 6, 7 and 8, the homogeneity was rejected at the significance level of 0,05. There are significant differences between the responses.

Table 9. Comparison of the assessed barriers across pairs SO+JO (merged), WO, NCO, EP at the significance level of 0.0083 (Bonferroni correction for multiple tests)

x2 statistics (p-value)	SO+JO	WO	NCO	EP
SO+JO	-	11,3 (0,5684)	34,5830 (< 0,001)	32,4602 (< 0,001)
WO	-	-	27,1378 (< 0,001)	30,1494 (< 0,001)
NCO	-	-	-	5,0119 (0,4144)

Source: Authors' own elaboration

The differences between the pairs in homogeneity are significant between SO+JO and NCO, SO+JO and EP, WO and NCO, WO and EP, i.e. between higher and lower ranks (Table 9). There are no significant differences within the framework of higher/lower military ranks, while the differences are insignificant within the framework of higher/lower military ranks (SO+JO compared to WO, NCO compared to EP).

4 Discussion and Conclusions

The basic indicator for evaluating the involvement of adults in education is the degree of respondents' participation, which expresses their share in participation in the monitored area of education in the previous twelve months. Based on our findings, the participation degree in respondents was 51,7%. The degree of participation can be the consequence of a motivational environment supporting participation in further education, the transparent setting of requirements for completing courses for individual positions. Šedová and Novotný (2006) state a lower degree of respondents' participation in informal education, which was attended by 33,7% of respondents, of which 27,7% related to participation in professional education. In relation to RQ 2, our finding is, therefore, significant that for a total of 62,5% of respondents the motive for engaging in further professional education was the acquisition of new knowledge. The factors of external motivation were only in the next order in contrast to the conclusions of Šedová and Novotný (2006) who mention the employer's request as the most common motive.

Statistical calculations for RQ 3 have shown that at the significance level of 0.05 no significant statistical difference was proven in the representation of individual motives in defined age groups as well as in merged groups marked as younger (19-30) and older (31-60). The division mentioned is in accordance with the findings of Šedová and Novotný (2006, p. 147) who state that "there is no simple connection between educational needs and the age of respondents (the correlation coefficients are not indicative of a demonstrable relationship)".

According to Kalenda and Kočvarová (2017), the inequality of access to lifelong learning and the incidence rate of educational barriers are influenced by the factors of status, occupation and education. From the viewpoint of relative frequency, respondents stated the lack of time (42,1%) to be the most significant assessed barrier and the superior's disagreement as the second one in the order. The significantly hierarchical structure of the organization and the nature of military activities increase the impact of the superior's disagreement barrier, which has been identified by 34,8% of respondents. In our research, we have also aimed at the analysis of how the complexity of working activities affects the perception of barriers. Our assumption that the complexity of respondents' working activities has an impact on the number of perceived barriers has been confirmed. Statistical differences between the opinions of respondents with higher and lower military ranks have been proven significantly through statistical calculations. In our opinion, the relationship mentioned is related to the fact that achieving a higher rank is conditioned by meeting the qualification requirements for the appointment to a higher military rank and is also associated with the length of service in the rank and thus with a higher age. A higher military rank is associated with a higher responsibility for fulfilling the tasks by subordinate soldiers. In this context, it can be stated that a superior with a higher military rank creates conditions for the professional and career development of subordinates and is obliged to deal with the issues of further professional training in detail.

The main sources of conclusions relating to participation or non-participation in lifelong learning are the national or international Adult Education Survey (AES) and the Continuing Vocational Training Survey (CVTS) or the research project of the staff of the Department of Educational Sciences at the Masaryk University (Rabušicová & Rabušic, 2008). According to the data of the Adult Education Survey 2016, the participation degree of workers in the Czech Republic in informal education was 48,0% (The Czech Statistical Office, 2018, p. 31). Our research has shown the respondents' participation degree in the amount of 51,7%. According to the survey results conducted by the Czech Statistical Office, the most common motives for participation in work-oriented informal education is an effort to increase performance, create conditions for the career advancement, deepen the knowledge

and skills, obtain a certificate and reduce the likelihood of losing employment (The Czech Statistical Office, 2013). Based on our findings, a total of 62,5% of respondents have mentioned the acquisition of new knowledge as a decisive motive for participation in further professional training. The possibility of changing the job position has been mentioned by 30.1% of respondents. A total of 26,0% of respondents have stated a pragmatic reason for extending the duration of the employment relationship and a total of 12,4% of respondents have mentioned a superior's request as a motive. No significant statistical difference in the representation of individual motives has been proved in individual age groups and also in the age groups marked as younger (19-30) and older (31-60).

Professional literature (Kalenda and Kočvarová, 2017; Rabušicová & Rabušic, 2008) cites the workload and the lack of time as the most significant barriers. Similarly, in the research presented here, the lack of time has been indicated as the most significant barrier in terms of frequency, and the disagreement of a superior has been indicated as the second barrier in the order. In our research, we have also focused on finding out how the military rank affects the perception of these types of barriers. Statistically significant differences between higher and lower military ranks have been proven in the frequencies of responses.

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Primary Paper Section: A

Secondary Paper Section: KA

ANALYZING FUNCTIONS AND SERVICES IN ONLINE TRADING

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Abstract: Currently, we have eagerly been seizing the opportunity of online shopping. Buying goods via the internet is much more comfortable than hours wasted roaming through the shopping centre. After the economic crisis triggered by the onset of the Covid-19 pandemic, the online world penetrated all spheres of our lives. The presented article explores functions and services to keep customers satisfied and loyal. The methods involved a questionnaire evaluated by correlation analysis, revealing more demanding requirements imposed on e-shops to make the web more credible. Further research should focus on expanding the data portfolio and comparing acquired data with previous results and findings from online traders.

Keywords: e-commerce; online consumer behaviour; enterprise; e-shopping competitiveness; customer services

1 Introduction

E-commerce has become an integral part of our everyday life (Skorepa and Vochozka, 2008), shaping the future of business strategies of many small and large companies (Horak et al., 2019). Introducing new and advanced internet technologies facilitated transactions between the seller and purchaser (Ahmed, Zairi and Alwabel, 2006). The end of the last decade saw a widespread occurrence of this phenomenon, triggered by the Covid-19 pandemic (Adams and Krulický, 2021). The crisis led to buoyant demand for goods in e-shops, imposing more stringent requirements for the provided services (e.g. home delivery) (Rossolov, Alošynskij and Lobašov, 2022).

According to Pollak et al. (2020), this scenario made companies think about new ways of beating the competition. These advantages involve sale technologies, specific services and goods logistics (Ciechomski, 2014). Increasing customer demands for quality services compel companies to tap into multiple methods to explore the segment, e.g. benchmarking (Rousek and Haskova, 2020).

E-commerce services offer easy access to products. Benchmarking helps the company forecast customer needs and desires to satisfy demands customers impose on e-shops (Krulický and Kypra, 2022).

Consumer behaviour is highly personal in the online world, informing enterprises about customer satisfaction (e.g. a review) (Ai et al., 2017). The company should then accommodate the findings to fight the competition (Krulický and Kypra, 2022).

The article explores whether services and functions provided by e-shops in the Czech Republic after the Covid-19 pandemic keep customers satisfied. To fulfil this objective, I formulated three hypotheses: 1) Do e-shops face more stringent requirements? 2) What functions should e-shops have to be competitive? 3) Can a product review increase an e-shop's reputation?

2 Literature research

Online shopping has always been a widely discussed issue (Kucera and Smolkova, 2022), emerging in the first decade of the 21st century. Yet, companies in the online world often could not meet the stringent criteria online shopping imposes (Horak, Machova, 2018). They include a lack of face-to-face contact, information system overloading, exorbitant fees, a strong need for technical support and expert knowledge and management's lack of understanding and reluctance to implement relevant information technologies (IT) (Ahmed, Zairi and Alwabel,

2006). Although the financial meltdown in 2008, which affected all sectors, badly upset online trading, we could not ignore an abrupt surge of newly emerged e-shops, contrary to other industries. This remarkable recovery of e-commerce gave rise to many new online stores going into fierce competition. Small absorptive market capacities provoked increased competitiveness between e-shops (Ciechomski and Wieslaw, 2014). Addressing a massive rise in online shops, Wu and Yu (2020) suggested analysing consumer behaviour during an online search using sequence analysis to explore their trajectory throughout the shopping behaviour. The authors revealed that consumers driven by the overall purchase need followed a more straightforward path than differently orientated groups (Wu and Yu, 2020). Consumers focused on an online survey demonstrated research online, purchase offline (ROPO) trend analysed by Kowalczyk (2019), comparing habits of Poles and Germans. He used average testing and comparative analysis, disclosing customers' background as a decisive factor when shopping online. Other authors consider this cultural aspect only secondary, prioritising the aesthetic and professionalism of the websites. Discussing the aesthetic of e-shops, Nia and Shokouhvar (2020) presented results acquired by stimulus-organism-response (SOR), revealing that the website design is imperative for perceiving the quality and inspiring confidence in the website. Yet, results show that the web's aesthetic slightly affects consumer behaviour, proposing to trade customer enticement for a better shopping experience (Gauri et al., 2021) and gain a competitive advantage.

It involves tailoring innovations, marketing, and collaborative and absorptive relationships to online shopping needs (Chenm Sun and Chen, 2021). Mofokeng (2021) processed data on customer satisfaction when shopping online, disclosing that the information quality, security, range and delivery of products bring comfort and win customer loyalty. Bobalca et al. (2021) examined the customer satisfaction factor, conducting two analyses: factor analysis (describes satisfaction factors) and regression analysis (determines the crucial decisive factors). The results proved the significance of the web's reputation, supplementing Mofokeng's parameters. Ren, Hel and Huang (2021) carried out extensive literature research, devising an assessment method of essential elements (customer, strategy, management and technology) and assessment criteria (system quality, information quality and service quality) shaping the success of e-commerce. Addressing the methods, Svatošová (2022) conducted a questionnaire on changes in online customer behaviour in the Czech Republic during the Covid-19 pandemic, indicating substantial behavioural alterations (Svatošová, 2022). All these parameters, including the confidence factor, reflected in reviews, ensure a successful web and provide customers with satisfaction. (Izogo and Jawawardhena, 2018). Even thumbs-up (together with previous criteria) help enterprises develop strategies to be competitive in online trading (Svobodova and Rajchlova, 2021).

Svatošová's questionnaire (Svatošová, 2022) presents the best method to decide upon the essential elements of a successful e-shop, testing whether product reviews enhance the confidence of the e-shop.

3 Data and Methods

3.1 Data

I acquired the relevant data from a questionnaire designed by Google Forms platform from Google, processing them in Microsoft Office Excel. The gathered data and answers formed lines and columns linked to appropriate questions. Their construction and arrangement observed the resulting responses. I divided the questionnaire into four parts, addressing different issues in a logical order to avoid confusion and retain relevance. The first part classified the respondents by age and sex, while the second form comprised four questions concerning experience

with online shopping before and after the Covid-19 pandemic. The third part involved seven questions exploring used services and purchased products, including e-commerce. The fourth form comprised eight questions probing product review platforms focusing on the functionality of the thumbs-up phenomenon. The questionnaire involved 21 queries altogether. The author reserves the right to all acquired data, claiming no use of any external sources.

3.2 Methods

I compiled a detailed questionnaire for the data collection, ensuring respondents' anonymity. The method is convenient for its economy and time efficiency, gaining a lot of information from many respondents. The technique can also provide answers to qualitative questions. Then, I compared and evaluated the results, contrasting the responses by their values to answer the hypotheses.

The questionnaire designed in Google Forms involved pertinent questions divided into four distinct categories. I uploaded the results to Microsoft Excel, dividing them into lines and columns; lines refer to the respondents, whereas columns contain the queries. Upon filtering the answers, I calculated numeral values from the responses to the questions via Google Forms. I compared the figures using a table and graph where I presented the results.

4 Results

The questionnaire involved 34 respondents including 22 women and 12 men, with the strongest representation between 18 and 25 years. The follow-up age categories are 26-35 and 50 and older. Table 1 compares the number of purchases per month with their increased amount after the Covid-19 pandemic. The lines depict numbers of purchases per month, while columns refer to the increase rates of online purchases.

Table 1: Number of purchases and increase rates of online purchases

Number of purchases	Increased purchases of respondents			
	Greatly	Partly	Slightly	N/A
1x to 2x per month	4(11.77)	7(20.58)	9(26.47)	3(8.83)
3x to 5x per month	2(5.88)	2(5.88)	2(5.88)	1(2.94)
5x and more per month	3 (8.83)	0	0	1(2.94)

Source: Author

The table suggests 11.77% of respondents 1x to 2x per month in the Greatly entry, 20.58% in the Partly entry, 26.47% in the Slightly entry and 8.83% of respondents answered not at all. The item 3x to 5x per month recorded 5.88% of respondents in the Greatly entry, 5.88% in the Partly entry, 5.88% in the Slightly entry and 2.94% responded not at all. The item 5x and more per month contains 8.83% in the Greatly entry, 0% in the Partly entry, 0% in the Slightly entry and 2.94% not at all.

Subsequently, the respondents recounted the goods frequently purchased on the internet. The results are as follows: 20 respondents most frequently buy electronics, 27 respondents - clothes and shoes, five respondents - sportswear, 11 respondents - food, two respondents - drugs, 11 respondents - drugstore goods, 13 respondents - books, nine respondents - games and one respondent - cloth and haberdashery. Then, the respondents evaluated the service quality of today's e-shops. One respondent pointed out low quality, nine respondents variable, 22 respondents good and two respondents outstanding quality.

Graph 1 depicts the preference of functions and services for e-shops, indicating credit card online payments as an essential function. Reviews rank second, followed by special offers, home delivery, curbside pickup, payment transfer, vouchers, newsletters, PayPal, fidelity rebates, delivery places, SMS notification, watchdog, online counselling, quantity discounts,

telephone counselling, same-day shipping and mail order respectively.

Graph 2: E-shop functions and services

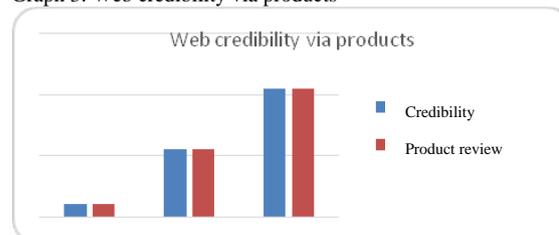


Source: Author

Subsequently, the respondents reflected upon an increase in the service quality of e-shops after the Covid-19 pandemic, indicating that 15 respondents observed no quality increase, 16 discerned a slight quality increase, and three noticed a dramatic increase in the service quality. Regarding reviews, two respondents give no importance to written opinions, 11 think it is not a decisive factor, and 21 respondents attach to the public judgements great importance, including written reviews - 26 respondents, stars - nine respondents and points - 0 respondents. As for thumbs-up, 26 do not think them influential, whereas nine consider them decisive. Regarding if thumbs-up ensures the product quality, 28 respondents expressed a negative opinion. Four said the contrary, while one person pointed out the balance between thumbs-up and thumbs-down. The web reputation is essential for 31 respondents, while three ignore this factor. A good shopping experience always brings 15 respondents back to the website, whereas 19 people do not always revisit the web page.

Graph 2 assesses the web credibility via products, revealing that 21 respondents claimed that product reviews add credibility to the web. Eleven people allocated little importance to product reviews, while two persons paid no attention to written opinions. Furthermore, 21 respondents replied that product reviews are highly impactful on their purchase decisions, 11 people admitted only a slight influence, while two respondents do not feel swayed at all.

Graph 3: Web credibility via products



Source: Author

5 Discussion

The findings obtained by the questionnaire survey provided answers to the hypotheses.

Do e-shops face more stringent requirements?

The results (Table 1) show that e-shops have encountered stricter requirements, facing a massive influx of online purchases. 53% of respondents declare that they buy goods online more than before the Covid-19 pandemic.

What functions should e-shops have to be competitive?

E-shops must provide all necessary services and functions to fight the competition, including online credit card payment, reviews, special offers, home delivery, free delivery, curbside

pickup, payment transfer and vouchers. These essential elements ensure the competitiveness of the e-shop.

Can a product review increase e-shop's reputation?

Graph 2 suggests that an e-shop's reputation scales with product reviews, indicating a strong correlation between public judgements and an e-shop's credibility.

Svatošová (2022) arrived at the same results, arguing that 40% of the respondents preferred online shopping after the Covid-19 pandemic. Our research revealed that 53% of the respondents increasingly went on shopping online.

6 Conclusion

The present paper explored whether e-shop's functions and services offered on company websites are up to customer satisfaction.

The objective was thereby fulfilled. The result chapter suggests graphs indicating a significant increase in online purchases after the Covid-19 pandemic, imposing stricter requirements on the provided services. E-shops must serve functions including credit card payment, product reviews, special offers etc., to guarantee competitiveness. The findings also revealed that the web reputation scales with review mood.

The present work can be a stepping stone for companies not to waste time and money analysing the online environment. All the suggested results are within the limits of one questionnaire, requiring more inquiries and comparisons to test the acquired data in practice. This issue needs extensive research on expanding the data portfolio and subsequent testing in a corporate system.

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Primary Paper Section: A

Secondary Paper Section: AH

SOCIAL NETWORKS AS A TOOL FOR IMPROVING THE PLURILINGUAL AND PLURICULTURAL COMPETENCES IN ONLINE INTERACTIONS OF ESP STUDENTS

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Internal university survey (2021)

Abstract: The paper presents the results of an online questionnaire survey carried out in the period of online teaching during the COVID-19 pandemic. Respondents (N = 221), university students of Economics (Bc. degree), often communicate in different languages on social networks. Our focus was on detecting achieved skills of students developing their plurilingual and pluricultural competences, the aim to identify elements of intercultural communication during language interaction, and the level of plurilingual and pluricultural competence among students of at least two foreign languages (ESP and another language for specific purposes). Online communication helped enhance vocabulary (idioms, phrases), fluency of speech in a foreign language and gain knowledge of respondents' foreign language communication partners' cultures and countries.

Keywords: ESP (English for Specific Purposes), communication in foreign languages, multilingualism, plurilingualism, plurilingual and pluricultural competence, social networks, translanguaging

1 Introduction

In the technological era, determined by social media, where information flows across networks and where people convey information through their further contacts, whom one knows is having a direct impact on what one knows, (according to Boyd D., 2017: 267). This is also an inevitable part of networking on social networking sites for plurilingualism. Whom the language users know, also determines their efficacy of foreign language acquisition from their mutual multilanguage communication, when being in touch on social networks.

We should realize, that social networks are an inspiration and an incentive way to increasingly modify the process of foreign language education about social networks and their possible use in teaching, obtaining information from these popular communication platforms to improve the didactic process. One of the ways to put the following into practice is to introduce greater use of social platforms by teachers as well.

As pointed out by Sánchez-Pérez and Salaberri (2007) from the University of Almeria in Spain, support for education in the field of plurilingualism and pluriculturalism is for higher education teachers needed to develop pedagogical staff's skills. They have designed the training program "Finding resources for teaching in English and enhancing student involvement and participation (Business Administration)" (Module 5: Resources and Strategies.), which can be considered the right way and a challenge to achieve this goal.

2 Research and Methodology

2.1 Theoretical background

The linguistic notion of plurilingualism refers to an individual's ability to use more than two languages. This linguistic and cultural phenomenon can therefore also be called multilingualism. In practice, this phenomenon is most often manifested by the ability of an individual to move smoothly in communication from one to another and yet another language. Plurilingualism also benefits from the coexistence of knowledge of several languages, while positively influencing each other. For example, the use of some phrases and comparisons specific to one language can sometimes even be successfully transposed into communication in a different language.

In contrast, multilingualism (including multilingualism or collective multilingualism), which differs from plurilingualism, represents knowledge of several languages i.e., the coexistence of different languages in a given society (SERR, 2006 In:

Habrmanová, S., 2017). Thus, multilingualism focuses not only strictly on an individual, but also on the group/society as a whole.

Although a vast majority of teachers, before the Corona crisis 2019-2020, were using social media in their personal and professional lives, fewer than one in five (18%) were implementing it into their instruction. Ironically, almost half (47%), believed that it could enhance learning (K-12 Teachers, 2014 In: Powers, K., and Green, M., 2016: 135).

Information literacy, (according to Boyd D., 2017: 266), does not lie merely in acquiring technical skills on how to get information, but also in experience, which provides clues, where to search for information, in the art of knowledge to interpret the available data and in skills to put particular information into context.

2.2 The characteristics of the sample

1. Gender

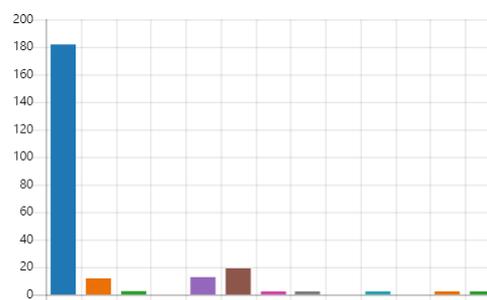
The whole sample (N= 221) consists of 156 female participants, which represents 71% of the whole research cohort, and 65 male participants, which represents 29% of the whole research cohort.

2. Age category

As the majority of the specimen were students of the first, bachelor's degree at the University of Economics in Bratislava, studying ESP as a foreign language, the main part of which – 77% – 171 respondents fit into the age category of 20 – 25 years old. The rest – 22% – 48 belonging to the 15 – 19 years old category.

3. Mother tongue

When searching for the respondents' mother tongue (native language), they were given 13 various options, including the option of *another mother tongue* to indicate a different one than the predefined 13 options of native languages, to pick from. As we can see in Graph 1, the majority of respondents indicate to have the Slovak language as their mother tongue – 82%. Then there are respondents with the Ukrainian native language in the second place – 9% and the Russian language as their mother tongue in the third place – 6%, this is due to many students from Ukraine and Russia completing their studies in Slovakia.



Graph 1: Native language of probands

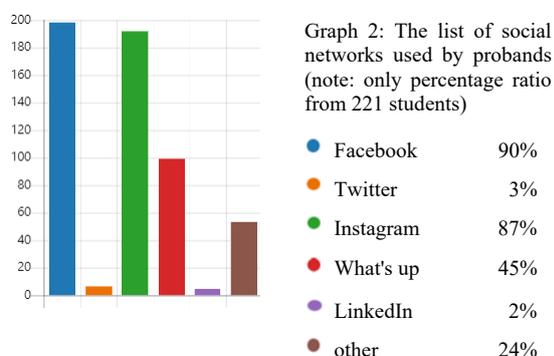
● Slovakian	182	82%
● Hungarian	12	5%
● Czech	2	1%
● Ruthenian	0	0%
● Russian	13	6%
● Ukrainian	19	9%
● German	1	1%

● British English	1	1%
● American English	0	0%
● Chinese	1	1%
● Croatian	0	0%
● Serbian	1	1%
● other	1	1%

Note, that there are respondents with the Hungarian native language in the fourth place – 5%, which is surprisingly low for the amount of the Hungarian national minority living in the south-eastern part of Slovakia taking into account the total percentage i.e. about 9% of Hungarians in Slovakia (ŠÚ SR, 2021).

4. Which social networks do you use to communicate?

Here you can see the responses to the inquiry on which social networks the respondents use to communicate. The option *other* means they use also any other social networks for communication (Badoo, Clubhouse, Discord, Messenger, Reddit, Snapchat, Telegram, Threema, TikTok, Twitch, Viber, Vk.com, Vkontakte, WeChat, Weverse, etc.).



2.3 Methodology

The main purpose of the survey has been to find out the usage of various languages in terms of plurilingual and pluricultural competence when communicating with partners on various social networks.

Our survey of plurilingualism on social networks has been performed on the specimen of 221 students (N= 221) of the first degree (bachelor's degree) of university studies at faculties with economic specialization (the University of Economics in Bratislava, the Slovak Republic). The survey was administered anonymously.

The research has been accomplished online in January, February, and March 2021. The questionnaire consists of 17 multiple-choice questions, from which four questions searched for nominal information about the category of respondents (gender, age, type of study, mother tongue, etc.). The second part of the survey, which consists of 13 inquiries, was aimed at *searching for the native language, active or passive knowledge of various languages, and the usage of special phrases as well as at detecting possible communication breakdowns of respondents. The survey aimed to find out if the partners in communication on social networks were somehow mutually enriched in terms of multicultural competence, i.e. if the respondents gained any information about the country or culture of their foreign language partner or friend on social networks. All responses were consequently evaluated as a percentage by looking at the whole set of respondents.*

3 Results of the questionnaire survey

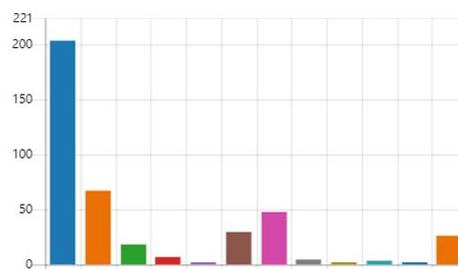
3.1 Summary and analysis of the statistical data obtained from the answers to each question in the questionnaire

In the following section of the paper, we provide the reader with a general overview of the answers to the questions from the questionnaire that were already more specifically related to the topic under study, namely the answers to Q. No. 5 up to No. 8 were focused on the main part of our inquiry and exploration of the core of our topic, which was the inquiry into the progress or improvement of the ability to use multilingualism. The phenomenon that occurs in such communication is about enriching respondents with knowledge of each of the languages used and then applying it, taking aspects of one language and transferring them to the other, improving plurilingual and pluricultural competences and skills.

By focusing our perspective on the answers to some of the questions, we analysed them separately but we also sought to gain an overall insight into contextual and logical connections between the particular questions' results and their mutual impacts. Based on the analysis of the responses, we were able to formulate some basic statements and conclusions that emerged from the results of the questionnaire and survey.

Question No. 5. What languages do you use to communicate on social networks except for your mother tongue?

The great majority of inquired respondents 92% – 203 use the English language except their mother tongue to communicate on social networks, we can state, that the English language is still more and more the lingua franca also in the new online era of communication. In the second place, the respondents use, except their native language on social networks, the German language 30% – 67, etc. The inquired respondents could have chosen more options at once.



Graph 3: The languages used to communicate on social networks by respondents

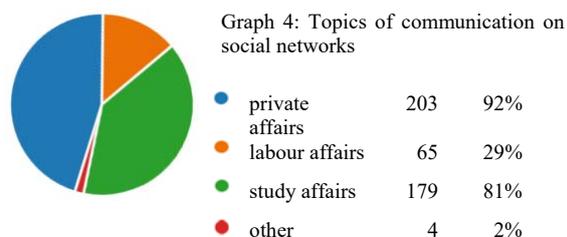
● English	203	92%
● German	67	30%
● Spanish	18	8%
● French	7	3%
● Italian	1	0%
● Russian	30	14%
● Czech	48	22%
● Hungarian	4	2%
● Croatian	1	0%
● Serbian	3	1%
● Chinese	1	0%
● other	27	12%

We found that within the surveyed population (N = 221), 39% (87 respondents) use two languages in addition to their own mother tongue to communicate on social media. Another 4% of

the respondents (9 respondents) use up to three languages for their communication on social networking sites, four languages are used by 2% (5 respondents), and two more people from the surveyed students, i.e. 0.9% (2 respondents), use as many as five additional languages besides their mother tongue for communication.

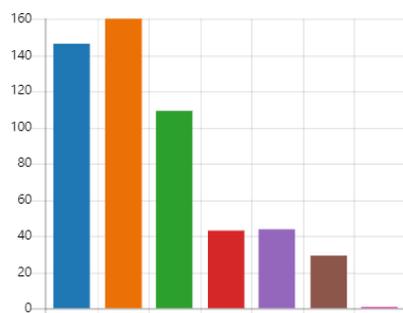
Hence, the above shows that most of the respondents use at least two different languages other than their mother tongue to communicate on social networking sites. However, the use of four or five different languages is quite rare.

Question No. 6. When communicating on social networks, you mainly communicate about...



Question No. 7. In case you use a foreign language used in another country to communicate via a social network or networks, this use of a foreign language on the social network has helped you with...

The responses to the inquiry, if a foreign language used in another country to communicate via a social network or networks has helped respondents indicate, that 72% – 160 of all received responses state, that the usage of a foreign language on social networks enriched the personal vocabulary in a used foreign language by respondents, 66% – 146 of all received responses state, that the usage of a foreign language on social networks improved the respondents' communication skills – the fluency of speech in the used foreign language, 49% – 109 of all received responses state, that the usage of a foreign language on social networks got the respondents to know some slang and colloquial expressions, that they would not learn otherwise. 20% – 44 of all received responses state, that the usage of a foreign language on social networks helped the respondents gain knowledge of the culture of the country where the mentioned foreign language is used. 19% – 43 of all received responses state, that the usage of a foreign language on social networks got the respondents to know some idiomatic twists used in a foreign language.



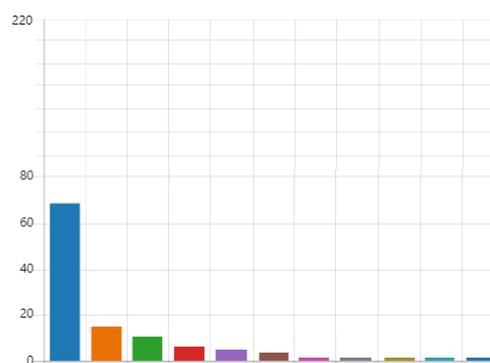
Graph 5a: How using a foreign language on social networks helped the respondents

- improve your communication skills - fluency of speech in this foreign language - indicate in which language 146 66%
- enrich your vocabulary in a foreign language, indicate in which language... 160 72%
- get to know some slang and colloquial 109 49%

expressions, that you would not learn otherwise, and indicate which language it is

- get to know some idiomatic twists used in a foreign language such as an English idiom: "Don't count your chickens before they are hatched." which corresponds to the Slovak saying: „Nekrič hop, kým nepreskočíš.“... 43 19%
- gain knowledge of the culture of the country where the mentioned foreign language is used. Indicate the foreign language and the country 44 20%
- obtain information on the social and political situation in the country. Indicate the country and the language you used.... 29 13%
- Other 1 0%

This chart is based on the analysis of a restricted sample (84 respondents) who indicated the language about which they learned something new, mainly the vocabulary or idioms, or some facts about the culture and civilization of the country where this language is used. The aim here was to find out by communication in which language or languages, the respondents improved their skills or expanded their scope of linguistic knowledge.



Graph 5b: Foreign languages in which the respondents improved their skills (based on a limited sample of 84 respondents who provided the required data)

- English 69 82%
- German 15 18%
- Slovak 11 13%
- Russian 6 7%
- French 4 5%
- Spanish 3 4%
- Czech 1 1%
- Japanese 1 1%
- Serbian 1 1%
- Italian 1 1%
- Turkish 1 1%

(Note: all options are from the sample N = 84)

Question No. 8. How much information did you learn from your foreign language friends about their country

We can state that 49% – 109 of all inquired respondents know some information about the country of their foreign language communication partners on social networks because they sometimes talk about it on social networks, and 34% – 76 of all inquired respondents do not know much about the country of

their foreign language communication partners on social networks because they rarely talk about it, 11% – 24 of all inquired respondents know very much about the country of their foreign language communication partners on social networks and 5% – 12 of all inquired respondents know nothing at all about the country of their foreign language communication partners on social networks.

From the results, it can be summarized that students learn some information about their communication partners' countries from their common communication on social networks, which can be evidence of *Information literacy* as mentioned in the Introduction.

Graph 6: How much information respondents got about their foreign language friends' countries



3.2 Results and Discussion

Garcia (2009) talks about dynamic bilingualism. She argues that there is no one or more language systems that would be independent of each other (traditional bilingualism) or interdependent (Cummins, 1979), but assumes that there is only one language system, which includes all the languages spoken by the individual. This system has been called by Garcia (2009) *dynamic bilingualism*. It is based on the social and historical conditionality of languages and the continuous updating of language systems. Also, our results show that dynamic bilingualism is present in many respondents of our survey, according to No. 5 question responses, 38% (84 respondents) use two languages, their mother tongue and an additional language, to communicate on social media, either privately or for education, professional purposes, etc. Dynamic bilingualism points to *translanguaging*, which is characterized as the common use of language in bilinguals (Garcia, 2011). In practice, this means that children speak one language in the family, but communicate with parents in different languages, the radio can broadcast in another language, television in another, etc. As the use of languages is flexible, it is based on current needs. From this point of view, it is clear that translanguaging does not mean alternating / code-switching because this is based on the theory of two language systems. Translanguaging does not mean easy switching between codes. Within the communication, the bilingual individual chooses from the language repertoire the code that is just suitable and necessary for the given situation. According to Garcia and Wei (2014), translanguaging points to the fact that language is "action and practice" and the usage of both languages by bilinguals should be considered normal and not a communication error as is seen by monolingualism (Garcia, 2009; 2011).

New phrases and idiomatic twists were obtained from communication as we can see in Graph 5a. Students improved communication skills, and fluency of speech, enriched their vocabulary, and gained knowledge of the culture of their communication partner's country, where the mentioned foreign language is used. The environment of social networks allows the development of translanguaging in different periods, simulating familiar life situations with the involvement of their differently coloured emotional attitudes towards the communicated topic, which makes the conversation more attractive and encourages the speakers to engage more actively in the communication process. As a result of the above factors, assuming a constant enhancing linguistic knowledge and skills in the sense of

translanguaging, the plurilingual and pluricultural competences of the actors of multilingual communication are strengthened. This also happens in cases spiced with humour, when linguistic confusion occurs. From the above examples of idioms that the students entered in the questionnaire we select e.g. "Put your John Hancock on here, please". (i.e. sign it here, please), where the English-speaking interlocutors may be confused, if they do not know the part of American history on which the idiom is based – about an influential figure in the American Revolution, who put large and legible signature on the Declaration of Independence.

As a curiosity, and a nice example of linguistic false friends, in the Slovak and the Czech languages, the respondent replied to the question about her most favourite leguminous plants: "sudoku". The explanation of this linguistic curiosity is, that in the Slovak language the word "ľúštiť" is used in connection with the word crossword puzzle "ľúštiť krížovku" i. e. to solve a crossword puzzle. In the Czech language the word "luštěniny" stands for legumes. To unveil the funny core of this pun, the verbs "ľúštiť" (the Slovak lang.) and "luštiť" (the Czech lang.) are very similar and usually translated into the English language as to riddle or to decipher.

From these responses to question No. 7 "In case, you use a foreign language used in another country to communicate via social networks, this use of a foreign language on the social network has helped you" (Graph No. 5a), we can state, that it is a clear sign of a successful application of plurilingualism and the mutual influence of used languages, where the partners achieved better ability to communicate in a plurilingual and pluricultural way.

4 Conclusion

The online environment of social networks can support the formation of social barriers or help remove them. In this context, however, it is important to realize that the online environment often copies social structures and relationships as they are present in the offline environment. Of course, this also has an impact on the creation of pluricultural and plurilingual competence for users of several languages on social networks.

The main goal of the survey was to find out how often probands use more than two foreign languages. When communicating on social networks and how they apply their multilingual competence within the frame of plurilingualism and pluricultural competence.

Based on our survey's results, we can conclude that people who can communicate in three languages except for their mother tongue at the same time are still rather unique in everyday life.

In conclusion, we can summarize from the obtained data, that preconditions for communication with the application of plurilingual and pluricultural competences in the examined sample are definitely present. As well as there are other signs of the successful use of these two competences in an increasingly multicultural and globalized world also on social networking sites. We assume that the phenomenon of translanguaging in terms of action and practice of the usage of more languages should be more present in formal as well as informal education of foreign languages not excluding social networks.

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Primary Paper Section: A

Secondary Paper Section: AM

RESEARCH INTO FACTORS INFLUENCING THE (NON)INTEGRATION OF INNOVATIVE METHODS INTO THE TEACHING OF LITERARY EDUCATION AT LOWER-SECONDARY SCHOOLS: PRESENTATION OF RESEARCH SURVEY

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Acknowledgement: This contribution was supported by IGA project IGA_PdF_2022_002_Research into Factors Influencing the (Non)Integration of Innovative Methods into the Teaching of Literary Education at the Lower-Secondary Schools of Palacký University Olomouc.

Abstract: The primary goal of this contribution is to present our research survey, which focuses on uncovering factors influencing the inclusion or non-integration of innovative methods into the teaching of literary education at lower-secondary schools. We view innovative methods as approaches to teaching that target texts and are built on didactic textual interpretation. At the same time they join together the three basic elements of experiential literary education, i.e. reading, creativity and teaching. The presented research survey builds on the results of research that dealt with the constitution of a separate subject-didactics of literature in a conceptual sense, including those which centred findings on the integration of innovative teaching methods into teaching and educational practice at various stages of education. The research tool used in the presented qualitative research will be interviews with randomly chosen respondents. The interviews will be recorded and subsequently transcribed. They will be evaluated using grounded theory according to Strauss and Corbin.

Keywords: research, literary education, lower-secondary schools, innovative teaching methods, integration.

1 Introduction

The goal of this contribution is to present the research survey, which centres on the study of factors influencing the inclusion or non-integration of innovative methods into literary education at lower-secondary schools. In choosing our research topics we were primarily guided by the fact that much of the expert and subject-didactic knowledge and ability that students of teaching fields acquire in the process of graduating in their various subjects, they then – for various internal or external reasons – fail to apply to the teaching and educational process at the educational level they are qualified to teach. This claim is based on the results of interviews with the graduates of the relevant fields of teacher education. We believe that, based on the results of the submitted project, it will be possible to implement various forms of targeted intervention with a focus on the transfer of students' acquired competencies from an academic environment into practice. The goal of the research survey is not to define the content of the aforementioned interventions, but rather to use basic research findings to determine the factors that influence the process of transferring subject-didactic knowledge, which will allow the determination of specific measures (in the sense of possible changes to the teaching of those subjects), at the level of cooperation between academia with schools, during the further education of teachers in practice or in the area of certain transformations of the content of the relevant subject-didactic courses taught at university pedagogical faculties.

Experts contend that literary education should become a fully-fledged field based on an aesthetic approach, of an aesthetic-educational nature, on the direct reading experience pupils have with texts or on an orientation towards literary works (Hník, 2014). Concerning this, Wildová (2005, p. 173) writes: "The transformation process is applied in practice, but for most teachers this involves only partial elements of the whole system."

1.1 Research goals

The primary goal of the presented research is to discover to what degree teachers of literary education integrate innovative teaching methods into their teaching and educational practice, in

terms of the findings of the current subject-didactics of literature and the factors that influence their decisions. At the same time we will be looking at the degree to which ideas concerning the application of these teaching methods into literary education differ within all the tested respondent groups, comprised of teachers and students of pedagogical courses at the Department of Czech Language and Literature of the Faculty of Education at Palacký University in Olomouc. Interesting conclusions can also be reached by comparing the results of the two groups, namely second year follow-up master's degree students and teachers with the shortest previous teaching experience.

2 Innovative teaching methods in connection with the teaching of literary education

The current didactics of literature frequently utilises the term experiential literary education. This is a "goal-oriented concept falling within the intentions of an innovative conception of literary education" (Hník, 2014, p. 35).

During classes on expressive subject, specifically during literary education classes, "the experience for the pupil may be that of the work of art itself" (Blokeschová, 2014, p. 39) because "art can send out novel impulses and become an inspiration to students" (Zeleňáková in Blokeschová, 2014, p. 39). The innovative conception of literary education, in connotation with experience as the primary intermediary between recipient, textual interpretation and its meaning, is concerned with the reader and interpretation, in the sense of finding narrative meanings relatable to the reader. Within this innovative conception of literary education, the act of reading should predominate (in other words an active – reading – encounter between pupils or students and a work) as well as creative activities: creative expression (compare Hník, 2007; Hník, 2012 or Hník, 2014). Literary education consists of three components: reading, learning and creativity (Hník, 2014). According to the innovative conception, these component aspects of teaching literature should work together. The result of the mutual cooperation of reading, learning and creativity for pupils and students is the aesthetic and artistic product of the reception of artistic narratives (Hník, 2014). Through constructive activities, the pupils are introduced to literature in aesthetic and scientific terms. Through creative activities they acquire values, attitudes and form their own axiological systems (see Hník, 2012 or Jurčo & Obert, 1984).

One of the three basic components of the innovative (reader-based, interpretative) conception of literary education is creativity, or rather creative literary expression, which Hník (2014, p. 122) defines as "creativity in the sense of creative (literary) pupil activities accompanied by appropriate reflection" and categorizes it into one of two areas: 1. "reflection on reading and reflection on creation", which relates to the perception of reading as an independent type of creative expression and 2. "reflection on one's own reading", connoting the perception of reading as a permanent value.

Creative literary expression may impact the forming of the recipient for example by laying out positive and negative models, which may help the reader position themselves relative to various aspects of life. Creativity itself – the cornerstone of creative literary expression – may take on various forms, which can be summarized as creative approaches that "make use of creative literary expression and lead to deliberate and systemic fulfilment of literary and educational goals as well as the associated personal educational goals" (Hník, 2014, p. 59).

Creative interpretation, the core of literary creative expression, "is one of the paths to a meaningful literary education, also fulfilling a reader-based and communicative conception of the subject" (Hník, 2014, p. 71).

The goal of the project is not to discuss the application of individual creative interpretational concepts in teaching and educational practice, but to research the factors influencing their level of integration into the educational process of literary education at lower-secondary schools. Here we consider it sufficient to mention certain approaches to interpretation, in order to make it clear in the context of Hník (2014) or other scholars (for example Vala, 2017 or Vala et al., 2015) which methods we view as innovative (creative): text completion, inspired creativity, story retelling, summarizing the primary setting of a lyrical text, paraphrasing a narrative, imitation of a storytelling style, reconstruction of a record, outline creation, assuming a foreign viewpoint (another's role), evaluating text variants, condensing and cutting content, comparison of texts or working book titles. Among the mentioned methods, Gejgušová (2009) also includes utilization of the audio qualities of a text, repeated reading, quiet reading, using a work's title, working with the first page of a publication, working with the narrator's role, the internal construction and coherence of a text, working with rhymes, textual comparison, intertextuality, creating illustrations, dramatizations, using a text's keywords or the creation of literary texts. The above-mentioned methods of course include creative writing (see Fišer et al., 2012).

Some of the methods corresponding with the innovative conception of literary education were integrated into an anthology of texts about the Shoah (Mašát, Sladová, Šmakalová, 2020). The results of the research, which had the goal of assessing several texts that the authors considered including in the abovementioned monothematic collection, showed that during literary education classes, pupils are not currently fully prepared to work within the intentions of the methods of creative expression. We believe that one of the causes of this situation is the fact that teachers from the pedagogical field of Czech language and literature either don't know about these methods, or know about them, but are unable to work with them, or abandon their application within classes due to lack of time. We are of the opinion however, that the most significant issue is the fact that, despite their subject-didactic readiness, for various reasons teachers fail to introduce them into actual teaching. One of the goals of the presented project is uncovering precisely the factors leading to such teacher decisions.

3 Summary of the current state of the problem

The presented research survey is building on the results of research that dealt with the constitution of a separate subject-didactics of literature in a conceptual sense, including those which centered findings concerning the integration of innovative teaching methods into the actual teaching and educational practice of the various stages of education. Of these, one may mention for example the research of Ondřej Hník, who studied the experiences of first- and third-year university students with the teaching of literature. A crucial question was "How did the teaching of literature at lower-secondary schools and secondary schools take place?" The results of the research survey may be summarized by stating there was "an absence of the reading experience" (Hník, 2014, pp. 23–25). The sample of 203 respondents in the first phase of the research (2009–2010) came to similar conclusions, which we summarized with the phrase "absence of the reading experience". Hník continued with student questioning in the years 2011 and 2012, collecting a total of 191 testimonies.

Similar research was carried out as part of the doctoral thesis *Integration of Texts at Grammar School of Věra Radváková* (2012). A total of 1,478 students of four- or eight-year grammar schools participated in the research. The findings of this extensive research were summarized by the author as follows: "Our research showed that very little attention is paid to working with texts during school classes. Text has still not become the basis for teaching literature at a grammar school level. It is as if teachers were afraid to designate entire lessons of literary education to textual interpretation, not even artistic texts are regularly used in literature classes" (Radváková, 2012, p. 152).

We take the position that the findings of these two selected research surveys can be seen as evidence of a certain level of non-integration of innovative teaching methods into literary education at various educational levels in the Czech Republic. The researchers did not however track the factors influencing teacher decisions not to include the given teaching methods into the teaching and educational process at the corresponding levels of education. When studying the results of further research in some way related to the application of innovative teaching methods to literary education in practice (see Gejgušová, Hrdličková, Kubečzková, Novák, Zychová, 2017; Hábl, 2013; Lederbuchová, 2010; Poláček, 2016/2017), we failed to uncover any findings that would show the level of integration of innovative teaching methods of literary education into the actual teaching of literature at lower-secondary schools from the teachers' viewpoint, with a focus on the factors influencing their decision to include or not include this area of methods into the implemented curriculum. Hník (2010/2011) tracked what form the teaching of literary education took based on student testimonies, Sulovská and Nyčová (2017) just like Vala and Sladová (2013/2014), concerned themselves with the implementation of poetry into literary education lessons. Szotkowski and Dobešová (2012) tracked the opinions of teachers of the subject Czech language and literature, on the optimum use of multimedia when teaching literary education at lower-secondary schools.

Hník (2012, p. 63) pointed to two vital points that must be fulfilled to integrate and develop innovative conceptions of literature into school practice: 1) ensure "corresponding literary and didactic research with an ontodidactic and psychodidactic focus" ("Psychodidactic aspects take into account that teachers are intermediaries for pupils' knowledge, where the issue is more than the transfer of the curriculum, but also a growing emphasis on a pupil's personality, on the development of their cognitive, educational and personal characteristics" (Kosíková, 2011, p. 11); 2) create corresponding teaching materials, "which would take into account the findings of the latest literary and didactic research and the outputs of research-oriented projects (...) and support conceptions of literary education that meet the actual needs of pupils in the 21st century." Hník's recommendations are however proposed at a general level. We believe that unless we can uncover those factors that form the opinions of teachers who fail to include innovative teaching methods in literary education, it will be impossible to functionally react to teachers' needs.

The innovative conception of literary education narrowly corresponds with its communicative conception. Šed'ová, Švaříček and Šalamounová (2012) carried out research concerned with the communicative aspects of teaching. The primary goal of the research was to provide a comprehensive report on methods of teaching communication in the classroom. The research team observed teaching in 7th, 8th and 9th grades of lower-secondary school classrooms. Data collection took place as a combination of several methods: (1) "in-depth teacher interviews; (2) direct observation; (3) video studies; (4) a pupil questionnaire" (Šed'ová, Švaříček, Šalamounová, 2012, p. 28).

From the research findings it is clear that while there is currently a call for a communicative conception of (not only) literary education, corresponding with the integration of innovative teaching methods therein, Czech teachers are not prepared to apply this approach to actual education. Teachers are often unwilling to "step down" to the authority level of the pupils or, taking into account the saturation of the curriculum, they consider any pupil exchanges as a waste of time or are worried about their own potential failure. To an extent, we disagree with the study authors' conclusions. We believe that graduates of pedagogical faculties are sufficiently equipped with the subject-didactics to carry out their profession, having been systematically trained for such. In our opinion, the problem lies precisely in the fact that the application of the acquired abilities and competencies into pedagogical practice is influenced by various factors that weaken the inclusion of innovative (creative) methods into actual teaching situations or may even lead to their

elimination. Unfortunately, there exist no sufficiently evidenced claims about which internal or external factors these are.

4 Research methodology

The research tool used in this qualitative research will be interviews with randomly chosen respondents (see the *Research survey respondents* section). The interviews will be recorded and subsequently transcribed. Their evaluation will be done using grounded theory according to Strauss and Corbin, in four phases: open coding (segmentation of interview records), categorization (explication of phenomena discovered in phase one), axial coding (discovery of relationships between categories) and selective coding (identification of key categories and explication of the central category). The approach to evaluating qualitative research was chosen primarily because it “enables in-depth insights into the topic” (Gulová, 2013, p. 46). We believe that the methodology in question will contribute to a useful assessment of the interviews. The anonymization of all testimonies is a matter of course.

4.1 Research survey respondents

The qualitative research will take place with two groups of respondents. The first of these will be teachers of Czech language and literature with various lengths of previous teaching experience, professionally active at lower-secondary schools in the Olomouc Region. The second group of respondents will be students of teaching programs at the Department of Czech Language and Literature of the Faculty of Education at Palacký University in Olomouc. Based on data provided in the document *Pedagogical Workers in Regional Education (2021)* available at the Ministry of Education, Youth and Sports of the Czech Republic, as well as data from the Czech School Inspectorate and Czech Statistical Office, a quota of respondents from the ranks of teachers was established.

Based on the data provided in the documents above, the number of men and women working as teachers at the lower secondary level of education in Olomouc Region was established, as well as their corresponding lengths of previous teaching experience. At lower-secondary schools in the Olomouc Region in the school year of 2019/2020 there were a total of 4,066 teachers, of which 19.6 % were men. Establishing the respondent sample size for the first phase of the research survey was based on the statistical formula for the minimum number of respondents in a qualitative research survey, $N_{min} = \frac{1}{\text{number}}$ (Chrásková, 2007, p. 26). Interviews should therefore be carried out with at least 15 teachers divided into three groups, based on the length of their previous teaching experience. Dividing teachers into three categories according to the length of their previous teaching experience corresponds with the stratification of teachers provided in the above-mentioned documents. To increase the informative value of the interviews as well as ensure their greater variability, the interviews will be carried out with twice the number of teachers.

The choice of specific teachers fulfilling the given criteria will be carried out by simple random choice (dice roll). Using the list of full primary schools in the Olomouc Region, 30 of these will be randomly chosen and out of these, in the next phase, based on teacher lists from each given institution, specific respondents will once again be randomly selected (drawing lots with names). If it fails to fulfil the established criteria, the selection will be repeated. In exceptional cases (where a given school does not have a teacher fulfilling the necessary criteria, e.g., length of previous teaching experience), the random selection will be carried out once more at the level of choosing institutions from those remaining.

Random selection will also be carried out for the second group of respondents, the university students. Using the system of tertiary education, we will filter out students of the study programmes who will be attending the required year of study at the time of the research survey and subsequently by simple random choice (drawing lots with names) those designated for

interviews will be selected. In case any of the chosen respondents refuses to take part in the interview, the respondent selection process described above will be repeated.

The number of students designated for interviews was established using the same formula for establishing the minimum number of respondents for a qualitative research survey. Our basis was the number of students who enrolled in the 1st year of a bachelor's degree in Czech language and literature with a focus on education and the 2nd year of a follow-up master's degree in Teaching of Czech language and literature for the lower-secondary stage, full-time, in the 2021/2022 academic year. We intentionally eliminated students of combined forms of study in the relevant study programmes because many of these are already active in teaching practice and that fact might subsequently skew the research results. The necessary minimum numbers of respondents were established as 1 man and 1 woman from each study programme. Once more we decided to carry out interviews with twice the number of respondents. The interviews will therefore take place with a total of 8 respondents (i.e., 2 male students and 2 female students of the aforementioned study programmes). The choice of year for the students was intentional. We believe that students in the 1st year of a bachelor's degree in Czech language and literature with a focus on education are not yet equipped with a sufficient knowledge of subject-didactics in literature and therefore the preconceptions with which they are coming to their chosen field of study will be significantly influenced by the literary education they received at their secondary school. This offers a comparison of our findings with the relevant results of the research by Hník (2014) or Radváková (2012). Students from the second group mentioned have already completed two semesters of the subject Didactics of literature and have also gained some practical teaching experience required by the course. To a certain degree, it may be said they will be entering into teaching practice (where they can try out various methods and forms of teaching) with slightly biased preconceptions concerning the ideal form of literary education classes.

5 Discussion

Without a doubt, the presented research survey has several limitations. The most significant of these are the testimonies of the participating respondents themselves. Researchers cannot influence the truthfulness of their answers, since verification of their answers would require listening in on their classes, something that depends on the willingness of both the teachers and administrators of the individual schools. Of course, throughout the interviews we will try to use control questions to determine how believable a respondent's answers are and to what degree they are a presentation of their theoretical knowledge, which is not actually being applied in real teaching situations. Another limitation is the choice of respondents. Despite being carried out using the above-mentioned random selection, we are aware that merely fulfilling the requirements for the number of respondents in a qualitative research survey regarding its representativeness, will not make the results of the planned research survey fully generalizable. This will always depend on the teaching and educational conditions that the given school has at its disposal or the degree to which teachers are able to pursue further education or even on the conditions set by the school administration. In the group of student respondents, their testimonies will be primarily influenced by their own activity during lessons, the level to which they have completed their tasks during Didactics of literature classes or their motivation to pursue the teaching profession after graduating from university.

Despite the aforementioned research limitations, we are convinced that the results of the research being carried out can provide insights into the current situation in the given area. Based on the results of the research it will be possible to carry out targeted interventions, both in further teacher education, as well as possible transformations in the education of the given subjects as part of undergraduate teacher training.

6 Conclusion

In this article we have presented the planned research survey, whose goal is to discover the degree to which teachers of literary education integrate innovative teaching methods into their teaching and educational practice, according to the findings of the current subject-didactics of literature and the factors that influence their decisions. The planned research survey builds on research surveys being carried out in the given area and we will be comparing our findings with their results. Despite certain limitations of the planned research, we are convinced that its results may contribute to an improvement in the transfer of acquired experience and knowledge in the academic sphere or the area of further teacher education into teaching practice.

The research will be carried out through interviews with 30 teachers of Czech language and literature divided into three groups based on their previous teaching experience. Students of the first year of the Czech language and literature course and students of the last, that is fifth year of the same study course, will also take part. From each of the student groups, interviews will take place with eight individuals.

The interviews will be evaluated based on grounded theory according to Strauss and Corbin, in four phases: open coding, categorization, axial coding and selective coding. We are of the opinion that the chosen approach to interview evaluation provides a certain assurance that it will be possible to clearly postulate the findings of the research survey in accordance with its primary goal.

We believe that the results of the planned research survey may contribute to an improvement in current teaching in literary education, as was theoretically supposed to happen when the teaching paradigm of the subject in question changed. The results of the research survey may also be viewed as a starting point to carry out certain targeted interventions in the education of future teachers as well as in teaching practice. Of course, this opens up possibilities to expand the survey to other universities, not just in the Czech Republic, but to possibly carry out interviews with teachers from other regions of Europe and the world. The results of research with this focus may contribute to the comparative study of undergraduate training for future teachers, as well as those teachers already involved in teaching and educational practice. The respondent testimonies could facilitate an exchange of views between the participating individuals, enriching education in the given area.

Finally, we believe that presenting the completed research may serve as an inspiration for similar research surveys, centering on the discovery of factors influencing the (non-)integration of innovative methods into the teaching of (first language) literary education at lower-secondary schools or at other levels of education.

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Primary Paper Section: A

Secondary Paper Section: AM

STRETCHING EXERCISES AND THEIR INFLUENCE ON THE DEVELOPMENT OF CHILDREN'S COORDINATION MOVEMENT CAPABILITIES IN PRIMARY EDUCATION

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Abstract: The authors, in their article, approach the issue of stretching and coordination motor skills of children of younger school age in primary education on the basis of diagnosing their motor skills. The aim of the article is to find out its effectiveness in the development of coordination skills of children in primary education through our proposed stretching program. Testing was performed by selected motor tests to determine the level of coordination skills. The sample consisted of 119 third- and fourth-year students from selected primary schools in the village and the city. The data obtained from pretests and posttests were evaluated using the nonparametric Wilcoxon T-test and the nonparametric Mann-Whitney U-test. The obtained results confirmed one of the hypotheses, where there was a statistically significant difference between pretests and posttests in the experimental group, precisely through the applied stretching exercises. The results obtained through the application of stretching exercises point to the fact that these exercises within the teaching of physical education had a positive effect on the development and strengthening of coordination motor skills. In the results of the experimental group of girls and boys, we found that they achieved statistically significant improvements in all motor tests.

Keywords: Stretching, motor tests, physical and sports education, motor skills, younger school age, coordination skills.

1 Introduction

Stretching and adequate physical activity is an important part of every individual's life, from kindergartens to colleges. Without adequate physical activity, we cannot imagine life in our schools. The child should be guided to physical activities from an early age, because his initial habits are formed in this period. Children perceive their parents as a role model, and when they observe that their parents are not interested in physical activity, we can assume that the child will also imitate their attitude. Oravcová (2009) states that in motor development the child's movements are graceful, well coordinated, physical movement is very important for a child in this period, he is looking for it. Good physical coordination allows him to give good sports performances, he is also skillful in other physical activities. Physical and movement ability is a ticket to success in the children's group in this period. Dexterity, agility, physical performance is appreciated by other children. Physically weaker boys are more often lonely and compensate for their shortcomings by success in school or other hobby activities. According to Jakabčič (2002), during a young schoolchild's physical development, the child's physical performance increases significantly, children are constantly on the move, but they are not yet able to manage their strength well, they can be exhausted quickly. The movement is coordinated and becomes graceful. Physical ability, dexterity, mastery of various skills is also great psychological importance - it provides the child with a certain position in the group of peers.

Stretching is considered as a necessary part of every sports activity, through which we prepare the body for physical activity. Thanks to the implementation of stretching before the performance, we can prevent various injuries. From the theoretical and practical point of view, several authors deal with the issue of stretching, e.g. Alter (1999), Šebeb (2001), Buzková (2006), Nelson, Kokkonen (2016), Matthews (2019) and others. Other authors: Kasa (2006), Dovolil et al. (2008), Perič (2008), Kaplánová (2018) deal with motor skills and motor learning. Movement skills, especially coordination and their development in their works are described by the authors: Lednický (2005), Měkota, Novosad (2005), Sedláček, Lednický (2010), Laczo et al. (2014) and others. The authors are dealing with younger school age: Langmeier, Krejčířová (2006), Vágnerová (2012), Řičan (2004), Thorová (2015), Ružbarská (2018), Ružbarská_Chovanová (2017), Harsa et al (2021) and others. The didactics of physical and sports education are dealt by the

authors: Sýkora (2001), Antala et al. (2014, 2018), Šimonek-Židek (2018), Turek (2014) and others.

Several authors, e.g. Belešová (2018), Kožuchová-Čavojský (2021), Kožík Lehotayová (2017), Severini (2018), Severini et al. (2020) emphasize that teachers significantly influence the development of education and upbringing. The importance of the teaching profession extends to all areas of society. The teacher influences the nature and quality of the relationship with students, conditions the atmosphere in the classroom, stimulates students' interest - including their relationship to sports and active physical activity, their experience at school, the development of their knowledge and their whole personality. This topic, as developed, opens up further opportunities for qualitative research, e.g. Kostrub (2016), Severini, Kostrub (2018). We believe that the effort of teachers of physical and sports education is a constant effort to provide space for each student to be able to exercise physically and to feel the success of their activities, which will accompany him throughout his life.

Several researches by physical education doctors and pedagogical experts confirm that physically fit individuals are able to suppress fatigue from the monotony of life, because good condition allows them to retain much more energy, and therefore interest in their work. We encounter the recommendation of physical activities as part of a healthy lifestyle in the works of several authors, e.g. Rodin (2021), Kaplánová-Gregor (2021), Gorner et al (2021), Rýzková-Labudová (2019), Duda (2017), Šimonek et al. (2014), Horička-Šimonek-Paška (2020) and others. Among other things, these authors emphasize the need for regular exercise from the earliest school age.

It is well known that the exclusion or restriction of physical activity usually has a negative effect on human activities: physical ability is reduced, various diseases arise and aging processes are accelerated. On the contrary - active physical activity helps by activating the cerebral cortex, creating improved conditions for the development of thinking, creation, interactions and experience. This is one of the reasons why well-targeted physical activity, such as stretching, sports and recreational activities, physical work, movement-related hobbies and other activities that children can already learn at school, is very often recommended against the undesirable consequences of strained mental activity. The standardization of motor tests of coordination skills was dealt by the authors: Měkota, Novosad (2005), Skrypkov et al (2021) and others.

2 Methodology

Goal. The goal of the article is to determine the level of coordination motor skills of children of younger school age in the village and in the city and the subsequent application of stretching exercises to determine their effectiveness. We used five motor tests to determine the level of coordination skills. At the same time, compare our obtained results with the results of other authors. The research sample consisted of 119 third- and fourth-year students in selected primary schools.

Tasks. Based on our goal, we set the following tasks: To select the school bases in the village and in the city to solve our issue. Build a complex of stretching exercises corresponding to the age range of children. Select a battery of motor tests to identify and compare coordination skills in primary school students. Perform scheduled testing. Statistically process and evaluate the measured results.

Hypotheses. Based on the goal and tasks of the work, we created the following four hypotheses (H 1, H 2, H 3, H 4).

H 1: Due to selected stretching exercises, there will be a statistically significant difference in the experimental group of girls and boys between pretest and posttest focused on coordination motor skills.

H 2: There is a statistically significant difference between the pretest and the posttest focused on coordination motor skills in the control group for both boys and girls.

H 3: By applying selected stretching exercises, the achieved level of coordination motor skills will be statistically more significant in the experimental group of girls compared to girls from the control group, and also the achieved level will be statistically more significant in boys from the experimental group compared to boys from the control group.

H 4: The level of coordination skills will be higher in boys compared to girls, while the progress in boys from the experimental group and in boys from the control group will be more significant in the tests compared to girls from the experimental group and the control group.

Methods. Our research involved 119 pupils from primary schools in the town of Púchov in the Trenčín Region (Slovak Republic) and from the village of Hranovnica in the Prešov Region (Slovak Republic), of which 62 were boys and 53 girls. They were third- and fourth-year students from the 1st grade of primary school.

Data acquisition methods: We selected 5 motor tests to find out data of the coordination abilities of children. For diagnostics in our research, we performed a selection of motor tests from standardized test batteries from various authors. When selecting standardized tests, we took into account the age range of subjects, which had to meet the age of eight to ten years. We performed a pretest (entrance test) and then, after 14 weeks, we performed a posttest (output test) in a control group (28 boys and 32 girls) and an experimental group (30 boys and 29 girls).

We used the following tests, with each test focused on a different coordination ability.

Test (T 1) aimed at diagnosing the ability to react: Grasping an object - Stopping a falling ruler.

Test (T 2) aimed at diagnosing the kinesthetic-differentiation ability of the lower limbs: Jump to the target from an elevated place.

Test (T 3) focused on the diagnosis of rhythmic ability: Skipping rope, holding the same pace of movement.

Test (T 4) focused on the diagnosis of spatial orientation ability: Running to numbered targets.

Test (T 5) aimed at diagnosing balance (static balance): Endurance standing on one leg (right, left) eyes closed.

Methods of processing and evaluation of results: We statistically processed and evaluated the achieved measured data on the basis of two nonparametric tests, namely: Wilxon's T-test and Mann-Whitney's U-test. According to Tomšík, (2017, p. 248) Wilxon's T-test is used in cases where two groups of measurements are based on the same sample of probands, and they were tested twice. Specifically, they completed pretests and posttests, which are compared with each other. It is based on the differences between the two measurements of each subject. According to Tomšík (2017, p. 256) "The Mann-Whitney U-test is used to compare the medians of two independent samples, and this nonparametric test corresponds to whether the difference between the two means in the two groups is statistically significant." Statistical significance was determined based on $p < 0.01$, $p < 0.05$ level of significance. The use of several statistical methods can also be found in the authors Gunčaga, Zawadowski, Prodromou (2019). Statistical tests can also be performed in relation to different study results of siblings within one family (see Gorajska, Stando, Gunčaga, 2018). Wilcoxon's exact test with many applications is very often used in pairwise comparisons - both in the technical and educational field, e.g. (Barot et al., 2020; Cieslar et al., 2020).

3 Results and discussion

The results obtained from the testing of coordination motor skills of children at younger school age in the village and in the city by applying stretching exercises are presented in graphs and tables with an opinion on the individual four hypotheses. From hypothesis testing using the Wilxon T-test and the Mann-

Whitney U-test, we confirm or do not confirm the existence of statistically significant dependences based on $p < 0.01$, $p < 0.05$ level of statistical significance (Fuchs-Gunčaga, 2021). We used five motor tests to determine the level of coordination skills.

Using the Wilcoxon T-test, we compared the results obtained in pretests and posttests for each subgroup separately, where we processed their values and analyzed whether there was a statistically significant difference between the tests. We processed each motor test for a given subgroup. To compare the results of special subgroups, the Mann-Whitney U-test was used, which evaluated the differences, i.e. EX (experimental group) girls and KG (control group) girls, EX boys and KG boys, EX boys and EX girls, also KG boys and KG the girls. In each performed test, we analyzed whether there was statistical significance in the differences. All obtained results, which we statistically evaluated, were processed at the level of significance $p < 0.01$, $p < 0.05$ (Gunčaga et al., 2019), Krpec-Barot (2020).

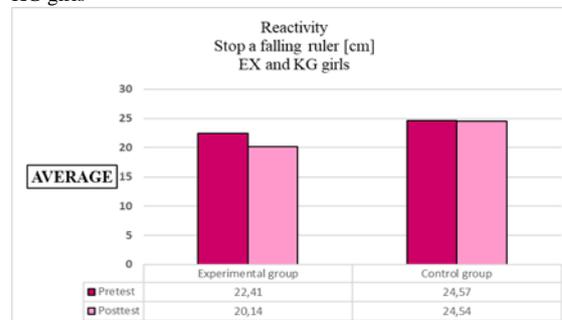
3.1 Evaluation of motor tests

Statistical methods: Wilxon's T-test and Mann-Whitney U-test were evaluated on the basis of the implementation of five motor tests with an opinion on four hypotheses. Next, we will proceed to the presentation of results according to individual tests (T 1, T 2, T 3, T 4, T 5) and take opinion on the four hypotheses set by us.

As can be seen in graph (1) in the experimental group (EX) of girls, we measured an average value of 22.41 cm in the motor test "stopping the falling ruler" and in the posttest we measured an average value of 20.14 cm in the girls' group. Our measurements show that there was an improvement of 2.27 cm, which in percentage terms represents an improvement of 10.15%. From above results means that there was progress in EX girls group. Using a nonparametric Wilcoxon T-test, we evaluated that they achieved a statistically significant difference at the significance level of $p < 0.05$. In the control group (KG) of girls, we measured at pretest an average value of 24.57 cm in the motor test and in the posttest we measured an average value of 24.54 cm in the girls' group. These data show that there was no significant improvement between pretest and posttest (Chart 1). We tested the data using a nonparametric Wilcoxon T-test, where we concluded that there was no statistically significant difference in the control group of girls. By comparing the difference between (EX) and (KG) girls using the nonparametric Mann-Whitney U-test, we came to the conclusion that there was no statistical significance in the pretests. However, in the posttests, there was a statistically significant difference at the significance level of $p < 0.01$ in favor of the experimental group (Graph 1).

Test 1 (T 1) Grasping an object - Stopping a falling ruler

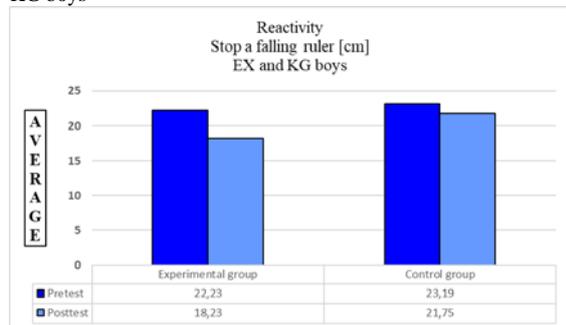
Graph 1: Pretest and posttest: Stopping a falling ruler EX and KG girls



Graph (2) shows that in the experimental group (EX) of boys, we recorded an average value of 22.23 cm in the pretest aimed at stopping the falling ruler. In the posttest, we recorded an average value of 18.23 cm, which shows that there was an improvement in the reactivity by as much as 4 cm, which in percentage terms

represents a progress of 18.89%. Using a nonparametric Wilcoxon T-test, we found that there was a significant statistical difference in boys at the level of significance $p < 0.01$.

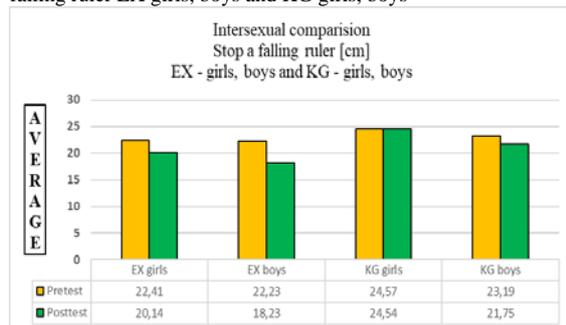
Graph 2: Pretest and posttest: Stopping a falling ruler EX and KG boys



In the control group (KG) of boys, we measured an average value of 23.19 cm in the pretests, while in the posttests we measured an average value of 21.75 cm in the boys. The above values show that the boys' response improved by 1.44 cm, which in percentage represents a progression of 6.20%. Using Wilcoxon's nonparametric T-test, we found that there was no statistical significance between pretest and posttest in boys (KG) in this test. By comparing boys from (EX) and (KG), we evaluated by means of a nonparametric Mann-Whitney U-test that there was no statistical significance in pretests, while in posttests there was statistical significance in favor of (EX) experimental group at significance level $p < 0.05$ (Chart 2).

From graph (3) it can be read that in the motor pretest aimed at stopping the falling ruler, we measured an average value of 22.41 cm in the experimental group of girls. The boys, also from (EX), were measured an average of 22.23 cm. The measured results show us that the achieved average results were better in boys compared to girls. However, the difference was a minimal, 0.18 cm, which is 0.81%. In (EX) we measured in the posttests as an average value of 20.14 cm for girls, while the boys had an average value of 18.23 cm for the posttest. Based on these data, we state that the achieved values were better in boys compared to girls. In the posttest, the boys were 1.91 cm better, which is 10.45% in favor of the boys.

Graph 3: Pretest and posttest: Intersex comparison - Stopping the falling ruler EX girls, boys and KG girls, boys



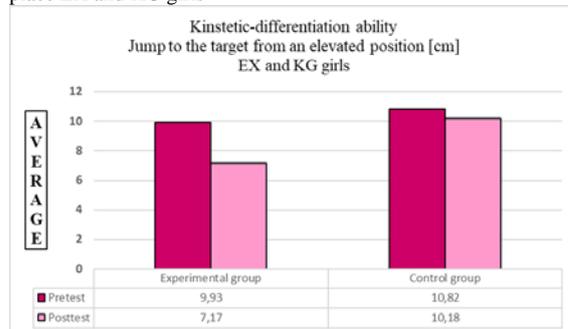
By comparing the results obtained between the (EX) group of girls and (EX) boys using the nonparametric Mann-Whitney U-test, we found that there was no statistically significant difference in either the pretests or the posttests. In the test focused on reactivity, we measured the achieved value in the pretest of the (KG) girls in the pretest with an average of 24.57 cm, while in the boys from (KG) we measured the average value of 23.19 cm. We know from the results that in comparison, the boys achieved a better average value in the pretest by 1.38 cm, which is a difference of 5.63% in percentage terms. In (KG), we measured an average value of 24.54 cm for girls in posttests and an average value of 21.75 cm for boys. From the measured results when comparing girls and boys, we see that there was a

difference of 2.79 cm, which is a percentage of 11.35% in favor of boys. By comparing the difference between the (KG) group of girls and (KG) boys using the Mann-Whitney nonparametric U-test, we found that there was no statistically significant difference in the pretest. In the posttest, however, there was a significant statistical difference in favor of boys at the significance level of $p < 0.05$ (Graph 3).

Graph (4) shows that in girls (EX) we measured an average value of 9.93 cm in the test in a motor test, which focuses on the kinesthetic-differentiation ability, jump to the target from an elevated place. In the posttest, we recorded a value of 7.17 cm in the experimental group of girls, which shows that there was an improvement in the kinesthetic-differentiation ability. Specifically, the girls improved by 2.76 cm, which in percentage terms represents a progress of 27.78%. Based on the results obtained, we can confirm that there was a significant improvement in girls (EX). Using the Wilcoxon nonparametric T-test, we calculated a statistically significant difference between the pretest and the posttest, which is at the level of significance $p < 0.01$. In girls (KG), we recorded a value with of 10.82 cm during the pretest. In the posttest, we measured an average value of 10.18 cm. The measurements show that in the control group of girls there was an improvement of 0.64 cm, which in percentage terms shows a progress of 5.94%. We tested the data using a nonparametric Wilcoxon T-test, where we found that there was no statistically significant difference in the control group of girls. By comparing girls (EX) and girls (KG) using the nonparametric Mann-Whitney U-test, we noticed that there was no statistically significant difference in the pretest. However, in the posttest we observed a difference in the level of significance $p < 0.01$ in favor of (EX) the group of girls (Graph 4).

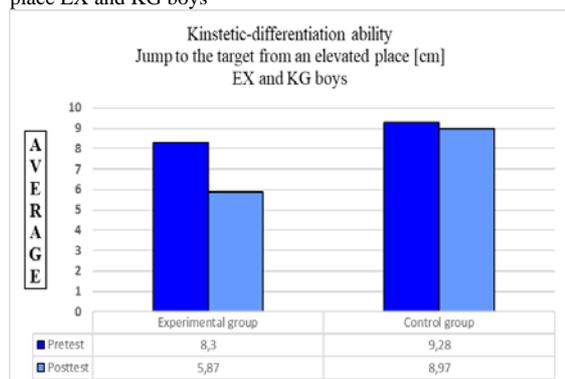
Test 2 Jump to the target from an elevate place

Graph 4: Pretest and posttest: Jump to the target from an elevate place EX and KG girls



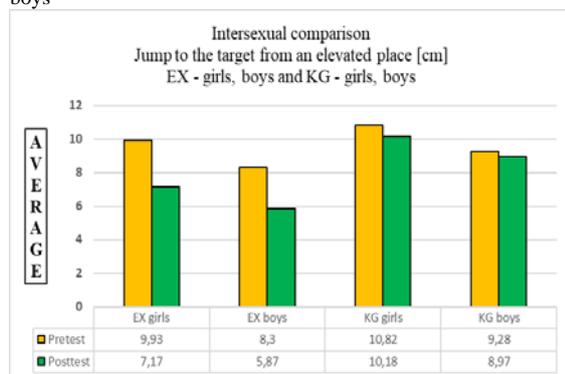
Graph (5) shows that in boys (EX) we measured an average value of 8.3 cm in a motor test, which focuses on jumping to a target from an elevated place, and in a posttest we measured an average value of 5.87 cm in an experimental group of boys. Our measurements show that there was an improvement of 2.43 cm, which in percentage terms is an improvement of 29.32%. From the above data, we conclude that in boys (EX) there was a progression in kinesthetic-differentiation ability. Using a nonparametric Wilcoxon T-test, we evaluated that they achieved a statistically significant difference at the significance level of $p < 0.01$. In boys (KG) we measured an average value of 9.28 cm in a motor test and in a posttest we measured an average value of 8.97 cm in boys (KG). The above data show that there was a minimal improvement of 0.31 cm. In percentage terms, there was a small improvement of 3.37%. In boys (KG), there was no statistical significance by the nonparametric Wilcoxon T-test (Chart 5). By comparing the difference between boys (EX) and boys (KG) using the nonparametric Mann-Whitney U-test, we found that there was no statistical significance in the pretests, but there was a statistically significant difference in the posttests. The difference was in favor of boys (EX) at the significance level $p < 0.01$ (Graph 5).

Graph 5: Pretest and posttest: Jump to the target from an elevated place EX and KG boys



The evaluation of the graph (6) showed that in the motor pretest, which is aimed at jumping to the target from an elevated position, we measured the average value of 9.93 cm in girls (EX) and an average of 8.3 cm in boys (EX). The measured results show us that the achieved average results were better in boys compared to girls. The difference was 1.63 cm, which is 16.42% in percentage terms. For girls (EX) we measured an average value of 7.17 cm for girls in the posttest, while for boys (EX) we measured an average value of 5.87 cm for the posttest. Based on these data, we state that the achieved values were higher in boys compared to girls. Specifically, the boys were 1.3 cm better, which represents a percentage difference of 18.21%. Using the Mann-Whitney nonparametric test, we found by a comparison of girls (EX) and boys (EX) that there was no statistically significant difference in pretests or posttests. In the test focused on reactivity, we measured a value of 10.82 cm in average in the girls (KG) in the pretest. For boys (KG), we measured an average value of 9.28 cm. Based on this, we can state that in comparison, the boys (KG) achieved a better average value with a pretest of 1.54 cm, which in percentage terms is a difference of 14.21%. (Chart 6). For girls (KG) we measured an average value of 10.18 cm in the posttest and for boys (KG) an average value of 8.97 cm was measured. From the measured results we see that in the comparison of girls and boys there was an improvement in boys by 1.21 cm, which represents a percentage difference of 11.89%. By comparing the results obtained in girls (KG) and boys (KG), we did not measure statistical significance in pretest or posttest using the Mann-Whitney U-test (Graph 6).

Graph 6: Pretest and posttest: Intersexual comparison - Jump to the target from an elevated position EX girls, boys and KG girls, boys

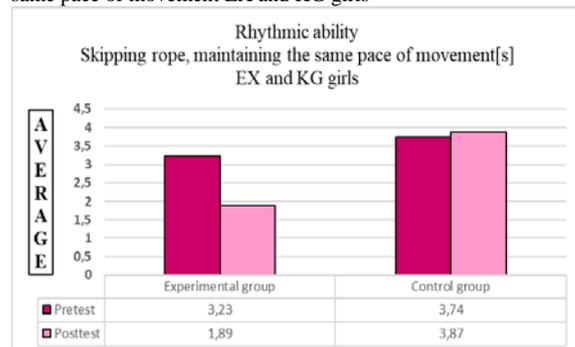


Graph (7) shows that for girls (EX) we measured an average value of 3.23 seconds in a motor pretest, which was aimed at skipping rope and then maintaining the same pace. In posttests, we measured an average value of 1.89 seconds for girls (EX). From the above information, we can see that there was an improvement of 1.34 seconds, what means 41.49% in percentage terms. Based on this, we can say that there was a progression in rhythmic ability. Using a nonparametric Wilcoxon T-test, we calculated that the girls achieved a statistically significant

difference at the significance level of $p < 0.01$. For girls (KG), we measured an average value in the pretest of 3.74 seconds, while in posttests we measured the average value of 3.87 seconds. The above values show that there was a deterioration in the average measured value in girls (KG) in rhythmic ability, where we measured a regress of 0.13 seconds. At the same time, we state that the nonparametric Wilcoxon T-test did not show a significant statistical improvement. By comparing the groups of girls (KG) and (EX), we evaluated, using the non-parametric Mann-Whitney U-test, that there was no statistical significance in the pretests. In posttests, on the other hand, there was a statistically significant improvement in favor (EX) at a significance level of $p < 0.01$ (Graph 7).

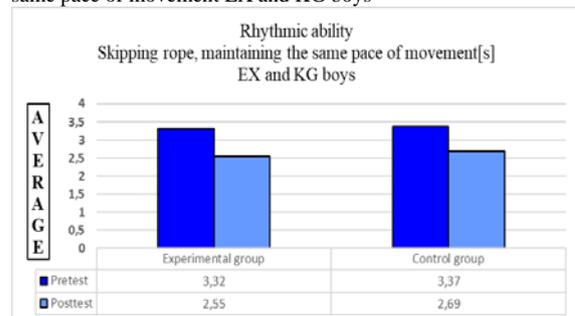
Test 3 Skipping rope, maintaining the same pace of movement

Graph 7: Pretest and posttest: Skipping rope, maintaining the same pace of movement EX and KG girls



In the evaluation (Graph 8) of boys (EX), we recorded an average value of 3.32 seconds in the pretest, which focused on rhythmic ability. In the posttest, we recorded an average value of 2.55 seconds, which shows that the rhythmic ability was improved by 0.77 seconds, which in percentage terms means that there was a progression of 23.17%. (Chart 8). Using a nonparametric Wilcoxon T-test, we found that in the experimental group of boys there was a significant statistical difference at the level of significance $p < 0.01$. For boys (KG) we measured an average value of 3.37 seconds in the pretest, while for posttests we measured an average value of 2.69 seconds for boys. These values show that in the control group of boys there was an improvement in skipping rope by 0.68 seconds, which in percentage represents an improvement of 20.02% (Chart 8). Using the Wilcoxon T-test, we found that in boys (KG) there was a statistical improvement at the significance level of $p < 0.01$. The improvement could have happened due to physical development or a higher concentration on the performed posttest (Chart 8). Comparing boys (EX) and (KG), we used the Mann-Whitney U-test to conclude that there was no statistical significance in pretests, nor was there any significant statistical significance in posttests (Chart 8).

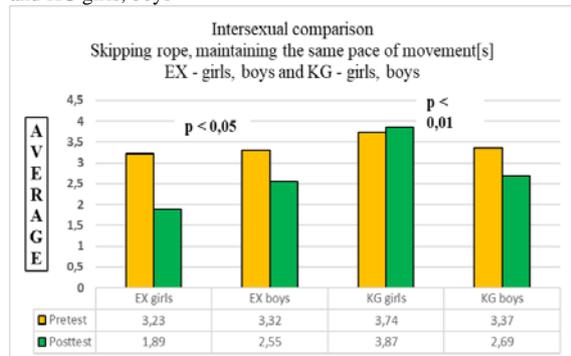
Graph 8: Pretest and posttest Skipping rope, maintaining the same pace of movement EX and KG boys



As can be seen (Chart 9) in girls (EX), we measured an average value of 3.23 seconds in the experimental group of girls during a motor pretest aimed at jumping rope and maintaining the same

movement. For boys (EX), we measured an average value of 3.32 seconds during pretest. The measurements show that the achieved average values were better in girls compared to boys. However, the difference achieved in favor of the girls was minimal, by 0.09 seconds. In percentage terms, this is 2.61% (Chart 9). For girls (EX), we measured average value of 1.89 seconds in the posttest, while boys (EX) had a mean post-test of 2.55 seconds. Based on the above data, we state that the achieved values were better in girls compared to boys. There was a more significant difference in favor of girls, who were 0.66 seconds better than boys, which in percentage terms represents a difference of 34.92%. By comparing the difference between girls (EX) and boys (EX) using the Mann-Whitney U-test, we demonstrated statistical significance, while in the posttest there was a significant statistical difference at the significance level of $p < 0.05$ in favor of girls. In the test focused on rhythmic ability in girls (KG), we measured an average value of 3.74 seconds in the pretest, while in boys (KG) we measured an average value of 3.37 seconds. Based on the results, we can state that in comparison, the boys achieved a better average value in the pretest by 0.37 seconds, which in percentage terms is 10.26%. In posttests, for girls (KG) we measured an average value of 3.87 seconds and for boys (KG) the average value was 2.69 seconds. Based on the results, we state that the comparison showed a more significant improvement of boys, which resulted in a better result in posttests by 1.18 seconds, which represents in percentages 30.43%. By comparing the difference between girls (KG) and boys (KG), we found, using Mann-Whitney's nonparametric U-test, that there was no significant statistical difference in pretests, whereas there were significant statistical differences in posttests between boys (KG) and girls (KG) at the level of significance $p < 0.01$ in favor of boys (Graph 9).

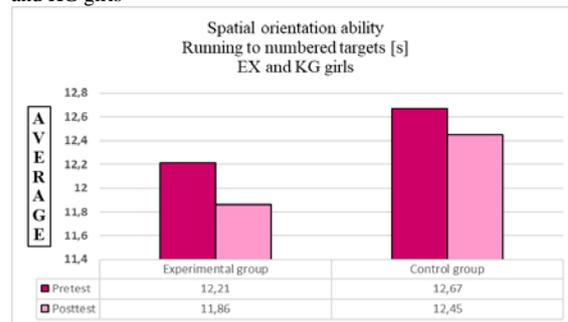
Graph 9: Pretest and posttest: Intersexual comparison - Skipping rope, maintaining the same pace of movement EX girls, boys and KG girls, boys



Graph (10) shows the fact that in the motor pretest (T 4) dealing with spatial-orientation ability, we measured an average value of 12.21 seconds for girls (EX) in the test of running to numbered targets. In the posttest, we measured 11.86 seconds, which shows that there was an improvement in spatial orientation. Specifically, the girls improved by 0.35 seconds, which in percentage terms represents a progression of 2.82% (Chart 10). Based on these findings, we can say that the girls (EX) showed a significant improvement. Using the Wilcoxon nonparametric T-test, we calculated a statistically significant difference between the pretest and the posttest, which is at the significance level $p < 0.01$. For girls (KG), we recorded a value with an average of 12.67 seconds during the pretest. In the posttest, we measured an average value of 12.45 seconds. The measurements show that the girls (KG) showed a small improvement of 0.22 seconds, which in percentage terms shows a minimal improvement of 1.75%. We tested the obtained data using a nonparametric Wilcoxon T-test, where we found that (KG) there was a statistically significant difference at the level of significance $p < 0.05$. By comparing girls (EX) and girls (KG), we recorded, using the non-parametric Mann-Whitney U-test, that there was no statistically significant difference in the pretest and no significant statistical difference in the posttest (Graph 10).

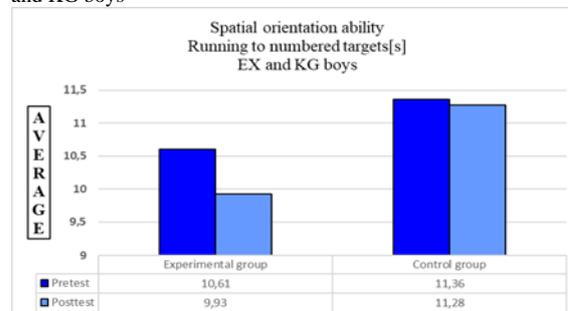
Test 4 Test Running to numbered targets

Graf 10: Pretest and posttest: Running to numbered targets EX and KG girls



From graph (11) it can be read that in the motor pretest of boys (EX) we measured an average value of 10.61 seconds. The average posttest value in this group of boys was 9.93 seconds. These values show that there was an improvement of 0.68 seconds, which in percentage represents a progress of 6.42%. According to the non-parametric Wilcoxon T-test, a statistically significant improvement was found at the significance level of $p < 0.01$. For boys (KG) we measured an average value of 11.36 seconds during the pretest and in the posttest we measured an average value of 11.28 seconds. Therefore, we state that there was a negligible improvement of 0.08 seconds, which in percentage terms is a minimum progress of 0.71%. From the results we can confirm that there was no statistically significant improvement using the Wilcoxon nonparametric T-test. Comparing boys (EX) and (KG), we found, thanks to the Mann-Whitney U-test, that there was a statistically significant difference at the level of significance $p < 0.05$ during the pretest and also a significant statistical difference at the level of posttest, namely at the level significance $p < 0.01$ (Graph 11).

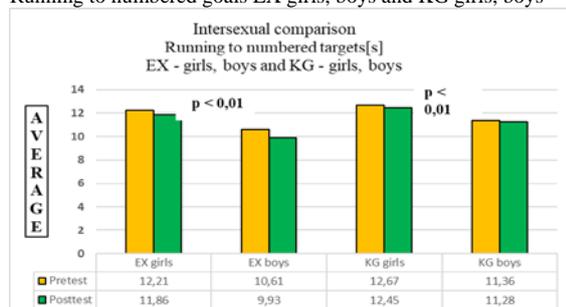
Graph 11: Pretest and posttest: Running to numbered targets EX and KG boys



In the graph (12), we measured an average value of 12.21 seconds for girls (EX) and an average value of 10.61 seconds for boys (EX) in motor pretest aimed to running to numbered targets. When we measured values in pretest, the difference is 1.6 seconds, while the boys were better. The difference in percentage represents a better performance of 13.06% in favor of boys (EX). For girls (EX) we measured an average value of 11.86 seconds in the posttest, while for boys (EX) we measured the average value in the posttest 9.93 seconds. The measurements show that the average values were better for boys compared to girls by 1.93 seconds, which in percentage terms is a difference of 16.27% in favor of boys. Using the Mann-Whitney nonparametric test, we found that by comparing the experimental group of girls and the experimental group of boys, there was a significant statistical difference in pretest and posttest at the significance level $p < 0.01$. In the test focused on spatial-orientation ability, we measured an average value of 12.67 seconds for girls (KG) in the pre-test, while we measured an average value of 11.36 seconds for boys (KG). The measurements show that the average values were better for boys compared to girls by 1.31 seconds, which in percentage terms is a 10.33% better performance in favor of boys (Chart 12). For

girls (KG) we measured an average value of 12.45 seconds in the posttest, while for boys (KG) we measured an average value of 11.28 seconds. The measurements show that the average values were better for boys (KG) compared to girls (KG) by 1.17 seconds, which in percentage terms is better performance by 9.37% in favor (KG) of boys. By comparing the achieved results of girls (KG) and boys (KG), we came to the fact, through the Mann-Whitney U-test, that boys (KG) achieved a statistically significant difference at the level of significance $p < 0.01$ in both pretest and posttest (Graph 12).

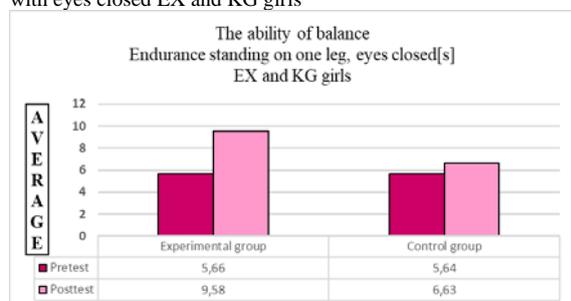
Graph 12: Pretest and posttest: Intersexual comparison - Running to numbered goals EX girls, boys and KG girls, boys



When evaluating graph (13) of girls (EX), we recorded an average value of 5.66 seconds in the pretest dealing with balance ability, specifically focused on static balance. In the post-test, we recorded an average value of 9.58 seconds, which shows that the static balance improved by 3.92 seconds, which in percentage terms means that there was a high progress of 41.02%. Using a nonparametric Wilcoxon T-test, we found that there was a significant statistical difference in the significance level of $p < 0.01$ of girls (EX). For girls (KG) we measured an average value of 5.64 seconds in the pretest, while in the posttest we measured an average value of 6.63 seconds for the girls. From the above values, it is based on the fact that for girls (KG) there was an improvement in static balance by 0.99 seconds, which in percentage represents a progress of 14.85%. Using the Wilcoxon T-test, we found that in the control group of girls (KG) there was improvement and a statistically significant difference at the significance level $p < 0.01$. The improvement could have happened due to the physical development of the girls or by concentrating a higher concentration when performing the posttest. Comparing girls from the experimental (EX) and control groups (KG), we concluded by Mann-Whitney T-test that there was no statistical significance in pretests, while in posttests there was a statistically significant difference at the significance level $p < 0.01$ (Graph 13).

Test 5 Endurance standing on one leg with eyes closed

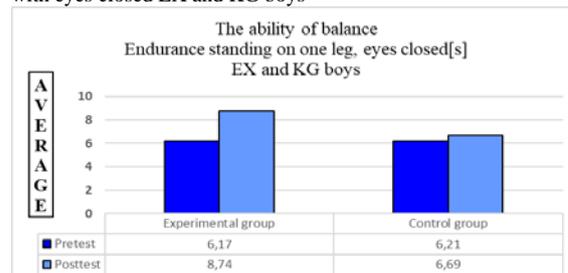
Graph 13: Pretest and posttest: Endurance standing on one leg with eyes closed EX and KG girls



In graph (14) we see that for boys (EX) we recorded an average value of 6.17 seconds when standing on one leg with our eyes closed in pretest. In the post-test, we recorded an average value of 8.74 seconds, which indicates that the static balance improved by 2.57 seconds, which is an overall percentage progress of 41.65%. Using the nonparametric Wilcoxon T-test, we calculated that in boys (EX), there was a statistically significant difference

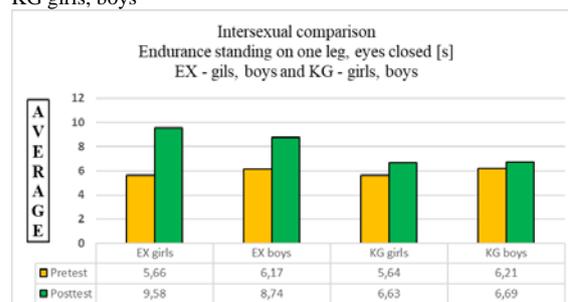
at the significance level of $p < 0.01$. For boys (KG), we measured an average value of 6.21 seconds in pretests, while in posttests we measured an average value of 6.69 seconds. From the above values it follows that in boys (KG) there was a minimal improvement in standing on one leg with eyes closed by 0.48 seconds, which in percentage terms is a progress of 7.13%. Using Wilcoxon's T-test, we found that there was no statistical significance between pretest and posttest in the control group of boys in this test. By comparing boys (EX) and boys (KG), we concluded, using the Mann-Whitney U-test, that there was no statistical significance in the pretests, while there was statistical significance in the posttests. There was an improvement in favor (EX) of boys at the level of significance $p < 0.01$ (Graph 14).

Graph 14: Pretest and Posttest: Endurance standing on one leg with eyes closed EX and KG boys



The graph (15) shows that in the motor pretest, which is focused on endurance standing on one leg with closed eyes, we measured the average value for girls (EX) of 5.66 seconds. For boys (EX), an average value of 6.17 seconds was measured. The measured results show us that the achieved average results were better in boys compared to girls. The difference was small, 0.51 seconds, which in percentage terms is a better result by 8.40% in favor of the boys. In the posttest, we measured an average hour of 9.58 seconds for the girls (EX), while the average value for the posttest was 8.74 seconds for the boys (EX). The measurements show that the average values were better for girls compared to boys by 0.84 seconds, which in percentage terms is 8.84% in favor of (EX) girls. Using the Mann-Whitney nonparametric U-test, comparing the experimental group of girls (EX) and boys (EX) we found that there was no statistically significant difference in pretest or posttest. In the test focused on balance ability - static balance, we measured an average value of 5.64 seconds for girls (KG) in the pretest, while we measured an average value of 6.21 seconds for boys (KG). We know from the results that in comparison they achieved (KG) a better average value in the pretest by 0.57 seconds, which in percentage terms is a difference of 9.16% in favor of boys (KG). In the posttest, we measured an average value of 6.63 seconds for girls (KG), while an average value of 6.69 seconds was measured for boys (KG). From the measured values in the comparison we see that there was a difference of 0.07 seconds between girls and boys, which is minimal and in percentage terms it is 0.92% in favor of boys. By comparing the results obtained in the control group of girls (KG) and in boys (KG), we did not measure statistical significance in the pretest or posttest using the Mann-Whitney U-test (Graph 15).

Graph 15: Pretest and posttest: Intersexual comparison - Endurance standing on one leg, eyes closed EX girls, boys and KG girls, boys



3.2 Evaluation of hypotheses

In our article, we set a goal to determine the impact of the use of stretching exercises on the development of coordination motor skills of children at younger school age. By realizing the research, we wanted to find out the level of coordination skills of primary school children, where we used two independent groups for comparison, namely the experimental and control groups, which we then divided into other subgroups according to gender. Four subgroups were formed, we worked in the empirical part with them, while a stretching plan was applied to the girls and boys from the experimental group, while the control group was taught physical education under normal conditions. In the

previous section, we presented a comparison of the results we achieved. Based on the results obtained, we found that stretching exercises had an effect on coordination skills, which means that they were effective. In some motor tests, there was an improvement not only in the experimental (EX) but also in the control (KG) group. However, in terms of statistical significance, the experimental group had more significant statistical differences compared to the control group, where there was also a more visible progress in the coordination capabilities. For better clarity in the interpretation of the achieved results, we present a table (Tab. 1) with the evaluations of motor tests, where we also present statistical significance.

Table 1: Motor tests, hypotheses and their statistical significance

MOTOR TESTS	Hypothesis 1		Hypothesis 2		Hypothesis 3		Hypothesis 4			
	Experimental group		Control group		GIRLS	BOYS	Experimental group		Control group	
	Comparison Pretest and Posttest		Comparison Pretest and Posttest		Comparison EX x KG	Comparison EX x KG	COMPARISON GIRLS x BOYS		COMPARISON GIRLS x BOYS	
	GIRLS	BOYS	GIRLS	BOYS	POSTEST	POSTEST	PRETEST	POSTEST	PRETEST	POSTEST
Grasping an object – Stopping a falling ruler	*	**	-	-	**	*	-	-	-	*
Jumping to the target from an elevated place	**	**	-	-	**	**	-	-	-	-
Skipping rope, holding the same pace of movement	**	**	-	**	**	-	-	*	-	**
Running to numbered targets	**	**	*	-	-	**	**	**	**	**
Endurance standing on one leg (right, left) with eyes closed	**	**	**	-	**	**	-	-	-	-

- statistical significance not achieved, * statistical significance at p level <0.05, ** statistical significance at p level <0.01

Hypothesis (H 1) dealt with the influence of selected stretching exercises, which should have resulted in a statistically significant difference in the experimental group of girls and boys between pretest and posttest focused on coordination motor skills. In the table, we present, we can see that there was a significant statistical difference between pretests and posttests of both girls and boys. Given the results that were achieved, we conclude that the stretching exercises we proposed were effective and in both groups there was progress in the motor tests. We confirm the hypothesis (H 1) on the basis of the obtained data.

Hypothesis (H 2) was devoted to the control group, where a statistically significant difference between pretests and posttests focused on coordination of motor skills of boys and girls should have happened, are shown in Table (1), where we see statistical significance for girls in two motor tests as well as for boys, but only in one test. In the vast majority of tests there was no statistically significant difference, therefore we conclude that Hypothesis (H 2) was not confirmed.

Hypothesis (H 3) focused on the application of selected stretching exercises, where the achieved level of coordination motor skills should be statistically more significant in the experimental group of girls compared to girls from the control group, and also the achieved level should be statistically more significant for boys from the experimental group compared with boys from the control group. In the table for girls (EX) and girls (KG) we can see that out of five tests performed, there was a statistically significant difference in the posttests in four at the level of significance $p < 0.01$ in favor of the experimental group of girls. There was no statistical significance in the motor test - running to numbered targets. A similar situation occurred with boys (EX) and boys (KG). In comparison with the control group of boys, the experimental group of boys did not achieve a statistically significant difference in one motor test - skipping rope, maintaining the same pace of movement. In contrast, in three tests, boys from the experimental group achieved a statistically significant difference in posttests, at a significance level of $p < 0.01$ in one test at a significance level of $p < 0.05$. It follows from the above that, despite the results achieved in favor of the experimental group of girls and boys, we reject the

Hypothesis (H 3). The reason is that there was no statistical significance for girls in one test and same no significance for boys in one test.

Hypothesis (H 4) focused on the level of coordination motor skills, which should be higher for boys compared to girls, while the progress of boys in the experimental group and of boys in the control group should have been more significant in the tests compared to girls in the experimental group and control group. In table (1) we can see that in the experimental group in pretests, where there was a comparison of girls and boys, only one of the tests - running to numbered targets, was statistically significant in favor of boys. Also in the posttests, the boys had a statistically significant difference in their favor in the test - running to numbered targets. However, in the posttests, specifically in the test - skipping rope, maintaining the same pace of movement, the girls achieved a better result compared to the boys, which achieved statistical significance. Similarly, in the control group in the pretests, also in the test - running to the numbered targets, the boys achieved a better result than the girls, which was statistically significant. As we can see in the table in the posttests, the boys had a statistically significant difference in the results in up to three motor tests when compared with the girls, while in two there was no statistically significant difference. Based on these facts, when the boys from the experimental and control groups did not achieve statistically significant differences in all tests compared to the girls, we must reject the Hypothesis (H 4).

From the above results we can state that Hypothesis (H 1), based on the application of stretching exercises in physical education classes, the experimental group of girls and boys achieved statistically significant differences between pretests and posttests, where the tests were focused on coordination motor skills. There was no significant improvement in the control group of girls and boys, which rejected the Hypothesis (H 2). When comparing the experimental group of girls with the control group of girls, as well as in the experimental group of boys and the control group of boys, there were no significant improvements in favor of the experimental group of girls and boys, and we also reject Hypothesis (H 3). In the intersexual comparison, where the boys from both groups were supposed to be better than the girls from both groups, this fact was not confirmed to us, so we also rejected the Hypothesis (H 4).

4 Conclusion

In our article, we tried to approach the use and impact of stretching on the development of coordination motor skills of children at younger school age in physical education and sports classes. Based on the application of selected exercises for students in primary education, we wanted to find out their effectiveness, efficiency and level of coordination skills selected by us.

The choice of motor tests was conditioned by the material and technical equipment of the schools and the age of our probands. After completing the pretests in both groups, a set of stretching exercises was applied to the experimental group, which lasted for 14 weeks. Following the end of the selected period, post-tests were performed again. We used two nonparametric tests to process and evaluate the measured results. Wilcoxon nonparametric T-test, which was used to compare the results obtained between pretests and posttests within one group, where we tested the difference at the level of significance $p < 0.01$ and $p < 0.05$. The second test we used was the nonparametric Mann-Whitney U-test, on the basis of which we compared the values of two independent groups. We processed the obtained results into graphs, we interpreted the results and we were able to verify our hypotheses by them. In our research, only one of the hypotheses was confirmed, which was aimed at achieving statistical significance in the experimental group of girls and boys between pretests and posttests, and stretching exercises were applied in these groups. Based on the obtained results, we state that in all motor tests, the probands in the experimental group improved their performance. The experiment we performed was able to

positively influence the development of coordination motor skills of children at younger school age. We had to reject the remaining three hypotheses on the basis of unfulfilled statistical significance. Most importantly, we consider that the goal of the work, which was to determine the level of coordination skills and applied exercises to come to their effectiveness, we managed to meet, while the level of coordination skills reached a statistically significant difference, which can confirm that stretching exercises were effective and efficient in our studied younger school-age children in the village and in the city.

As a positive, we would like to note that the results achieved through the application of stretching exercises point to the fact that these exercises in physical education classes have been positively proven and have had a positive impact on the development and strengthening of coordination motor skills. In the results of the experimental group of girls and boys, we found that they achieved statistically significant improvements in all motor tests.

In conclusion, we consider it necessary to emphasize that one of the important tasks of every teacher is to arouse students' interest in movement and exercise. However, the teacher should be able to properly motivate students, he should be thoroughly prepared for the teaching process and he should also have a positive attitude towards his students. Last but not least, it is essential that the teacher adheres to all important didactic principles. Only such a teacher can fulfill the goals of physical and sports education in our schools and at the same time have influence on children to develop their motor abilities and skills.

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Primary Paper Section: A

Secondary Paper Section: AK

TAX BURDEN ON COMPANIES IN SELECTED COUNTRIES

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Abstract: Taxes are one of the things all companies have to pay. However, taxation is a big issue for many people in today's uncertain times. The paper aims to compare taxes in Central European countries (the Czech Republic, Slovakia, Poland, Hungary, Austria, and Germany) in the years 2016-2020 and to make predictions for next years. The data used were obtained from publicly available resources – Eurostat and OECD. The situation in the individual states is compared using time series analysis, i.e. by observing the data. Based on the observation, the results are obtained using Excel. The results show that Central European countries are doing better when compared to the other EU countries in terms of taxation (i.e. lower taxes). The results also show the existence of differences between the states of the former Eastern and Western blocs in terms of taxation. According to the estimates of the taxation for the next years, taxation in Central Europe will increase slightly or remain the same in the coming years. The paper also proposes further research including a larger number of countries.

Keywords: Covid-19; Central Europe Evropa; taxation; EU; tax policy

1 Introduction

Taxes are one of the essential parts of every country's economy, and are thus the subject of many studies examining the impact of taxation on the economic growth and well-being as well as their negative impact on the economy (Peňáková, 2021). Every state chooses a tax policy that would enable it to finance its operations and that is considered the most appropriate or the most effective (Vasylieva et al., 2020)

In terms of the tax burden in the EU, the EU countries themselves determine the rates and decide what they use the collected taxes for (Kostiuk et al., 2021). However, the EU regulates the tax rates in individual countries so that it is possible to maintain the free flow of goods and capital between the EU countries (Kabourková and Rousek, 2010), and so that companies from some countries are not unduly favoured or discriminated against by companies from other EU countries. In the EU, there is a set of rules concerning indirect taxes, at the level of administrative cooperation, and partly in the field of direct taxation. Nevertheless, each country has the right to determine the rates (Feranecová et al., 2017).

The situation concerning the global Covid-19 pandemic have inspired many governments to search for additional financial sources in order to fix the holes in the budget caused by Covid-19 (Čábelková, 2021). Increasing taxes is thus one of the ways governments decided to choose despite of the fact that it will slow down the post-covid development and recovery (Čábelková, 2021). According to Dias et al. (2020), the current pandemic is one of the factors that may increase the tax burden on companies, along with other difficulties caused by the covid pandemic, such as lower sales, revenues. The pandemic has largely affected all EU countries and caused serious economic problems, including unemployment, which was considered temporary at the beginning but with the prolonged measures against Covid-19, it has become permanent (Tibulcá, 2021). Companies will thus have to follow the debates on balancing the revenue side of the state budget and to determine the potential impact on their situation (Kmecová et al., 2020)

The objective of the paper is to analyse the tax burden on companies in the Czech Republic, V4 (Poland, Hungary, Slovakia), Germany, Austria and to determine how this burden has changed during the Covid-19 pandemic. To achieve this objective, the following research questions are formulated: (1) *What is the tax burden on companies in selected EU countries?* (2) *How has the Covid-19 pandemic changed the tax burden in selected EU countries?* (3) *What trend of tax burden can be expected in selected EU countries?*

2 Literature research

Typical feature of the world economy in the third millennium is deepening globalization (Peňáková, 2021). Developed economies face various challenges, one of them being unfavourable demographic situation (aging population), which puts pressure on public finance and increases the future expenditures (Peňáková, 2021). This puts pressure on increasing the revenues of the state apparatus or reducing the expenditures (Domanižová et al., 2020). Decreasing tax rates may reduce tax revenues, which may result in worse quality of the public services provided (Maličká, 2017). In developed economies, the corporate tax rates are thus subject of intensive discussions as a possible solution (Álvarez-Martínez et al, 2018). Kasych (2019) states that this would represent other potential expenses for large companies.

The last 15 years have been an extremely turbulent period in the EU countries. The EU have gone through four socio-economic crises, with the last one causing 7-16% downturn in the economy according to the estimates of the European Commission (Sidorova, 2021). According to Almeida et al. (2021) the income loss of households will be 9.3 %, if there are no political interventions from the governments. Cantó et al. (2021) mention up to 18.8% decrease in GDP, a decline that the UK economy experienced in the first half of 2020, which made UK one of the most affected economies by the pandemic in Europe. During the pandemic, most economies thus adopted previously unacceptable state regulation in order to help the affected sectors of economy and some citizens (Koroleva, 2021). The European Commission thus proposed the EU countries to adopt targeted measures, such as deferred tax payment, social benefits, tax rebates, financial support, etc. (Cordewener, 2020). Despite of this, economic recovery will require considerable costs and time. According to Tibulcá (2021), individual countries needed two to three years to recover from the preceding financial crisis; as the Covid-19 pandemic continues in 2022, it can be expected that it will take even longer to handle the consequences of the current crisis.

Long-term sustainability of state budgetary expenses in the Covid-19 pandemic is closely connected with tax compliance (Čábelková, 2021). According to Nerudová and Solilová (2015), the European Commission was requested to carry out a study on company taxation with the aim to identify the differences in the effective level of corporate taxation. The EU tries to ensure that individual countries have tax systems that would not compete with each other and that would support the common market (Feranecová et al., 2017).

One of the methods used to determine the maximum possible tax revenue can be the Laffer curve, which theoretically enables determining tax rate that would help achieve the maximum possible tax revenue (Frýd, 2021). Andrejovska and Helcmanovska (2021) used linear regression to calculate the impact of value added tax rate changes in the EU, more precisely, Shapiro-Wilk test, Breusch-Pagan test, Breusch-Gofrey test, and Farrar-Glauber test. In the research of the impacts of the pandemic, regression and correlation analysis or comparative and descriptive analysis can be used, as used by Đukić, Štaka and Drašković (2021) in similar research.

3 Data and Methods

The data source used is Eurostat, which provides statistical data on the EU member countries and enables statistical comparison of EU regions. The data are also used as basic information for the European Central Bank and other EU institutions operating in the economic area. Since this paper focused on the Central European countries, namely Germany, Austria, V4 (the Czech Republic, Slovakia, Hungary, Poland), the Eurostat data will need to be adjusted prior to the research (i.e. to select the aforementioned states only). For the purposes of the paper, the

OECD data will also be used. The data concerned are for the years 2016 - 2020.

To obtain the information on the current taxation, the Eurostat database will be used. In the database, the relevant data can be obtained by finding "Taxation in" + the year for which the data are required. For the purposes of the paper, the data from the years 2016-2019 will be used. The data are given in percentage of GDP. Moreover, the data on the decline in GDP from the year 2020 (in percentage) will be obtained from Eurostat. For data from 2020 (the year when the data are influenced by covid), the OECD data will be used. These data will enable answering the research question of how covid has affected the taxation.

Another method used is the analysis of time series, i.e. monitoring the data points recorded over a defined period of time. The method is used for describing data or predicting their future behaviour. Data are arranged by means of tables and graphs and based on examining and comparing the data, relevant results are obtained. To calculate the development of taxation in the selected countries, the following formula will be used: tax revenue for the coming year = (1 + tax elasticity * percent change from base year) * this year's tax revenue.

4 Results

As seen in Table 1, most countries under review (the Czech Republic, Slovakia, Poland, Germany and Austria) increased the tax rate, with the highest tax rate recorded in Poland and Germany and the lowest one in Austria; however, the taxation in Austria is considered to be the highest one in the countries under review. Hungary is the only country that reduced the tax rate, with the reduction being quite significant within the monitored years (2.7 %). The taxation in the Czech Republic, Slovakia, Poland, and Hungary is below the EU average, which increased only slightly within the monitored period (by 0.3 %). It follows from the table that the countries under review (Central European countries) do not pursue strict approach to corporate taxation; however, this is not true for all monitored countries.

Table 1: Tax rate in percentage to GDP in the years 2016-2019

Country	2016	2017	2018	2019	Average 2016-2019
The Czech Republic	35.1	35.4	36	36.1	35.65
Slovakia	33.2	34.2	34.3	34.6	34.075
Poland	34.3	35	36	36	35.325
Hungary	39.2	38	37	36.5	37.675
Germany	40.5	40.8	41.3	41.7	41.075
Austria	42.4	42.5	42.9	43.1	42.725
EU (EU average)	39.9	40.1	40.3	40.2	40.125

Source: Author based on data from Eurostat

Table 2 shows that in 2020 (the "covid" year), the Czech Republic, Hungary, Germany and Austria reduced the tax rate. For all four states, it was the lowest tax rate in the monitored years. In Hungary, the taxation was further decreased. Due to the sharp reduction, Germany fell below the EU average. In the year 2020, Austria was the only country above the EU average. For companies, this is another indicator of the profitability of doing business in Central Europe: since the EU average was growing, the taxation in the Central European countries decreased. In Poland, taxation remained the same in the year 2020. Slovakia was the only country to increase its taxation, although slightly.

Table 2: Taxation in 2020 and difference in comparison with past years

Country	2020	2016-2019	Difference	Difference between 2019 and 2020
Czech Republic	34.4	35.65	-1.25	-1.7
Slovakia	34.8	34.075	0.725	0.2
Poland	36	35.325	0.675	0
Hungary	35.7	37.675	-1.975	-0.8
Germany	38.5	41.075	-2.575	-3.2
Austria	42.1	42.725	-0.625	-1
EU (EU average)	40.4	40.125	0.275	0.2

Source: Author based on Eurostat data

The remaining part of the results concerns the predicted taxation in the selected countries for the years 2021 and 2022. At the time of writing this paper, the year 2021 is already over but the figures for the year have not been published yet; the forecast thus concerns even the year 2021. The prediction was made on the basis of the formula described in the chapter "Data and Methods". As seen in Table 3, in the year 2021, the Czech Republic, Hungary, Germany and Austria should increase their taxation percentage as follows: by 1 % in the Czech Republic, 0.5 % in Austria; the largest increase is expected in Germany (by more than 2.1 %) and Hungary (more than 1.5 %). On the contrary, Slovakia and Poland are expected to decrease the tax rates. For both countries, the decrease should about 0.5 – 0.6 %. For the year 2022, the taxation should be similar. In the case of the Czech Republic, Germany, and Austria, it is less than 0.1 %; in Poland and Slovakia, it is about 0.2 %. In all countries mentioned, it is an increase in taxation to GDP. The predicted reduction for Hungary is 0.38 %.

Table 3: Predicted taxation for the years 2021 and 2022

Countries	2016	2017	2018	2019	2020	2021	2022
The Czech Republic	35.1	35.4	36	36.1	34.4	35.4	35.46
Slovakia	33.2	34.2	34.3	34.6	34.8	34.22	34.42
Poland	34.3	35	36	36	36	35.46	35.69
Hungary	39.2	38	37	36.5	35.7	37.28	36.90
Germany	40.5	40.8	41.3	41.7	38.5	40.56	40.57
Austria	42.4	42.5	42.9	43.1	42.1	42.6	42.64
EU (EU average)	39.9	40.1	40.3	40.2	40.4	40.18	40.24

Source: Author based on data from Eurostat and OECD

5 Discussion of Results

Discussion of results provides answers to the research questions formulated in the introductory chapter of the paper.

What is the tax burden on companies in selected EU countries?

Based on the Eurostat data, it was found that the taxation in the selected countries (Central Europe) is below the EU average. More precisely, before the outbreak of the Covid-19 pandemic, the average taxation was 36.65 % in the Czech Republic, 34.075 % in Slovakia, 35.325 % in Poland, 37.675 % in Hungary, 41.075 % in Germany, and the highest taxation was in Austria (42.725 %). These figures thus represent the answer to the research question. However, the research shows that except Hungary, the taxation at the end of 2019 showed an upward trend in the selected countries.

How has the Covid-19 pandemic changed the tax burden in selected EU countries?

As is well-known, the Covid-19 pandemic swept the world in the year 2020. As mentioned in the previous chapters, the pandemic has changed the world in many areas, one of them being economy. Countries responded differently to the pandemic; the changes in the taxation were also different to each state. The research shows that on average, the EU countries increased the taxation slightly. This applied also to Slovakia, which maintained the taxation at the same numbers as the EU average between 2019 and 2020. On the contrary, most of the countries under review reduced the taxation at the beginning of the pandemic. The reduction was about 1 % in Austria, 1.7 % in the Czech Republic, and 3.2 % in Germany. The reduction in Hungary achieved 0.8 %; however, unlike the other countries, Hungary decreased the tax rates before the pandemic. The last country to be mentioned is Poland, which did not change the taxation during the pandemic, keeping the same values as in the year 2019.

What trend of tax burden can be expected in selected EU countries?

This question is more difficult to answer than in the case of the two previous questions, where there were specific data available. This is not possible when making prediction for next years, since

it is very difficult to estimate the exact numbers. However, it is possible to obtain approximate numbers using the predicted numbers from the past years (our research) and use them for the calculation. What trend of tax burden can thus be expected in the years 2021 and 2022? In the Czech Republic, it is 35.4 % and 35.46 %, 34.22 % and 34.42 % in Slovakia, 35.45 % and 35.69 % in Poland, 37.28 % and 36.9 % in Hungary, 40.56 % and 40.57 % in Germany, and 42.6 % and 42.64 % in Austria.

As these are estimated values, there is a possible error rate. The estimate does not consider potential changes in tax legislation or other possible factors. The results might also be slightly skewed due to the data from the year 2020, when some countries adopted drastic measures to stop the spread of the pandemic; however, these steps may have no effect or the states may decide not to use them in the next years. In general, the estimate is sensitive to sudden changes in taxation.

6 Conclusion

The objective of the paper was to analyse the tax burden in the Central European countries (the Czech Republic, Poland, Slovakia, Hungary, Austria, and Germany) and to find out how the taxation changed during the Covid-19 pandemic. This objective was achieved. In the chapter "Results", the data used showed the taxation in the selected countries in the last five years. The data were then compared; it was also found how the taxation changed in the year 2020 due to the pandemic. For the purposes of the paper, three research questions were formulated, which helped to achieve the objective of the paper. Based on the research results, it can be stated that in Central Europe, there is a tax gap between the countries of the Eastern and Western blocs. The taxation rate is lower in the post-communist countries. The exact cause of this phenomenon is not the subject of this research. The identified tax gap was partly narrowed due to the Covid-19 pandemic, more precisely, it was narrowed in Germany, but according to our predictions, this gap is expected to return to the previous numbers in the next years. The paper thus also presents the estimate for the next years, which is to predict the future trend of taxation in the selected countries. This estimate, despite the possible error rate caused by several factors that cannot be predicted in advance, provided answer to the formulated research question.

The contribution of this paper consists in determining the tax burden in the Central European countries, its mutual comparison between individual states, and its comparison with the average of the EU they belong to. Since 4 out of 6 states are permanently below the EU average, pulling its values down. The research limitation is e.g. the estimated taxation for the next years, when the calculated value can be significantly different in reality after a few years. This is given by the difficulty of predicting data for longer periods. Another limitation is the small sample size of selected countries. Therefore, further research should include more countries (the EU, OECD countries).

Acknowledgement

The article was supported by the IVSUZO001 project "Benchmark of the world economy in the context of the principles of the circular economy and the determination of business value".

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Primary Paper Section: A

Secondary Paper Section: AH, AG

THE EFFECT OF FORMATIVE ASSESSMENT ON THE DEVELOPMENT OF CONCEPTUAL UNDERSTANDING IN STUDENTS

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Abstract: Despite the fact that OECD education analysts recommend using formative assessment, summative assessment remains preferred in Slovak education. Formative assessment is rarely used because Slovak teachers require further training provided through projects such as Teachers and IT Akadémia. Formative assessment is an efficient tool improving the quality of the learning process, which provides targeted feedback on the quality of the education process as well. This paper presents the result of a study focused on the impact of formative assessment tools implemented in the education process, in teaching Chemistry at primary schools, on the development of conceptual understanding in students on selected levels of Bloom's taxonomy (remembering, understanding, application, analysis). The research involved Chemistry teachers from selected primary schools located in the Košice Region (N=3) and 7th grade students from parallel classes at primary schools (N=126). Quasi-experiment was used as the main research method. Research instruments in the control and experimental groups included two standardised cognitive tests (pre-test and post-test). Pre-test and post-test reliability showed $\alpha = 0.686$ and $\alpha = 0.730$ respectively, which is above the minimum value. The results of the research indicated a statistically significant effect of formative assessment on the development of students' conceptual understanding ($p < 0.05$) not only in lower-order cognitive processes (remembering, understanding), but also in higher-order cognitive processes (application and analysis).

Keywords: Formative assessment, formative assessment tools, conceptual understanding, quasi-experiment, primary school teachers and students

1 Introduction

The traditional 20th century concept of school assessment preferred the summative approach focused on assessing learning outcomes. To this day, it influences teachers' prevailing tendency to simply grade students instead of evaluating the quality of their learning process. Students who do not perform well enough are simply graded, instead of receiving feedback and learning support which would actually help them improve their performance. Students are often compared to their peers, which can influence them negatively. They may feel inferior, which further decreases their academic performance. Summative assessment tools focused on evaluating learning outcomes are unable to reveal students' actual skills, capabilities, behaviour styles, actions or needs (Sándor & Nóra, 2009). They only provide students with the information about their ranking within the group. Thus, students do not know their actual status or see what they need to improve and how to approach it.

The current requirements for the assessment of learning outcomes in the Slovak Republic are defined in Act No. 245/2008 Coll. on Education and Upbringing (School Act). It allows assessing students' academic performance verbally, by grading, or to combine both these methods (School Act, 2008). Most students are graded on a five-grade numerical scale, which has not changed for decades. Grading without differentiating the assessment of students' results, process and progress, i.e. without respecting the actual functions of assessment, etc. still prevails (Kratochvílová, 2011). This kind of assessment lags behind the general world trend, which emphasizes distinguishing between the outcome – what the student knows and can do in a given period, the process of getting to that outcome – involving effort, responsibility, work habits, etc., and, very importantly – their progress (Guskey & Bailey, 2010; OECD, 2005).

The OECD Evaluation Report on Assessment in Education in the Slovak Republic of 2014 (Shewbridge, Bruggen, Nusche, & Wright, 2014), created by OECD education analysts, has shown that neither teachers, nor students and their parents understand the importance of formative assessment. The OECD evaluation team has pointed out that regular student assessment in Slovakia lacks in formative aspects and students are in strong need of feedback, which would allow them to improve their learning. Therefore, the OECD evaluation team has recommended introducing elements of formative assessment, which captures

not only the “subject matter” and “learning outcomes”, but also “how” the students are learning.

2 Formative assessment

The concept of formative assessment was first introduced by Michael Scriven (1967) in the late 1960s in his article “The methodology of evaluation” dealing with the evaluation of educational programmes. He proposed that summative and formative approaches should be distinguished.

Bloom, Hastings, and Madaus (1971) have built on his idea in their *Handbook on formative and summative evaluation on student learning* and introduced a concept that distinguished between the two as well. They have defined the main idea of formative assessment, i.e. that teachers should provide feedback and other information necessary for the students to improve their performance. This idea has become the foundation of the contemporary concept of formative assessment. The aforementioned publication has also explained how formative assessment can be applied in practice in teaching different subjects. The authors have proposed dividing the education process into stages and providing students with formative assessment upon completion of each stage. Teachers should use the evaluation results not only to provide students with feedback, but also to modify their style of teaching (Allal & Lopez, 2005).

In their books *Assessment and Classroom Learning* and *Inside the Black Box: Raising Standards through Classroom Assessment*, Black and William (1998a; 1998b) have elaborated the concept of formative assessment and emphasized its positive effect on student learning. They have focused on the efficiency of formative assessment and revealed a correlation between formative assessment and an improvement in student performance. Specifically, formative assessment has been shown to improve, mainly less successful, students' performance. They have also tried to refute the idea that formative assessment is considerably more time-consuming than summative assessment, therefore teachers have less time for other activities and students ultimately learn less.

According to the broadest definition (OECD, 2005), emphasis should put on student progress; formative assessment helps identify student needs and possible learning difficulties, thus allowing the teacher to modify their style of teaching accordingly.

In October 2006, after an extensive review of the literature on formative assessment and consideration of its definitions, the FAST SCASS (Formative Assessment for Students and Teachers State Collaborative on Assessment and Student Standards) Assessment Expert Panel adopted the following definition (Heritage, 2010): Formative assessment is a process used by teachers and learners during instruction that provides feedback to adapt further teaching and learning to improve the achievement of specified learning outcomes. The purpose of this feedback is to help teachers and learners make adjustments that will improve the achievement of the set objectives.

A more recent revised definition characterises formative assessment as a process that is planned, ongoing, and used by all students and teachers during learning and instruction, for the purpose and with the goal of determining how students are learning, how their understanding has improved, and where they are in the learning process (CCSSO, 2018, p. 2). At the same time, it stresses the importance of teachers' support for students to become independent individuals in the learning process.

Formative assessment is considered to be a planned process in which teachers use evidence to evaluate the ongoing instructional practices and formulate student assessment or – students modify their learning tactics in order to improve their learning (Popham, 2008).

Formative assessment provides information/feedback at a point when student performance can still be improved. The goal of

feedback is to identify how students are learning, i.e. diagnose shortcomings, errors, learning difficulties and their causes in order to improve student learning. To sum up, it provides bilateral teacher ↔ student feedback (Harlen, 2013). It helps both teachers and students collect information about the way students acquire and apply knowledge, learning efficiency, students' strong points and weaknesses, goals achieved, and procedures necessary to apply to improve the outcomes. Feedback allows for a comparison between the actual performance level and standards required. Feedback is usually provided by the teacher, but peer feedback is also important. It provides students with information about themselves, but it is rarely used for grading (Orna, 2010).

The question about the ideal form of school assessment does not have a clear answer. Students will always come into contact with both these forms of assessment. The relationship between summative and formative forms of assessment is influenced by the "tension" between the immediately verifiable results of summative testing and the fact that formative assessment effects are indirect and take more time to show (Slavík, 1999).

While summative assessment identifies and expresses whether students possess knowledge and understanding, formative assessment shows what exactly students know (Hattie, 2003); it aims to identify what the students are good at, how the subject matter enriched them, and what they are capable of (Lauřková, 2017; Orosová, Ganajová, Szarka, & Babinčáková, 2019). Moreover, Wren and Cotton (2008) have identified a significant difference between the purpose and further use of results in summative and formative forms of assessment.

2.1 Formative assessment and the quality of education

The impact of formative assessment on the quality of education can be observed in a number of research studies indicating its efficiency.

It has been proved that formative assessment helps improve student performance as well as the overall quality of education (Allal & Lopez, 2005; Bell & Cowie, 2001; Black & Wiliam, 1998a; Black & Wiliam, 1998b; Black & Wiliam, 2005; Hattie & Timperley, 2007; OECD, 2005). It provides students with an opportunity to acquire deeper understanding of the subject matter (Schunk & Swartz, 1993). In some schools, a positive influence of formative assessment strategies has been identified also in the improved results of summative testing.

Mainly lower performing students have been proved to benefit from formative assessment, as it encourages them to start trusting themselves and become proud of their abilities (Black & Wiliam, 1998b; Flórez & Sammons, 2013). If the learning process involves formative assessment, students become more active and cooperative, but at the same time, they are turning into independent individuals (Boston, 2002; McMillan, 2007). Formative assessment also supports the process of knowledge acquisition and the ability to learn as such. Students are actively involved in the learning process (self-assessment and peer-assessment), which helps them take responsibility for their own learning (the teacher is giving way to students, which also prevents students from blaming the teacher if they fail, see e.g. Stiggins & Chappuis, 2008). This process promotes the development of meta-cognitive skills (Flórez & Sammons, 2013). Developing meta-cognitive skills is related to one of the key competences required from young Europeans in the 21st century – to be responsible for their own learning. Under the influence of formative assessment, students perceive assessment as a natural part of their life (PowerSchool, 2016) and they learn to work systematically, which improves their performance. Formative assessment develops a positive attitude to systematic work in students, which leads to improved performance (Shepard, 2005).

It also has a positive impact on the teachers who apply formative assessment in their teaching practice. It helps the teachers determine what and how they want to teach their students, which involves learning goals as well as feedback on learning. It also allows them to find out how questions revealing actual student

understanding should be formulated and to provide students with constructive feedback (Flórez & Sammons, 2013). Thus, formative assessment improves teachers' quality and promotes establishing student–teacher partnership in education, which significantly improves everything that takes place in the classroom (Reddy, 2017).

However, the implementation of formative assessment involves certain difficulties as well. Teachers often complain about its time-consuming nature and point out that it may prevent them from completing the goals specified for the respective lesson due to lack of time (Reddy, 2017). Formative assessment is also much more demanding for teachers in comparison to summative assessment because the former requires teachers to guide students throughout the learning process. Teachers need to plan a broader variety of activities and measure student performance on the go to provide them with feedback, which allows students to improve and achieve the education goals and meet the standards (Akorn, 2011). The effects of formative assessment are also visible only after a longer time (Starý, 2007). Moreover, some students may have difficulties with objective self-assessment. When students are asked to perform self-assessment in front of their peers, they may overestimate themselves (Brown & Harris, 2013). Students may not be able to evaluate the quality of their work in the way teachers can (Kruger & Dunning, 1999).

On the hand, there are also studies that have not proved any statistically significant impact of formative assessment on student performance (Andrews, 2011; Collins, 2012; King, 2003; Tuominen, 2008; Yin, et al., 2008). Kingston and Nash (2011), and Baird and Black (2013) have criticised the evidence showing the significantly positive impact of formative assessment.

3 Material and Methods

General Background of Research

The main goal of the presented research was to identify the impact of formative assessment tools (also referred to as FA classroom techniques or FACTs) implemented in the education process, in teaching Chemistry at primary schools, on the development of conceptual understanding in students on selected levels of Bloom's taxonomy (remembering, understanding, application, analysis). In accordance with the goal, the following research questions have been formulated:

- RQ₁: Does the implementation of formative assessment tools in the educational process influence the development of conceptual understanding in students?*
- RQ₂: Does the implementation of formative assessment tools in the educational process influence student conceptual understanding on the selected levels (remembering, understanding, application, analysis)?*
- RQ₃: Does students' gender influence the efficiency of formative assessment in terms of developing conceptual understanding?*

The following research tasks have been specified:

- Determine the level of conceptual knowledge in the research groups before the teaching experiment – pre-test.
- Perform the teaching experiment (quasi-experiment) – implement the formative assessment tools in teaching.
- Determine the level of conceptual knowledge in the research groups after the teaching experiment – post-test.

In accordance with the theory presented, research goal, tasks, and questions, the following hypotheses were formulated:

- H₁: After implementation of the formative assessment tools in teaching, there is a statistically significant difference in the level of conceptual understanding in the experimental vs. control groups of students.*
- H₂: After implementation of the formative assessment tools in teaching, there is a statistically significant difference in conceptual understanding in the experimental vs. control groups of students on the level of remembering.*
- H₃: After implementation of the formative assessment tools in teaching, there is a statistically significant difference in*

the level of conceptual understanding in the experimental vs. control groups of students on the level of understanding.

H₄: After implementation of the formative assessment tools in teaching, there is a statistically significant difference in the level of conceptual understanding in the experimental vs. control groups of students on the level of application.

H₅: After implementation of the formative assessment tools in teaching, there is a statistically significant difference in the level of conceptual understanding in the experimental vs. control groups of students on the level of analysis.

H₆: After implementation of the formative assessment tools in teaching, there is a statistically significant difference in the level of conceptual understanding in boys vs. girls.

Research Sample

The research took place in three primary schools in the Košice Region in Slovakia (Primary School Kežmarská 28, Košice; Primary School Staničná 13, Košice, and Primary School Sídliisko II/1336, Vranov nad Topľou) in the second half of the 2019/2020 school year. Two parallel 7th grade forms at each school were involved in the research. Chemistry was taught by the same teachers in each of the two forms at respective schools. The school educational programmes at the selected schools taught the same number of Chemistry lessons (i.e. 2 lessons per week/66 lessons per year) which addressed the same content, and dedicated the same time to the respective topics within their educational plans and schedules. The selection of schools was deliberate and guided by two criteria. The first criterion was the school management's positive attitude to innovation and support for active learning. The second criterion was the teachers' participation in the IT Academy – Education for the 21st Century national project (<http://itakademia.sk/>) and their interest in active implementation of formative assessment in teaching. In terms of this project, teachers had an opportunity to get acquainted with a variety of formative assessment tools via inquiry-based activities.

This research involved 3 teachers and 126 7th grade students from the aforementioned primary schools. All teachers were females with 11 to 29 years of teaching practice. Students were aged 12 to 13. The experimental group involved 58 (46%) students and the control group involved 68 (54%) students. Table 1 shows the number and % of students in the experimental and control groups divided according to their gender; it provides their average academic performance in the compulsory subjects at the end of the previous term. Primary school student assessment in each term follows the Methodological Instruction No. 22/2011 on student assessment and classification at primary schools (MŠVVaŠ SR, 2011).

Table 1: Characteristics of the research sample – students, primary school

Average		Research sample		Experimental group		Control group	
		N	%	N	%	N	%
Gender	Boys	62	49.2	28	48.3	34	50
	Girls	64	50.8	30	51.7	34	50
Total		126	100	58	100	68	100
Average academic performance at the end of the term		1.34		1.42		1.26	

Instrument and Procedures

The research had three basic stages – preparatory, experimental, and post-experimental (Figure 1).

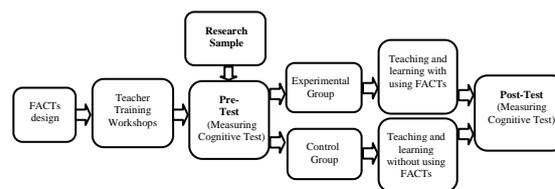


Figure 1: Research stages

The preparatory stage consisted of three basic activities – (a) FA tool preparation, (b) specialised seminar for teachers, and (c) pre-test administered to students.

(a) From October to December 2019, a group of experts in subject didactics from the Faculty of Science, Pavol Jozef Šafárik University in Košice (involved in the VEGA No. 1/0265/17 Formative Assessment in Teaching Science, Mathematics, and Informatics research project) was preparing the formative assessment tools for the selected thematic units in Chemistry for primary schools in accordance with the respective state educational programme (ŠPÚ, 2014). FA tools for the “Changes in Chemical Reactions” (7th grade Chemistry) were prepared.

(b) In January 2020, the teachers involved in the research completed the specialised seminar where they were informed about the focus and goal of this research. These teachers were given access to the created formative assessment tools database and instructed about their implementation in the educational process. Teachers were allowed to modify the tools as they deemed appropriate.

(c) All students involved in the research had previously completed a didactic pre-test covering the subject matter addressed during the 1st term of the school year focused on the “Substances and Their Properties” thematic unit. The pre-test results showed that all forms were on a statistically comparable level ($p > 0.01$). Therefore, forms at the respective schools were assigned to the control and experimental groups randomly (Kireš, Ganajová, & Šotáková, 2019).

The experimental stage lasted from February to June 2020; during this period, control and experimental groups were going through the “Changes in Chemical Reactions” thematic unit during Chemistry lessons. In the control group, teachers were not using formative assessment tools in teaching. In the experimental group, the teachers were teaching using the formative assessment tools from the database provided (and could use them as they deemed suitable). Teachers' work was coordinated to ensure that at least one formative assessment tool was used at least once per week.

7th grade Chemistry at primary schools is taught 2 lessons per week, i.e. 33 lessons per term.

The subject matter addressed within the “Changes in Chemical Reactions” thematic unit is taught during the second term of the 7th grade at primary schools. The educational standard for the “Changes in Chemical Reactions” thematic unit specified in the ISCED 2 educational programme for Chemistry in lower secondary education covers the following (ŠPÚ, 2014):

- Content standards: thermal changes in chemical reactions (exothermic and endothermic reactions), rates of chemical reactions, examples of slow and fast reactions, factors affecting the rate of chemical reactions.
- Performance standards: to list examples of exothermic and endothermic reactions known from everyday life, conduct experiments to measure thermal changes in chemical reactions, record experiment results in tables and interpret them, distinguish between slow and fast reactions, conduct and evaluate experiments on the effect of various factors on the rate of a chemical reaction.

The “Changes in Chemical Reactions” thematic unit consists of 3 basic topics and 16 subtopics. Teachers were allowed to choose from the database of formative assessment tools and modify them in terms of teaching the subtopics. The teachers reported using FACTs once a week at most (the average number of lessons = 10). An overview of the tools used can be seen in Table 2.

Table 2: The formative assessment tools implemented in teaching the “Changes in Chemical Reactions” thematic unit

Topic	FACTS used
What are chemical reactions	Self-assessment card Card mapping the learning process Before and after Frayer’s Model Mind map K-W-L method
Energy changes in chemical reactions	Self-assessment card Card mapping the learning process Before and after K-W-L method Frayer’s Model Mind map
The rate of chemical reactions and what influences it	Self-assessment card Card mapping the learning process Before and after Frayer’s Model Mind map

During the period when the FACTs were implemented in teaching, the teachers attended meetings with the experts in subject didactics (3 times over 5 months). At these meetings, the teachers shared experience with FACTs in practice and discussed the implementation issues with the experts in didactics.

The *post-experimental stage* began after the teaching experiment was completed, i.e. in June 2020. Upon completion of the teaching process, students in all groups were administered a didactic test (post-test) covering the subject matter addressed during 2nd term of their school year, i.e. the “Changes in Chemical Reactions” thematic unit in accordance with the content and performance standards defined in ISCED 2 (ŠPÚ, 2014).

Research instruments used in the control and experimental groups included two standardised cognitive tests (pre-test and post-test) (Babinčáková, Ganajová, Sotáková, & Bernard, 2020; Sotáková, Ganajová, & Babinčáková, 2020). In terms of contents, the cognitive pre-test covered the subject matter addressed during the 1st term of the school year, i.e. “Substances and Their Properties”, while the post-test covered the subject matter addressed during the 2nd term, i.e. “Changes in Chemical Reactions” in accordance with the content and performance standards defined in ISCED 2 (ŠPÚ, 2014). Each test consisted of 10 tasks focused on the four levels of the cognitive process in accordance with the revised Bloom’s taxonomy (Anderson & Krathwohl, 2001), i.e. remembering, understanding, application, analysis. In both tests, 5 tasks were single-choice questions and 5 tasks were open and structured (requiring short answer) (Table 3). All tasks have been created and verified by the National Institute for Certified Educational Measurements of the Ministry of Education, Science, Research and Sport of the SR.

Table 3: Characteristics of the tasks in the cognitive tests (pre-test and post-test)

Task number	Level	Task type
1	Remembering	Closed (single-choice)
2	Understanding	Closed (single-choice)
3	Understanding	Closed (single-choice)
4	Understanding	Closed (single-choice)
5	Understanding	Open (structured)
6	Understanding	Open (structured)
7	Application	Open (structured)

8	Application	Closed (single-choice)
9	Application	Open (structured)
10	Analysis	Open (structured)

The results obtained via the research instruments (pre-test and post-test) were statistically evaluated to identify the influence of formative assessment in teaching Chemistry on the development of conceptual understanding in students.

Data collection

The tasks pertaining to the research instruments (pre-test and post-test) were evaluated using binary scoring, i.e. correct answer = 1 point, incorrect, incomplete, or missing answer = 0 points. The data obtained were analysed using phenomenological analysis and descriptive statistics (mean, mode, standard deviation, kurtosis, skewness, range, maximum, minimum, sum, median) and inductive statistics (Kolmogorov-Smirnov test to assess the normality of data distribution and non-parametric Mann-Whitney U test to compare students’ knowledge and skill levels).

Reliability of research instruments, i.e. the relationship between research instrument items and the research instrument as a whole, was ascertained through Cronbach’s alpha coefficient (Cronbach, 1951). Pre-test and post-test reliability showed $\alpha = 0.686$ and $\alpha = 0.730$ respectively, which is above the minimum value.

The normality of the distribution was verified for the total score, tasks grouped into subscales (remembering, understanding, application, analysis), and also individually for each task using the Kolmogorov-Smirnov test and Shapiro-Wilk test (Table 4). The results of the tests indicated that the data obtained were not normally distributed, therefore the non-parametric Mann-Whitney U test for two independent samples was used to compare the results of the experimental and control groups.

Statistical analyses were performed using SPSS version 18 (SPSS Inc., 2009). For all statistical analyses, the p value < 0.05 was considered significant.

Table 4: Data distribution normality tests

Test	Group	Level	Kolmogorov-Smirnov test			Shapiro-Wilk test		
			Statistics	df	P value	Statistics	df	P value
Pre-test	Control group	remembering	0.367	65	0.000	0.632	65	0.000
		understanding	0.375	65	0.000	0.630	65	0.000
		application	0.231	65	0.000	0.863	65	0.000
		analysis	0.415	65	0.000	0.605	65	0.000
	Experimental group	remembering	0.348	58	0.000	0.636	58	0.000
		understanding	0.357	58	0.000	0.635	58	0.000
		application	0.247	58	0.000	0.831	58	0.000
		analysis	0.445	58	0.000	0.571	58	0.000
Post-test	Control group	remembering	0.359	65	0.000	0.634	65	0.000
		understanding	0.367	65	0.000	0.632	65	0.000
		application	0.233	65	0.000	0.871	65	0.000
		analysis	0.423	65	0.000	0.597	65	0.000
	Experimental group	remembering	0.462	58	0.000	0.546	58	0.000
		understanding	0.533	58	0.000	0.315	58	0.000
		application	0.393	58	0.000	0.658	58	0.000
		analysis	0.540	58	0.000	0.179	58	0.000

4 Results

Statistical significance of the relationships was verified at the significance level of 0.05. For inductive statistics, Spearman’s correlation coefficient was used because the variables did not show a normal distribution ($p \leq 0.05$), which was verified using

the Kolmogorov-Smirnov test. The pre-test and post-test scores in the control and experimental groups showed differences even in the basic characteristics (Table 5).

Table 5: Basic characteristics of the pre-test and post-test results in the control vs. experimental groups

		Pre-test				Post-test			
		Control group		Experimental group		Control group		Experimental group	
		\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Task	1	0.45	0.501	0.48	0.504	0.46	0.502	0.74	0.442
	2	0.45	0.501	0.52	0.504	0.46	0.502	0.76	0.432
	3	0.31	0.465	0.31	0.467	0.29	0.458	0.66	0.479
	4	0.49	0.504	0.60	0.493	0.52	0.503	0.84	0.365
	5	0.62	0.490	0.71	0.459	0.63	0.486	0.91	0.283
	6	0.52	0.503	0.57	0.500	0.54	0.502	0.81	0.395
	7	0.46	0.502	0.52	0.504	0.45	0.501	0.74	0.442
	8	0.65	0.482	0.71	0.459	0.66	0.477	0.95	0.223
	9	0.54	0.502	0.62	0.489	0.57	0.499	0.88	0.329
	10	0.65	0.482	0.71	0.459	0.66	0.477	0.97	0.184
Level	Re	0.45	0.501	0.48	0.504	0.46	0.502	0.74	0.442
	Un	0.43	0.499	0.53	0.503	0.45	0.501	0.91	0.283
	Ap	0.55	0.272	0.61	0.357	0.56	0.283	0.86	0.226
	An	0.65	0.482	0.71	0.459	0.66	0.477	0.97	0.184
Test		0.51	0.192	0.57	0.186	0.52	0.181	0.83	0.141

Legend: Re – remembering, Un – understanding, Ap – application, An – Analysis

In the pre-test, the overall mean rate of success in the control group was 51.2% (SD = 0.192) and that of the experimental group was 57.4% (SD = 0.186). The difference in the overall mean rate of success in the experimental and control groups in the pre-test was not statistically significant ($p = 0.083$). In the post-test, the overall mean rate of success in the control group was 52.5% (SD = 0.181) and that of the experimental group was 82.6% (SD = 0.141). The overall average achievement of students in the control group did not change significantly compared to the pre-test. However, the overall mean achievement of students in the experimental group compared to the pre-test improved by 25.2%. In the experimental group, the improvement in the post-test can be seen on all four levels of the cognitive process, i.e. knowledge (SD = 0.442), understanding (SD = 0.283), application (SD = 0.226), and analysis (SD = 0.184).

The results of Mann-Whitney U test (pre-test and post-test, control vs. experimental groups, student gender) can be seen in Table 6 and Table 7.

Table 6: Pre-test and post-test results in the control and experimental groups – Mann-Whitney U test

		Pre-test				Post-test			
		Mann-Whitney U	Wilcoxon W	Z	p	Mann-Whitney U	Wilcoxon W	Z	p
		Task	1	1816.000	3961.000	-0.405	0.686	1357.500	3502.500
2	1751.000		3896.000	-0.785	0.433	1325.000	3470.000	-3.346	0.001
3	1880.000		4025.000	-0.032	0.975	1201.000	3346.000	-4.012	<0.001
4	1675.500		3820.500	-1.231	0.218	1278.500	3423.500	-3.787	<0.001
5	1712.500		3857.500	-1.064	0.287	1351.500	3496.500	-3.676	<0.001
6	1798.500		3943.500	-0.508	0.611	1372.500	3517.500	-3.180	0.001
7	1780.000		3925.000	-0.614	0.539	1328.500	3473.500	-3.304	0.001
8	1770.500		3915.500	-0.715	0.475	1344.500	3489.500	-3.929	<0.001
9	1730.000		3875.000	-0.918	0.359	1300.500	3445.500	-3.789	<0.001
10	1770.500		3915.500	-0.715	0.475	1312.000	3457.000	-4.229	<0.001

Level	Re	1816.000	3961.000	-0.405	0.686	1357.500	3502.500	-3.141	0.001
	Un	1689.500	3834.500	-1.145	0.252	1003.500	3148.500	-5.470	<0.001
	Ap	1596.000	3741.000	-1.535	0.125	810.500	2955.500	-5.785	<0.001
	An	1770.500	3915.500	-0.715	0.475	1312.000	3457.000	-4.229	<0.001
	Test	1547.500	3692.500	-1.732	0.083	382.500	2527.500	-7.686	<0.001

Legend: Re – remembering, Un – understanding, Ap – application, An – Analysis

Table 7: Pre-test and post-test results in the control and experimental groups according to student gender – Mann-Whitney U test

		Pre-test				Post-test			
		Mann-Whitney U	Wilcoxon W	Z	p	Mann-Whitney U	Wilcoxon W	Z	p
		Level	Re	1840.500	3670.500	-0.290	0.772	1743.000	3759.000
Un	1630.500		3646.500	-1.517	0.129	1398.000	3414.000	-3.049	0.002
Ap	1824.500		3840.500	-0.347	0.728	1768.500	3784.500	-0.653	0.514
An	1675.500		3505.500	-1.338	0.181	1626.000	3456.000	-1.946	0.052
Test	1752.500		3768.500	-0.705	0.481	1609.500	3625.500	-1.433	0.152

Legend: Re – remembering, Un – understanding, Ap – application, An – Analysis

The statistical verification of the post-test and pre-test results in the control and experimental groups showed statistically significant changes in the experimental group. The Mann-Whitney U test was used to test the research hypotheses; the criterion for accepting a hypothesis is $p < 0.05$ and for rejecting a hypothesis is $p > 0.05$. The results of hypothesis testing are listed in Table 8.

Table 8: Hypothesis testing results – Mann-Whitney U test

Hypothesis	Z	p value	Conclusion
H ₁ (Post-test)	-7.686	0.000	Accepted.
H ₂ (Remembering)	-3.141	0.001	Accepted.
H ₃ (Understanding)	-5.470	0.000	Accepted.
H ₄ (Application)	-5.785	0.000	Accepted.
H ₅ (Analysis)	-4.229	0.000	Accepted.
H ₆ (Gender)	-1.433	0.152	Rejected.

5 Discussion and conclusion

The presented research aimed to identify the effect of formative assessment implemented into teaching Chemistry at primary schools on the development of conceptual understanding in students. The results indicated that the implementation of selected formative assessment tools in teaching was more efficient in terms of developing conceptual understanding as can be seen in the fact that Hypothesis 1 was accepted. The post-test results indicated overall better results in the experimental group in comparison to the control group and the difference was statistically significant ($p < 0.05$). This result is consistent with other research results investigating the effect of formative assessment on the improvement of conceptual understanding in students (Herman & Choi, 2008; Kennedy, Brown, Draney, & Wilson, 2005; Ozan & Kincal, 2018; Shute, 2008), student performance, and the overall quality of education (Allal & Lopez, 2005; Bell & Cowie, 2001; Black & Wiliam, 1998a; Black & Wiliam, 1998b; Black & Wiliam, 2005; Brookhart, 2008; Flórez & Sammons, 2013; Fluckiger, Vigil, Pasco, & Danielson, 2010; Hattie & Timperley, 2007; OECD, 2005; Wiliam, 2010).

A detailed analysis of the test tasks showed the positive effect of formative assessment not only on the lower-order cognitive processes (remembering and understanding), but also the higher-order ones (application and analysis). The statistical analysis confirmed significant differences between the experimental and control groups on the levels of knowledge, understanding, application, and analysis. The results may result from the fact that the implementation of formative assessment tools in the teaching process promotes the development of higher-order

cognitive processes by asking questions and training critical thinking (Brookhart, 2010; Butakor, 2016; Ghani, Ibrahim, Yahaya, & Surif, 2017; Kluger & DeNisi, 1996; Sadler, 2010). FACTs have been designed with the aim to encourage students not only to search for the answers to their questions, but also to explain their ideas and propose solutions, discuss them with their peers, and provide arguments to justify their conclusions. FACTs focused on feedback collection via questions also promote the development of critical thinking, which provides students with an opportunity to acquire a deeper understanding of the subject matter (Marshall, 2007; OECD, 2005). In turn, lower performing students are improving (Boston, 2002; McMillan, 2007).

However, no statistically significant difference was identified in the level of conceptual understanding in boys vs. girls. Therefore, Hypothesis 6 was rejected. The results presented are consistent with the results of the PISA science literacy testing of Slovak students in 2018: "Science literacy is the only area in which, across all cycles, there is no statistically significant difference between the performance of SR boys and SR girls" (Miklovičová & Valovič, 2019).

As the presented results suggest, in terms of developing conceptual understanding, the implementation of formative assessment tools in teaching Chemistry is more than justified. However, the pedagogical practice faces a number of obstacles that need to be gradually eliminated. The structured interviews performed by the experts in subject didactics with the teachers involved in the research after the completion of the experimental stage showed the following: (1) these teachers are open to new challenges related to the implementation of formative assessment tools, (2) they are willing to accept assistance in the form of instruction seminars where they can exchange knowledge and experience, (3) they have access to a FACTs database from which they can choose tools based on the specificities of their classroom groups, students, and subject matter, (4) using FACTs prevents stereotype in the education process, (5) teachers prefer freedom in decision-making, planning, and use of FACTs in their teaching. The teachers' ability to choose FACTs on their own has been previously shown to be beneficial. For example, Babinčáková, Ganajová, Sotáková, and Bernard (2020) have investigated what would happen if they chose FACTs for primary school Chemistry teachers in advance without letting them modify the tools. The teachers involved in their study were teaching the "Mixtures" thematic unit in the 7th grade. Both liberal and strict approaches to the choice of specific FACTs for teaching and the teachers' ability to modify them have been shown to improve conceptual understanding, knowledge, and skills in students. However, based on the available comparison, it can be stated that if a teacher can choose FACTs based on the composition of students and classroom climate, it helps them avoid slipping into their mechanical use.

In conclusion, the structured interviews indicated that the teachers involved in this research developed an internal conviction about the importance of formative assessment. They expressed their wish to continue using the FACTs database in their teaching and even create their own FACTs for more topics.

Research limitations

The results presented could have been influenced by the following factors.

The teachers involved in this research had access to a database of formative assessment tools. These teachers chose and used these FACTs as they deemed suitable. However, if a teacher does not have access to ready-made FACTs or has a negative attitude to using formative assessment tools in general, the ultimate results may not be that significant.

In this case, the research sample consisted exclusively of active teachers open to new methods; they had attended instruction seminars and learned how to use FACTs in practice.

Other limits include the relatively small sample of teachers and primary school students. On the other hand, the formative assessment tools were implemented during the same period and

in teaching of the same topics, therefore it can be stated that using FACTs in teaching indeed does improve conceptual understanding on all levels of the Bloom's taxonomy.

The limitations of teaching using formative assessment as such include its time-consuming and more demanding nature, the necessity of training, and the fact that its results only become visible after a longer period of time, which may demotivate the teachers. In this research, the aforementioned limitations were eliminated by preparing formative assessment tools in advance to minimise the preparation time and also by providing expert consulting and methodological support to the teachers involved.

Acknowledgements

This research was supported by the KEGA No. 004UPJŠ-4/2020 "Creation, Implementation, and Verification of the Effectiveness of Digital Library with the Formative Assessment Tools for the Natural Sciences, Mathematics and Informatics at the Elementary School" grant.

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Primary Paper Section: A

Secondary Paper Section: AM

DETERMINATION OF THE LEVEL OF INNOVATIVE ACTIVITY OF GAS DISTRIBUTION ENTERPRISES OF THE WESTERN REGION OF UKRAINE

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Abstract: The gas transformations of the last twenty years in the regional gas distribution markets are increasingly forming deep system-structural processes. Even though the discrepancy between the available supply of gas resources and the reduction in the intensity of the aggregate description should consider the main prerequisites that underlie the transformation of gas market trends in countries and regions. It should be noted that for a long time, given the importance of the functioning of the subjects of gas distribution networks, they face an environment of complete instability, chronic political and economic crises, distributed infrastructure, and so on.

Keywords: the level of innovation, innovative activity, gas, gas distribution, region of Ukraine

1 Theoretical background,

Therefore, it is the obvious and temporary organizational and economic process through the restructuring of order to reduce the level of imbalance in the regional gas market, to predict a retrospective institutional unit of the studied markets, which will intensify financial activity in the long run, structuring the appropriate structure of this project. Therefore, it is not surprising that for a long time now the issues related to the functioning of regional gas distribution markets have been in the field of view of scientists and practitioners and abroad. The scientific and practical achievements of such well-known researchers as S. Grubyak (2018, p. 342), V. Kupchak (2019, p. 87–108; 2019, p. 54–61), M. Korotyа (2020), P. Linchevska (2015, p. 301), O. Pavlova, K. Pavlov (2019, p. 87–108; 2019, p. 54–61; 2020; 2021, p. 1073–1084) deserve special attention.

Some modernized innovative spectra of development among gas distribution companies in the context of the impact of their competitiveness are covered in scientific achievements: M. Korotyа (2020), V. Kupchak (2019, p. 87–108; 2019, p. 54–61), O. Novosad (2020), O. Shandrivska (2002), L. Goral (2016, p. 120–124.), S. Korol (2016, p. 120–124.), O. Dzioba (2012, p. 352).

Classical principles of the institutional direction were studied by well-known founders of economics: M. Veblen (2004, p. 99–111), A. Marshall (1993, 239 p).

However, several issues remain unresolved, which are related to the little-studied scientific and practical combination of institutional theory under the conditions of total monopolization of gas distribution companies in the Western region of Ukraine. This symbiosis combines at the systemic mesoeconomic level the peculiarity of classical market theories with the further development of the hypothesis of stimulating gas distribution network institutions in the Western region, in the context of a liberalized gas distribution environment that will form the principles of efficiency, reliability, and security of gas supply and distribution.

It is known that the innovative activity of any enterprise is to implement developments and various types of research, acquisition of new technological solutions and licenses for specialized industry activities, expansion of its production and service capabilities, and more. In turn, now, when the natural gas distribution service in regional markets is at the stage of

competitive civilized formation and development, regional gas distribution system operators have turned their attention to the end-user - providing the highest level of distribution service and subsequent service. To date, we can see the opening of the most progressive "regional gas" in the regions of the country network of Customer Service Centers (CSC) (Malinka, 2010).

In turn, since the CSCs are the subjects of infrastructural support of the institutional environment of the regional markets for natural gas distribution and the plane of operation of gas distribution companies; At the same time, the opening of CSCs requires the involvement of hydraulic fracturing in a wide range of innovative solutions, we consider this a reflection of the level of innovative activity of hydraulic fracturing, which directly affects the regional institutional environment of regional gas distribution network operators.

It should be noted that the situation in the regions of the western regional market of natural gas distribution in Ukraine is quite different. In some oblasts of the Western region of Ukraine, we can observe extensive branches of CSCs in others - their absence.

Important for the competitiveness of gas markets is the activity of Customer Service Centers (CSCs), which provide a wide range of services - "from concluding contracts, issuing certificates and consultations on personal accounts, to the technical documentation for connection to the gas network." (Website for natural gas consumers; Where natural gas is taken and delivered to consumers)

2 Theoretical background

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3 Research methodology

Indicators of the effectiveness of CSC's. Due to the incomplete availability of indicators of CSC's activity, those that can be used in our study were identified:

- the ratio of the permanent population of the region to the number of CSC's, thousand people/unit - this indicator characterizes the potential burden on the CSC and how many people can serve.
- the ratio of the number of households that applied for subsidies for the purchase of liquefied gas, solid and liquid fuels to the number of CSC's in the region - this ratio characterizes how many people applied to CSC's for gas subsidies during the year.
- specific share of households that receive subsidies for the purchase of liquefied gas, solid and liquid fuels to the number of CSC's in the region - with this indicator we can assess the effectiveness of CSC's, in other words, how many people received positive responses to subsidies.
- the ratio of the average number of employees to the number of CSC's, thousand people/unit - this ratio reflects the human costs of CSC activities and allows you to compare the effectiveness of CSC's in terms of staffing and assess how "inflated" staff CSC's.
- the ratio of material costs to the number of CSC's, thousand UAH / units - shows the costs of functioning of the CSC. The lower this figure, the more efficient the gas distribution company.
- return on assets in terms of CSC, UAH - characterizes the efficiency of the CSC in the context of return on assets per CSC.
- return on equity in terms of CSC, UAH - characterizes the efficiency of the CSC in the context of return on equity per CSC.

To calculate the integrated indicator of innovation activity, it was necessary to investigate the various indicators of economic, social, and economic development of the gas distribution company, regions, industries used in the calculations, convert into a comparable form normalize. The rationing process itself can be divided into the following stages (Zakhzhay, 2015.).

1. Formation of initial data (system of analytical indicators). For this purpose, a wide range of statistical and financial information, information on economic, social, and economic activities of the surveyed companies for 2015-2019 were collected.
2. Standardization (rationing) of analytical indicators. The transition from absolute and/or relative values to normalized, which characterizes the degree of approximation to the optimal value. The calculation of normalized values was carried out according to the following formula:

$$\bar{x}_i = \frac{x_i - x_{min}}{x_{max} - x_{min}}, i = \overline{1, n}, \quad (1)$$

where n - is the number of statistics or the number of points in the time series (sample length).

3. Consolidation of values of analytical indicators in the form of synthetic, as well as delineation of local indicators. To consolidate the analytical indicators, local indicators and values were determined, which were calculated as a generalized sum of normalized values with certain separately determined weights (in our case, we assume that they are the same):

$$I = \sum_{i=1}^n \sum_{j=1}^m k_j \bar{x}_{ij}, \quad (2)$$

4. Calculation of the integrated indicator and assignment of a rating. This indicator was determined by the sum of synthetic and local indicators.

4 Results and discussion

As noted earlier in the text, in modern conditions, especially important for the institutional environment in regional natural gas markets are the networks of Customer Service Centers. Their main purpose is to provide the last link in the environment of regional markets for production, transportation, distribution and consumption of natural gas - consumers: the highest level of service and the widest range of services, consisting in concluding new or extending existing service agreements; issuance of the necessary certificates and maintenance of other accompanying documentation; consulting services on the status of the main subscriber account; preparation and execution of the necessary technical documentation for connection to regional (local) gas distribution networks, etc.

In this regard, we decided to conduct an additional study of the level of innovation activity of regional gas distribution companies, regional markets for natural gas distribution - a direct reflection of which is the level of intensification of construction and further expansion of customer service centers, which we later reflected as rating indicator based on the integrated values of the data processed by us.

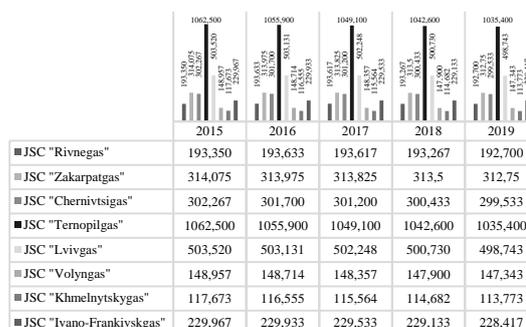
From so, we will analyze the main components of the integrated indicator of innovative activity of gas distribution companies in the Western region of Ukraine - the branching of the system of CSC, which has the following form:

1. JSC "Volyngas" - 7 CSCs (Cities: Lutsk, Kovel, Kamin-Kashirsky, Volodymyr Volynsky, Ratne, Kivertsi, Gorokhiv);
2. JSC "Rivnegas" - 6 CSCs (Cities: Rivne, Zdolbuniv, Sarny, Dubne, Berezne, Kostopil);
3. JSC "Ivano-Frankivskgas" - 6 CSCs (Cities: Ivano-Frankivsk, Kalush, Kolomyia, Nadvirna, Dolyna, Sniatyn);
4. JSC "Ternopilgas" - no CSCs.
5. JSC "Lvivgas" - 5 CSCs (Cities: Lviv, Sambir, Chervonohrad, Stryi, Pustomyty);
6. JSC "Zakarpagatgas" - 4 CSCs (Cities: Uzhgorod, Mukachevo, Khust, Svalyava);
7. JSC "Khmelnitskygas" - 11 CSCs (Cities: Khmelnytsky, Kamyansky-Podilsky, Slavuta, Volochysk, Izyaslav, Krasyliv, Starokostiantyniv, Bilogirya, Gorodok, Polonne, Yarmolyntsi);
8. JSC "Chernivtsigatgas" - 3 CSCs (Cities: Chernivtsi, Kitsman, Sokyryany).

Let us dwell in more detail on individual indicators.

1. The ratio of the permanent population of the region to the number of CSCs (Fig. 1).

Fig. 1. The ratio of the permanent population of the region to the number of CSCs in the Western regional market of natural gas distribution, thousand people/unit, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)

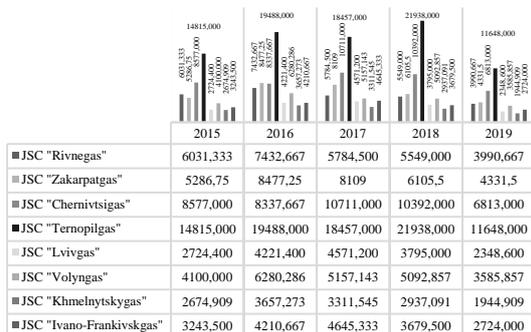


As we can see, it is for JSC "Ternopilgas" is the most intense burden on the population of the Central Election Commission.

For example, if one CSC in Khmelnytsky region has 113.7 thousand people, the permanent population in the region, in the Ternopil region - 1035.40 thousand people, where CSCs are absent. That is, the load on the activities of Ternopilgas is significantly higher compared to other gas distribution companies in the Western region. Of course, this phenomenon is quite negative, because the quality of the provided distribution service among natural gas consumers suffers from the overload.

2. The ratio of the number of households that applied for subsidies for the purchase of liquefied gas, solid, and liquid furnace household fuel concerning the number of CSCs operating within the coverage area of the gas distribution company (regional gas) (Fig. 2).

Fig. 2. The ratio of the number of households that applied for subsidies to reimburse the costs incurred for the purchase of natural gas and cover the costs of transportation of natural gas, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)

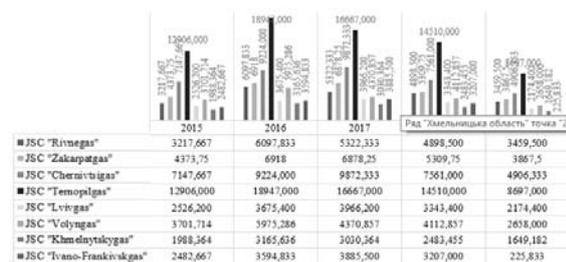


Confirmation of the negative trend for JSC "Ternopilgas" is the statistical significance of the indicator on household applications to obtain a subsidy to reimburse the costs incurred for the purchase of natural gas and to cover the costs of natural gas transportation.

After all, for example, in 2019, one CSC in Ivano-Frankivsk region accounted for 225.8 households, and in the Ternopil region, in turn, this figure was - 11,648 households. This situation illustrates the low level of competitiveness of JSC "Ternopilgas" in the regional market of natural gas distribution.

3. A Specific number of households to which subsidies are assigned to reimburse the costs incurred for the purchase of natural gas and to cover the costs of natural gas transportation to the number of CSCs operating within the scope of coverage by the gas distribution company (regional gas). This indicator characterizes the level of satisfaction of the needs of its hydraulic fracturing consumers in terms of CSCs (Fig. 3).

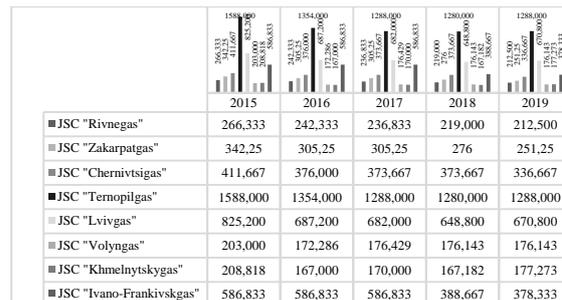
Fig. 3. A specific number of households to which subsidies are assigned to reimburse the costs incurred for the purchase of natural gas and to cover the costs of natural gas transportation to the number of CSCs in the Western regional market for natural gas distribution, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)



It is worth noting that for all gas distribution companies in the Western region, starting from 2016, there is a tendency to reduce the number of households that received subsidies to reimburse the costs incurred for the purchase of natural gas and to cover the costs of natural gas transportation. If we analyze this indicator in terms of CSCs, then again, the greatest burden on staff is on JSC "Ternopilgas".

4. The ratio of the average number of employees to the number of CSCs, thousand people/unit. (Fig. 4).

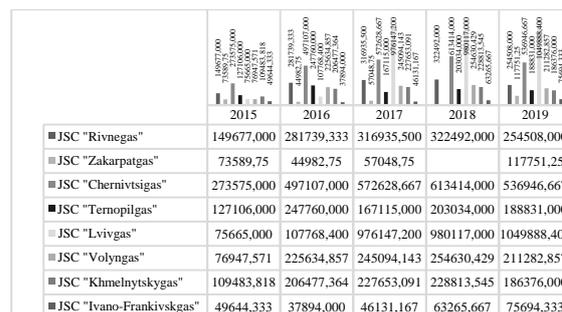
Fig. 4. The ratio of the average number of employees to the number of CSCs in the Western regional market of natural gas distribution, thousand people/unit, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)



If we consider the labor supply of gas distribution companies in the Western regional market of natural gas distribution in terms of networks of CSCs, then again, the Ternopil region is in the last place. In 2019, 1 CSC managed by JSC "Volyngas" or JSC "Khmelnytskygas" had 176-177 people. Instead, for JSC "Ternopilgas" the value of this indicator was as much as - 1288 people. For comparison, in JSC "Lvivgas" the indicator is on the mark - 670.8 people, which is also a rather negative trend.

5. The ratio of material costs of gas distribution companies to the number of CSCs under their control, thousand UAH / unit. In general, the reduction of this indicator is optimal for any regional gas distribution company (Figs. 5, 6, 7).

Fig. 5. The ratio of material costs of fracturing to the number of CSCs under their jurisdiction, thousand UAH / unit, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)



However, according to this indicator, JSC "Lvivgas" is already not innovative enough, as the cost of servicing 1 CSC for this hydraulic fracturing in 2019 amounted to more than UAH 1 million.

At the same time for JSC "Ivano-Frankivskgas", this figure was about - 75 thousand per year. In our opinion, this situation is explained by the branching of the CSC of hydraulic fracturing networks in the region. Also, the return on assets and equity in terms of CSC, thousand UAH / unit for the studied hydraulic fracturing of the Western region is quite low (Fig. 6, 7).

Fig. 6. Return on assets in terms of CCC in the Western regional market of natural gas distribution, thousand UAH / unit, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)

	2015	2016	2017	2018	2019
■ JSC "Rivnegas"	-0.019	-0.001	-0.006	-0.042	-0.035
■ JSC "Zakarpogas"	-0.04968666	0.009481467	0.000970893	0.114238163	0.166545169
■ JSC "Chernivtsigas"	-0.074	-0.010	0.164	0.320	-0.318
■ JSC "Ternopilgas"	-0.113	-0.126	-0.053	-0.402	-0.734
■ JSC "Lvivgas"	-0.020	-0.005	0.033	-0.087	-0.044
■ JSC "Volyngas"	-0.022	0.000	-0.019	-0.041	-0.019
■ JSC "Khmelnytskygas"	-0.003	0.000	-0.019	-0.022	-0.020
■ JSC "Ivano-Frankivskgas"	-0.021	0.000	-0.005	-0.068	-0.105

Fig. 7. Return on equity in terms of CSC in the Western regional market of natural gas distribution, thousand UAH / unit, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)

	2015	2016	2017	2018	2019
■ JSC "Rivnegas"	-0.170	-0.027	-0.499	0.184	0.075
■ JSC "Zakarpogas"	-0.300807994	-0.03659935	0.005212892	0.401186463	0.178429002
■ JSC "Chernivtsigas"	0.457	0.077	-0.374	-0.347	0.188
■ JSC "Ternopilgas"	-0.331	-0.794	-0.495	2.446	0.803
■ JSC "Lvivgas"	-0.085	-0.051	-0.492	0.165	0.068
■ JSC "Volyngas"	-0.007	-0.004	-0.061	0.127	0.049
■ JSC "Khmelnytskygas"	-0.007	-0.004	-0.061	0.127	0.049
■ JSC "Ivano-Frankivskgas"	-0.205	0.005	-0.026	0.484	0.140

To unify and better visualize the results of our study, was constructed, which shows a generalized indicator of the dynamics of the integrated indicator of innovative activity of gas distribution companies in the Western region of Ukraine for the period 2015-2019.

At this stage, only JSC "Lvivgas" and JSC "Ivano-Frankivskgas" show tendencies to increase the level of innovation activity. The rest of the fracturing of the Western region is showing a decline.

Table 9 shows the numerical value of the results of the calculations of innovation activity, as well as the rating position of each of the gas distribution companies operating within the Western regional market of natural gas distribution.

As can be seen from Table 1, at the end of 2019 the worst indicator is for JSC "Rivnegas" (8th place in the last three years) and JSC "Ternopilgas" is in 7th position. The main factors in this, in our opinion, maybe the loss of companies and inefficient branching of CSCs.

Table 1. Integral value and rating indicator of innovative activity of gas distribution companies in the western region of Ukraine, (State Statistics Service of Ukraine; Where natural gas is taken and delivered to consumers; Website for natural gas consumers)

	2015		2016		2017	
	Integral value	Rating indicator	Integral value	Rating indicator	Integral value	Rating indicator
JSC "Volyngas"	0.013	6	0.112	3	0.132	2
JSC "Rivnegas"	0.004	7	0.014	7	0.018	8
JSC "Ivano-Frankivskgas"	0.062	1	0.037	5	0.054	6
JSC "Ternopilgas"	0.039	3	0.145	1	0.066	5
JSC "Lvivgas"	0.001	8	0.002	8	0.123	4
JSC "Zakarpogas"	0.048	2	0.019	6	0.029	7
JSC "Khmelnytskygas"	0.033	4	0.116	2	0.141	1
JSC "Chernivtsigas"	0.028	5	0.094	4	0.125	3
	2018		2019			
JSC "Volyngas"	0.143	1-4	0.098	5		
JSC "Rivnegas"	0.018	8	0.011	8		
JSC "Ivano-Frankivskgas"	0.1	7	0.143	1-2		
JSC "Ternopilgas"	0.098	6	0.083	7		
JSC "Lvivgas"	0.125	5	0.143	1-2		
JSC "Zakarpogas"	0.143	1-4	0.121	3		
JSC "Khmelnytskygas"	0.143	1-4	0.095	6		
JSC "Chernivtsigas"	0.143	1-4	0.109	4		

5 Conclusion

As a result of our complex calculations of a wide range of performance indicators of gas distribution companies in the Western region of Ukraine allowed to obtain an integral value of the efficiency and innovation activity of each of the surveyed companies in terms of 2015-2019. The results indicate the ambiguity of the positions of each gas distribution company in the Western region of Ukraine. However, the highest level of competitiveness in 2018-2019 was observed at JSC "Zakarpogas". For the last two years, JSC Ternopilgas has remained problematic in this sense. The lowest competitiveness indicator for 2019 was recorded at Rivnegas JSC. The effective value of the integrated indicator of innovation activity indicates an increase in the level of the latter only at JSC "Lvivgas" and JSC "Ivano-Frankivskgas". Other gas-sharing enterprises in the western region of Ukraine are showing a decline.

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Primary Paper Section: A

Primary Paper Section: AH

IDENTIFICATION OF THE USE OF REVENUE MANAGEMENT TOOLS IN ACCOMMODATION SERVICES

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Abstract: The presented paper focuses on the problem of using revenue management tools in the hospitality industry. The research uses a quantitative method based on the questionnaire (n = 254). The research locality is the Czech Republic, and the survey was done during the years 2017 - 2021. One of the results says that tools based on the price are more often used than tools based on the managing capacity. The most typical tool related to the price is discounts and the intuition of the responsible person. Based on the hypothesis testing, we can say that dynamic prices and tools that work with occupancy are used in the larger hotel more often.

Keywords: Accommodation, Hotel, Hospitality, Revenue Management

1 Introduction

The presented article is focused on determining the rate of use of revenue management tools in the hotel industry in the Czech Republic. Revenue management is a crucial discipline whose foremost objective is to maximize revenue, which should, however, always respect the sub-objectives of the company as a whole. Among the tools used in revenue management, two primary groups can be mentioned: price and non-price instruments (Ivanov, 2014). Non-price instruments include, in particular, capacity adjustment instruments and other instruments (for more, see Ahmad et al., 2016; Belobaba, 1987; Li and Ma, 2016 or Valdés, 2005).

The research, which is the subject of this article, aims to identify the level of use of revenue management tools in accommodation services. The identification was based on a quantitative study using a questionnaire survey. For selected characteristics, which were determined in the questionnaire survey, hypotheses were tested to ascertain a statistically significant relationship. The evaluation was performed based on the following two-side hypothesis tests:

$$H_0: r = 0$$

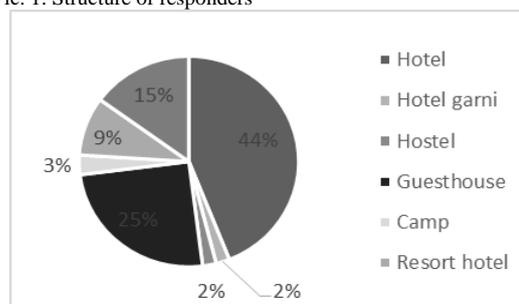
$$H_A: r \neq 0$$

The tools are mainly used to discuss dynamic prices in the current conditions (e.g. Bandalouski et al., 2021; Aziz et al., 2011 or Vives et al., 2018). Valdés (2005) describes tools that adjust the selling price and their importance for accommodation facilities. It was concluded that the correct combination of price and prediction models is crucial for accommodation. Raza (2015), for example, states a different approach to working with price through the so-called differentiation. A combination of price optimization and more advanced tools using knowledge of the behaviour of individual segments is presented in a study from 2019 (Vives et al., 2019). In addition to price and quantity adjustment tools, emphasis is often placed on tools that work with the prediction (Pereira, 2016). A survey with a similar focus as in this article was conducted in Italy (Ivanov et al., 2021). The key findings of the research show that individual accommodation facilities are not uniform in the practical application of revenue management, and what plays a crucial role in distinguishing whether an accommodation facility applies revenue management at an adequate level is, in particular, the size, location and class of the hotel. Similar output of this research was published in the monograph published in 2021 (Petříček, 2021). The output presented in this article is based on the same questionnaire but use higher and different number of questionnaires obtained.

2 Materials and methods

The questionnaire survey was carried out by collecting data in the years 2017 - 2021. The subject of the research was accommodation facilities in the Czech Republic. More than 3,000 respondents were contacted, and 254 relevant questionnaires were obtained. The structure of the respondents is shown in the following chart (Pic. 1).

Pic. 1: Structure of responders



Source: own processing

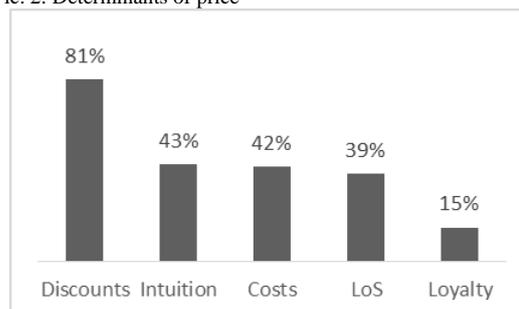
A total of 63 questions were divided into factual and identification questions. Substantive issues are further divided into eight sub-categories focusing on specific approaches. These are the following classifications: pricing instruments, quantitative instruments, distribution channels, prediction instruments, segmentation instruments, random instruments, competition analysis and general revenue management issues. Identification questions focus mainly on the type of accommodation, size, geographical location, or other specifics.

3 Results

The primary outputs are commented on based on the division of individual questions. First, a basic summary is given. The following section comments on more advanced approaches to evaluation by testing the hypotheses presented in the article's introduction.

The majority (68%) of accommodation establishments stated that they worked with the so-called dynamic pricing, claiming that they considered the competition's price to be the primary way of creating a dynamic price, from which they reflected their price level. Current occupancy has been identified as the second most common element that determines dynamic pricing. More than 30 % of respondents noted that they work with price dynamically and price elasticity is also the least used element when working with a dynamic price. When working with the price, it is also interesting to conclude about the essential tools that are used in creating prices (regardless of whether the accommodation facility works with a dynamic price). The summary is shown in the following picture 2.

Pic. 2: Determinants of price

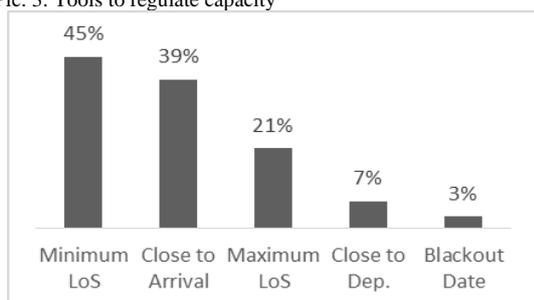


Source: own processing

The most crucial element that is reflected in the creation of prices was the provided discounts - according to the answers, 81% of respondents use them. The second most common element reflected in pricing is the intuition of the responsible person. An interesting fact is that only 43% of respondents work with costs when creating a price. Not even half of those accommodation facilities that work with costs regularly calculate fixed and variable costs. In the analysis of working with price, it was possible to argue that most accommodation facilities understand working with price as a dynamic process. However, it should be noted that many accommodation capacities do not use this approach's potential. Overall, working with the price can be considered less sophisticated and complex.

In working with quantity, it is evident that 63% of respondents regularly monitor occupancy. Overbooking is mentioned as the primary strategy when handling the capacities. 59% of respondents know and use this strategy. Accommodation establishments that do not use an overbooking strategy do not use it primarily for two reasons. The first reason is the riskiness of the strategy, and the second reason is the ignorance of the calculation of the recommended value of overcapacity reservations. In contrast, the strategy based on booking limits is relatively unknown and is used mainly by large accommodation capacities. Of the tools used to work with quantities, these are primary tools of the minimum length of stay and proximity of arrival, the so-called soft close or Close to Arrival. The tool that limits the maximum length of stay is then used the least. However, 31% of accommodation establishments stated that they did not use any capacity tool regularly. For more detailed information see pic. 3.

Pic. 3: Tools to regulate capacity



Source: Own processing

More than 80% of accommodation facilities stated that they were working with the expected occupancy or predicting the requested quantity. However, the majority (73%) use the naive prediction method. Only 18% of accommodation capacities work with the fact of events. Concerning price and accommodation capacity management, it is also necessary to set the correct sales targets. These targets are not set at all for 18% of respondents. If goals are set, then the goal is most often associated with achieving the planned occupancy. This works for more than 40% responders.

A more detailed evaluation of the fundamental research focused on five primary areas of questions, which were evaluated based on hypothesis testing. Testing was performed at a reliability level of $\alpha = 0.05$. The summary of the results commented below are presented in the following table 1.

Tab 1: Hypotheses testing

Test	P-value
dynamic price vs. size	0,00962
occupancy vs. size	0,03768
overbooking vs. size	0,68080
booking limits vs. type	0,77710
size vs. using RM	0,00645
type vs. using RM	0,01860

Source: own processing

The first part focused on the question of whether there is a statistically significant correlation between the rate of use of the

dynamic price and the size of the surveyed accommodation facilities. At a reliability level of $\alpha = 0.05$, it has been shown that there is a statistical relationship between the size of the accommodation and the rate of use of the dynamic price. The null hypothesis of the absence of a statistically significant correlation was rejected. As the size of the accommodation grows, so does the work along with the dynamic price. The second part focuses more on whether there is a relationship between the occupancy rate and the size of the accommodation. Thus, a reasonable hypothesis about the non-existence of such a relationship (built as a null hypothesis) was tested. Based on the Spearman's rho test, the null hypothesis favouring a significance level of $\alpha = 0.05$ was rejected in favour of the alternative hypothesis. Based on the positive value of the correlation coefficient, it turns out that with the growth of the size of the accommodation facility, occupancy (or its intensity in terms of regularity of monitoring) is worked on more often. On the contrary, such accommodation facilities, which have a small capacity, do not often monitor their occupancy. The third relationship tested focused on the issue of determining the value of the overbooking as a specific percentage of accommodation capacity concerning the size of the accommodation facility. Thus, the hypothesis of whether there is (or does not exist) a statistically significant relationship between the size of the percentage of offered accommodation capacities above capacity and the size of the accommodation facility is tested. The p-value reaches 0.6808, so the null hypothesis was not rejected. Thus, there was no statistically significant relationship between the overbooking level and the accommodation size. The fourth area focuses in more detail on the issue of using the so-called booking limits. An important question, which arose indirectly from the previous basic summary of the questionnaire survey, concerns the finding of a relationship between the accommodation type and the non-use of booking limits. In this case, the type of accommodation was evaluated. The null hypothesis was not rejected, and thus a statistically significant relationship between the type of accommodation facility and the non-use of the booking limits strategy was not demonstrated. It can therefore be argued that this strategy is not used similarly in all types of accommodation. The fifth relationship tested focuses on whether there is a relationship between the size and type of accommodation and the use of revenue management tools. Thus, two pairs of hypotheses (size and type of accommodation) were tested. The tests lead to a simple conclusion that a statistical dependence on the use of revenue management tools was demonstrated between the type and size of the accommodation facility, with the result that as the size and importance of the accommodation facility increases, so does the use of revenue management tools. Therefore, larger accommodation capacities work with these tools more often than smaller ones.

4 Conclusion

One of the main result from the presented research is that accommodation facilities are not uniform when in using revenue management. Based on the above, it can be concluded that revenue management is a well-known discipline but is still used by more extensive accommodation facilities. If we consider a group of tools working with a price and a group of tools working with a quantity as an essential pair of tools, it turns out that much more often, only work with the price is done and working with quantity is solved less often or not at all. It is true that even though working with a price is understood as working with a dynamic price, this price is often determined only based on the intuition of the responsible person. This element also encounters another fact that emerges from the questionnaire survey: the short work with price elasticity as a primary element usable in price optimization. Although the original logic of revenue management is based on booking limits, work with them is limited to a few accommodation capacities (all of which can be described as large hotels). Nevertheless, the size or type of accommodation is not related to the non-use of this strategy. In addition to booking limits, overbooking is a much better-known strategy, which is also a more widely used strategy. However, those accommodations that do not use it consider it too risky.

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Primary Paper Section: A

Secondary Paper Section: AH

METAPHOR IN POLITICAL LANGUAGE AS A MECHANISM FOR MODELING

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This paper is published with the financial support of Scientific Grant Agency and the VEGA project Nr.1/0437/19 The importance of the internationalization of higher education for the construction of identity of the European Union and increasing competitiveness in the European area.

Abstract: In our paper, we focus on a comparative approach to conceptual metaphor on the example of socio-political events in Europe, we examine their reflection in German language. On the basis of a retrospective method of analysis of metaphorical models in German discourse, their classification based on unified basis of imagery, at the same time we will pay attention to their specific elements. We examine whether certain metaphorical models are created in the language (in our case, the German language) and whether a particular social event influences the language to such an extent that a metaphorical system with possible frames is created in it, resp. conceptual metaphor as a result of the research into socio-political discourse of a specific developmental stage of society, in our case the first half of the 21st century.

Keywords: political language, metaphor, metaphorical system, figurative metaphorical terms, meaning

1 Introduction

Language is one of the important tools of the whole global society. The change in the socio-political situation in society is closely related to the dynamics of the development of the lexicon which directly describes and reflects the whole events around us. We can therefore rightly assume that it is the development of society, its value setting, lifestyle or morality that is thus reflected directly on the language level. Within politics, of course, the political vocabulary of its main actors changes. Although the identification of political language as one of the professional languages is not as unambiguous as in other scientific disciplines, its research is currently growing significantly, with linguists, sociologists, translators, political scientists, etc. Metaphor as a carrier of imagery and one of the frequent means of an expression in the professional language is an important phenomenon not only in language but also in the whole society. It presents the activities of man and society, reveals his identity and culture. As the theoretical basis of our reflections, we chose the metaphor as a specific linguistic reflection of reality with the ability to create compact and dynamic metaphorical systems in the communication tool of political events, in political language, as a specific subject of political linguistics research, independent scientific dissipation. The database for our research is mainly a lexical corpus of metaphorical expressions in the political press, in printed and electronic form, which we present in the bibliography. The choice of the database is justified in terms of the thematic focus of the examined sample, as we focused on the linguistic reflection of naming important political events in the form of metaphoricality.

2 Political language in interaction with society

Language and society interact with each other. Language is a reflection of what is happening in society, at the same time language is the main tool of everyday reality for society of which communication between individual communication partners is an essential part.

Political language is rightly included in the group of professional languages. Every professional language is closely linked to the reality it is called. Thus, the reality of political language is politics.

The much-cited master of diplomacy, the German politician Otto von Bismarck, has described politics as an art of the possible, as an extremely variable, dynamic phenomenon that brings new themes, areas and decisions with the power of considerable influence. Since politics would not be without language, the phenomenon of novelty, change, dynamics in politics are automatically transferred to the level of statement, i.e.,

linguistics. Language responds adequately to a new identity, new stimuli, facts of the individual language plans, this is the most reflected in the lexical level. A word like its bearer is a reflection of thought, it has incredible value. He can encourage, hurt, appeal, persuade, discourage. Political language as a marketing and power tool, all the more so since its main function is to persuade, appeal, argue, but also to impress emotionally in a given context.

3 Conceptualization of the world in metaphorical linguistic representation

The language of communication sees the metaphor as a common phenomenon. Within the theoretical level, several theories of metaphors have been developed which are gradually applied also to research of professional language (replacement theory, interaction theory, conceptual theory, theory of structural mapping, theory of disruption of selective preferences).

In contemporary linguistics, the metaphor is not only linked to the language plan, but is a link between thought and action. It is a process of conceptualization of reality through knowledge, experience, consciousness. Thus, the metaphor is not just some aesthetic matter, the main function of which is impressiveness. Using a metaphor, it is possible to combine two different areas of our thinking so that one of them becomes a kind of cognitive master for the other.

From the point of view of our research, Lakoff and Johnson theory (1980) is interesting, which postulates a metaphor as a conceptual and cognitive structure, or as a unit of thought that focuses on the transfer of meaning from the source to target area of conceptual activity of a man¹. According to the above-mentioned authors, the metaphor exists primarily as a cognitive phenomenon, only secondary as a language phenomenon. Conceptual metaphor is the resulting product of ways of our perception and structuring of the world. Conceptual metaphors can create compact but also dynamic metaphorical systems, the individual components of which, of course, can be further developed due to specific extralinguistic circumstances. The core of such a system remains constant, but its individual parts, the so-called peripherals, are the subject to further updates.

4 Metaphorical systems

Based on the conceptual theory of metaphor, the metaphorical system is a system of conceptual metaphors and metaphorical models that present the activities of man and society, revealing his identity and culture. In a particular period of time, the world image of a particular nation and it is the specific environment in which the language is used that greatly influences its conception. Thus, the metaphorical system is one of several tools of a man as a carrier of language and culture. The development of the society, its value setting, lifestyle or morality is reflected in the language level.

In a particular historical period, some metaphorical concepts are brought to the fore by, for example, ideological rhetoric which disappears completely from the political vocabulary following regime change. An example could be the metaphorical model of Juden - Parasiten, Wanze, Spulwurm which was created in German under the influence of the German ideology of national socialism in the first half of the 20th century. As Mert (2018) states, in the Russian language of the second half of the 20th century there were metaphorical systems state - house, state - container, revolution - holiday oppressed and exploited which similarly created several basal frames. As a part of the comparison of Russian and Slovak socio-political discourse of the mentioned specific historical stage using the diachronic method, it defines a significant analogy of metaphorical models

¹ The theory of conceptual metaphor is elaborated in the work *Metaphors We Live By* (1980).

in the Slovak language, with regard to long-term common, historically and politically conditioned contacts - socialist discourse. (Mertová, 45-46)

Current linguistic research demonstrates several typologies of metaphorical models or types of metaphors that are represented in individual political dissuasives or research corpuscles. As Mertová reports (2018), the Russian political dissuasion in the 20th century is represented by dominant metaphorical models: metaphors of life (Life is the way), metaphors of the disease (Crisis state in society is a disease). (Mertová, 43-44)

In the German political discourse, we are faced with the division of metaphors according to Gehr (2014) which presents the concept of thematic metaphorical fields. These are, for example, thematic fields of human body, craft, military, nature. As a result of a retrospective method of analysis of figurative models in the German political distance, we found the occurrence of figurative models: Subject, its properties and functions, Activity of any kind, Cultural specifics, knowledge of society, scientific disciplines, nature, natural phenomena². We created these metaphorical models based on identical figurative bases that correspond to individual motivational factors³.

5 Research methodology

We consider modeling to be a form of structuring in a language⁴. For our corpus in research, we have chosen as a representative of the political language online German professional dailies and weeklies, in which there is a large number of examples of political metaphors, respectively, metaphorical technical terms. Based on the reflection of specific political events, namely the Ukrainian crisis and Brexit, we tried to compile individual metaphorical models in German language, the basis of which is a unified basis for the transmission of imagery, respectively, metaphoricity with the recipient and the base, the said transfer of imagery being based on the parallel and simultaneous exchange of the individual semantic aspects of a particular lexical expression of the said base. We present a selection of individual examples categorized into metaphorical models based on a uniform basis of imagery, respectively, image transmission. At the same time, we will create a metaphorical system in German language as a result of research into the socio-political discourse of a specific developmental stage of society, in our case the first half of the 21st century, based on specific social events that affected language.

5.1 Metaphorical model with a figurative base motivated by the characteristics of the subject

That metaphorical model was created on the basis of an identical figurative transmission base, the component of which became an object with its characteristics, shape or function. In relation to the percentage of individual figurative bases also for other types of professional languages, this is the most frequent metaphorical model.

In the example of:

"Diplomatie ist ein hartes Geschäft." /Diplomacy is a hard nut./ (<https://de.sputniknews.com/25/10/2016>) the qualitative property of the substance with individual semes was used to transfer the figurativeness of the substance with individual semes, stubbed, relentless, firm and characteristic of the trade in individual themes of specific actors with objectives, a typical way of

communicating to metaphorical expression of diplomacy as a modern way of settling conflicts and disputes.

Similarly, the qualitative property of the article was used to transmit metaphoricality even in the case of: *"Wenn sich der kleine Krieg weiter ausweitet, steht auch Merkels Vermächtnis auf dem Spiel"* (<http://www.spiegel.de/29/11/2018>)

With the contextual modification *"Aber es ist ein kleiner Krieg, blutig, aber begrenzt, scheinbar weit weg von Deutschland, am östlichen Rand Europas"* /But it is a small war, bloody but bordered, seemingly far from Germany in Eastern Europe./ (<http://www.spiegel.de/29/11/2018>)

Interesting is the second metaphorical component in the term *steht auch Merkels Vermächtnis auf dem Spiel*, with several lexical modifications in the political distance in examples:

"Es steht viel auf dem Spiel, daily Europa und Russland sind eng miteinander verflochten." /A lot could go wrong because Europe and Russia are closely interlinked./ (<https://www.lpb-bw.de/ukraineconflikt.html>) und und *„Neue Sanktionen gegen Russland, wie sie unter anderem die österreichische EU-Ratspräsidentschaft ins Spiel gebracht hatte, wurden indes nicht angekündigt."* (<https://www.bild.de/29/11/2018>), which we already include among the settled expressions. If we tried to create a conceptual political metaphor based on key social events typical for the first half of the 21st century, we would include this example together with individual modifications in the group *Politik ist wie ein Spiel im Theater*, as well as examples:

Seit dem Sommer ist das Asowsche Meer zum Schauplatz von Provokationen und Scharmützeln zwischen Russland und der Ukraine geworden." /Since the summer, the Sea of Azov has become the scene of provocations and squaes between Ukraine and Russia./ (<http://www.spiegel.de/29/11/2018>)

"Es war Angela Merkels außenpolitisches Meisterstück: Als 2014 die Ukraine-Krise eskalierte und Russland die Krim annektierte, verhinderte die deutsche Kanzlerin, dass sich die Auseinandersetzung zu einem militärischen Großkonflikt zwischen Russland und der Ukraine auswuchs." /It was Merkel's masterpiece of foreign policy/ (<http://www.spiegel.de/29/11/2018>)

The special group in the German dissection consists of so-called professional metaphors, which have already become part of the professional language, in our case political language, and in a normal communication the very aspect of metaphoricality is slowly disappearing, or the recipients are not aware of it. These are examples where individual quality characteristics are used as media for the transfer of figurative images:

"Zudem sollen die schweren Waffen abgezogen werden." /Heavy weapons should be withdrawn./ (<https://www.lpb-bw.de/ukraineconflikt.html>)

"Härtere Sanktionen gegen Russland sind geplant." /Tougher sanctions against Russia are planned./ (<https://www.welt.de/04/03/2015>)

In relation to the hart component in the metaphorical term, it is necessary to point out its high frequency even when reflecting another major political event of the present, namely the issue of Brexit, where it is precisely the qualitative feature used to transmit figurativeness in the emergence of the already expert metaphors of "weicher Brexit, harter Brexit". In the case of "harter Brexit", we are also faced with the term "sauberer Brexit".

In the event of *"hard Brexit/harter Brexit/sauberer Brexit"*, it is about Britain leaving the European Union without any deal,

² See Polčicová (2007) for more details.

³ When researching other professional languages of economic, technical, legal focus, in addition to the above models of image, we also found the possibility of creating a metaphorical model with an incentive to human knowledge of several fields of science at the same time (medicine, philosophy, psychology, sociology, theory of communication, ethnology, etc.), with motivation, with human knowledge of historical contexts, intercultural specificities of individual people or with the motivation of knowledge of the developmental stages of man and criteria determined by the society in which the person lives. See Polčicová (2007) for more details.

⁴For a more detailed typology of the imagery of professional languages on the example of professional economic language, professional legal language and professional technical language, see Polčicová (2007).

which would mean a number of disadvantages for both sides in many areas of social, economic and political life. Thus, for the metaphorical expression, the methamphetamine was used as adamant, stubing, difficult and problematic.

In the case of "soft Brexit/weicher Brexit", it is about establishing relations between the UK and the European Union as much as those between Norway and the EU6. To transfer figurativeness, the same soft was used as a retreating, supple, acceptable, pleasant.

"Unmöglich, einen harten Brexit auszuschließen, ohne den gesamten Austrittsprozess zu stoppen".⁷ /It is impossible to rule out a hard Brexit without stopping the whole process of leaving./ (<http://www.manager-magazin.de/18/01/2019>)

"Was bedeutet «harder Brexit» und «weicher Brexit»?" /What does a hard Brexit and a soft Brexit mean?/ (<https://www.sueddeutsche.de/16/01/2017>)

"Unter hartem oder sauberem Brexit versteht man einen klaren Bruch mit Brüssel." /Hard and soft Brexit means a clear split with Brussels./ (<https://www.sueddeutsche.de/16/01/2017>)

Die (Theresa May) hat ihr Kabinett jetzt zu einem "weichen Brexit" verdonnert." /It was pushed by her cabinet on a soft Brexit/ (<https://www.faz.net/08/07/2018>)

The political dissuasion also uses to a large extent the qualitative property of the chemical element, or the characteristic of the chemical element of the products produced, such as hardness, stability, strength, resistance as a figurative transfer same for describing a particular typological characteristic of politicians, which at the same time becomes a kind of typology of the political style of the actor. A typical example is Chancellor Angela Merkel in the headline of an article published on the migrant crisis in Europe:

"Angela Merkel. Die eiserne Kanzlerin und ihre Befehlspolitik." /Angela Merkel. Iron Canclay and its order policy/ (<https://www.epochtimes.de/12/03/2016>)

The principle of figurative transfer is also associated in political language with the names of other major world politicians, such as The New World. Otto von Bismarck or Margaret Thatcher. On the subject of Brexit, we have encountered a similar metaphorical term in Theresa May's character:

Sie selbst bezeichnet sich gern als "bloody difficult woman" - als verdammt schwierige Frau, die in der Tradition von Margaret Thatcher eisern ins Feld zieht. (<https://www.tagesschau.de/15/01/2019>)⁸

On the example of the occurrence of these metaphors, on the example of significant social events, we could create another conceptual metaphor typical for the 21st century. We would call it *Politik ist ein hartes Geschäft*.

The following examples of metaphorical expressions with a uniform base of figurative transmission of the subject and its properties create another conceptual metaphor of the first half of the 21st century which we named *Politik ist ein Feuerspiel*.

"Brandherde sind die Städte Lugansk, Odessa, Charkow, Slawjansk und Donbas." /Outbreaks of conflict are the cities of

Lugansk, Odessa, Kharkiv, Slawjansk and Donbas./ (<https://www.lpb-bw.de>)

"Es sei immerhin gelungen, zu vermeiden, dass die Auseinandersetzung in der Ostukraine zu einem handfesten militärischen Konflikt anwachsen, der zu einem Flächenbrand mitten in Europa eskaliere." /It would be appropriate to prevent the dispute in Eastern Ukraine from escalating into a fierce armed conflict that could escalate throughout the area in the centre of Europe./

(<https://de.sputniknews.com/25/10/2016>)

"Die Feuerpause ist allerdings brüchig, die Regierung in Kijew und die Separatisten im Osten der Ukraine berichten von Verletzungen der Waffenruhe." /However, the fighting break is fragile, with the government in Kiev and separatists in Eastern Ukraine reporting ceasefire violations./ (<https://www.lpb-bw.de>)

In this model, we will also refer to the terms *Waffenruhe*, *Feuerpause* /truce, combat break/ which we often encounter in German. These are already lexical metaphorical terms with the synonymous parallel of the professional term *Waffenstillstand*.

"Eine Waffenruhe, die von Kiew und den prorussischen Separatisten am 5. September 2014 in der Vereinbarung von Minsk unterzeichnet wird, tritt am Abend in Kraft und gibt erstmals Anlass zur Hoffnung." /The ceasefire, which was signed between Kiev and pro-Russian separatists on March 5, 2015, was signed by Kiev and pro-Russian separatists. The Minsk Convention of 19 September 2014 enters into force and gives everyone reason for hope./ (<https://www.lpb-bw.de>)

5.2 Metaphorical model with nature base

Another metaphorical model that we have identified on the basis of a uniform base is a metaphorical model whose motivation for the creation of figurativeness was nature, natural phenomena, respectively animals. Metaphorical expressions of this type are mainly used by politicians. An example of this are the remarks made by the Federal Minister for Foreign Affairs regarding the enforcement of the Minsk Agreements:

"Diplomatie ist ein hartes Geschäft. Lösungen lassen oft lange auf sich warten. So ist der Fortschritt bei der Umsetzung des Minsker Abkommens in der Tat eine Schnecke", sagte Steinmeier. /"Diplomacy is a tough deal. Solutions will keep a long wait for each other. The enforcement of the Minsk Conventions is progressing at a snail's pace," Steinmeier said./ (<https://de.sputniknews.com/25/10/2016>)

5.3 Metaphorical model with a base of intellectual knowledge

In German political language, there are also metaphors built on the basis of the transfer of the base with the motivation to know the historical context of individual people.

In reflecting the Ukrainian crisis, we were met with the metaphorical expression r. "*Merkel bekräftigte ihre Bereitschaft, zusammen mit Frankreich im Normandie-Format weiter mit Moskau und Kijew zu sprechen.*" /Merkel reaffirmed her readiness to continue talks with Moscow and Kiev with France in Normandy./ (<https://www.faz.net/29/11/2018>)

The *Normandy format* was created during a meeting of top officials of Russia, Ukraine, France and Germany in Normandy during the June anniversary celebrations of the allied landings. The political language currently refers to one of the attempts to settle the armed conflict in Ukraine, composed of Russia, Ukraine, Germany and France which is preferred by Ukrainian President Petro Poroshenko.

⁵ The relationship between Great Britain and the remaining 27 countries of the European Union should be comparable to that of the European Union and Canada. EU citizens would have to apply for a work permit if they wanted to live and work in the country. A free trade treaty would also be needed so that no tariffs are imposed on goods and services. According to experts, it would take several years to draw up such agreements.

⁶ Norway is not a member of the EU, but has a direct access to the European internal market. In return, it must contribute to the EU budget, allow EU citizens in the country to work freely and live, as well as take over most of the EU's legal system.

⁷ Remarks by Theresa May during the Proceedings of the House of Commons of the British Parliament.

⁸ Commentary on Theresa May's personality: Fails - all along the line.

Reflecting on Brexit, we were met with a metaphorical expression in a commentary on the reaction of a possible further referendum:

"Die Brexiteers würden ihre Jahrzehnte alte EU-Feindschaft nach einer knappen Referendums-Niederlage nicht einfach vergessen. Stattdessen würden sie wohl ihre ganz eigene Dolchstoß-Legende stricken: Die Brüssel-freundlichen Eliten hätten den Willen des Volkes, nein, die Demokratie selbst hinterrücks gemeuchelt."/>... Instead, they would have snatched their own dazzle-sting legend: Brussels-leaning elites would have snatched an insidious knife in the back of their own people, /not democracy/no, democracy itself. / (<http://www.spiegel.de>)

The term *Dolchstoß-Legende*/legend of Germany's dazzle from the back is known from the Weimar era as the legend that destroyed German democracy and, along with the humiliating conditions of the Treaty of Versailles and the economic crisis, brought the Nazis to power in Germany that subsequently unleashed one of the world's greatest war conflicts. According to that legend, which originated a few years after the end of The First World War, the German army was not defeated in combat, but received a blow to the back by the defeatist population and the political elite of the period.

6 Conclusion

The common breakthrough of politics as a social phenomenon and the language of politics as its bearer is multi-industriality. One of the tools of this trait in language expression is precisely a metaphor. Political communication actors point to a number of functions of these means of an expression by using metaphors in their speech. Research on metaphors helps to correct and interpret a multi-brainedness in a political communication correctly.

At the same time, the metaphor is inherently the bearer of modification and updating of the world. It is a part of the political debate and a component of the conceptualisation of the world. It is one of the names of current events in society in contemporary Germany where the themes of Brexit and the Ukrainian crisis resonate.

We examined metaphors in a political text from a linguistic point of view, where we can clearly define that the German political language is rich in metaphorical elements that gradually penetrate into the nucleus of vocabulary and become professional language terms in which their metaphoricality is gradually lost. The metaphor is a part of many statements made by politicians as one form of naming contemporary reality in the political action. It is also a tool for influencing the views of the addressees by bringing the language of the people closer. Through metaphors, politicians appeal to citizens, trying to get them on their side. In vain, W. Bergsdorf assumes that language is a decisive factor in political success. (Bergsdorf, p. 15)

Several metaphor theories offer ways of categorizing metaphorical statements up to the creation of certain metaphorical systems that could characterize conceptual thinking at some stage of society's development precisely on the basis of the use of metaphors.

We have compiled specific types of conceptual metaphors of the present period in German political language on the basis of its reflection on specific socio-political topics, namely Brexit and the Ukrainian crisis. By the very possibility of creating metaphorical models in political language, we pointed out the systematicity and structure of the given means of expression. The metaphor can thus connect the requirement of expertise, topicality and popularity.

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Primary Paper Section: A

Secondary Paper Section: AD, AI

DRAMATIC ART AND DRAMATIC EXPRESSION THROUGH CREATIVE DRAMA METHODS IN PRESCHOOL EDUCATION

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The research was done as part of KEGA project No. 016KU-4/2020 "The Applying of Creative Drama Methods in the Process of Preschool Education".

Abstract: The research focuses on determining the opinions of kindergarten teachers on the issue of applying dramatic expression in preschool education within five dimensions - the current state of the use of dramatic art and dramatic expression through creative drama methods within preschool education, drawing ideas for working with a work of dramatic art, an assessment of the children's interest in working with a work of dramatic art by the kindergarten teachers, the relationship of kindergarten teachers towards dramatic art, and the opportunities for kindergarten teachers to acquire knowledge of dramatic art and creative drama within their undergraduate training or other forms of education. 366 kindergarten teachers responded to the items of the self-constructed questionnaire. It has been shown that the current state of the use of dramatic art and dramatic expression through creative drama methods in preschool education can be described as slightly above average. The opportunities for kindergarten teachers to acquire knowledge of dramatic art and creative drama in their undergraduate training or other forms of education were below average. The relationship of kindergarten teachers towards dramatic art can also be described as lower than average. The research clearly confirmed that the opportunities for acquiring knowledge from dramatic art and creative drama statistically significantly positively predict the relationship of kindergarten teachers towards dramatic art. Likewise, it was confirmed that the relationship of kindergarten teachers towards dramatic art statistically significantly positively predicts the use of works of dramatic art through creative drama methods in preschool education.

Keywords: dramatic art, dramatic expression, creative drama, kindergarten teacher, preschool education

1 Introduction

For centuries, didactics has been concerned with the issue of teaching methods at all levels of education, including preschool. Here, it is essential to develop in a balanced way all aspects of the child's personality, and to not only focus on the cognitive side at the expense of the socio-emotional and psychomotor side. A child coming into the school environment discovers himself in active activities, his surroundings and the world, and acquires skills and experience in cooperation with the group, developing the ability of contact and communication. Therefore, in the process of preschool education, an emphasis is placed on the application of activating methods. In this process, encountering art at the level of reception, perception and interpretation, also plays a big role (Rochovská et al., 2021; Rochovská, Švábová, 2021; Kováčová, Ševčovič, Valachová, 2021).

Activating methods (Droščák, 2014) also include creative drama methods (Knapíková, Kostrub, Miňová, 2002). Several definitions of the term creative drama can be found within the professional literature. A common feature is that it is about education with the goal of a free and comprehensive development of the child's personality, who has the opportunity to perceive and get to know the external and internal world through active methods (Švábová, 2013; Rochovská et al., 2021).

Research by A. Tombak (2014) focused on the importance of applying elements of drama in preschool education. Applying the elements of drama can be considered a very important way of expressing personal feelings, improving children's imagination and the child's ability to act independently, and improving social and cooperative skills. That is why the role of dramatic education¹ in the upbringing and education of preschool children has been strongly emphasised.

Further research, applying a qualitative approach to a sample of ten children over two weeks, was conducted with the goal of

examining how the implementation of creative drama as a didactic tool affects classroom processes. It was found that the application of creative drama contributed to classroom cohesion and had a positive effect on the children's behaviour. Thus, the importance of applying creative drama as a didactic tool in education was emphasised (Azlina et al., 2021).

In connection with creative drama and the development of creativity, the research of T. Toivanen et al. (2013) can be given attention. The results showed that group creativity, in particular, has great potential for its collective character in coming up with new ideas. New ideas and inventions sooner arise in a group, when the observation of group members can lead to the new ideas of its members. The active process of creative drama always involves creative thinking as part of the creative process. In fact, creative drama provides suitable opportunities to support the children's creativity. It develops not only the individual, but also group creativity within the school environment. It offers an experience to enrich the children's imagination, as well as improving the children's group interaction skills and the children's social skills. Therefore, the role of the teachers is to support this educational process and create opportunities for the development of creativity, using creative drama methods.

Similarly, developing the creativity of children aged four to six years through creative drama methods was addressed by the authors S. Momeni et al. (2017). In a sample of 52 children, they compared the differences between an experimental group, in which creative drama methods were applied for two-months, and a control group, during which time the researchers used the creativity test of Jean-Louis Cellier. The test consisted of examining verbal creativity, the assembling and interpreting of pictures, fluency, flexibility, originality and elaboration. The increase in the level of creativity in the experimental group was statistically significant compared to the control group, which proved the positive effect of the application of creative drama methods on the improvement of creativity among children of a preschool age.

The results of the research, focused on the effectiveness of creative drama in developing social and communication skills (Erbay, Sunay, 2010), have shown that children with learning difficulties have improved social and communication skills by applying creative drama methods. The authors of the research study recommended the inclusion of creative drama courses for preschool teachers, where creative drama would be presented in more detail in order to find a new application within pedagogical practice. They also recommended that teachers have books, materials and CDs available with dramatic activities for the teachers.

A survey of the views of kindergarten teachers on the application of creative drama in educational practice was carried out through a questionnaire within Slovakia, in the years 2011 to 2012 (Švábová, 2013). The research analysed the opportunities for using creative drama in preschool and primary education from the perspective of the teachers. The teachers stated that they had encountered creative drama at a professional level, especially during their university studies, methodological meetings and within the professional press. They considered their awareness of creative drama to be "good". In their educational practice, they commented mainly on the application of dramatization, improvisation, interpretation, dramatic plays and musical-expression studies. More than half of the teachers stated that they use creative drama as an interesting activity in the afternoon period. Half of the teachers commented on its application within the morning didactic activities. The research has confirmed that according to the opinions of the teachers, creative drama methods have a great influence on the personal development of children, they create a space for social communication, and they influence the emotional sphere, will and character traits. They

¹ The terms dramatic education and creative drama can be used synonymously. For example, in the Slovak language environment, the term dramatic education was used first, but later the term changed to creative drama, because it emphasised more the essence of a creative activity.

expressed an interest in further education within the field of creative drama.

The authors D. Kollárová and L. Fenyvesiová (2013) state that the use of creative drama in preschool education provides scope for an adequate and natural approach to upbringing and education, whereby the subject of creative drama may prepare the future kindergarten teacher for this kind of approach. The applied pedagogical research was carried out on a sample of 225 students of teaching and non-teaching bachelor's degree programs, in order to find out to what extent the students of the teaching departments attach the importance of training in the field of creative drama, and in which areas this subject can enrich the competencies of future teachers and after-school teachers. In their statements, the students agreed that the subject of creative drama enriched them not only in terms of personality, but also in terms of professionalism. They were aware of the importance of play and its effect on children at a preschool age and also that play is the most natural activity at this age. In evaluation of the subject of creative drama, the students' opinions were also heard, that their training enriched them not only in terms of the content and procedures, but also through the personality of the teacher who, in their view, plays a significant role in this approach. From the research findings, it is further noteworthy that after completing the subject of dramatic education, 85.77% of students agreed that creative drama is a necessary part of teacher training (and not only for kindergartens).

1.1 Researched Issue

Much of this research has confirmed that the inclusion of the stimuli of dramatic art or dramatic expression, especially through the creative drama methods, has a positive effect on children and brings with it several benefits. However, it requires that it be led by a teacher who is equally competent in both pedagogy and art. The question can be asked whether kindergarten teachers feel competent in this respect and to what extent they classify dramatic art and its stimuli, dramatic expression through creative drama methods, into educational activities in kindergartens.² Therefore, the research problem has become an examination of the kindergarten teachers' views on the use of dramatic art and dramatic expression through creative drama methods in preschool education. The research problem also arose from the experience of researchers in the field.

1.2 The Aim and Hypotheses of the Research

The main aim of the research was to find out the opinions of kindergarten teachers on the use of dramatic art/dramatic expression and creative drama methods in preschool education, and to suggest ways to improve it. The objective of the research resulted in sub-objectives:

1. To determine, based on self-reflection, whether teachers use works of dramatic art through creative drama methods in pre-primary education and how often.
2. To determine from where they draw ideas for working with works of dramatic art.
3. To determine how kindergarten teachers evaluate the children's interest in working with works of dramatic art.
4. To determine what is the relationship kindergarten teachers have towards dramatic art.

5. To determine what kind of opportunities kindergarten teachers have to acquire knowledge of dramatic art and creative drama in their undergraduate training or other forms of education.
6. To determine whether the opportunities for acquiring knowledge of dramatic art and creative drama among kindergarten teachers predict the level of their relationship towards dramatic art.
7. To determine whether the level of the respondents' relationship towards dramatic art predicts the use of dramatic art/dramatic expression through creative drama methods in pre-primary education.

The sub-objectives were reflected in the following research questions and research hypotheses. In the case that the researchers had no support in the literature, in other research and in their own experience, the following research questions were formulated:

1. What is the state and frequency of using dramatic art/dramatic expression through creative drama methods in preschool education?
2. Where do teachers draw ideas from for working with works of dramatic art?
3. How do kindergarten teachers evaluate the children's interest in working with works of dramatic art?
4. What were the opportunities for kindergarten teachers to acquire knowledge of dramatic art and creative drama in their undergraduate training or other forms of education?
5. What is the relationship of kindergarten teachers towards dramatic art?

Based on experience in the field and the previous empirical experience of the researchers, the following hypotheses were formulated:

1. The opportunities for acquiring knowledge from dramatic art and creative drama among kindergarten teachers predict the level of their relationship towards dramatic art.
2. The level of the respondents' relationship towards dramatic art predicts the use of dramatic art/dramatic expression through creative drama methods in pre-primary education.

2 Research Methodology

2.1 General Background

From 2019 to 2021, a national project entitled "Artists in the Kindergarten - Interpretation of a Work of Art in Pre-Primary Education" was implemented in Slovakia. The project was focused on determining the views of kindergarten teachers about the current state of the interpretation of works of art in pre-primary education and on determining the relationship of kindergarten teachers towards art and their opportunities to acquire knowledge of the history and theory of art in their undergraduate training or other forms of education. The project focused on fine/visual arts, musical arts, literary arts and dramatic arts. Since 2022, this project was followed by another national project, which has focused on dramatic expression and creative drama methods. In addition to acquiring other data related to the subject matter, the raw results obtained during the years 2019 to 2021 were further analysed and interpreted.

2.2 Instruments and Procedures

The tasks of the research were concerned with the development of a research tool to determine the views of kindergarten teachers on the use of the interpretation of a work of art in preschool education. The first part of the questionnaire (part A) was concerned with the respondents' views on the current state of the use of art in preschool education, drawing ideas for working with dramatic art, as well as the teachers' opinions on the children's interest in working with a work of dramatic art, especially creative drama methods. In the second part (part B), the respondents' opportunities to learn/acquire knowledge of art history and theory were examined. In the third part (Part C), the

² During the examination of the teachers' opinions, it was necessary to distinguish between the concepts of dramatic art, dramatic expression and creative drama. Dramatic art means drama as one of the literary types (the literary type can be adapted for dramatic realisation), where the main artistic material is language, usually in the form of dialogue, which carries dramatic conflict. Dramatic art is collective and integrates several types of art – musical, visual, verbal, motion. This understanding of dramatic art in the sense of high art (which is intended for cultural elites and where its creators are experienced professionals) may occur within the kindergarten, e.g. when visiting the theatre, when inviting professional theatres to the kindergarten or during a video projection of works of dramatic art or their excerpts in terms of the initiation of follow-up, especially creative activities. When using the stimuli of dramatic art in kindergartens, we are talking more about dramatic expression. One of the activating methods which uses the elements of drama is creative drama. In kindergartens, it represents a complex of dramatic activities which can be applied within all children's activities.

respondents' relationship towards art was determined. Within most items, the respondents commented specifically on fine/visual arts, musical arts, literary arts and dramatic arts. The subject of processing the research study has become the field of dramatic art, or dramatic expression and the use of creative drama methods. The fourth part of the questionnaire (part D) consisted of sociodemographic items.

The questionnaire contained a total of 32 items related to dramatic art and creative drama methods, while it was possible to obtain a maximum of 49 points for the completed scored items.

The individual items have been scored. The first research question could be answered based on the answers to the first two items (Table 1). In Part A, in the first semi-closed item, the respondents answered whether they use works of art, or their reproductions, in educational activities with the children, while choosing from the options a) paintings, sculptures, b) musical compositions, c) theatrical performances, d) literary works, e) other, and they were asked to indicate specifically which one for each option. For each given "theatrical performances" answer, the respondent could get one point.

In the second scored single choice item, the respondents indicated how often they include work with a work of art within kindergarten educational activities in the field of dramatic art/expression. They were choosing from the options, according to which they also received scores for the answers: a) every day (5 points), b) at least once a week (4 points), c) at least once a month (3 points), d) at least once every six months (2 points), e) at least once per year (1 point), f) not at all (0 points), g) another answer (they were supposed to state specifically, while being scored individually with a maximum possible number of 5 points).

Table 1: Scoring summary for individual questions in part A - Status and frequency of the use of dramatic art/dramatic expression through creative drama methods in pre-primary education

Number and focus of questions	Maximum number of points
1. the use of a work of art - theatrical performances	1
2. the frequency of classifying works of dramatic art into education	5
Total	6

The third item is a multiple choice item which is aimed at drawing on the respondents' ideas for working with a work of art, in the field of dramatic art/expression. The following options were available: a) from literature, b) from the Internet, c) from colleagues, d) from conferences and professional seminars and workshops, e) from various forms of continual education, f) I created my own, g) another answer (they were supposed to specify which). One point was awarded for each option specified.

In the following semi-closed item, the respondents stated whether they have enough sufficient methodological materials and publications related to dramatic art/expression in their kindergarten. They were supposed to mark one of the options: a) yes, b) no, c) another answer (they were supposed to specify). They received one point for each answer marked "yes". Option c) was scored individually, but they could get a maximum of one point (Table 2). In order to obtain a more objective picture about the sufficiency of publications with the aforementioned focus, the respondents were supposed to state the approximate number of publications available in the kindergarten.

Table 2: Scoring summary for individual questions in part A - drawing ideas for working with a work of dramatic art

Question number	Maximum number of points
3. Sources for drawing ideas for working with a work of dramatic art	7
4. the availability of methodological materials	1
Total	8

In another single choice selection item, the respondents stated how interested the children are in working with a work of dramatic art within educational activities (Table 3). They were choosing from options, according to which they also obtained scores for the answers: a) great interest (4 points), b) interest (3 points), c) neither interest nor disinterest (2 points), d) mostly disinterest (1 point), total disinterest (0 points).

Table 3: Scoring summary for individual questions in part A - the teachers' opinions on the children's interest in working with a work of dramatic art

Question number	Maximum number of points
5. Children's interest in the field of art	4

For Part B - the opportunities for teachers to learn/acquire knowledge from dramatic art and creative drama, the respondent could get a maximum of 12 points (Table 4). In Part B, the scoring of answers in the questionnaire was designed so that the more points the respondent obtained, the more opportunities for education in the field of dramatic art and creative drama (knowledge, practical artistic activity, theoretical, methodological and practical ideas for carrying out activities with children in the kindergarten connected with dramatic expression and creative drama methods).

The first scored multiple choice item focused on the self-reflection of the respondents' opportunities to acquire knowledge from creative drama during their studies. They were choosing from options, according to which they also obtained scores for the answers: a) excellent (4 points), b) very good (3 points), c) good (2 points), d) sufficient (1 point), e) insufficient (0 points). In the second multiple choice item, the respondents were asked to mention some specific disciplines which they had completed in secondary school or university, in the field of dramatic art. They were choosing from options, according to which they also obtained scores for the answers: a) yes, during secondary school studies (1 point), b) yes, during university studies (1 point), c) no (0 points), d) I do not remember (0 points).

The third scored semi-closed item focused on determining whether the respondents acquired knowledge from the history and theory of dramatic art, even after completing undergraduate training in the form of continuous, or non-formal or informal education (various courses, workshops, conferences, etc.). They were choosing from options, according to which they also obtained scores for the answers: a) yes, in the form of continuous education (1 point), b) yes, in the form of non-formal education (e.g. courses, workshops) (1 point), c) yes, in the form of informal education (spontaneously acquired knowledge) (1 point), d) no (0 points), e) other answer (they were supposed to state specifically, while being scored individually, with a maximum possible number of acquired points of 1).

In the following item, the respondents were supposed to indicate whether they have completed any courses, workshops or seminars aimed at getting acquainted with dramatic art or practical artistic activities, (e.g. theatre courses...). They were given one point for answering "yes".

In another item, the respondents were supposed to state whether they had completed any courses, workshops or seminars focused on theoretical, methodological or practical topics, on how to implement activities with children in the kindergarten which are

focused on getting to know works of art, namely in the field of dramatic art. They were given one point for answering "yes".

Table 4: Scoring summary for individual questions in Part B - opportunities for kindergarten teachers to acquire knowledge of dramatic art and creative drama in their undergraduate training or other forms of education

Question number	Maximum number of points
1. opportunities to acquire knowledge of dramatic art and creative drama	4
2. completed disciplines during secondary school and university studies	2
3. acquisition of knowledge through continuous, non-formal and informal learning	4
4. completion of courses, workshops or seminars focused on getting to know dramatic art and practical artistic skills	1
5. completion of courses, workshops or seminars focused on theoretical, methodological or practical topics for the use of dramatic expression and creative drama in kindergartens	1
Total	12

For Part C - the relationship of the kindergarten teachers towards dramatic art, the respondent could acquire a maximum of 19 points (Table 5). The scoring of the answers in the questionnaire in Part C was designed so that the more points the respondent obtained, the more important dramatic art is for her, and the more active she is in dramatic art, not only passively as a recipient, but also actively.

In the first multiple choice item, the respondents answered whether they considered dramatic art to be significant in their lives. They were choosing from options, according to which they also obtained scores for the answers: a) very significant (4 points), b) significant (3 points), c) partly significant (2 points), d) mostly insignificant (1 point), e) not significant at all (0 points).

The second multiple choice item focused on how often the respondents attend different institutions and performances - theatrical performances, ballet/musical/opera/opera. They were choosing from options, according to which they also obtained scores for answers: a) at least once a week (4 points), b) at least once per month (3 points), c) at least once every half a year (2 points), d) at least once per year (1 point), e) never (0 points).

In the third semi-closed item, the respondents had to circle the statements which best describe themselves: The subject of the scoring was the marking of the statement: d) I own video recordings of theatrical performances. One point was awarded for each marked statement.

The fourth multiple choice item was focused on whether the respondents were actively involved in artistic creation, marking one option for each question. They were awarded points for answering the question "Do you act in plays?" a) yes often (2 points), b) yes occasionally (1 point), c) never (0 points).

Table 5: Scoring summary for individual questions in part C - the relationship of the teachers towards:

Question number	Maximum number of points
1. the importance of dramatic art in the life of the teachers	4
2. the visits to institutions or events	12
3. the ownership of video recordings of theatrical performances	1
4. the active artistic/aesthetic creation of	2

the teachers	
Total	19

2.3 Sample Selection

Teachers who showed a willingness to participate in the research were chosen for the selection sample; therefore, it represents an available selection. A total of 377 questionnaires were received (via Google.Docs and in paper form) and, after the exclusion of any duplicate answers and blank questionnaires, the file was examined and found to have a size of 366 kindergarten teachers. Of these 96.2% were female respondents and 0.3% were male, which also corresponds to the sample of the basic group in terms of gender. The age ranged from 20 years to 64 years, the average age is 42.75 years ($SD = 11.79$). In the sample, half of the teachers are 42 years of age or younger and the other half are more than 42 years old ($Mdn = 42$). The most common value is 50 years of age ($n = 16$).

The number of years of pedagogical praxis ranged from 0 years to 46 years, the average number of years of praxis is 19.64 years ($SD = 14.29$).

The sample includes half of the teachers who reported their years of experience to be 18 years and less, and the other half reported more than 18 years of experience ($Mdn = 18$). The most common value is the number of years of experience as 1 year ($n = 22$). The research sample consisted of 57.9% of teachers from urban kindergartens, 36.3% of teachers from rural kindergartens and 5.7% of the respondents did not state the type of school by location. The vast majority of respondents (91.3%) worked in state kindergartens, 2.2% in private, 1.6% in church and 4.9% of respondents did not comment on the type of school regarding the founder.

2.4 Data Analysis

Data analysis took place in the statistical program Jamovi 2.3.2. Descriptive statistics (absolute frequencies, relative frequencies, mean, standard deviation, median, minimum, maximum) were used. A linear regression analysis was chosen for testing the hypotheses.

3 Research Results

3.1 The use of dramatic art/dramatic expression through creative drama methods in pre-primary education

The respondents commented on the use of works of art or their reproductions in educational activities with the children (Table 6). The question was a multiple choice item.

Table 6: Statements of kindergarten teachers on the use of works of art/reproductions within educational activities

works of art/reproductions	n	%
paintings, sculptures	149	40.7%
musical compositions	296	81.4%
theatrical performances	220	60.9%
literary works/texts	297	81.7%
other	14	3.8%
without answers	4	1.1%

Almost two thirds of teachers (60.9%) commented on the use of dramatic art/expression. In the given question, the answers of the respondents can also be considered from the point of view that 146 respondents (39.1%) did not comment at all on the use of theatrical performances and 69 respondents (18.3%) did not comment on the use of literary works at all. The non-use of literary works in kindergartens can be considered inadmissible from the point of view of pre-primary didactics. Unless the respondents did not consider literary works to be works of art intended for children.

The respondents also commented on the frequency of using work with a work of dramatic art within educational activities in

kindergartens (Tab. 7). It was a closed multiple choice item. Based on self-reflection, working with a work of dramatic art is most often used by teachers at least once per month (36.1%) and at least once a week (35.2%).

Table 7: Frequency of the use of working with a work of dramatic art

	every day	at least once a week	at least once per month	at least once every half a year	at least once per year	not at all
n	30	129	132	30	8	5
%	8.2%	35.2%	36.1%	8.2%	2.2%	1.4%
32 teachers (8.7%) did not answer						

The current state of use of dramatic art given by both questions was quantified into one variable. On average, teachers use dramatic art more than the average of the scale (Table 8).

Table 8: Description of the current state of use of dramatic art by kindergarten teachers

n	M	Md	SD	min	max
366	4.6	5	1.75	0	7

3.2 Drawing ideas for working with a work of dramatic art

The respondents also commented on drawing ideas for working with a work of dramatic art (Table 9). It was a multiple choice item.

Table 9: Drawing ideas for working with a work of dramatic art

	from literature	from the Internet	from colleagues	from conferences, professional seminars, workshops	from various forms of continuous education	I create my own
n	209	211	94	75	73	113
%	57.1%	57.7%	25.7%	20.5%	19.9%	30.9%
36 teachers did not answer (9.8%)						

Based on the self-reflection of teachers, more than half of them most often draw ideas for working with works of dramatic art from the Internet (57.7%), but also from literature (57.1%) and almost a third of teachers (30.9%) create their own. A quarter of teachers (25.7%) take ideas from colleagues and a fifth from conferences, seminars or workshops (20.5%) or from other forms of continuous education (19.9%).

It is a great advantage for a kindergarten teacher if her own imagination, experience and creativity allow her to create activities with the application of various types of art directly "tailored" towards specific children. Teachers who have a relationship towards dramatic art, but also teachers who address it but feel less competent in the field, can take advantage of visiting theatres as part of school trips and excursions, as well as inviting various theatre ensembles directly to the kindergarten. 0.8% of the respondents commented on this. It is helpful for the teacher to receive professional advice on the quality of a given theatre ensemble or performance.

The respondents stated whether they had enough methodological materials within their kindergarten to work with a work of art (Table 10). It was a closed multiple choice item.

Table 10: Sufficient/insufficient methodological materials for working with a work of dramatic art

	yes	no	I don't work with this kind of art	without an answer
n	196	133	1	36
%	53.6%	36.3%	0.3%	9.8%

According to more than half of the teachers (56.3%), there is enough materials in their kindergarten to work with a work of dramatic art. The answers can be seen from the point of view that, according to 36.6% of respondents, they do not have enough methodological materials in the field of dramatic art. The respondents were also asked to indicate the approximate numbers of methodological materials for each type of art (Table 11).

Table 11: The approximate numbers of methodological materials given by the respondents³

n	M	Mdn	Mo	SD	min	max
366	7.4	3	3	21.4	0	200

On average, the methodological materials are represented by 7.4 pieces, but a more concise value is the median of 3, which means that half of the teachers reported the number of methodological materials in the kindergarten as 3 and more, and half of the teachers as less than 3.

3.3 An evaluation of the children's interest in working with a work of dramatic art by kindergarten teachers

The respondents assessed the children's interest in working with a work of art as part of educational activities. (Table 12) It was a closed multiple choice item.

Table 12: Statements by kindergarten teachers on the children's interest in working with works of dramatic art

	a great interest	interest	neither interest nor disinterest	mostly disinterest	absolute disinterest
n	201	107	19	3	1
%	54.9%	29.2%	5.2%	0.8%	0.3%
35 teachers did not answer (9.6%)					

More than half of the teachers (54.9%) thought that the children were very interested in working with a work of dramatic art, and almost a third of the teachers (29.2%) spoke about the interest of the children.

3.4 Opportunities for kindergarten teachers to acquire knowledge of dramatic art and creative drama in their undergraduate training or in other forms of education

In the first item, the teachers had to evaluate on the scale their opportunities to acquire knowledge of dramatic art and creative drama (Table 13).

Table 13: Respondents evaluate the opportunities for acquiring knowledge of the theory and history of art

	excellent	very good	good	sufficient	insufficient
n	57	97	104	50	25
%	15.6%	26.5%	28.4%	13.7%	6.8%
33 teachers did not answer (9%)					

Almost a third of the teachers (28.4%) rated the opportunities of acquiring knowledge of dramatic art as good and almost half of

³ The mean and standard deviation values are affected by high values, of which there are only a few.

the teachers (42.1%) considered them to be very good to excellent.

The respondents further stated in the questionnaire whether they remember some specific disciplines focused on dramatic art and expression within secondary school and university (Table 14). It was a multiple choice item.

Table 14: Respondents' statements on completed disciplines/ subjects/courses within dramatic art/expression during their studies

	yes, during secondary school studies	yes, during university studies	no	I don't remember
n	165	104	25	52
%	45.1%	28.4%	6.8%	14.2%
60 teachers did not answer (16.4%) and a total of 306 teachers did answer (83.6%)				

More than two-thirds of kindergarten teachers completed dramatic art disciplines during either secondary school or university studies.

The respondents commented on whether they acquired knowledge of dramatic art and creative drama also after completing undergraduate training in the form of continuous or non-formal or informal education (various courses, workshops, conferences, etc.). It was a closed multiple choice item (Table 15).

Table 15: Respondents' statements on the acquisition of knowledge of dramatic art and creative drama in the form of continuous, non-formal or informal education

	yes, in the form of continuous education	yes, in the form of non-formal education (e.g. courses, workshops)	yes, in the form of informal learning (spontaneously acquired knowledge)	no
n	52	57	70	137
%	14.2%	15.6%	19.1%	37.4%
72 teachers did not answer (19.7%)				

Obtaining experience after completing undergraduate training was either in the form of continuous education (14.2%), or non-formal education (15.6%) and informal education (19.1%). Most often the teachers only mentioned one form of education, and a combination of two or three forms appeared in only 6.1% of cases.

The respondents stated whether they had attended any courses, workshops or seminars aimed at familiarising themselves with art or practical artistic activities (e.g. courses in painting, ceramics, dance, theatre...). It was a closed question (Table 16).

Table 16: Courses, workshops and seminars aimed at familiarising themselves with dramatic art or practical artistic/aesthetic activities presented by the respondents

frequency			relative frequency %		
yes	no	total	yes	no	total
43	130	173	11.7%	35.5%	47.3%

It can be stated that according to the respondents, they attended courses, workshops or seminars aimed at familiarising themselves with dramatic art or practical artistic/aesthetic activities only to a small extent, and the numbers would be much lower if only the relevant answers were considered.

Furthermore, the respondents expressed whether they had also completed any courses, workshops or seminars focused on theoretical, methodological or practical topics on how to carry out activities with children in kindergartens, with a focus on dramatic expression or the use of creative drama. It was a closed question.

Table 17: Courses, workshops or seminars focused on theoretical, methodological or practical topics, and how to carry out activities with children in kindergartens, with a focus on dramatic expression or the use of creative drama

frequency			relative frequency %		
yes	no	total	yes	no	total
43	128	171	11.7%	35%	46.7%

Under the aggregate variable for the opportunities of kindergarten teachers to acquire knowledge of dramatic art and creative drama in their undergraduate training or in other forms of education (Table 4), it can be stated that it is in the lower half of the scoring scale (scale 0 to 12).

Table 18: Description of the opportunities of teachers to acquire knowledge of dramatic art and creative drama

n	M	Md	SD	min	max
366	3.55	n	2.10	0	10

3.5 The relationship of kindergarten teachers towards dramatic art

In the course of their studies, within pedagogical praxis and in everyday life, the kindergarten teacher encounters art and develops a relationship towards it. The respondents assessed the importance of dramatic art in their lives (Table 19). It was a closed multiple choice item.

Table 19: The kindergarten teachers' relationship towards dramatic art

	very significant	significant	partly significant	mostly insignificant	not significant at all
n	97	171	49	17	-
%	26.5%	46.7%	13.4%	4.6%	-
- a total of 334 teachers (91.3%) answered, 32 (8.7%) did not answer					

Almost half of the teachers (46.7%) consider dramatic art to be important in their lives and more than a quarter of the teachers (26.5%) consider it to be very important. It is alarming that 6.8% of the respondents consider their knowledge in the field of dramatic art to be insufficient, while working as a kindergarten teacher.

In the next question, the respondents commented on how often they attend the following institutions or performances (Table 20). It was a closed multiple choice item.

Table 20: The respondents' comments on the frequency of visits to institutions and events

theatrical performances	at least once a week	at least once per month	at least once every half a year	at least once per year	never
n	5	60	165	94	12
%	1.4%	16.4%	45.1%	25.7%	3.3%
- a total of 336 teachers (91.8%) answered, 30 (8.2%) did not answer					

ballet / musical	at least once a week	at least once per month	at least once every half a year	at least once per year	never
n	-	9	50	126	121
%	-	2.5%	13.7%	34.4%	33.1%
- a total of 306 teachers (83.6%) answered, 60 (16.4%) did not answer					
opera / operetta	at least once a week	at least once per month	at least once every half a year	at least once per year	never
n	-	2	12	17	25
%	-	0.5%	3.3%	4.6%	6.8%
- a total of 56 teachers (15.3%) answered, 310 (84.7%) did not answer					

Almost half of the kindergarten teachers, according to their self-reflection, attend theatrical performances at least once every half a year. One third of teachers (34.4%) attend musicals at least once per year and one third of teachers (33.1%) stated that they do not attend them. Opera or operetta is less frequently visited by kindergarten teachers and only 8.4% of teachers state that they attend them at least once a year or more often.

The respondents indicated which statements related to the ownership of art-related objects best describe them (Table 21). It was a closed multiple choice item.

Table 21: The respondents' ownership of art-related objects

Statements about the ownership of art-related objects	n	%
I have artistic paintings/sculptures or their reproductions in my home.	135	36.9%
I own musical instruments.	242	66.1%
I have art literature in my library.	206	56.3%
I own video recordings of theatrical performances.	53	14.5%
I own other art objects.	42	11.5%

In conclusion, the respondents were asked whether they are actively engaged in artistic creation. (Table 22) It was a closed multiple choice item.

Table 22: Active artistic/aesthetic creation by the teachers

Answers to the question: "Do you act in plays?"	yes, often	yes, occasionally	never
n	22	109	156
%	6%	29.8%	42.6%
- a total of 287 teachers answered (78.4%)			

Almost a third of teachers (29.8%) said that they sometimes act in plays and almost half of the teachers (42.6%) said that they never act in plays. Several respondents added that it is mainly within their kindergarten work. In this case, we cannot talk about the so-called high art, but rather about dramatic expression, or the aesthetic activity of the respondents.

Under the aggregate variable, the relationship of kindergarten teachers towards dramatic art (Table 5, Table 23) can be placed in the lower half of the scoring scale (scale from 0 to 19).

Table 23: Description of the relationship of kindergarten teachers towards dramatic art

n	M	Md	SD	min	max
366	5.82	6.00	2.64	0	13

3.6 Verification of hypothesis H₁

A simple regression analysis was used to calculate the prediction of the relationship towards dramatic art with the opportunities of kindergarten teachers to acquire knowledge of dramatic art and creative drama. A statistically significant effect was found ($F(1, 364) = 73.3, p < .001$) with $R^2 = 0.165$. The opportunities for acquiring knowledge of dramatic art and creative drama statistically significantly positively predict the relationship of kindergarten teachers towards dramatic art ($t = 8.56, p < .001$). Increasing the opportunities for acquiring knowledge will also increase the teachers' attitudes towards dramatic art by 0.516.

Table 24: Regression analysis for the opportunities for acquiring knowledge as a predictor of the relationship of kindergarten teachers towards dramatic art

Predictor	B	SE	β	t	p
Intercept	3.990	0.2484		16.06	<.001
Opportunities to acquire knowledge	0.516	0.0603	0.409	8.56	<.001

Note: $F(1, 364) = 73.3, p < .001, R^2 = 0.165$

The hypothesis was confirmed. The opportunities for teachers to acquire knowledge of dramatic art by predicting their relationship towards dramatic art. In other words, how teachers relate to dramatic art depends (also) upon their opportunities to acquire knowledge from dramatic art.

3.7 Verification of hypothesis H₂

In order to predict the use of dramatic art through creative drama methods in pre-primary education through the level of the relationship of kindergarten teachers towards dramatic art, a simple regression analysis was used and a statistically significant effect was found ($F(1, 364) = 42.5, p < .001$) with $R^2 = 0.105$.

The relationship of kindergarten teachers towards dramatic art is statistically significantly positively predicted by the use of dramatic art through creative drama methods in pre-primary education ($t = 6.52, p < .001$). If the relationship towards dramatic art increases, the use of dramatic art will also increase by 0.214.

Table 25: Regression analysis for the relationship of kindergarten teachers towards dramatic art as a predictor of the use of dramatic art in pre-primary education

Predictor	B	SE	β	t	p
Intercept	3.353	0.2102		15.95	<.001
Opportunities to acquire knowledge	0.214	0.0329	0.323	6.52	<.001

Note: $F(1, 364) = 42.5, p < .001, R^2 = 0.105$

4 Discussion

Half of the kindergarten teachers consider dramatic art to be significant in their lives and almost a third of teachers consider it to be very significant. They also use it in preschool educational activities, which was commented on by 60.9% of teachers, at a frequency of once a week up to once per month.

In response to the questionnaire items, 36.6% of teachers stated a lack of professional and methodological literature with a focus on dramatic art and dramatic expression. In the research of B. Švábová (2013) and D. Kollárová (2016), the teachers also drew attention to the fact that Slovakia lacks professional literature and material in the field of creative drama. At present, the situation is already changing, and many quality publications are coming onto the market, which also reflect the issue of dramatic expression in education and creative drama. Our research has also shown that teachers are interested in such publications. Similarly, research by D. Kollárová (2016) showed that kindergarten teachers were interested in supplementing the methodological and professional literature within the field of aesthetic games for children.

When evaluating the item – children’s interest in working with a work of dramatic art - it is necessary to emphasise that it is the views of the respondents and their view of the children’s interest in working with a work of art, and not the current situation found among children. Thus, it can be assumed to a large extent that the respondents’ subjective evaluation of the children’s interest in dramatic art and works of art is influenced by the respondents’ own interest and relationship towards dramatic art as well as their competencies within the field of the application of art stimuli within education.

The kindergarten teachers involved in the research had opportunities to acquire knowledge of dramatic art and creative drama during secondary school, in so much as 41% of them have completed secondary pedagogical school, which has subjects focused on dramatic art, and the methodology of aesthetic activities based on the stimuli of dramatic art, within its study program. The majority of the respondents (62.4%) stated that they had a university degree. Among the respondents who have completed a university degree in pre-school and elementary pedagogy (which is also a qualification prerequisite for a kindergarten teacher), it can be assumed that they met with several disciplines focused on dramatic art and creative drama. The question is whether the aforementioned study focused on the knowledge of art, or more about its didactic processing and its potential for the children’s education.

Almost a third of teachers rated the opportunities of acquiring knowledge about dramatic art as good, and almost half of the teachers considered them to be very good to excellent. This self-reflection shows that several respondents were aware of their low competencies in this field. On the other hand, given the secondary and university study programs of pre-primary pedagogy, it would be ideal for graduates to end up with an excellent knowledge of dramatic art and creative drama and be aware of it within their own self-reflection. According to J. Craw (2015), students of preschool education pedagogy, who complete three-years of university studies, have only a few opportunities to develop a deeper and broader knowledge and understanding of the broader contexts from a variety of disciplines, including the arts, as well as within curricular documents, and also have no opportunities to make meaningful links to social and cultural praxis within the arts.

The low percentage of positive answers in the items about completed courses, workshops or seminars focused on dramatic art/expression may be caused by the respondents’ lack of interest in further education within the area of dramatic art, perhaps also because these respondents (who did not comment on the completion of the aforementioned courses, seminars or workshops) were satisfied with the acquired education in the fields of theory, methodology or practical topics, based on art stimuli during secondary school or university studies.

The limitations of the research are that the completion of the questionnaire was voluntary and was probably completed mainly by teachers who have a relationship towards (dramatic) art and felt the need to comment on this topic. Thus, the real situation may be “worse” than described, especially in terms of the current state of the use of dramatic art/expression within kindergartens and the relationship of the respondents towards dramatic art.

5 Conclusions and Implications

According to preschool education experts, working with drama should become part of the work of every teacher. The method beneficial for both children and teachers is creative drama, in which the child becomes a carrier of various situations through personal involvement, is encouraged to be independent in finding solutions, and develops communication skills. Through creative activities and personal experiences, it supports personal and social development. In addition, it is interdisciplinary, teaching through play and experience.

The research clearly confirmed that the opportunities for acquiring knowledge from dramatic art and creative drama

statistically significantly positively predict the relationship of kindergarten teachers towards dramatic art. It was also confirmed that the relationship of kindergarten teachers towards dramatic art statistically significantly positively predicts the use of works of dramatic art by creative drama methods in preschool education.

The benefits and recommendations for pedagogical praxis are derived from the research results: The first is to raise the awareness of kindergarten teachers about the opportunities for using the stimuli of dramatic art through creative drama methods. Already within the study of future kindergarten teachers, more attention should be paid to the didactic use of dramatic art and more specific incentives should be applied, in preparation for the profession on how to didactically work with dramatic art. Kindergarten teachers should be offered methodological guidelines and practical ideas on how to carry out activities with children in kindergartens using creative drama. Based on the research results, it can also be recommended to implement elements of creative drama into the kindergarten school curricula.

The impetus for further research is to carry out case studies of specific kindergarten teachers who successfully implement elements of creative drama into their educational praxis, and from them the resulting creation of methodological materials with the subsequent application research of their implementation into broader educational practice.

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Primary Paper Section: A

Secondary Paper Section: AM

INCLUSION IN HIGHER EDUCATION IN THE SLOVAK REPUBLIC

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This work was carried out within the Erasmus+ Project reg. no. 2021-1-CZ01-KA220-HED-000031180: Changing Our Story: The Pursuit of Inclusive Education

Abstract: The presented article deals with the current state of inclusion at universities in Slovakia. It describes the situation at the selected university in terms of support and help provided for students with specific needs. It also explains the role of the Support Centre for Students with Specific Needs, focusing on specifying the problems and difficulties of these students. University support centres are one of the tools for more effective implementation of inclusion in the environment of higher education institutions. At the same time authors of the presented article outline possibilities for improving the current situation with concrete recommendations to the practice.

Keywords: higher education, inclusion, student support centres, students with specific needs, universities

1 Inclusion in Higher Education

The issue of access to quality education is crucial because, despite all the problems that schools face today, education is still seen as a gateway to a better life. To close the gap between the intact and disadvantaged part of the population, Europe is beginning to look for an optimal model of education that increases the chances of all people for quality education. In international discourse, the term inclusive education is appearing more and more often, and with it the belief that this model is a path to social inclusion. Slovakia also subscribed to these ideas by promising to improve access to education for all and in any reform steps by ratifying documents and gaining membership in the European Agency for Special Needs Education in 2012 will ensure the consistent application of the principles of inclusion in education. Despite all the declarations, the issue of inclusive education is nowadays a more attractive topic for the professional public than the reality of our schools. The proof is many current articles, publications, or projects, in the title of which this key concept resonates.

Although interest in the issue is rising, it cannot be said that there is a consensus in Slovakia on the nature, significance, need or feasibility of inclusive education. Probably that is why there has been no declared political demand for inclusive education. However, although there are some references, they are more the result of political imports from transnational and international groupings. The country's readiness for inclusive education is determined by the extent to which these values are considered a real goal. Education in Slovak society is a recognized value, strengthens a person's chances in life and opens the way to society and work. Inclusive education is generally considered to be an effective tool for social inclusion. This conviction is also declared in the press release from the conference "Assumptions of Inclusive Education in Slovakia", organized in 2011 by the Office of the Government of the Slovak Republic together with NGOs Amnesty International Slovakia, People in Need Slovakia, and the Institute for Well-Governed Society. Its content resonates the view that the result of inclusive education is full integration - that is, the inclusion of everyone in social and cultural life.

The idea of inclusion in pedagogical thinking is the result of postmodernism. Socialization processes are directed towards the idea that a child as a social actor with his own culture transforms it by his actions. We currently encounter the terms inclusive education and inclusive school often, but we must state that Slovak education is often in the practical implementation of inclusion only in the beginning. In the publication by Booth and Ainscow (2002) "Index for inclusion", the authors pointed out a narrow perception of the problem. As mentioned by the authors, inclusion is a higher degree of integration and does not only apply to certain specific groups of pupils and students. Inclusion focuses on all students who are in the process of education. The

most important principles of inclusion are considered ethical principles

as humanity, extraordinary, in which case the welfare of each other, and about the welfare of others, and unknown (Seidler, Beliková, Dufeková, 2013). An inclusive approach to education is characterized by respecting the rights of all people to quality education, with an emphasis on breaking down barriers at school. The main task is to ensure equal opportunities through effective and support services (Bagalová, Bizíková, Fatulová, 2015). The main idea of inclusion is for individuals with disabilities to be able to be educated in the schools they would go to if they were not disabled, and for them to be able to participate in social activities in the same way as the intact population. Inclusion rejects any breakdowns. It seeks to unify, homogenize the environment. Inclusion focuses on reducing all exclusive pressures in society's education, thus ensuring a dynamic relationship between inclusion and exclusion and seeks to reduce exclusion from the majority community to increase participation in educational and cultural opportunities. It is a never-ending process towards the ideal, where the goal is to remove all exclusionary pressures within education and society (Booth, 2003, In: Richards, 2010). Today's meaning of a word inclusion is often used as phrase or term by universities in many countries to highlight ongoing efforts to rectify the problems that are linked to students with specific needs, non-academic staff, and academic staff (Wolbring, Lillywhite, 2021). The management of commitments by higher education institutions to inclusion presents significant challenges. This creates the challenge as to how universities may articulate and act on commitments which go beyond formal inclusion, and which may be expected to build a culture of a real inclusion (Scott, 2020). For inclusion to be successful, it is important that it meets several conditions.

According to Anderlik (2014), it is essential that all stakeholders have the same goal and try to achieve it. In the idea, she emphasizes the need of teamwork for the resulting effect to be positive. According to Hornák (2014, In: Janoško, 2017), in an inclusive institution, everyone is considered equal; dependent on the society for his development, a full member of the society regardless of his performance and full in the right to participate and non-exclusion from the society. Full inclusion should be a strategy according to which every student with a disability, regardless of the type and degree of disability, should receive the education he deserves (Westwood, 2018). Inclusion, like integration, in the Slovak educational context is associated with understanding the differences and diversity between students. Inclusive education builds on these differences. One of the most vulnerable groups of students facing problems and limited opportunities to obtain a university degree is students with specific needs. The quality of life of every single person is also affected by the quality and level of their education. Education is one of the most important values in life. It is a condition for the best possible social and professional employment of the individual. It is also a prerequisite for the natural provision of living needs and the accessibility of areas of public and cultural life.

An inclusive university should be an open and welcoming environment with staff and students, all of whom share and spread inclusive philosophy (Šámalová, 2016). The goal of inclusive higher education is to enable students with specific needs to strengthen and develop their strengths and talents as much as possible. However, inclusive education requires special support not only for students but also for teachers who teach these students. This means the use of a wide range of support measures and aids (Sender, 2021). In addition, it is also necessary to know and implement special pedagogical methods and support services in teaching. These services include the area of educational as well as psychological or social support, ensuring the possibility to use the most modern ICT tools and technologies for the disabled and the presence of a barrier-free

environment (Lopúchová, 2016). According to the European Agency for Development in Special Educational Needs (2012) given the importance of inclusive education as well as the measures that should be taken to ensure positive approaches to diversity and to increase the capacity of education systems and schools to meet the needs of all pupils and students in mainstream regular schools, there are still many ambiguities. Therefore, for the right to equal education for all to become a reality, according to UNESCO, it must be ensured that all and students have access to quality education. According to several authors and declarations of organizations (Bagalová, Biziková, Fatulová and others), inclusive education is considered a value implemented in practice so that every student feels respected and at the same time it is important to unconditionally accept all, not just specific groups. Therefore, heterogeneity should be perceived as a normality and school or university as a place where there is no division into those who have or do not have specific needs. It should be emphasized that we do not work inclusively in Slovakia. The thinking and reality of school and university practice is still at the level of integration. The inclusion model is still an idea that most schools want to achieve. When adopting the model of inclusive education, all stakeholders must identify only with this model, its idea, visions, and implementation in a unified way. Inclusive education is currently perceived as one of the factors that realizes social and human ideas leading to democratic social justice. Social justice is based on equal opportunities for all. Opportunity for education, health, and work. As a result, solidarity is being created for all those who have been excluded from the social community system in the past. The aim of inclusion is not to adapt the existing community to the model of integration, but to include all individuals in society as they are.

The quest for inclusive education is likely to continue for a long time, but the question is how fast it will be and what its future will be. The process of institutionalizing the care of people with disabilities has lasted for over 200 years, since the beginning of the 18th century, when the first institutions were established in Europe, and led to the gradual segregation or selection of people with disabilities and social disadvantages. Lechta (2010) emphasizes: "If then the institutionalization (which can be understood as a counter-process to inclusion) lasted so long, it should be borne in mind that the opposite inclusive trend cannot be short-lived and all hasty and ill-considered solutions would work counterproductively". Just as institutionalization was a long-term process, so will be the process of inclusion. Among the arguments for promoting inclusive education, some authors state that if a given society promotes social integration or inclusion as such, there is no place for segregated education in this society. Others state that the essence of society exists from the fact that state educational institutions guarantee all equal opportunities for children. Some authors even state among the arguments in favour of integration that justification of integration and inclusion is not necessary, but justification of segregation is required (Seidler, Kurincová, 2005).

1.1 Legislative and legal norms related to inclusive higher education in Slovakia

One of the obligations arising from the European standard of university education, to which the Slovakia in recent years subscribes, is to ensure equal participation of students with specific needs. Unlike previous grades of education, there are no "special" colleges in Slovakia that are directly targeted and fully adapted to students with specific needs. Studying at the university then is only possible in the form of individual or group integration, now inclusion.

In Slovakia, inclusion in education is officially covered by several legal regulations, specifically in the Constitution of the Slovak Republic (Articles 38, 42), in the Act of the National Council of the Slovak Republic No. 245/2008 Coll. on Education (School Act); in the Decree of the Ministry of Education of the Slovak Republic No. 325/2008 Coll. On School Facilities for Educational Counselling and Prevention; in the Model Statute of Special Pedagogical Counselling Facilities

approved by the Ministry of Education of the Slovak Republic under No. 382/1999-44 on 21 December 1999. Act of the National Council of the Slovak Republic no. 365/2004 Coll. on Equal Treatment in Certain Areas and on Protection against Discrimination (Anti-Discrimination Act) states that compliance with the principle of equal treatment consists in prohibiting discrimination also on the grounds of disability. Adherence to the principle of equal treatment also consists in taking measures to protect against discrimination. Paragraph 3 states that everyone is obliged to observe the principle of equal treatment, accordingly in education. However, a key moment in the development of inclusive education was the adoption of the 2006 UN Convention on the Rights of People with Disabilities, which establishes the right of people with disabilities to be educated in an inclusive education system, committing states to transforming education and promoting inclusive education. In this document, the Parties recognize the right of persons with disabilities to education. To exercising this right without discrimination and based on equal opportunities, the Contracting Parties shall ensure an inclusive education system at all levels. It follows that such conditions must be ensured at universities as well, while respecting, protecting, fulfilling, and promoting the rights of people with disabilities. In tertiary education, only education with specific needs in the mainstream is available, which means creating conditions in which they will be able to develop their potential with significant special pedagogical support and the participation of a cooperating team of experts.

Since 2020, there is an inclusive approach in Slovakia, emphasized by the Ministry of Education, Science, Research and Sport of the Slovak Republic. For the first time in history, a separate Department of Inclusive Education was established at the Ministry of Education. The department declares that the state educational program must be pro-inclusive, built to accept the educational requirements of all children, pupils, and students without exception, as well as pupils and students with diverse needs, with disabilities, from socially disadvantaged backgrounds, foreigners, pupils and students of different nationalities, migrants or pupils and students with talent. Given that the provision of inclusive education is regionally very specific, it will require the cooperation of all stakeholders at different levels. Changes in some schools and school facilities are also necessary.

However, the goal of the Ministry of Education is to focus on the "path of the possible" - that is, to look for solutions as possible. At the same time, the Ministry of Education plans to incorporate the concept of inclusion and define it in the Education Act. With a view to implementing measures in the field of inclusive education as soon as possible, the Ministry identified in its document the Zero Action Plan Strategies for Inclusive Approaches in Education, which will be prioritized in 2021. These include desegregation of the education system, early and pre-school inclusion. age (0 - 7 years), inclusion of pupils in primary and secondary schools, support and personnel conditions of inclusion or special pedagogical support in education and counselling. Further steps for the long-term and strategic development of inclusive education in the Slovak Republic will be identified in the forthcoming Strategy for Inclusive Approaches in Education. The creation of a Comprehensive and Long-term Strategy with the First Action Plan for the period 2022 - 2024 is covered by the Ministry of Education in cooperation with other ministries and experts from practice. The Zero Action Plan is therefore the primary starting point for the rapid start of functional changes to increase inclusiveness in education. The Ministry wants to communicate inclusive steps intensively and transparently, so it is creating a regular online format "In a word with inclusion", in which questions, suggestions and comments from the public will be answered. We consider it necessary to clarify the classification of health disadvantages. In Slovakia, health disadvantage is divided into three areas.

1. a pupil or student with a disability (sensory, physical, multiple disabilities, medical, chronic, mental illnesses,

- pervasive developmental and learning disabilities), referred to in a university setting as specific needs,
2. a pupil or student from a socially disadvantaged background,
 3. a pupil or student with talent.

The group of students with specific needs includes applicants for study and students with disabilities and learning disabilities. A student with a disability is a student:

1. with a disability (visual, hearing, physical, physical, impaired communication, autism or other pervasive developmental disorders or multiple disabilities) which, in interaction with various barriers in the social environment, prevents equal student involvement with a disability into the educational process and achieving the desired results compared to a student without a disability.
2. with chronic illness, mental illness, and health impairment of short-term, long-term, or permanent nature, due to which it needs appropriate adjustments and support in education (Methodological Guideline for Creating Study Conditions for Students with Special Needs at Universities, 2015).

According to Act 131/2002 Coll. in Higher Education Institutions, we define specific needs in § 100 Support for Students and Applicants for Studies with Specific Needs of this Act. In the first point, it is emphasized that the university creates a generally accessible academic environment also by creating appropriate study conditions for students with specific needs without reducing the requirements for their study performance. A student with specific needs is a student:

- a) with sensory, physical, and multiple disabilities,
- b) with a chronic disease,
- c) with health impairment,
- d) with a mental illness,
- e) with autism or other pervasive developmental disorders,
- f) with learning disabilities.

2 The role of the Student Support Centre

Support for university students with disabilities is provided through various forms and institutions. Among the most frequent are the coordinator for students with specific needs, special pedagogical workplaces at universities, erudite teachers who master the appropriate educational strategies, various elements of accessibility, etc. Finally, the personal competencies of the student himself and his readiness to work and learn in a university environment are also important. Counselling and support services for students within the Student Centre CPU (SC) are as follows:

- a) consulting activity,
- b) advice on scholarships and student loans,
- c) career counselling,
- d) psychological counselling,
- e) counselling and support for students with specific needs,
- f) health counselling,
- g) legal advice,
- h) social counselling,
- i) promoting job offers,
- j) possibilities of volunteer and social activities,
- k) promoting and organizing cultural, social, and sporting events

Counselling and support are mainly provided by the faculty coordinators. The coordinator is educated in psychological, social, pedagogical, or/and special pedagogical sciences. He provides professional and special pedagogical counselling also is the main guarantor of the student centre. The activity of the main coordinator consists of comprehensive information and counselling services for students with specific needs. He concerns the selection of an appropriate study program,

screening, and student registration. Academic support during the study is mainly focused on providing proposals for appropriate adjustments and provision of support services during the study and individual evaluation of the scope of support for students with specific needs, as well as assistance in providing interpreter services for the deaf students. Intervention and therapeutic services are aimed at addressing specific learning disabilities. Technical support is focused on providing suitable technical equipment, providing study literature in an accessible form, assistance in providing interpreter services for the deaf, aiding technologies according to the type of disability and the like.

Student Centre offers advice, counselling, and other services to the students. This centralized consultancy unit includes spiritual, financial, career, psychological, legal, and social counselling, health counselling and counselling and support for the students with specific needs. The services provided by Student Centre to the University Student Associations include the provision of public spaces, technical and material assistance and mentoring in organizing the university events and projects. It also provides information about a wide range of offers for the students, which include job offers, summer jobs, volunteering and social activities, social, cultural, sporting, and other events conducted at the individual workplaces/units at the university.

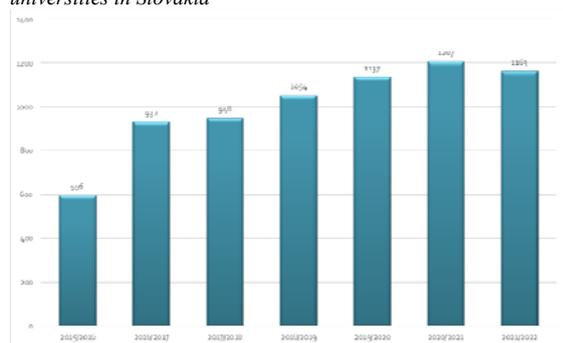
University of Constantine the Philosopher in Nitra (hereinafter CPU in Nitra) respects students, including students with specific needs. All students have all rights and obligations under Act no. 131/2002 Coll. on Higher Education Institutions and on Amendments to Certain Acts, as amended. CPU in Nitra with its statute, regulations and other regulations provides optimal conditions for the study of intact students and students with special needs. Centre for Support of Students with Specific Needs at Faculty of Education at CPU in Nitra offers:

- a) the possibility of diagnosing study skills cognitive and perceptual areas,
- b) counselling in the field of learning strategies, effective notes, and comprehension of the text (program I have it),
- c) the possibility of developing thinking through the FIE program,
- d) possibility of dynamic LPAD diagnostics,
- e) consultations on the admission and administration of records of students with special needs,
- f) help in the library when working with catalogues,
- g) consultancy for the compilation of an individual schedule for the fulfilment of study obligations,
- h) assistance in compiling and solving schedule actions,
- i) recording notes from lectures and seminars,
- j) scan and copy notes and textbooks,
- k) counselling for teachers, for work with students,
- l) help with audio recordings of lectures and seminars,
- m) conversion of teaching texts into audio form,
- n) equipment rental, assistive technology, and consultancy,
- o) sign language interpretation,
- p) counselling for teachers, for working with a blind student.

2.1 Description of students with specific needs at universities in Slovakia

The number of students with specific needs at universities has been on the rise since 2015. Data from the period before 2015 are not available, it is assumed that such a student appeared at almost every university in Slovakia, support and assistance were set individually through an individual study program. By analysing the descriptive method, we concluded that in the last two years, due to the pandemic situation, the number of registered students has stabilized from 2018/2019 to 2021/2022 (Graph 1). The slight decline in 2021/2022 was partly influenced by the distance studies at which universities have started since the declaration of a state of emergency in the Slovak Republic in March 2020. Not every student with specific needs managed the transition to online education.

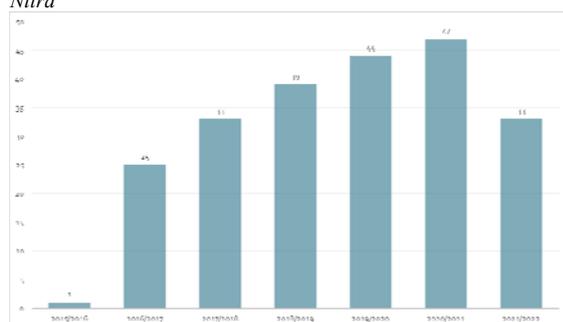
Graph 1: The number of students with specific needs at universities in Slovakia



Source: Author's own work.

Analysing the following graph (Graph 2), we notice that the number of registered students with special needs at CPU in Nitra is stable, it has had a growing tendency since 2015. The year 2021, as mentioned above, was more demanding for students due to the transition from full-time teaching to distance learning, which was reflected in a lower number of students with special needs. Many students have interrupted their studies or dropped out of university for a variety of reasons. The most common reasons include mental or psychological problems, problems of a physical nature (absence of a quality connection, few computers in a multi-member household, economic reasons) and increased study complexity.

Graph 2: The number of students with specific needs at CPU in Nitra



Source: Author's own work.

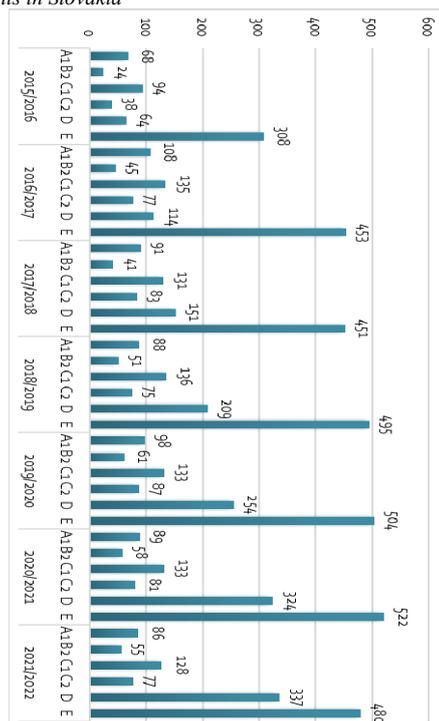
Table 1: Categorization and definition of specific needs

Group	Code and definition
A1	1 – blind student 2 – visually impaired student
B2	3 – deaf student 4 – student with hearing impairment
C1	5 – student with lower limb disability
C2	6 – student with upper limb disability
D	10 – student with autism or other pervasive developmental disorders 11 – student with learning disabilities
E	7 – student with a chronic illness 8 – student with a health disability 9 – student with mental illness

Source: Author's own work.

The categorization of specific needs is based on the Decree on the Minimum Requirements of a Student with Specific Needs at a University 458/2012 Coll. By analysing the categorization of specific needs and the number of registered students (Graphs 3, 4 and 5), we concluded that over the years, the groups of some categories represented are stable and other categories of specific needs are very variable. It is a natural phenomenon establishing society and human demographic evolution.

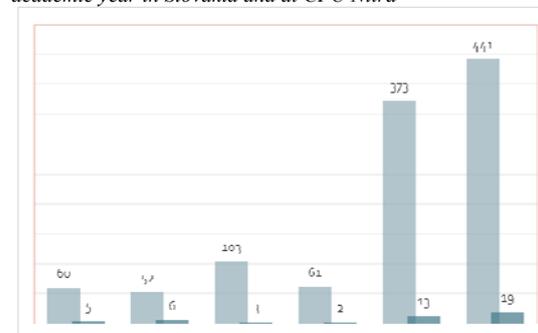
Graph 3: Categorization of specific needs and number of students in Slovakia



Source: Author's own work.

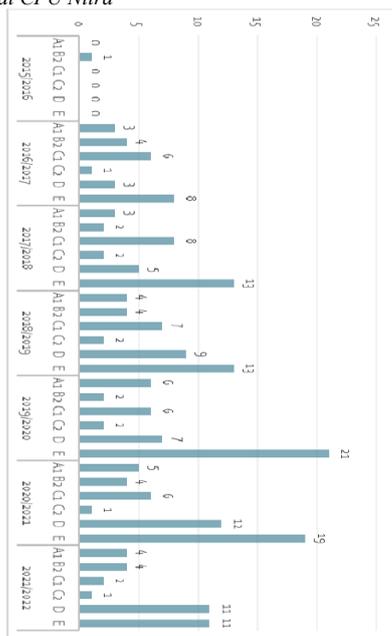
The most frequently established groups are students from the category of sensory disabilities A, B, C (blind student, deaf student, and student with physical disability). Since 2015, the number of students with learning disabilities (category D) has been rising. The group of students whose number is variable consists of a group from category E - students with disabilities, chronic illnesses, and mental illnesses.

Graph 4: Number of students with specific needs for the coming academic year in Slovakia and at CPU Nitra



Source: Author's own work.

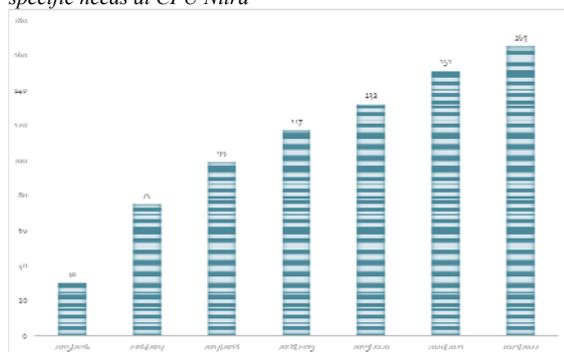
Graph 5: Categorization of specific needs and number of students at CPU Nitra



Source: Author's own work.

The set support and counselling are calculated in hours, it has an increasing tendency. Despite the lower number of students with special needs, the number of counselling hours is increasing (Graph 6).

Graph 6: Number of counselling hours with students with specific needs at CPU Nitra



Source: Author's own work.

3 Strategies and recommendations for more effective inclusion in higher education

There is a need for deep and sustainable cultural change. This type of change requires change that includes some overcoming long standing traditions (of exclusion). Hence, to create significant and lasting change, our approach cannot not just be about doing interventions or producing products but must make sure that there is widespread impact. Badescu and Pop (2012) contend that inclusive education is so complex that it cannot just be policy driven. Special emphasis needs to be placed on interactions, experiences, and relationship building.

Becoming an inclusive counsellor, coordinator or academic staff in general takes time and requires a commitment to learning. Accomplished professionals realized that regardless of how much they know there is always more to learn. They constantly must seek resources and educational opportunities that can improve their knowledge about students with specific needs and how to best instruct them. Effective inclusive instruction for students with specific needs requires academic staff to be (Brownell, Smith, Crockett, Griffin, 2012, p. 15):

- committed to the philosophical goals of inclusion,
- responsive to the academic and social needs of struggling students,
- diligent in fulfilling their collaboration responsibilities to students,
- skilful in basing instruction on evidence and collaborative inquiry,
- committed to acquiring the knowledge, skills, and strategies needed to lead and help students with specific needs,
- engaged in professional development and supported with resources to develop professionally.

Inclusive academic workers need to know what resources are available, particularly those that can help them develop better instruction collaboratively. They need to recognize how they can work with their colleagues to learn from one another (Brownell, Smith, Crockett, Griffin, 2012). The components and strategies that form achieving more accomplished approach to university students with specific needs in our opinion are:

1. Promotion of the value of Inclusive Education: There is a need for inclusive education as there has been systematic exclusion or marginalization of certain population groups within education. These practices are the extension of the practices that are part of our respective societies. Getting people to embrace these concepts might require significant disruption of the status quo. Steps to achieve this vision can be different such as small groups conversations with students, parents of students, educational staff, alumni, and more. Some of these people do not necessarily feel safe to freely share their thoughts. Hence spaces of safety need to be created where people can be comfortable enough to share. Every university should design a plan for promoting the value of inclusive education, share plans for the promotion of inclusive education, document the progress and effectiveness of their promotional plans and use the collected data to contribute to the development of the online course
2. Professional Development: Professional collaborative learning and exchange on inclusive education including online trainings and reflection sessions for educational and/or counselling staff at universities, analysis of institution and local/national context, organizing and facilitating student and extended community session(s), organizing, and facilitating discussion session(s) with extended university community.
3. Understanding local and national context: Academic Staff should engage in activities to gain a thorough understanding of the meaning of inclusive education. It should be done through own investigative practice. In addition, universities should organize and facilitate discussion with community members (university, school, students, etc.) and share their findings to the public.

4 Conclusion

Inclusive education should ensure that every individual, and therefore also an individual with a disability, has the right to study at university the chosen study program, if he meets the basic conditions for admission to study, other conditions determined by the university providing the chosen study program and any other conditions. The rights established by legal norms are equally guaranteed to all applicants and students in accordance with the principle of equal treatment, discrimination on grounds of age, sex, sexual orientation, marital or family status, race, colour, disability, language, political or other opinion, membership of a national minority, religion or belief shall also be prohibited, trade union activity, national or social origin, property, lineage, or other status. The university also creates a generally accessible academic environment by creating appropriate study conditions for students with disabilities without reducing the requirements for their study performance. Depending on the extent and type of specific need, the student with a disability is entitled to support services before entering the university and during his studies, in particular to ensure the possibility of using specific educational resources; for individual educational approaches, in particular individual teaching

of selected subjects for students with sensory disabilities; on special conditions for the performance of study obligations without reducing the requirements for study performance; to the individual approach; to waive tuition fees in justified cases if the study is longer than the standard length of the relevant study program.

The current situation in Slovakia indicates a lack of academic engagement with inclusion as it relates to disabled students, non-academic, and academic staff. This is troubling, but also an opportunity. There are various tools that can help inclusive endeavours to make visible the problems disabled people and other inclusive linked groups face. CPU in Nitra has joined an international project this year, the main goal of which is to create a comprehensive online course for consultants, coordinators, and academics. The course will offer information on how to approach students with specific needs. This course then can be modified to cover ability diversity, ability privilege, and ability bias. Various ability expectation exercises could be used to reveal unconscious ability biases and ability privilege biases. As such, we hope, it will be useful tool to make people realize the existence of ability based and other biases within themselves and others (Wolbring, Lillywhite, 2021). The aim of inclusion in the university environment is to lead students to independence, increasing their sense of self-esteem and the best possible ability to function in a social, school, and later work environment. Based on the above information, we assume that the main role of universities in promoting inclusion is to:

- a) promote the value of inclusive education,
- b) address the lack of professional development university staff regarding inclusive education,
- c) develop an analysis approach that takes local and national context into consideration when considering developing a plan to address inclusion,
- d) target staff that support students at the high school and university level,
- e) target students and their respective communities at the high school and university level,
- f) develop training and informational systems (via an online course, community meetings, dissemination activities, student's activities, and projects) that will serve as a resource to staff and the broader community,
- g) engage a selected marginalized population to gain better insight into what is necessary to gain access and be successful in higher education.

Finally, we want to emphasize that inclusion is not a term that can be applied as a substitute for the concept of integration. Inclusion is a higher form of coexistence of a heterogeneous society based on understanding and recognizing the positive benefits for society. Inclusion as a process preceded by integration, which as a form of coexistence alone is not enough to achieve inclusion. "Inclusion can only be achieved by changing the thinking of every individual in society and by enthusiasm to accept and accept an individual who is exceptional in his abnormality" (Seidler, P., 2008). In addition to P. Seidler, M. Horňáková (2006) writes quite aptly in this sense that the concept of integration is based on the needs of a student with specific needs, the concept of inclusion focuses on the rights of a student with specific needs.

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Primary Paper Section: A

Secondary Paper Section: AM

RESULTS OF ANALYSIS OF TASKS SOLUTIONS FOCUSED ON SELECTED ELEMENTS OF PROPOSITIONAL LOGIC IN THE CONTEXT OF SCIENCE AND MATHEMATICS SUBJECTS IN THE POST-FORMAL STAGE OF COGNITIVE DEVELOPMENT

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This contribution was created with the financial support of the Ministry of Education, Science, Research and Sport of the Slovak Republic within the project research grant KEGA no. 004UPJŠ-4/2020 "Creation, Implementation, and Verification of the Effectiveness of Digital Library with the Formative Assessment Tools for the Natural Sciences, Mathematics, and Informatics at the Elementary School".

Abstract: The current study presents the results of empirical research, which focuses on analyses of the solution of tasks containing the selected elements of propositional logic formulated in different subject-specific contexts. The focus group of our interest was the university students. As a research tool, we used a knowledge test. Our research aimed to investigate the results of the respondents (N = 497) depending on the selected aspects (students' performance according to the students' study programme and their success in solving individual tasks depending on the subject-specific context, gender, age, type of secondary school where they graduated). The results show that students' chosen orientation in higher education is typically related to the successful application of formal logic and its subject-specific contexts. Furthermore, the results confirmed that secondary grammar school education still provides better preparation in formal logic than other types of secondary schools.

Keywords: formal logic, post-formal cognitive level, scientific and mathematical tasks, higher education.

1 Theoretical background

Thought operations play a crucial role in an individual's cognitive development. They form the basic cognitive apparatus of a person. The fundamental pillars of this apparatus are four skills: the skill of arrangement, combinatorial, logical skill, and skill of proving. The skill of arrangement is the one that develops first in children, then the combinatorial skill and logical thinking develops, and most recently, the skill of proving. Why is logical thinking important? As a result of the absence or insufficient logical thinking, pupils have problems with comprehension and interpretation of the text and general information processing, which makes it difficult for students to learn.

Understanding how we think, gain knowledge, and learn is currently being explored from various aspects - from genetic factors, epistemology, philosophy of thought, language structure, educational theory, and other areas. Experts' debate is the possibility of identifying general aspects of thinking in various contexts. There are opinions according to which there is a general ability to think that can be used or applied in different contexts (Ennis, 1989, 1996). On the other hand, thinking proponents are always context-specific (McPeck, 1990), and thinking is applied as part of situational learning (Lave, Wenger, 1991). Theories of education tend to look at this issue from the point of view of learning knowledge or the development of knowledge, from a genetic point of view, based on Piaget's generally accepted theory of cognitive development.

The person's cognitive development is connected to language acquisition (Clark, 2003). In the works of Piaget and Vygotsky, we know that although the roots of the genesis of thought and language are different in the development of the individual, their connection and relationship strengthen with age. Speech, therefore, becomes an instrument of thought, expressed in words.

Piaget characterizes the relationship between language and thinking as follows:

- the system of rules of logical thinking is not innate but evolves gradually,
- the language itself is not strictly tied to logic,

- the logical nature of our thinking depends on the properties of thought operation structures that gradually evolve during the development of the individual.

It is also clear that language significantly influences thinking through communication. In everyday life, through language and speech, we use many logical structures created by conjunctions, which are also operators of propositional logic. Behind the logical structure of speech lies an important logical content. If a person does not have the basic apparatus of propositional logic and does not understand logical structures, he does not understand its content. Research studies show that language slightly affects thinking in other ways than communication, such as mathematical reasoning and spatial navigation (Bloom, Keil, 2001). Language plays an exciting role in how we think beyond its role in communicating information. *"The miracle of the appropriateness of the language of mathematics for the formulation of the laws of physics is a wonderful gift which we neither understand nor deserve."* (Wigner, 1960)

Through mathematics as a discipline and as a school subject, students' thinking can be shaped to apply the mathematical knowledge they acquire to other subjects and solve everyday problems outside school. Mathematics offers a systematic approach to solving various problems, and this apparatus is suitable for modeling natural and social phenomena (Csapó, Szendrei, 2011). For example, the mathematical background of deductive reasoning is classical formal logic, where the emphasis is primarily on the formation and interpretation of complex statements from elementary judgments using conjunctions ("and", "or", "if..., then" and "then and only if..., if") as linguistic elements. Equally important is the correct interpretation and use of quantifiers often used in everyday speech, such as the linguistic schemas "all" and "there are such" and their synonyms (Vidákovich, 2013).

Usually, when we talk about thinking, many people associate it with mathematical thinking. Moreover, mathematical thinking tends to be reduced to numerical and arithmetical problems. When we think of mathematical thinking in the context of science, we immediately think of calculations in chemistry, physics, or biology. Thinking in the context of science must be understood in a much broader sense, just as in the case of mathematical thinking, we must think of more than just doing numerical calculations.

Since its founder Aristotle, the science of correct reasoning, i.e., drawing conclusions, and driving consequences from given assumptions, has been called logic. Mathematics as a science is based on this logical basis, as well as the teaching of mathematics, one of the main goals of which is the development of logical thinking. At the same time, in contrast to classical logic, modern logic is strongly influenced in its form and methods, especially by mathematics, and is called mathematical logic. Its basic parts are propositional logic and predicate logic, some of which we acquaint students with a didactically appropriate and accessible form in the introduction to mathematical logic at the beginning of high school mathematics (Polák, 2014).

The development of formal reasoning ability should be a significant priority also in science education (Lawson, 1982). There is a direct link between formal thought and integrated processes such as identifying and controlling variables and hypothesizing. It is reported that formal reasoning ability was the strongest predictor of process skill achievement and retention (Tobin, Capie, 1982). Teaching biology, physics, and chemistry provide an excellent opportunity to develop thinking. Advanced thinking skills are needed to understand and apply basic concepts and recognize connections (Radnóti, Korom, 2020).

Research shows that speech has the most significant effect on developing thinking at the stage of formal operations (in children between the ages of 11 and 15) (Csapó, Vidákovich, 1987). It is interesting that in children, the grammar development precedes the development of logic: expressions such as "because," "when," "but," and "on the contrary" are used by the child before he knows and understands their real logical meaning. According to Chomsky (2006), when creating a sentence from an idea, we perform a sequence of mental transformations, but the structure of natural language is not based on logic. In order to examine logic independently of language, we need to "cleanse" the logic of language ties. For such purposes, propositional logic is optimal, independent of natural language or interpretation's manner and psychological factors.

Propositional logic formalizes the language through which we formulate mathematical statements; it sets out the rules by which we can infer new statements from statements; it analyzes the forms of propositional structures and develops methods of proof. By Piaget (1970), signs of logical thinking in formal logic can already be found in the preoperative developmental stage of a child (2-7 years). The stage of specific operations is an essential milestone in logical thinking. In addition to the typical characteristics of this stage, such as logical thinking about objects and events and understanding the constancy of number, quantity, and mass, there are also elements of combinatorial thinking. According to Piaget and Inhelder (2013), the recognition of the terms "possible" and "true" leads to the development of two-variable logical operations, which is a prerequisite for the use of formal logic and thus formal thinking. For teenagers, operations of a hypothetical-deductive nature at the verbal level make it difficult to use concepts and expressions instead of natural objects and build a "new" logic - a system of propositional logic and mainly apply it at the verbal level in various contexts is cumbersome. Piaget also calls this stage a period of propositional logic (Piaget, Inhelder, 2013).

Current trends in the development of logical thinking focus more on developing individual elements of operations supporting logical thinking than on the holistic development of general logical thinking (Csapó, 2018). It turns out that the development of logical thinking skills is effective if educational activities aimed at applying individual logical operations are adapted. Namely, their proper use is a prerequisite for managing thinking and its improvement. It is possible to think logically without knowing the individual elements of formal logic. Many studies (Csapó, 2018; Carlsson et al., 2015; Csapó, Molnár, Nagy, 2014) currently address the diagnosis of cognitive abilities, including the ability to think, and the issue of their development. Studies that approach thinking through logic manifested in the language and statements have a more extended history than the early 20th century. It has three main areas that roughly correspond to traditional chapters of formal logic statements (Nitta, Nagano, 1966; Braine, 1978), quantifiers (Revlis, 1975; Johnson-Laird, 1983, 2005), and transitive deduction (Huttenlocher, 1968; Clark, 1969).

Sinnott (1988) examined logical thinking with the tasks of Piaget among adults in the postformal stage of cognitive development and outlined the possibilities of developing logical thinking in adults. These alternative models ultimately claim that the human mind has more than formal or logical rules. As Johnson-Laird (1983) pointed out, the most significant problem is that people make mistakes. They draw invalid conclusions that should not occur if the deduction follows mental logic. The basic premise of any formal logic is that deductions are valid based on their form, not their content. If a derivation rule is in mind, it should apply regardless of the proposal's content (Lourenço, 1995). Carey (1985) pointed out that there are apparent differences in the thinking of children and adults regarding specific knowledge - children are newcomers in all areas of thought, while adults show thinking skills.

2 Aim of research

The main objective of our research was to assess the level at which students can use selected elements of formal logic. The empiric research aimed to examine the results of solving a set of tasks focused on elements of formal logic concerning to the nature of students' studies. In the research, we worked with an available sample of university students from two faculties, the Faculty of Education and Faculty of Economics and Informatics, whose study programs are oriented diametrically differently. While the Faculty of Education (FEd) mainly offers study programs with a more humanistic and social science orientation, the Faculty of Economics and Informatics (FEI) focuses on the technological and economic areas of STM (science, technology, mathematics). Our research primarily want to compare students' results from these two different oriented study programs. Accordingly, we formulated four research questions and hypotheses:

Q1: Are there differences in students' performance in the formal logic test according to the students' study programme?

H1: We assume that FEI students achieve better results in solving the tasks because they have more subjects requiring logical thinking taught at FEI (mathematics, computer science).

Q2: Within each task-group containing different elements of propositional logic, is there a difference in the success of each subject-related task in terms of study programmes?

H2: We assume that FEI students achieve better results compared with the students of FEd.

Q3: Is there a difference in the students' performance of task-group solutions in terms of gender and age?

H3: We hypothesize that there is no significant difference in the success of task solutions in terms of gender and age.

Q4: Is there a difference in the test results according to the type of secondary school which the students finished?

H4: We assume that students who finished secondary grammar school achieve better overall results than other secondary school students. Moreover, we think that the success of secondary grammar school graduates is independent of the study program in which they are currently studying.

We see the reason for our assumption in the higher standard of grammar school education, and its content structure provides a better basis for students to achieve in the logic test.

3 Materials and methods

The research involved 536 students, 184 persons from the Faculty of Education (FEd) and 313 from the Faculty of Economics and Informatics (FEI). A total of 536 participants completed the questionnaire, and after validation of the data, 497 respondents were included in the study. The sociodemographic characteristics of the participants are reported in Table 1.

Table 1: Sociodemographic data of respondents

Variable	Frequency (n)	%
<i>Sex</i>		
female	310	62.6
male	185	37.4
<i>Age</i>		
18-25	401	81.0
> 25	94	19.0
<i>Study programme</i>		
FEI – management	241	48.5
FEI – applied informatics	72	14.5
FEd – Pre-school education, Primary school teacher	158	31.8
FEd – Teacher training	26	5.2
<i>Type of secondary school</i>		
Secondary grammar school	199	40.1
Secondary school	297	59.9

3.1 Measuring instrument

The method used to achieve our research aims was a single-group quasi-experiment performed in February - April 2021. As a research tool, the survey was composed of a sociodemographic part, including sex, age, study program, type of secondary school education, and a knowledge test. The knowledge test included a set of 15 tasks from biology, physics, chemistry, mathematics, and the context of everyday life. The tasks were selected according to their nature of propositional logic and further grouped into three groups. All three groups included 5-5 tasks, one from each subject-specific context. In group A, there were tasks in which we focused on monitoring the understanding and correct use of quantifiers: "everyone," "at least," "just," "most," and "none." In group B, there were tasks in which we surveyed whether the respondents knew the correct formulation of the negation of the statement. Group C included tasks on the formulation of inferences. In creating the tasks, we are based on the belief that selected elements form the basis of propositional logic and are most often used in logical thinking in science education and everyday life.

The survey was performed online using Google Forms due to COVID restrictions valid during the data collection period. Most of the tasks were multiple-choice with one correct answer, except for one biology task in group C. The statistical analysis of the collected data was realized in IBM SPSS version 27.

4 Results

Based on the answers to the 15 tasks, we evaluated the students' results. Each correct response was evaluated 1 point and 0 for incorrect or missing responses. The total test score available was 15 points. The statistical analyses were performed to examine the students' overall test scores and success rate in the three task-groups, including elements of propositional logic. The test scores were compared according to the respondent's study programme, type of secondary school, gender, and age. Statistical analyses were also performed to determine the success rate in solving individual tasks depending on the subject-specific context.

Examining the test results, we found that the variable *score* is not normally distributed according to the Shapiro-Wilk test ($df = 497$, $W = 0.979$, $p < 0.001$). The variable had a negatively skewed distribution (-0.243). Since the distribution of the score variable is neither normal nor even symmetric, we decided to perform nonparametric tests for other analyzes and comparisons, even if the sample is sufficiently large.

The average test score for $N = 497$ participants was 8.56 (SD = 2.61). The overall correct answer rate was 57.1%, while the range of correct answer rates for all participants was between 6.7% to 100%. The median value was 9 points.

By examining the test results in three task-groups (Table 2), we found that the students were most successful in solving tasks on the formulation of inferences (group C), with a correct answer rate of 69.4%. In task-group A, dealing with quantifiers, students achieved an average performance of 68.0%. The lowest results, 33.8%, were evaluated in tasks with the negation of statements included in group B.

Table 2: Mean score and SD for each task-group

N = 497	Group A	Group B	Group C	Score
Mean	3.40	1.69	3.47	8.56
SD	1.121	1.155	1.282	2.614

Performing the appropriate statistical test, we found significant differences (Friedman $Q = 480.2$, $df = 2$, $p < 0.001$) comparing the test results in three task-groups, A, B, and C. Lowest average score was achieved in task-group B on statement negation. Post-hoc analysis shows the different pairwise distributions for groups A-B and B-C, while the test for samples A-C shows that the distributions are the same.

Based on the answers, students consider the tasks on statements negation to be the most difficult, with the other two task-groups having practically the same difficulty level. The students' success rate of group B tasks are remarkably lower than for tasks A and C.

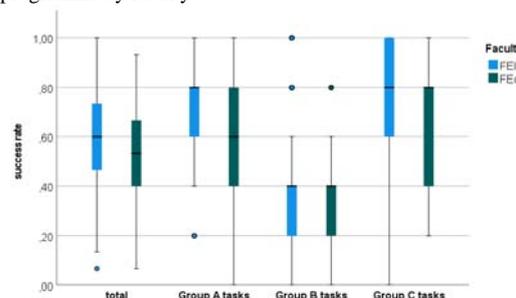
We examined whether there is a difference in the scores achieved in the task-groups according to the students' study program (Q1). For comparison, students were classified into the two faculties based on their study program. We found 63.0% (313) of the respondents studied at FEI and 37.0% (184) at FEd.

Table 3: Basic statistical indicators by faculties

	Group A	Group B	Group C	Score
Mean/FEI	3.50	1.74	3.54	8.78
Mean/FEd	3.24	1.61	3.34	8.20
U	25284.5	28308	25720	25197.5
Sig.	0.019	0.742	0.041	0.019

We see that the average score is higher in all task-groups among FEI students than in FEd (Table 3). Based on the Mann-Whitney test, there is a significant difference ($U = 25197.5$, $p = 0.019$) between the average scores of the students studying at FEI and FEd in average total scores and task-groups A and C.

Figure 1: Score distribution and comparison of the test performance for each task-group in terms of respondents' study programme by faculty



In the next step, we examined the results according to the context of the tasks (Q2). Within each task-group, we compared the results of the respondents of each subject-related task in terms of study programs.

Table 4: Descriptive statistical indicators by task context

	Math	EL	Physics	Bio	Chem
N	491	493	491	445	475
Mean	1.76	2.13	1.79	1.95	1.09
Mean/FEI	1.89	2.17	1.88	1.92	1.14
Mean/FEd	1.56	2.08	1.64	1.99	1.02
U	23491	26025	24053	22445	24870
Sig.	0.001	0.052	0.004	0.426	0.208

Considering the task context, we found significant differences (Friedman $Q = 346$, $df = 4$, $p < 0.001$), and the best results were achieved in real-life tasks (2.13 points). Post-hoc analysis shows that the distributions are the same for Math-Physics, Math-Bio, and Physics-Bio samples. All other samples have different pairwise distributions. That is, the distribution of the points of tasks with context Math-Physics-Bio is approximately the same, except that in the part of Everyday life (EL), points are higher, and in the Chemistry part, points are lower.

If the averages are compared according to the faculties (Mean/FEI and Mean/FEd), there is a significant difference only for mathematics and physics tasks, where the mean score is significantly higher for FEI students (Table 4).

We examined whether there is a difference in students' performance of task-group solutions in terms of gender and age (Q3). The scores obtained in the knowledge test were compared according to the gender and age of the respondents with a Mann-

Whitney U-test. By age, 401 students (81.0%) were between 18 and 25 years old, and 94 students (19.0%) were over 25 years old.

Table 5: Descriptive statistical indicators by age

	Group A	Group B	Group C	Score
Mean/18-25	3.39	1.70	3.45	8.54
Mean/ 25+	3.46	1.68	3.56	8.70
U	18083.5	18228	18201	18409.5
Sig.	0.527	0.605	0.594	0.724

The analysis results show no significant differences in average performance (Mann-Whitney $U = 18409.5$, $p = 0.724$) in students' age compared to groups 18-25 years and over 25 years (Table 5).

Among the respondents, 310 (62.6%) were women, and 185 (37.4%) were men. However, according to gender, there is no significant difference only in task-group A, in the other task-groups, and in the actual test, we found significant differences between the male and female respondents (Table 6).

Table 6: Descriptive statistical indicators by sex

	Group A	Group B	Group C	Score
Mean/female	3.36	1.58	3.39	8.34
Mean/male	3.46	1.89	3.61	8.96
U	27349.5	25150	25584	24718
Sig.	0.373	0.017	0.039	0.010

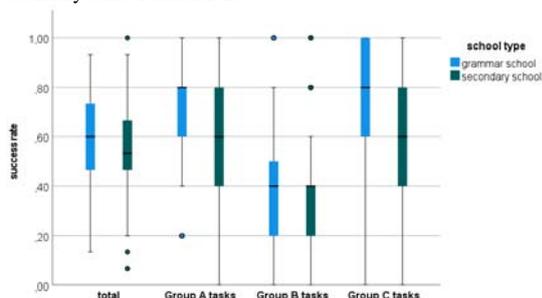
The following analysis concerned the difference in the test results according to the type of secondary school the students finished (Q4). A total of 199 (40.1%) students participating in our survey graduated from secondary grammar schools (SGS), and 297 students (59.9%) completed other secondary schools (SS), which are also schools providing vocational training ending with a graduation certificate. We examined students' success rate in task-groups regarding secondary school finished.

Table 7: Descriptive statistical indicators by secondary school type and test results

N = 496	Group A	Group B	Group C	Score
Mean/SGS	3.53	1.84	3.65	9.02
Mean/SS	3.31	1.60	3.34	8.25
U	26564	26518.5	25387.5	24716.5
Sig.	0.048	0.043	0.006	0.002

As we observed, the mean score was higher for students who attended secondary grammar school in all task-groups (Table 7). Comparing these scores with the Mann-Whitney test, we found that students who finished secondary grammar school achieved significantly better results ($U = 24716.5$, $p = 0.002$) in the average total score and three task-groups.

Figure 2: Score distribution and comparison of the test performance for each task-group in terms of respondents' type of secondary school education.



We assume that the test results of secondary grammar school graduates are independent of the study program in which they are currently studying. The higher level of education and content

structure of the grammar school education provides a suitable basis for the students to pass the logic test with better results than the other students. We can show the independence of the test results by examining only the secondary grammar school graduates according to the students' faculty. Of the respondents, 199 graduated from grammar school, 110 studied at FEI, and 89 studied at FEEd.

Table 8: Descriptive statistical indicators by faculty for students who graduated from secondary grammar schools

N = 199	Group A	Group B	Group C	Score
Mean/FEI	3.58	1.97	3.70	9.25
Mean/FEEd	3.46	1.69	3.58	8.73
U	4663.5	4461	4560	4274.5
Sig.	0.553	0.265	0.390	0.122

The Mann-Whitney test results showed no significant differences in average performance ($U = 4274.5$, $p = 0.122$) between the students studying at FEI and FEEd (Table 8). So grammar school graduates passed the test equally regardless of the study program. However, according to the result obtained for question Q1, we found a difference in the result of the students of the two faculties in the whole sample. This result means that the difference is caused by the respondents who attended non-grammar schools. In Table 7, we see that the SGS students' overall score is 9.02, which is significantly higher than the score of other secondary school graduates, which is 8.25 points on average.

If we examine the results of non-grammar school students, we see that the scores caused the difference between the results of the two faculties.

Table 9: Descriptive statistical indicators by faculty for students who graduated from secondary schools

N = 297	Group A	Group B	Group C	Score
Mean/FEI	3.45	1.62	3.46	8.52
Mean/FEEd	3.01	1.56	3.10	7.67
U	7480	9362.5	7785	7758.5
Sig.	0.002	0.786	0.009	0.009

The statistical test showed no significant difference in their results only in task-group B ($p = 0.786$).

5 Conclusions

The results justify our assumption that FEI students achieve better results in solving the tasks compared to the performance of FEEd students. This result can be explained by the fact that the study programmes of the two faculties have different curricula. While the FEEd focuses primarily on the general professional preparation of students and the acquisition of pedagogical and methodological competencies, the education of FEI students focuses on subjects used in economics and business that require strategic and logical thinking. Our conclusion shows that students' chosen orientation in higher education is typically related to the successful application of formal logic and its subject and everyday contexts.

The results show significant differences in respondents' success depending on the task's subject-specific context. The respondents were least successful in areas of propositional logic in tasks with a context from chemistry. This result can be explained by the fact that chemistry is abstract and unpopular among students. In the case of chemical tasks, we also found that the presence of chemical concepts made them completely uncertain in the solution of the task, despite the fact that the solution did not require special chemical knowledge. At the same time, the faculty of teacher education study program include the chemistry teacher program, for which the number of students applying is deficient, so their knowledge is not significantly reflected in our results.

We could observe that tasks with statement negation achieved the lowest success rate, and these tasks were also considered the most difficult by the students. The anomalies in the language explain the uncertainty that appeared to a greater extent in the tasks where the statements had to be negated. For example, an anomaly that often appears in ordinary language: the negation of "everything" is "nothing" that does not follow the rules of formal logic, which Csapó (2018) and Chomsky (2006) have pointed out.

Our gender assumptions have not been substantiated. We found significant differences between the male and female respondents. We believe several factors influence the gender gap, so we cannot draw far-reaching conclusions. Our assumption for this age group has been confirmed. Both faculties offer correspondence training, in which the older generation also participates. The fact that older students have more life experience does not mean that their post-formal cognitive development is at a higher level in formal logic than younger students. As we observed, the mean score was higher for students who attended secondary grammar school in all task-groups. Grammar school education still provides better preparation in the knowledge of formal logic.

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Primary Paper Section: A

Secondary Paper Section: AM

PEDAGOGICAL CONDITIONS OF DEVELOPING LEGAL COMPETENCE OF ECONOMIC COLLEGES' TEACHING STAFF

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Abstract: The article identifies and substantiates the pedagogical conditions that have effective impact on the success of the process of developing economic colleges' teaching staff legal competence. It was highlighted that appropriate measures should be taken in order to ensure the necessary conditions for successful educational process aimed at developing pedagogues' personal and creative potential, encouraging them to continuous professional development and self-improvement. Therefore, to form the necessary level of legal competence the most effective pedagogical conditions have been identified based on the pedagogical researches as well as on the results of authors' own scientific and educational activities. These pedagogical conditions were the subject to expert evaluation. The results of ranking of pedagogical conditions by experts according to their impact on organizing educational activities were analyzed taking into account the consistency of experts' opinions by calculating the concordance coefficient proposed by M. Kendell and B. Smith. According to the ranking results, the hierarchy of pedagogical conditions of developing legal competence of economic colleges' teaching staff was created and the ways of implementing them into educational practice were grounded.

Keywords: economic college, legal competence, pedagogical condition, professional training, professional pre-higher education, postgraduate education institution, teaching staff.

1 Introduction

The National Program of Legal Education of the Population, approved by the President of Ukraine on October 18, 2001, stipulates that Ukraine's becoming a democratic and legal state and forming the foundations of civil society determine raising the legal culture of the population. At the same time, the issues of further development of the population legal awareness, overcoming legal nihilism, meeting the needs of citizens in obtaining knowledge about law need to be risen at the state level [1].

It should be stated that at the present stage the state contributes to raising the level of legal culture and legal awareness of citizens by improving the system of legal education, providing access to educational services for various categories of the population, and expanding forms, types and opportunities for getting education in various fields, including the Law. Educational institutions' teaching staff, regardless of ownership, play an important role in implementing these tasks, as they form and develop applicants' legal competence at all levels of education, instilling them legal values and attitudes that should be transformed into conscious legal behaviour in various everyday situations and professional activity.

2 Literature review

The following scientists carried out researches of general theoretical and practical aspects of developing pedagogical conditions for training specialists of different profiles: R. Andrusyshyn [2], V. Artemov [3], R. Hurevych [4], A. Kolomiets [5], P. Luzan [6], M. Mykhniuk [7], I. Mosya [8], V. Radkevych [9], V. Frytsiuk [10], L. Shevchuk [11], O. Yaroshynska [12] and others.

The analysis of pedagogical conditions that contribute to the achievement of the required level of legal competence and legal culture of various specialists was the subject of scientific research of domestic scientists. In particular, the outlined issues in the context of teacher's training were studied by L. Hryshchenko [13], of engineers-teachers – by D. Kovalenko [14], of bachelors in economics – by E. Pidlisny [15], of health managers – by V. Puhach [16], of specialists in accounting and taxation – by S. Puhach [17], of pedagogical staff of professional (vocational) education institutions – by O. Radkevych [18 ; 19]

and others. However, in the scientific literature there is no thorough research on pedagogical conditions for the developing legal competence of economic colleges teaching staff.

3 Problem statement

Today situation requires not only high level of economic colleges teachers' pedagogical skills for successful teaching, but also continuous improvement of their legal competence, i. e. expanding knowledge of legal phenomena and mechanisms of regulation of legal relations in various spheres of society, improving skills and application of legal knowledge in various life and pedagogical situations, awaring the need for professional development and self-development, etc.

Taking into account the fact that pedagogical conditions are the environment in which teachers' legal competence development is carried out, in order to ensure the necessary conditions for successful educational process appropriate measures should be taken, aimed at creating favourable conditions for developing pedagogue's personal and creative potential, encouraging him to continuous professional development and self-improvement.

Therefore, to form the necessary level of legal culture of citizens, to increase the legal education of students, it is necessary to identify and ground the pedagogical conditions under which the process of developing legal competence of economic colleges teaching staff would be the most effective and would ensure successful fulfilling the tasks, determined in the National Legal Education Program, educational standards and other legal documents of the educational sphere.

The article is aimed at singling out and substantiating the pedagogical conditions of developing legal competence of economic colleges' teaching staff based on the theoretical analysis of the research problem.

4 Methods and materials

To achieve the aim the set of the following methods was used: theoretical analysis of scientific literature and legislation to find out the state of the research problem, identify and substantiate pedagogical conditions of developing legal competence of economic colleges' teaching staff; expert assessment to rank pedagogical conditions; statistical methods of mathematical processing of experimental results (calculation of the concordance coefficient proposed by M. Kendell and B. Smith) to determine the consistency of experts' opinions.

5 Results

The reference point for searching pedagogical conditions was the high level of mastering legal competence by economic colleges teaching staff. Based on the pedagogical researches of domestic scientists, as well as on the results of our own scientific and educational activities, and taking into account the principles and factors of economic colleges teaching staff legal competence development, we have identified such pedagogical conditions:

- 1) forming stable motivation of teaching staff to increase the level of legal competence;
- 2) taking managerial and organizational-methodological measures by the management of institutions of professional pre-higher education, aimed at purposeful development of legal competence;
- 3) creating information and educational environment in postgraduate education institutions, which will help to meet the educational needs of teachers;
- 4) using innovative teaching technologies for developing legal competence of economic colleges' teaching staff;
- 5) ensuring teaching staff free access to educational resources and data banks, that contain legal information, directly from

- the workplace and improving the material and technical base of the institution of professional pre-higher education;
- 6) stimulating teaching staff to increasing the level of legal competence by means of self-educational activities;
 - 7) improving the content of educational programs for professional development of economic colleges teaching staff through the introduction of integrated legal courses that would ensure the purposeful development of their legal competence;
 - 8) creating favorable educational environment in the institution of professional pre-higher education, which promotes professional development and self-improvement of teachers;
 - 9) encouraging teaching staff to purposefully develop the reflective sphere of their personality, which will contribute to a deeper and more comprehensive understanding of the need for systematic improving of legal competence and professionalism.

These pedagogical conditions were the subject to expert evaluation. 12 experts were included to the expert group. In order to form the expert group, we used the recommendations of the "ideal expert", who must meet the following requirements: relatively independent administrative position; experience of active work; experience of active scientific work; health (absence of irritability, pessimism, insincerity); intellectual productivity; efficiency; confidence in judgments; natural curiosity; balance of the realist; natural sincerity; strict adherence to morality; sense of social responsibility.

Experts were asked to determine the importance of pedagogical conditions (ranking). To do this, they should put in the first place those pedagogical conditions that, in their opinion, have a positive impact on development of the legal competence of economic colleges' teaching staff. If the pedagogical conditions in the ranked list are equivalent, they must be assigned the same ranks.

In some cases, an expert may not prefer one of the two or more objects when ranking. If the ranking of 9 objects did not reveal related ranks, their sum is equal to $\sum = 45$ ($1 + 2 + 3... + 9 = 45$). This amount is a control and it checks the correctness of the clarification of ranks.

The results of the expert evaluation are presented in table 1.

Tab. 1: Matrix of results of ranking of pedagogical conditions of developing legal competence of economic colleges' teaching staff

Ped. conditions	Experts												Ranks sum	d	d'
	1	2	3	4	5	6	7	8	9	10	11	12			
1	7	6	5	4	7	6	7	6,5	7,5	6,5	6	6	74,5	14,5	210,25
2	1	4,5	1,5	2	2	3	1	2	4	4	3	4	32	-28	784
3	6	7	8	9	8	9	9	8	7,5	8,5	8	9	97	37	1369
4	8	9	7	6	6	7	6	6,5	6	6,5	7	7	82	22	484
5	5	2	6	7	5	5	4,5	5	5	5	4	3	57,5	-2,5	625
6	3	4,5	3	5	2	2	2,5	3,5	3	2	5	5	40,5	-19,5	380,25
7	9	8	9	8	9	8	8	9	9	8,5	9	8	102,5	42,6	1814,75
8	4	2	4	3	4	4	4,5	3,5	2	2	1	2	36	-24	576
9	2	1	1,5	1	2	1	2,5	1	1	2	2	1	18	-42	1764
Sum	45	45	45	45	45	45	45	45	45	45	45	45	540		7388,5

where:
$$d = \sum x_{ij} - \frac{\sum \sum x_{ij}}{n} = \sum x_{ij} - 60$$

Checking the correctness of the matrix is based on the calculation of the checksum:

$$\sum x_{ij} = \frac{(1+n)n}{2} = \frac{(1+9)9}{2} = 45$$

The sum of the matrix columns and the checksum are equal. No mistakes were made in the process of compiling the matrix.

Let's analyze the importance of pedagogical conditions of developing legal competence of economic colleges' teaching staff and compile the table. The location of pedagogical conditions by their importance is presented in table 2.

Tab 2: Location of pedagogical conditions by their importance

Pedagogical conditions	7	3	4	1	5	6	8	2	9
Ranks sum	102,5	97	82	74,5	57,5	40,5	36	32	18

The consistency of experts' opinions on the rankings of the studied pedagogical conditions is determined by calculating the concordance coefficient proposed by M. Kendell and B. Smith. The coefficient is calculated by the formula:

$$W = \frac{12S}{m^2(n^3 - n)}, \quad \text{where} \quad S = \sum_{j=1}^n \sum_{i=1}^m \frac{\sum_{j=1}^n \sum_{i=1}^m x_{ij}}{n}^2,$$

where m – number of experts,
n – number of pedagogical conditions.

In our case $S = 7388.5$; $n = 9$; $m = 12$

Then
$$W = \frac{12 \cdot 7388.5}{12^2(9^3 - 9)} = 0.855$$

The concordance coefficient $W = 0.855$ means that the consistency of experts' opinions is high, as the continuum of values of the concordance coefficient is in the range from 0 to 1: in the case of a complete divergence of experts' opinions $W = 0$; in the case of complete unity of experts opinions $W = 1$. Therefore, based on the value of the concordance coefficient W we can conclude that the experts' opinions are consistent.

To assess the significance of the concordance coefficient W , we use the Pearson statistical criterion χ^2 , according to which:

$$\chi^2 = \frac{12S}{mn(n+1)} = n(m-1)W$$

In our case
$$\chi^2 = 9(12 - 1) \cdot 0.855 = 84.15$$

Comparing the empirical value of χ^2_{emp} with a tabular value of χ^2_{crit} for the number of degrees of freedom $k = n-1 = 9-1 = 8$ at the level of significance $\alpha = 0.05$, we note that obtained $\chi^2_{emp} = 84.15$, and tabular $\chi^2_{crit} = 15.51$.

In our case $\chi^2_{emp} > 15.51$.

This means that $W = 0.855$ is not a random variable, so the results are logical, reliable and can be used in further studies.

According to the ranking results, we have a hierarchy of pedagogical conditions of developing legal competence of economic colleges' teaching staff (Fig. 1).

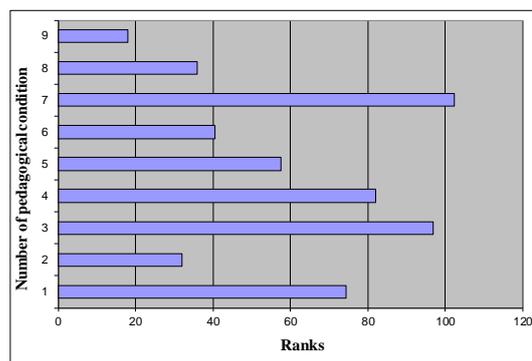


Figure 1 – Ranks of pedagogical conditions of developing legal competence of economic colleges' teaching staff

The pedagogical condition of developing legal competence of economic colleges' teaching staff with the rank №1 is *improving the content of educational programs for professional development of economic colleges teaching staff through the introduction of integrated legal courses that would ensure the purposeful development of their legal competence.*

The analysis of the proposals of the subjects of advanced training and internships, which are presented on the domestic market of educational services, gives grounds to claim that insufficient attention is paid to the development of legal competence of teachers of various educational institutions, including economic colleges. It should be noted that some topics related to the legal regulation of educational activities are sometimes provided by the content of relevant educational and professional programs, which, in our opinion, is insufficient. Therefore, in order to ensure a successful process of developing economic colleges teachers' staff legal competence, there is a need to work out integrated courses of a legal thematic and implement them in the educational activities of postgraduate education institutions.

The integrated nature of these courses implies the need to structure and combine in a logical chain educational material from different fields of law, knowledge of which is necessary for the successful implementation of professional activities by teachers of economic colleges. In particular, in our opinion, such knowledge includes the provisions of legislation in education sphere, constitutional, labor, civil and intellectual property law, as well as the regulation of legal relations in various spheres of economic activity according to the specifics of disciplines taught by teachers.

For this purpose, we have developed a special course-workshop "Legal competence of economics college teachers' staff: theory, methodology, practice", which aims to meet the educational needs of teachers in current legal knowledge. These special course combines educational materials from various fields of law and economics and is directed on the purposeful developing of legal competence of teachers staff of economic colleges.

Pedagogical condition of developing legal competence of economic colleges' teaching staff with the rank № 2 is *creating information and educational environment in postgraduate education institutions, which will help to meet the educational needs of teachers.*

In our opinion, the thesis that in modern conditions providing quality educational services is impossible without the widespread use of information and telecommunications technologies is convincing. At the same time, depending on the form of educational process organizing, they can serve as the additional aids to improve the quality of learning and providing control, and be the main tool, as well, as in distance education.

Information and telecommunication technologies applying in educational activities makes it more accessible to different categories of citizens, expands the geography of educational services, provides structuring of educational material, contributes to the successful achieving the goals of the educational process and more. It is the introduction of information and telecommunication technologies in the educational activities of educational institutions that is associated with the emergence of such a category as the educational and information environment.

O. Koshuk notes that so far there is no terminological unity of scientists in defining the concept "educational and information environment". Scientists interpret it as a set of technical and software means of storing, processing and transmitting information, as a set of conditions for the implementing information technologies in the educational process, as a pedagogical system (or subsystem of the pedagogical system). At the same time, the scientist stresses that it is generally accepted that the use of information resources, electronic means, methods of obtaining, processing, using, creating information in a holistic, systematic way significantly intensifies the educational process, makes it effective (or makes the pedagogical system effective) [20, p. 250-251].

Introducing information and telecommunication technologies to the pedagogical system of developing legal competence of economic colleges' teaching staff will lead to qualitative changes

in functioning of structural elements of this system and will promote the introduction of innovative learning technologies. Changes in the traditional roles of the subjects of the educational process, modernization of its tasks, tools, forms and methods of educational activities will be the consequence of this process and will ultimately promote the quality of education in general.

We support the opinion of O. Koshuk that the information and educational environment is not only technical and software tools, and the problem of creating it cannot be solved with delivering them to the educational institution. The researcher notes that for the effective use of information technologies in education it is necessary, first of all, to provide the intellectual component of such environment: informatization of the educational institution should be carried out with the help of network coordinators-programmers who manage the process of information and educational environment creating and the teachers staff should possess knowledge of techniques for working with new computer technologies and the ability to effectively use this knowledge to solve pedagogical problems [20, p. 251]. This requires increasing the level of information and telecommunication competence and digital literacy of teaching staff of economic colleges, which will allow them to navigate freely in the arrays of legal information contained in free access on the Internet, analyze it analytically, use educational online platforms and data banks create educational content and communicate with students, colleagues and scholars to participate in various educational and research projects on legal issues. The availability of the outlined competencies will also contribute to the effective legal self-development of teachers staff of economic colleges in the intercourse period of professional development or internship.

Thus, creating information and educational environment in postgraduate education institutions and increase the level of information and telecommunication competence of economic colleges' teachers staff will promote the development of their legal competence and provide such opportunities: to receive educational services from various domestic and foreign entities without paying attention to their location in the convenient time and way; to have access to legal information, scientific, educational and reference literature on legal issues; to use information technologies for legal self-development; finding ways to solve problematic issues of professional activity with the use of legal mechanisms; participate in scientific and educational forums aimed at developing the professional qualities of teachers, including legal issues, etc.

Creating information and educational environment in postgraduate education institutions forms the basis for constructing a third pedagogical condition - *using innovative teaching technologies for developing legal competence of economic colleges' teaching staff, which a group of experts gave rank № 3.*

The use of innovative teaching technologies in the educational process is due to the rapid digitalization of the educational sphere and aimed at introducing new or improving existing technologies for educational activities, the ultimate goal of which is to improve the quality of educational services.

Innovative technologies, along with traditional ones, allow to significantly expand the opportunities for education in Ukraine and effectively implement the concept of lifelong learning in the domestic educational space. They give teachers the opportunity to choose the individual educational trajectory depending on their lifestyle, location and work, interest in studying in the appropriate specialty, in a particular educational institution in Ukraine or abroad, and so on.

Among the set of innovative technologies that can contribute to achieving this goal, we distinguish distance learning, technology project and problem-based learning, coaching and case technology. Each of them is aimed at the development of various components of legal competence and has its own specific application.

The introduction of innovative learning technologies aimed at gaining experience in solving professional problems using legal knowledge can be recommended both in the system of postgraduate pedagogical education, including direct training and internships, and in the intercourse period through self-education and in the process of preparing for classes with future specialists of economic profile.

The next pedagogical condition of developing legal competence of economic colleges' teaching staff, which has a rank № 4, is the *forming stable motivation of teaching staff to increase the level of legal competence.*

The importance of motivation problems is undeniable in terms of both science and practice, because the clear development of effective system of motivation depends not only on increasing social and creative activity of the person, but also specific results achieved in various fields.

Psychological science defines motivation as a person's interest, justification of his/her desires and aspirations. It is a combination of intellectual, physiological, mental processes that in specific situations determine how decisively a person acts, and in which direction his /her energy is concentrated [21, p. 3].

The basis of the motivational sphere of the individual are the needs, which are dynamically active states of the individual, expressing his/her dependence on specific conditions of existence and generating activities aimed at giving up with this dependence. The need, mediated by a complex psychological process of motivation, manifests itself psychologically in the form of a motive for behaviour. The need is a person's lack of something specific, and the motive is justifying a decision to satisfy or not to satisfy a specified need in a given objective and subjective environment.

Based on the results of research by M. Varyi [22], O. Leontiev [23], S. Maksimenko [24], A. Maslow [25] and others, we can state that motivation is one of the key problems of personality psychology, which determines activity and the success of any activity, including cognitive. This is what motivates human activity, why it happens. Motives denote all sorts of phenomena and conditions that cause a person's activity. The motive can be only a conscious need and only if the satisfaction of this specific need, repeatedly going through the stage of motivation, directly takes effect [26]. In this context, O. Radkevych rightly notes that "...only the conscious activity of the individual has a developmental impact on it. In this case, the individual as a subject of activity interacts with the environment, consciously sets a goal, selects tools for achieving it, shows physical and mental activity, plans the means to achieve the goal, realizes their plans and aspirations" [19, p. 297-298].

Thus, understanding the motives provides the key to explaining human behaviour and organized activities. If a person has a motive that motivates action, then his/her energy and efforts are manifested largely than in the absence of such one. They can manifest themselves in the form of desires, intentions, beliefs, ideals, interests, and so on. Persistent motives, endowed with considerable motivation, are usually leading and give a person's actions a certain personal significance.

I. Mosya in the thesis, based on the theoretical approaches of V. Milman [27], gives the structure of the person activity, which consists of motivation (need, motive, object, purpose); instrumental (conditions, means, composition) and controlling (control, evaluation, product) subsystems [8, p. 78]. At the same time, the researcher considers need as a source of human activity, because the process of satisfying needs is an active, purposeful process of mastering the form of activity; motive – as a motivating cause of actions and deeds and the goal – as an imaginary result, the program of actions of the person [8, p. 78]. The said above gives the grounds to suggest that the activity and success of developing the legal competence of economic colleges' teachers staff depends on the level of forming and developing of the incentive subsystem, namely the needs,

motives and purpose of activities, which in turn activates the instrumental and control subsystems, which ultimately leads to obtaining the end result – increasing the level of legal competence.

Useful for understanding the psychological aspects of the professional development of economic colleges' teaching staff are the provisions of motivation theories, which are based on the results of psychological research of human activity in the society. According to them, human activity is determined simultaneously by several motives, one of which is the main, leading, and others subordinate, sometimes performing the function of additional stimulation.

The peculiarity of the leading motives is that in addition to the function of motivation and direction of activity, they give the activity, its objects and conditions a specific personal meaning. Each of the motivation theories seeks to reflect this specificity. Theories of motivation developed so far can be divided into two categories: content and procedural [28].

Content motivation theories are based on determining the list and structure of people's needs that force them to act in a certain way. They consider active needs that motivate people to take action, especially in determining the scope and content of these activities.

The component of content motivation theory is the theory of the needs hierarchy of A. Maslow, which divides the whole set of human needs into five levels:

- 1) Physiological needs - necessary for human existence. It is the need for food, water, sleep, housing etc.
- 2) Needs for security and protection – necessary for protection against dangers, confidence in the future, etc.
- 3) Social needs or needs for belonging - a sense of belonging to someone or something (individual, family, team, organization, etc.), the feeling that you are perceived, social interaction and support.
- 4) The need for respect is the need for recognition of one's own achievements, sense of self-worth, independence, competence, and so on.
- 5) The need for self-realization which is an opportunity to apply one's own creative potential in everyday life [28, p. 274].

All these needs are located in the form of a hierarchical pyramid, which is based on physiological needs. The theory determines that at any given time a person will strive to meet the need that is stronger and more important (dominant) for him. On the other hand, before the need of the next level becomes the most powerful, determining factor in human behavior, the need of a lower level must be met. At the same time, as a person's development as an individual expands his or her potential, the need for self-expression can never be fully met. Therefore, the process of motivation through needs is infinite [28, p. 275].

Transforming the provisions of the theory of the hierarchy of needs into pedagogical conditions of developing legal competence, we can admit that economic colleges' teachers staff will be motivated to improve their professional level when the following needs of lower level are met: creating proper professional and living conditions for pedagogical activity; providing proper payment for work, ensuring the necessary material and technical base; working out organizational, informational and methodological support of the educational process, introducing adequate requirements for the effectiveness of professional activities, etc.

Procedural theories investigate how a person distributes efforts to meet needs in the process of achieving goals and how he/she chooses a particular type of behaviour (action). They also provide motivating role of needs, but the motivation itself is considered in terms of how a person forms and directs his/her efforts to achieve results [29, p. 234].

In the context of developing legal competence of economic colleges teachers staff the provisions of the theory of expectations of A. Vroom, one of the procedural theories, are useful. The theory determines that the presence of any active need is not the only necessary condition for motivating a person to achieve certain results. One must also hope that the type of behaviour one chooses will really satisfy a need or obtain a desired good.

Expectation is considered to be the person's assessment the probability of a certain event. In the analysis of motivation, the theory of expectation focuses on three interdependencies:

- time - results (the relationship between effort and results);
- results - rewards (expectation of certain rewards for the achieved results);
- valence (predicted degree of relative satisfaction or dissatisfaction with the reward) [28, p. 248].

That is, the theory of expectations determines that a person wants to get a reward for the work performed, which will meet his/her needs. The ratio between the received rewards to the desired (expected) is considered as the degree of satisfaction of needs. A person intensifies his/her activity if the amount of reward received is close to expected, i.e. the degree of satisfaction of the need is maximum.

The expected reward is determined by the person subjectively based on an assessment of the cost of effort and results. The lack of a clear relationship between costs and performance, as well as between performance and reward, can lead to internal psychological stress, and a person will seek to reduce the intensity of the work.

This means that in order to effectively motivate economic colleges' teaching staff to increase the level of their legal competence, it is necessary to ensure the optimal ratio between the effort spent on professional development, the results obtained and the reward for this activity. That is, teachers must be clearly aware of the benefits of achieving the appropriate level of legal competence (career opportunities, financial incentives, increasing authority in the team, the ability to defend their rights using legal knowledge, rapid adaptation to new conditions and requirements for educational activities, etc.), as well as be able to take appropriate measures in the optimal time and in a convenient way with a guaranteed ability to achieve the expected results.

Other identified pedagogical conditions (taking managerial and organizational-methodological measures by the management of institutions of professional pre-higher education, aimed at purposeful development of legal competence; ensuring teaching staff free access to educational resources and data banks, that contain legal information, directly from the workplace and improving the material and technical base of the institution of professional pre-higher education; stimulating teaching staff to increasing the level of legal competence by means of self-educational activities; creating favourable educational environment in the institution of professional pre-higher education, which promotes professional development and self-improvement of teachers; encouraging teaching staff to purposefully develop the reflective sphere of their personality, which will contribute to a deeper and more comprehensive understanding of the need for systematic improving of legal competence and professionalism) have their impact on organizing educational activities aimed at developing legal competence of economic colleges teachers staff, but are of somewhat secondary importance.

6 Conclusion

In the process of research the method of expert assessments allowed to identify and substantiate pedagogical conditions that have an effective impact on the success of the process of developing economic colleges' teachers staff legal competence, including: improving the content of educational programs for

professional development of economic colleges teaching staff through the introduction of integrated legal courses that would ensure the purposeful development of their legal competence; creating information and educational environment in postgraduate education institutions, which will help to meet the educational needs of teachers; using innovative teaching technologies for developing legal competence of economic colleges' teaching staff; forming stable motivation of teaching staff to increase the level of legal competence.

Further research will be aimed at experimental verification of identified and theoretically grounded pedagogical conditions by conducting a formative experiment.

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Primary Paper Section: A

Secondary Paper Section: AM

THE LABOUR MARKET AFTER THE IMPACT OF INDUSTRY 4.0 AND THE EDUCATION QUESTION - CURRENT CHANGES IN THE LABOUR MARKET

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The support of the Faculty of Management, Comenius University Bratislava, Slovak Republic is gratefully acknowledged.

Abstract: Abstract Under the influence of digitization, automation and robotization, the way and content of work is changing, similarly to the labour market requirements of an employee performing work in the 4.0 model are also changing. In this paper we discuss the impact of the current technology developments and their impact on the standing of the working man in the near future. Newly created or transformed work positions require certain new knowledge and job skills for future employees, and therefore the current education system plays a primary and very important role in preparing for the labour market. The issue has a societal dimension and is a frequent subject of professional debate at global level, which highlights its current relevance.

Keywords: Keywords industrial revolution, digital transformation, technology, digitization, robotization, education, skills, labour market

1 Introduction

The entire existence is based on an evolution that cannot be stopped. Evolution is permanent, very fast nowadays and modern times offer us new possibilities. The trend of modern times is digitization, automation, robotization and the use of information and communication technologies is constantly on the rise. As Morávek (2018) considered a few years back, "all this is excellent, but at the same time disturbing. Why disturbing? Because it becomes impossible to predict what the world will look like in the relatively near future." We are no longer asking what will happen in ten years' time, but rather what will happen in two or three years' time, because the current development is really unsustainable, it is driving us forward and bringing constantly new trends.

We cannot deny the fact that technical and technological progress has an irreplaceable role for man and thus for society as a whole. Machines and other technical devices, tools and equipment as a result of technical progress, are supposed to help people and to raise their standard of living. In this context, we believe that it is also necessary to ask and address the questions: Is it just about the benefits and advantages of technological progress? Does technological progress also have a dark side?

The attitude of the man - employee towards technology also in the historical context was interestingly discussed by Laclavíková and Olšovská in their study. Before the first industrial revolution, human labour represented a unique and irreplaceable economic good (human labour was crucial in the production process). After the First Industrial Revolution (18th-19th centuries), in which manual production was transformed by energy resources (steam) into factory-machine mass production, the economic importance of human workforce began to be relativized, also in relation to workers' performance. Although human workforce was still needed on assembly lines during the period of the Second Industrial Revolution (late 19th century and first half of the 20th century), the nature of work and the perception of mankind had changed. In order to speed up and increase productivity, there was a push to increase the employee's work output, efficiency and agility were required, which placed physical and mental burden, and this positioned many people in the ranks of the unemployed. As the authors state, "on the one hand, technology has eased the physical workload, but on the other hand, it has also caused negative consequences, mainly in the form of psychological strain or the frustration of monotonous work, and often the loss of an individual value and meaning of the work activity." (Laclavíková and Olšovská, 2018) A better attitude of man, an increase in labour productivity, was to bring about the end of the 20th century the Third Industrial Revolution, which brought the use of electronics and information technology and opened the

door to the automation of the production process and its robotization. The current, Fourth Industrial Revolution (early 21st century) is based on the use of information and communication technologies. Digitization and automation, which is linked to the fourth technology revolution, is being applied to production processes, industrial enterprise systems are being interconnected, data is being used more efficiently and new work organisation is being used. Today, industrial society is being transformed into an information society and Industry 4.0. (digital transformation), however, we are already slowly heading towards Industry 5.0, which contributes to technology development. Digital technologies such as artificial intelligence (AI) or robotics are reflected in the fact that workplaces are being radically renovated and industrial workers in particular are expected to see changes in their roles which requires new skills.

2 The consequences of technology innovations for the work of the individual

The world of work is also radically changing as a result of technology developments. In the labour sector, a progressive digital transformation and robotization is visible. Employees use various tools to reduce their workload and improve their working conditions (simpler working tools - inventions - machines - computers). In this ever-expanding digital work, as Barancová (2019) points out, in addition to the Internet, the working tools include robots and machines, which significantly replace the work of the employee. Modern information and communication technologies have simply made the performance of work more flexible, as they have eliminated space and time, which has been reflected in changes in the scope and method of work, and this trend has also brought non-standard working conditions. (Tref'ová and Procházková, 2020) Overall, we can say that digitization and automation of work processes are emerging, as well as the ways and models of work performance are changing, which, according to Horváth (2021), represents a new challenge in the field of labour law.

Already several years ago, researchers were already thinking about the implications of the use of technology innovations in work activities. As they state, there are mainly 3 scenarios that have been explored when looking at the impacts of technological change:

1. Technology will replace mainly routine manual activities carried out predominantly by human workers (the so-called automation scenario).
2. Technology will change the activities in which human employees increasingly come into contact with modern technologies, thereby increasing human-robot interaction.
3. Technology will replace only parts of certain work activities while maintaining the same amount of work, with even more tasks subsequently being established. (Buhr and Frankenberger, 2016).

Despite the fact that these are different scenarios of the impact of technological progress on the employee's work performance, we are of the opinion that all scenarios are fulfilled, or will be fulfilled, as practice shows us that the second and third scenarios are already relevant today, the third scenario is beginning to be applied (e.g. the work of cleaners is already being replaced by robotic machines in some companies) in the near future, we assume that it will be even more prevalent in the near future.

The impact of technology innovations on human work is undeniable and is the subject of numerous debates as well as various studies, analyses and surveys (e.g. scientific article by Arntz, Gregory and Zierahn, 2020; scientific article by Diebig, Müller and Angerer, 2020; scientific article by Hirsch-Kreinsen, 2016; a survey by the Czech company Grit). Alongside the benefits that exist in the use of new technologies in the labour field - such as newly created more flexible forms of work that

foster innovation, job creation and the growth of a flexible labour market - on the other hand, there are concerns of employees about their jobs. At this point, the question arises: Are these employees' concerns legitimate?

The opinions of experts differ, they are not uniform. Rapid technological progress has its adherents, but also its opponents, who are divided in the debate on whether the increasing use of technology only helps employees to perform their jobs or whether the impact of technology innovation will lead to a reduction in the number of jobs, resulting in an increase in unemployment.

Those who welcome the introduction of technology point to its benefits. The benefits of digitization and automation of work in companies are clearly seen in the simplification and acceleration of work, in easier communication, in the transparency of work, documents and processed data (the use of cloud tools) (No doubt: The survey revealed how digitization makes work easier for companies, 2021) Digitization eliminates the need for many steps and saves time. Hurbanová (2020), for example, sees the positive side of technological change as creating "pressure to bring more humanity or that humanization into the professions, some social and emotional intelligence, to understand yourself, to understand the world around you, other people, that diversity, how to learn how to function intelligently in those social interactions." We also advocate that value-added even in the work field/world will be all about relationships with colleagues, supervisor or subordinates.

On the other side are those who think that too rapid development of technologies and their over-application in practice may also have a negative impact on the labour market. Many job categories (e.g. cashier, receptionist, warehouseman, cleaner, clerk, accountant, waiter, production worker) fear an increase in unemployment precisely because of the emergence of artificial intelligence. We have to clearly state that their fears are justified, because it is expected that robotization will be most evident in the simple job types - mechanical, routine, non-creative activities. "So the higher is the proportion of creative, analytical and interactive elements in the performance of a particular work activity, the less at risk is that job type from artificial intelligence. Naturally, therefore, the defeated workers in the industrial revolution are already those with the lowest skill levels." (Homer a Švec, 2018) However, this does not mean, and it is important to remember, that professions which require more than simple basic skills are also at risk. These include, for example, employees in the health and education sectors. As Matějka and Řehořová (2018) state, "A basic estimate is that up to one-third of current jobs that require a bachelor's degree may in the future be performed by machines equipped with intelligent software." Furthermore, these authors point out that the replacement of catering staff by robots is not foreseen, due to sociological reasons, high entry costs, the concern about the change of atmosphere in the restaurants.

Based on the above, we can conclude that the question of whether a human will be replaced by an artificial intelligence device in a given job position also has a social aspect, while it is essential to take into the account the answer on how would be this replacement (human - robot) seen by the people who are going to be served (customers, students, patients).

Another aspect in which we see some challenges to the rapid technological change is the level of knowledge of technology use among the population and the issue of education in this area. Although the digitization of work and the use of ICT has potential in the performance of work (flexibility of work, better achievement of work-life balance, strengthening of gender equality, involvement of disadvantaged categories of employees), there are concerns among some employees that they will not be able to adapt to the new working conditions in the near future (even some feel worried today) - they lack the knowledge and skills related to the use of ICT. Although we have been pushed into the use of modern technologies by various, even unexpected, situations, not excluding the pandemic

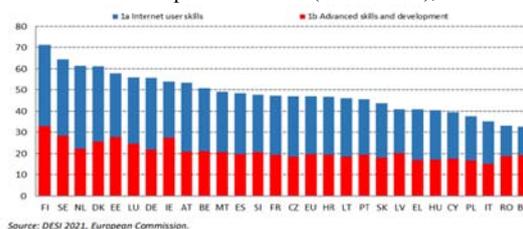
COVID19 (which also forced the performance of work in a non-standard form wherever it was possible and employers as well as employees simply had to adapt), we have to admit that for all employees the rapid transition to teleworking has not been easy, as the use of ICT is not a common for everyone, despite the fact that it is rather expected in the job performance for all age groups.

3 The nature of job positions and skills of employees

The digital transformation is expected to transform many job positions, with some occupations disappearing altogether (robots replacing humans), but also creating entirely new jobs as a result of technology developments and the use of new technologies in work processes. This puts enormous pressure on people in the education sector. Homer and Švec (2018) point out that "all analyses simultaneously agree on the common conclusion that the higher the educational level of an employee, including sufficient work experience and meeting other qualification prerequisites, the directly proportional decrease in his or her eventual replacement by an automated robot." From this we can indicate that persons with higher education and specialisation will have an advantage, the problem will arise for low-skilled and medium-skilled persons who perform semi-automated and simple manual work, which will be replaced by modern technical equipment. As more massive digitization, automation and robotization is (and will be) particularly evident in the manufacturing sector, with a number of jobs being changed or eliminated as a result, a transfer of employees from industry to other areas is to be expected. In the future, the most in demand will clearly be creative occupations with the use of ICT, people studying mathematical and technical sciences (e.g. engineer, technicians and programmers in general, e.g. drone operator, technician of robots used in agriculture, 3D/4D printing engineer, IT specialists), people in professions where communication with people is essential will be in the labour market. Technologically sophisticated professions will play a major role.

In a digital society, digital skills are crucial. As remote working is also expanding and requires the daily use of online tools, basic digital skills are no longer enough for employees. Jobs in digitalised companies will already be filled by employees with advanced digital skills, which means that individuals need to develop their basic digital skills. As we can see from the graph below, the best digital skills (basic and advanced combined) are held by the Finns, followed by the Swedes, the Dutch and the Danes. The Italians, Romanians and Bulgarians have the lowest digital skills and the Bulgarians are the last. As we can see, many countries have the potential to continuously increase the digital skills of their citizens.

Picture 1: Human capital dimension (Score 0-100), 2020



Source: Digital Economy and Society Index (DESI) 2021.

In a digital society, digital skills are key. Although both minimum digital skills (internet users represent 56%) as well as advanced skills are improving in the EU (31% of the EU population, ICT graduates represent 3.8% and ICT specialists represent 4.3%), a large proportion of Europeans still lack at least basic digital skills, even though most jobs require these skills. (Digital Economy and Society Index (DESI) 2021) Here we clearly see not only room for education, but explicitly the need for education and improvement in the field of IT. How to promote, improve, upgrade digital skills? The most effective way is through education. Success can be achieved by

supporting educational activities such as "the provision of training, coaching, courses, lifelong and formal education, requalification and other forms of educational support and training for the development and modernisation of digital skills by both Slovak companies and the state (e.g. retraining for the unemployed)." (Digital Transformation Strategy for Slovakia 2030, 2019)

As the practice shows us, thanks to the progressive introduction of innovative technologies, we are witnessing a step change in the nature of skills. Automation is increasing the demand for both basic and advanced technological skills. "Occupations requiring advanced technological skills include big data scientists, IT professionals, programmers, engineers, technology designers, advanced-technology maintenance workers, and scientific researchers..." (The Rise of Digital Challengers: How digitization can become the next growth of engine for Central and Eastern Europe – Perspective on Slovakia) For future employment, employers need employees with new skills and abilities at even higher levels. The skills of the next decades that need to be developed are:

- orientation in complex situations,
- social intelligence skills and intercultural skills,
- cognitive load management skills,
- innovative and adaptive thinking,
- communication skills,
- transdisciplinary skills,
- design thinking and computational thinking,
- new digital media skills,
- virtual collaboration skills

...that is, the development of those human skills that are difficult for machines to reproduce. (Work 4.0 Digitization Guide; Willyerd and Mistick, 2016) As not only the necessary knowledge, but also the right skills are a prerequisite for access to and success in the labour market, it is necessary to focus on this knowledge and skills required in employment in the current education system.

4 Education as a necessary prerequisite when using technology innovations at work

„All around Europe the structure of employability is changing, the automation of certain tasks and the creation of new roles have formed a significant gap between what employers need and what job seekers are offering.“ (Digital Skills & Jobs Platform) The labour market is already facing a shortage of skilled workers, so there is a need to focus on training people. Occupations that will disappear in the near future and, on the contrary, those that will be established as new ones are being specified, and thereby a forecast is being made of what the labour market will look like in the coming future. This is necessary because these newly created or transformed jobs presuppose certain knowledge and job skills of future employees (not only basic, but also advanced technological and digital skills), which must be gained before people start working in these positions, while individuals should also be able to use these technologies and therefore they have to be familiar with technology itself. On the other hand, we note that it is also necessary to profile the knowledge and skills that will no longer be necessary as new technologies will take the place of people. For example, "Slovak companies are at the same time increasingly demanding a reform of the education system in order to reduce the inconsistency between the skills that graduates learn at school and the skills required by employers." (Digital Economy and Society Index (DESI) 2020 – Slovakia)

Although digitization facilitates the performance of work from the employee's point of view (the possibility of not working directly at the employer's workplace, the possibility of adapting work to one's time, the possibility of a better connection between work and personal life), for the working person there is a need for continuous education, especially in the IT field (the use of

digital tools and programs). If the employer uses modern technological working devices, "the employee must accept access to the new working equipment, be able to learn how to work with it, including virtual collaboration with other co-workers of the company. The introduction of new technologies into work processes places extremely demanding requirements on employees in relation to the continuous upgrading of their qualifications in order to be able to carry out their previous work properly, since the content of the work they have carried out so far has changed considerably in terms of qualification requirements over the course of their working lives." (Barancová, 2019) The automation of production, in turn, requires the retraining of employees in order to keep their job positions.

Shortages of skilled labour can be avoided. This brings up an important question - obtaining the necessary qualifications. We think that this requires a systematic change in education, starting at younger ages. It is important to promote the acquisition of the necessary knowledge and practical experience in the use of ICT as early as primary school and to develop it continuously at higher levels of education. Pupils and students will receive a modern and high-quality education if schools at all levels of education (primary, secondary and higher education) teach subjects and disciplines at a sufficient qualitative and quantitative level to provide pupils and students with the necessary advanced digital and technological skills.

The education system must respect the needs of the labour market in the digital age. There is a necessity to change the system, methodology and content of education as "the training of professionals for future professions remains highly specialised and overly sequenced, which inevitably results in a contradiction between the theoretical training of graduates and practical experience, as practice itself requires, above all, a significant deepening of interdisciplinarity and not internal sequencing within a particular discipline or field of study" (Staněk and Ivanová, 2016)) The emphasis is therefore on interdisciplinary learning, while the practical experience of pupils and students is a very important component. Not only the theoretical training should be emphasised, but employers as well as the actual practice often already require some work-based experience when starting a job on a full-time basis. Work experience and the necessary skills can only be acquired through practice, in which the individual applies the knowledge he or she has acquired, and there are a number of options available. Graduate work experience is one of them. This working experience provides the graduate with professional skills and practical experience with an employer that are relevant to the level of education they have achieved. Graduates can also gain work skills by taking part in an unpaid internship and, if they are interested, can then be offered a regular job by the job provider. In addition to school leavers, who have the opportunity to acquire work skills immediately after graduation, apprentices and students preparing for a career can also gain work experience by taking part in practical training directly with an employer alongside theoretical training. Specific training for young people while they are still studying, in the form of dual training, plays an important role.

In order to provide pupils and students with a real quality education, we do not consider it sufficient to introduce modern innovative subjects (IT) into teaching, but it is also necessary to ensure the education/training of teachers (quality teaching courses) so that they acquire the necessary competences. Barnová and her team appeal that the teacher must know how to apply the technology in the educational process. (Barnová et al, 2021; Barnová, Krásna and Čepelová, 2020)

As for the higher age categories among working people, there is a need for their retraining. This group of employees is struggling more to keep their jobs. These are also people who are slowly approaching retirement age and therefore find it really difficult to find a new job and offer some added value to the employer.

Although the experience they have gathered during their working life is valuable, learning new technological practices and innovations can be challenging for many people.

In view of the above, we believe that it is necessary to prepare for the introduction of new and transformed positions and that the timing plays a very important role. Given the very fast pace of technical innovation, we believe that preparation for future occupations should have started earlier and on a larger scale. Changes in the labour market must be anticipated, education and training must be adapted to these changes (and started well in advance). We are of the opinion that the technological development pace is out of proportion to the changes in the education system, and therefore this area needs to be improved.

5 Conclusion

The last quarter of a century has seen a rapid evolution of technology, and thanks to the continuous improvement of technology, digitalization and automation in companies is also a trend in recent years, and we are just one step away from the expansion of intelligent work. Effective digital transformation requires a straightforward digital agenda.

We are witnessing the labour market changing visibly. Both employers and employees have to face the trend towards digitalisation, automation and, in the near future, the entry of intelligent robots (digital transformation). The latter are realising that they need to change their attitudes and demands if they want to succeed in a competitive environment. Learning and improving the skills needed to do the job is an important foundation. However, we dare to say that today it is not just about future skills, but, given the turbulent developments, it is about the current skills. Quite simply, already „in the world of tomorrow, we must rely on digitally empowered and capable citizens, a digitally skilled workforce and digital experts.“ (Digital Economy and Society Index (DESI) 2021, European Commission)

We are already seeing/noticing problems in the labour market. The growing use of modern technology in the workplace increases the pressure to develop work skills, which also requires a change in the approach to education. As a result of automation, there is a need to retrain employees, but with the emergence of modern jobs, retraining is no longer possible and longer-term training of individuals is required. Here we underline the need to adapt the whole education system to the new challenges, to target this specific education at pupils and students, as well as at people already in work, enabling them to develop new skills for employment. We are of the opinion that reactions to new changes in the labour market should be more flexible and that new changes should be anticipated well in advance and responded to in an appropriate manner. As for the Slovak Republic, already in 2019, Barancová (2019) said that "the education system is not only behind the current needs of manufacturing enterprises, e.g. also the late response in the development of dual education, and the education system of the Slovak Republic is not prepared for the needs of the digital age." The Slovak Republic is aware of the needs for a successful digital transformation of Slovakia, which is why one of the priority areas of the Action Plan for the Digital Transformation of Slovakia 2019-2022 is the digital transformation of schools and education to improve its quality, improve the prerequisites for employment and the acquisition of competences necessary for the digital age. Improving digital skills is also one of the priorities of the Digital Transformation Strategy of Slovakia 2030. (Strategy of digital transformation of Slovakia 2030)

Technology developments are clearly changing the qualification requirements for employees. Positions created by transformation or completely new ones will place greater demands on employees in terms of digitisation and the use of various technical devices. This requires a constant deepening of employees' skills, as well as the necessary retraining of employees, or an increase in their qualifications through studies, as well as a longer-term preparation of young people for the

labour market. Only an educated workforce can take advantage of the opportunities of the digital age and investing in lifelong learning for higher qualifications and retraining is necessary. As the use of modern devices affects a wide range of professions and impacts employees of all ages, it is indeed questionable whether most employees are able and competent to adapt to the new conditions and requirements. We think that there are going to be employees who, because of the very specific job, will not be able to obtain the necessary qualifications, and there are also going to be employees who are unwilling to upgrade their existing lower qualifications or to obtain new qualifications, and even employees who are unwilling to undergo the process of upgrading their qualifications over a longer period of time.

In the new labour market, only qualified individuals will be able to use offered opportunities and apply in practice. The issue of adaptation and continuous learning is a prerequisite not only for obtaining but also for keeping a job. If the employee remains passive, this would give the employer the possibility of terminating the employment relationship by giving notice on the grounds of failure to meet the prerequisites for the performance of the agreed work stipulated in the legislation or failure to meet the requirements for the proper performance of the agreed work specified by the employer in an internal company regulation.

We believe that the benefits of a highly modern world of work will divide the labour market into well-paid, highly skilled employees (willing to keep learning) and low-paid, low-skilled employees who can easily find themselves in the unemployed category. As these differences clearly need to be eliminated, we see the perspective really in improving the quality of education and developing the skills of both students and employees who will be prepared for the modern labour market. Only educated and skilled students and employees will be able to respond to the new challenges of the labour market and to accept the technology innovations that will emerge at an increasingly fast pace.

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Primary Paper Section: A

Secondary Paper Section: AM

PERFORMANCE OF ARMY PROFESSIONALS FROM A PHYSICAL POINT OF VIEW

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Abstract: The probability of soldier success in the military missions is closely connected to the technology and various equipment, that they can use. Except for technology factors, the soldiers must meet their psychophysical and physical parameters. Usually, both psychophysical and physical personal parameters are evaluated during the recruitment process. The main problem could be within evaluation during common duties of the enlistment. The problems with evaluation could be connected to soldiers' gender. The objective of the paper is to find out the relationship between gender and soldiers' physical results. The sample consisted of 3317 persons, who attended army training by 15 km march. We employed the Pearson chi-square test to evaluate the potential relationship.

Keywords: physical parameter, military march, human sustainability, personal potentials

1 Introduction

One of the successes of a soldier's activities in modern operations is the high level of physical fitness in the area of physical preconditions. It represents a set of strength, speed, dexterity, and endurance skills. For the development of these abilities, their mutual interaction and the creation of conditions for appropriate loading of the organism are important. The specific tasks of a soldier in most cases require their performance under conditions that limit these activities (Vazirian et al., 2020). In many cases, non-standard to extreme situations can occur. These conditions then require the soldier to acquire skills and acquire habits in areas that use elements and sets of exercises from STP to train these expected activities. Induction of real situations can be modeled by different ways of loading. The experience and skills gained from the training should then be used in a real situation with a certain degree of stereotype. Special physical training is focused on the training of members of the Czech Armed Forces (ACR), in which a specific part of their physical and mental readiness to perform movement-specialized tasks of military expertise, which these members perform or are preparing for, is purposefully created. The selection and classification of STP topics are based on the target profile of a trained soldier in the military field (Windle, Gregory, Dixon, 1999; Kozáková, Saliger, 2019).

The topic of pedestrian movements does not currently have an anchor, for example in the form of aid or military professional publication, which would deal more comprehensively with both the content, professional and methodological aspects of training. At the same time, historically the past and the present show that the movements made by soldiers (e.g. infantry, tactical, accelerated, hard, or with load) are of irreplaceable importance in fulfilling the tasks of the individual and the unit in contemporary operations (Fraser et al., 2021; Friedl, 2018; Drain et al., 2016).

1.1 Factors affecting a soldier's performance when making foot movements

Many factors affect the soldier in the course of his activities or in combat deployment, which directly or indirectly affects his final performance. In general, we can divide them into a group of endogenous and exogenous factors. The interdependence of factors on a soldier's performance is shown in Figure 1.

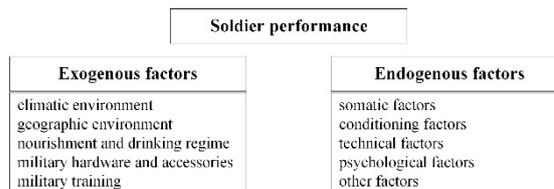


Figure 1: Influencing factors of soldier's performance

1.1.1 Endogenous factors

The internal factors of the organism are given more weight because they significantly affect its internal processes. These factors are closely related, interact, and, in many cases, combine. Internal factors affecting a soldier's performance include:

- somatic factors;
- conditioning factors;
- technical factors;
- psychological factors;
- other factors.

Somatic factors are relatively stable and genetically determined factors having an irreplaceable role in the performance of military tasks. The main somatic factors include:

- body height and weight;
- proportionality of length dimensions;
- body composition (represented by active body mass and the representation of individual types of muscle fibers);
- body type (sum of shape features of individuals based on endomorphic, mesomorphic, ectomorphic components).

Partial somatic factors may be the lengths of body segments and their mutual proportionality. From the somatotype point of view, the human body is made up of three components: the skeleton, body fat, and muscles. The ratio of the individual components that make up the somatotype can be partially influenced. The construction of the skeleton is genetically determined and changes in the sense of "improvements" are difficult to implement in military practice. However, it is important not to overload during exercise. Overloading the body brings with it degenerative, often irreversible changes observable at an advanced age in the spine and joints. The components of active muscle mass and fat can be affected. A larger proportion of active muscle mass is usually reflected in a higher level of strength. Appropriate exercises together with other factors cause muscle hypertrophy, i.e. an increase in their volume. According to Bilzon et al. (2001) activities that require strength or endurance, are the most suitable subjects with a minimal proportion of body fat. Such soldiers are anthropometrically adapted to perform military tasks such as handling heavy material or rescue activities, including carrying the wounded on stretchers.

Conditioning factors are represented by motoric abilities. Manifestations of strength, endurance, speed, and coordination can be identified in each soldier's physical activity. The proportion of each type of motoric skill depends on the nature of the task being performed. Experience from foreign military operations, where our soldiers have participated and continue to participate in a wide range of tasks, suggests that an effective way to achieve optimal levels of physical fitness leads through a variety of training variations. These should focus in particular on the four main components of motoric skills affecting the required physical fitness in the performance of special physical activities in the operating environment. It is about endurance, strength, speed, and flexibility. According to Černohorský (2009), motoric skills represent the integration of the internal properties of the organism, which enable the fulfillment of a certain group of movement tasks and are retrospectively conditioned by them. Genetic assumptions are significantly

reflected in the level of human mobility. According to Schmidt (1991), the motoric ability is a permanent, predominantly genetically determined trait that underlies and at the same time supports various types of motoric and cognitive activities. Měkota and Blahuš (1983) define motoric skills in general as a set of prerequisites for successful physical activity, which represent the internal integrated assumptions of the organism. For some of them, a biological basis can be found (e.g. some anatomical differences in extremely capable individuals). Others are manifested in physiological functions, but especially in the results of physical activity.

Most authors, such as Čelikovský et al. (1985) and Hošková and Matoušová (2007) distinguish four areas of motoric skills, namely strength, speed, endurance, and dexterity. In addition, Bursová and Rubáš (2001) classify balance and rhythmic movement skills. The development of motoric skills takes place through motoric training, which is also often called training. In motoric training, it is generally believed that gains in motoric skills above their baseline are maintained for approximately as long as it takes to achieve this increase. This judgment is only indicative and cannot be considered dogma. However, for each motoric ability, the ratios of development and decline are somewhat different. According to Čelikovsky et al. (1985), motoric skills, unlike movement skills, are not narrowly specific prerequisites for fulfilling a movement task. The degree of their specificity or uniqueness depends on the nature of the motoric activity, gender, and the level that the individual has reached during his or her life. In an individual's daily life, individual motoric skills are evenly accepted (Sekanina, 2016).

Observable improvement in strength skills can be achieved quickly through training. Comprehensive development of strength skills carried out depending on the individual peculiarities of soldiers is preferred. They train with a lower weight for better coordination of movements. Rather, local muscle groups are strengthened with an emphasis on proper breathing. During strength training, there is great fatigue and therefore it is important to perform compensatory exercises that eliminate the negative effects of strengthening not the body of the soldier. We can generally divide force abilities into individual types of force:

- maximum;
- fast and explosive;
- endurance.

Military activities are associated with the solution of movement tasks, which can be represented by simple or complex movement patterns. Movement tasks usually offer more options for how to solve them effectively. In general, the technique can be understood as a way of solving physical activity, which is within the capabilities of a soldier with biomechanical laws of movement and is carried out based on neurophysiological mechanisms of movement control. When performing tasks, a combination of other internal factors influencing performance is used, especially somatic, fitness, and mental. Variable options for solving military activities determine the content and nature of the specific activity for which the soldiers are preparing for a long-term, purposeful and systematic preparation. Technology is mainly a matter of motoric control. The aim of the technique is a perfect and efficient arrangement of movement in time, which leads to the successful completion of movement activity. This is done through the nervous system, which ensures the interaction of all the muscle groups involved. In connection with the application of the factor of technology in the field of military, one can agree with the opinion of Schnabel et al. (2003), who states that the coordination ability, which is considered the "Organizer" of other motoric skills within the given motoric skills, plays a special role during physical activities. Coordination skills thus significantly facilitate the creation of spatial, temporal, and dynamic characteristics of movement patterns. Technology should be an integral part of physical training throughout the active service of a professional soldier. Initially, it is about learning and improving the basics. When basic skills are mastered, phases of automation and degree of

adaptability are formed through differentiation, integration, stabilization. It is the process of the latter that integrates the perfection of performing physical activity and the ability to perform the skill in a specific environment. An example could be a swimming skill that is manageable in the process of automation even in circumstances where a soldier is exposed to swimming in a river or a natural reservoir, and clothing and with weapons. The ability of soldiers to swim in these non-standard conditions is in line with the output requirements of the automation process and the degree of adaptability. The degree of variability, in turn, will allow the soldier to correctly choose the most suitable variant needed to solve the movement task. Technology is inextricably linked to motoric skills, coordination, and psychological factors (Sekanina 2016).

Psychological factors support motivation (Karna and Knap-Stefaniuk, 2017) and will is an important part of training, in which soldiers learn to control mental processes and develop specific resilience for certain situations as an extension of innate psychological resilience and general resilience. Motoric skills and psyche based on perfect functional readiness of the organism represent a set of assumptions called conditions. Properly and functionally focused fitness training contributes to the optimal physical and mental readiness of the individual. Physical readiness is a disposition potentially stored in the soldier, which, however, is non-functional if it is not currently activated and permanently dynamized and regulated during the individual's psyche. This means that, in addition to physical activity and the associated fatigue, moral freedoms and especially psychological resistance to adverse influences caused by carried equipment and conditions, climatic conditions, fatigue, injuries come to the fore. In combat conditions, there are also significant stress effects of the previous or next load (combat). We understand stress in psychology as a state of the organism that responds to the pressure of the environment with anxiety, tension, or defense. Stress is understood primarily as the overall condition of the body after the failure of normal mechanisms of adaptation (Knap-Stefaniuk and Burkiewicz, 2019). Stress factors can be heat, cold, but also physical exertion and mental pressures resulting from, for example, expecting something unpleasant. Stress also causes overloading of individual mental functions (e.g. attention and perception) or overall burden on personality. The soldier can withstand the load to a certain limit. This means that it first responds with an alarm response when it internally mobilizes all forces and shows increased activity. For example, despite fatigue and injury, he is even able to multiply his strength. After a certain time, a stage of resistance occurs. There is a certain coping with a stressful situation, the individual seems to get used to stressful circumstances, he simply does not have time to collapse. Only after the danger has passed does the stage of exhaustion begin. Everything is solved and one can even completely collapse, similar to a marathon runner. But sometimes it crashes before the situation is resolved. This is especially true where the individual is exposed to long-term permanent stress and cannot regenerate (Vaněček 1999).

The technical factor deals with the selection of the optimal solution for a given task implemented in specific conditions. However, the optimal solution depends on the technical maturity of the soldier. Technology and tactics are interconnected. Complex psychological processes are applied when choosing the most suitable tactical solution. The thought process is the initiator of tactical skills. In it, the soldier applies the acquired abilities and skills in the field of physical and other types of training. In the process of thinking, he then evaluates the situation and selects the most appropriate solution to manage the task. His experience is also valuable support in the decision-making process and the selection of the right solution (Knap-Stefaniuk, and Ambrozová, 2021). Based on thought processes such as analysis and synthesis, induction, deduction, it evaluates the situation and prepares the most suitable solution. Important factors entering the field of tactics are intelligence and memory. With the help of memory, the soldier can maintain a lot of information that can be used to solve the situation. Motoric memory is particularly important in the area of military practice requirements. It is constantly evolving, supplementing,

improving, and is a factor dynamizing thought processes. Mechanisms such as anticipation and intuition are applied when selecting the most tactically appropriate solution to perform the task. A practical example, where the tactics factor plays a significant role, is man-to-man combat without the ability to take advantage of the firing effects of a firearm. The soldier must evaluate as much information as possible as soon as possible to help him find a solution to gain an advantage over the opponent. Tactics can then, in certain cases, turn the disadvantage into an advantage. Tactical maturity depends on the experience gained by soldiers in previous training (Sekanina 2016; Wrigley, Mosely, Mosely).

Other factors influencing a soldier's performance are specific internal factors that, by their nature, limit him to some extent. These selected factors influencing a soldier's performance include, above all, his health, physical fitness, and physical performance.

1.1.2 Exogenous factors

The requirements of military practice are also related to operating in various operational environments. The operating environment can be represented by conditions that are quite different from those in which the soldiers are preparing. A different environment also requires special training, which is focused on managing the following external factors:

- the nature of the operating environment;
- climate conditions;
- geographical conditions;
- nutrition and drinking regime;
- equipment and armament;
- military training.

1.2 Characteristics of the professional minimum in special physical training

Under the fulfillment of the ACR's priority tasks, especially in foreign operations, and due to the effective and rational connection with new trends within the concepts of acquiring and evaluating knowledge from the deployment of individual task forces, it is necessary to devote an appropriate level of training in physical training. The requirements for a high level of physical readiness and special military-practical skills, based on deployment in current NATO and EU operations, correlate with the need to unify and improve the training of individuals and units in special physical training topics. Training in STP focuses on mastering the professional minimum as a basic level of soldier training and subsequent mastery of professional examination disciplines as an extension with an increased emphasis on the goals and focus of individual organizational units (Pierce et al., 2017; Veenstra et al., 2018).

The professional minimum of special physical training is a set of special physical exercises based on the basic needs of a soldier operating in a foreign operation and is determined for each ACR soldier from basic function to the level of the brigade (base). The professional minimum as a basic level of training is further followed by training in special physical training according to service classification (combat unit, security unit, staff, etc.). The content, training, and control mechanisms of the follow-up training are determined by the commander in cooperation with the physical education worker according to the needs of the unit, the level of training, and the specifics of the unit. The level of training and readiness is checked within the professional examination of physical training and control exercises of commanders (Jebavý, 2010; Looney et al., 2021).

2 Materials and Methods

The tested sample population consists of 3317 persons, who attended army training by 15km march. We employed the Pearson chi-square test to evaluate the potential relationship. The group comprised 361 women, and 2956 men. The diversity was

caused due to the general imbalance of gender distribution in the army.

Pearson's independence test is used provided that there is a need to verify the independence of the two characters. An important assumption is that there is a match between the theoretical and the observed frequency - that is, the variables tested will be independent of each other. This assumption is verified using Pearson's distribution test statistics.

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(n_{ij} + n \times \hat{p}_{ij})^2}{n \times \hat{p}_{ij}}$$

At the selected level of significance α , the critical domain W_α is necessary. This critical field verifies the specified level of significance α . The value of \hat{p}_{ij} then contains estimates of the current probabilities. If the value of the test criterion is reached in the specified critical field, the null hypothesis on the whole α level of significance is rejected and subsequently, an alternative hypothesis is accepted (Stříž, Rytíř, Klímeček, 2008).

The null hypothesis H_0 is not rejected at the significance level α if the significance value is at the level of the specified error rate (concerning the significance level). An important condition is the determining level of reliability according to the relevant level of significance. If the significance confirms the dependence of two characters, it is necessary to define the strength of this dependence. This force is defined by the Pearson contingency coefficient, which explains the strength of the observed dependence of the two characters. The value of the contingency coefficient can take values in the interval 0 and 1 (Řezanková, 2010, Anděl 2007).

$$c_p = \sqrt{\frac{\chi^2}{\chi^2 + n}}$$

3 Results

The main objective of the paper is to find out the relationship between gender and soldiers' physical results. There was a defined hypothesis according to the objective. This hypothesis is:

- H_0 : gender of an applicant does not influence soldiers' physical results;
- H_1 : gender of an applicant influences soldiers' physical results.

All collected data was put into processing by IBM SPSS Statistics 25, in which we employed Pearson's chi-square test for the independence of two variables. The Pearson's chi-square test for independence compares two parameters in the case of the mutual relationship. By confirmation of alternative hypothesis H_1 at significance 95% level, the test criteria meet a certain value in the critical subject. It means, that exists a relationship between individual variables (Gravetter and Wallnau 2009; Vaughan 2003).

By the defined possibility of a relationship between variables, the result is compared to an error value of 0.05, which represents a significant level of 95%. If the result is under 0.05, it is possible to state, that there is statistical dependence between two variables. Otherwise, if the value is over 0.05, there is no statistical dependence. The intensity of gained relationships is given by the contingency coefficient. The intensity pertains to interim 0 and 1. If the value is close to 1, this intensity is considered to be high. Vice versa, a value close to 0 is explained as having low or no intensity.

The data was obtained due to an experiment of a military march for 15 km. In this experiment participated 3400 soldiers. Summer and autumn of 2021. From that amount, we received only 3317 results about march, which means 97,56 %.

The time values of individual participants in the military march were in time units (hours and minutes). For evaluation, we transferred nominal values of the march into a time group with ordinal parameters. According to the core results, we stated five new time groups. The best time group for the evaluated military march is till 2 hours. The worst time results were over 4 hours. For purpose of the Pearson's chi-square test of independence, we stated pivot table, on which the calculation is based.

Table 1. Pivot table between gender and military march

		Military march - groups					Total
		No info	till 2h	till 3h	till 4h	over 4h	
Gender	Male	576	75	1564	732	9	2956
	Female	76	0	175	109	1	361
	Total	652	75	1739	841	10	3317

Source: own work by authors

For evaluation of gained data (gender, military march time, military march time group) we applied Pearson's chi-square test of independence. For two potential relationship, we found out, that there is considered statistical dependencies – reach a significant p-value under 0,05. In the results of the Pearson's chi-square test of independence (see Table 2). The p-value of dependencies are (results match the required level of significance of potential error under 5%):

- gender and march time (p-value = 0,000);
- gender and march time group (p-value = 0,006).

The p-values express the probability of validity of the null hypothesis. The lower the p-value, the lower the probability of a null hypothesis. Therefore, it can be concluded from the above data that we can only accept alternative hypotheses about the validity of the relationship between gender and military march or military march groups. Furthermore, we should consider the level of significance chosen. We are working with a 5% significance level in the paper, so the p-value should be lower than this significance level. Only for social networks the p-value $< \alpha = 0,05$, therefore we reject the null hypothesis and accept the alternative hypothesis about the dependence of selected elements.

The power of dependencies is given by the contingency coefficient. For gender and march time, the coefficient is at 0.263 and is considered as medium power. In the case of gender and march time (groups) the intensity is 0.066 and it is rather low.

Table 2. Observed relations between gender and military march

	Gender		
	<i>Pearson χ^2 p-value</i>	<i>Contingency coefficient</i>	<i>Spearman correlation</i>
military march	0,000	0,263	0,073
military march (groups)	0,006	0,066	0,026

Source: own work by authors

A major problem in terms of the time each managed was its subsequent evaluation. In the case of categorization of times, the said shift to 15 km a total of 1209 individuals. The individual categories are then defined by the transfer time, i.e. within 2 hours, within 3 hours, within 4 hours. Except for these categories, 35 % of individuals were excused or did not participate in the move to 15 km, but to 20 km. The standard performance, i.e. the transfer in time to 3 hours, was achieved in each adept in basically a similar number.

Due to the created time categories, it can be stated that the evaluated data tend to have a normal distribution (see values in Table 3). As these values cover most of the units, it would be appropriate to adjust the final assessment of the performance

achieved, taking into account the time achieved. Time groups should then not be based on hourly intervals, but optimally on 30-minute intervals.

The main problem of the military march is that all participants reach excellent evaluation without any reflection of the reached time. An important stimulus that can significantly affect the setting of time limits for the assessment of the transfer is the inclusion of the individual in the relevant unit with a reflection on the needs of this unit. In the context of a move, one can see the difference in the time achieved, if the basic parameter during the move will be the endurance or, conversely, the speed and explosiveness of the individual (his dynamics).

Table 3. Pivot table between military march and its evaluation

		Military march - groups					Total
		No info	till 2h	till 3h	till 4h	over 4h	
Evaluation	Excellent	0	35	917	257	1209	
	Insufficiently	4	0	0	0	4	
	Total	4	35	917	257	1213	

Source: own work by authors

To explain the situation with the length of military march and final evaluation there is employed Pearson's chi-square test of independence.

The observed p-value of the relationship between final evaluation and military march (time group) reaches the required level – it is 0.000, which means the significant statistical dependency. The intensity of this dependence is 0.707, which is a rather strong value.

Table 4. Observed relations between final evaluation and military march (time group)

	Evaluation of military march	
	<i>Pearson χ^2 p-value</i>	<i>Contingency coefficient</i>
military march (time groups)	0,000	0,707

Source: own work by authors

4 Conclusion

The time when an individual exceeds a specified distance of 15 km is affected by several factors such as the gender of the individual. However, if this time is to be part of an individual's evaluation, there is a discrepancy in how the time achieved will be evaluated. Due to the potential optimal result of 2 hours, it can be seen as an excellent result. In the case of time falling into another time category, such time can be accepted (depending on the set limits for success), but it is no longer possible to call it excellent by the logic of the matter. The analyzed data contained the recorded evaluation excellently for all individuals who completed the said 15 km movement, regardless of the time achieved. This discrepancy is evident in the schematic expression of the evaluation with the achieved time category. An excellent result is expressed just for time up to 2 hours, other time groups have a lower value (in terms of data normalization).

Based on the analysis and research survey in the verification of current standards of professional examination of ACR members in the researched issue, the author proposes to change the time standard for the evaluation scale of extended control tests, specifically for pedestrian movements of 15 km with a load of 10 kg. The individual performance of each soldier depends on various factors (mainly endogenous and exogenous). However, the key role plays the military training, which confirms complex health in connection to the cardiovascular system and total psychological health (Looney et al., 2018; Drain et al., 2016; Farina et al., 2019).

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Primary Paper Section: A**Secondary Paper Section: AE, ED, KA**

PARADOXES IN ANTI-SEMITIC COMMUNICATION AND ITS FUNCTION

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This contribution was created with the support of VEGA project no. 1/0143/21: Anti-Semitic ethnic stereotypes in the media and literature of the V4 countries.

Abstract: The study focuses on anti-Semitism from a communication perspective and a philological point of view (i.e. anti-Semitism as a communication source). In the first part, it names the paradoxes of anti-Semitic communication, which on the one hand is to eliminate "excessive Jewish influence in society", on the other hand, it is an essential aspect of Jewish identification and a factor strengthening Jewish national, spiritual and cultural consciousness. The second part focuses on the functions of anti-Semitic communication, especially today. Finally, the study briefly characterizes ten functions of anti-Jewish language, narrative and conception, thus understanding anti-Semitism as a multifunctional communication.

Keywords: Anti-Semitism. Communication. Paradoxes of anti-Semitic communication. Prejudices. Functions of anti-Semitic communication.

1 Introduction

Awareness of anti-Semitism and the existence of a defence strategy against it is an integral part of Jewish identity. Not only the definition of the Jew based on the halachic law or the law on immigration to Israel but also the anti-Semitic perception of who "a Jew / the Jew" are (as part of hetero-identification) and what "Judaism" constitutes (not only in the spiritual dimension), establishes a divisive identification key. Therefore, to begin with, we could point out the first fundamental paradox of the existence of anti-Semitism as a communicated, mediated and fulfilled anti-Jewish belief: many European Jews would not know about their Judaism without anti-Semitism (and its media activists). They could neither identify with it nor "run" from it. Even the creation of the state of Israel would be unthinkable without anti-Semitism and anti-Semites.

In this study, we will reflect in an essay form on some paradoxes of anti-Semitic communication¹, on their consequences and on the functions that any anti-Jewish discourse fulfils. First, however, the fact that without anti-Semitism, there would be no modern Judaism is a notion only seemingly contradictory.

2 Paradoxes of anti-Semitic communication

In the introduction, we have already stated that the continuing steadfast negative standing of the Jews, Judaism and Jewish culture (including the ultra-anti-Semitic effort to "finalize the Jewish question") had a paradoxical effect in that it significantly contributed to Jewish resistance, anti-assimilation efforts. Moreover, it led to the national renaissance (Zionism) and the establishment of the Jewish state (Budil, 2013a, Johnson, 2007, Laqueur, 2007, Messadié, 2000.). In this chapter, we will list other consequences that are contrary to the intention of anti-Semites to weaken, eliminate, or completely "erase" Jewish

culture from the "non-national" (European, American, and Asian) space.²

From a linguistic point of view, "anti-Semitism" is primarily a lexical unit, a word as naming. As a lexeme, it is derived by the prefix, the word-forming productive prefix "anti-", from the word-forming basis "Semitism". However, this word-formation base is no longer supported by contemporary Czech or Slovak vocabulary and functioned only as a (distinguishing feature) of those who created, mediated and politically and otherwise emphasized the word "Semitism" in the belief that if there is an expression, it is easier to identify the object it labels: anti-Semites mean and paraphrase "the excessive (negative) influence of Jews in society, politics, science and art", or directly the "destructive effect of Judaism", which must be eliminated, or entirely smeared. Although the word itself – and the conceptual unit – is not unproblematic, the model way of word-formation itself is not unique and seems to tend to a certain neologization of language, which we have encountered in anti-Semitic communication for a long time³. Some words do not hide their neological origin, often with political or "directional" connotations – e.g. anti-Sovietism, anti-Americanism, antibabišism; from the literary language, let us recall (formerly), e.g. anti-Wolkerism, anti-Avant-gardism. However, the syntagmata "anti-Semitic prejudices" or "anti-Semitic stereotypes" (in addition to the more common adjective "anti-Jewish") are generally understood, and the word (and the term) is also widely used, however mediating a contradictory term. If we understand the unintended consequence of anti-Semitic prejudices as reinforcing pro-Jewish (and philosophical) ideas as the first paradox, word formation is the second paradox – it is about defining oneself against non-existent "Semitism."

Some content theses of anti-Semitism and its arguments still have many supporters such as writers, some researchers, teachers, political scientists, active politicians, activists of all ages, often promoters of some of the elimination and "excluding"⁴ concepts, regardless of age, education and the place of action (they can be found anywhere). Today, however, they usually refuse to identify with the "mark" of anti-Semitism, certainly in public, often due to criminal concerns, or at least for fear of losing prestige, for fear of moral harm⁵. Nowadays, we witness an almost unequivocal verbal rejection of this concept even among those who share anti-Jewish prejudices (as a whole or parts of its theorems⁶). The term "anti-Semitic" is now almost

² This problem is also relevant in connection with the cultural and historical memory of the nation and humanitarian education, as discussed in the article Humanities education as place for cultural-historical memory. (See: Liashchynskaya–Jakubovská, 2017)

³ This is evidenced by many derogatory and biologising figurative names, as we present them in the book *Antisemitismus v české literatuře 19. a 20. století* (2000) [Anti-Semitism in Czech Literature of the 19th and 20th Centuries (2000)]; in the current communication, they are replaced in whole or in part by others (Mikulášek, 2020), adopted from English, from the point of view of correct Czech neologisms, e.g. "lžid", "siožid", "Židoduch", xid, "iSraHeLL", "jewstic", "holofoax", and of course the updated names, of which "Khazar" appear most frequently as surrogate names for Jews and Judaism, often in direct connection with A. Koestler's book *The Thirteenth Tribe* (1976).

⁴ That is, exclusionary, as opposed to inclusive tendencies, as the somewhat fashionable word sounds (cf. the so-called inclusive education, inclusive capitalism.)

⁵ The so-called final solution of the Jewish question by the Nazi regime of the Third Reich, the pogroms and ghettoised politics of some countries, especially Central and Eastern Europe, all referred to as manifestations of anti-Semitism (perhaps ultra-anti-Semitism), provide a good opportunity. There is a need to identify with other than open forms of anti-Jewish hatred and define belonging to anti-Zionism, identify with some religious and other racial prejudices, and stylise oneself as an independent researcher or lay observer, a thinker independent of "Jewish / Israeli" influence.

⁶ In the monograph *Antisemitismus v české literatuře 19. a 20. století* [Anti-Semitism in Czech Literature of the 19th and 20th Centuries], we voted for unsystematic and "dissolved" anti-Jewish ideas in the text, which established a negative attitude towards Jews, however coexisting with others, just the opposite; the expression "Assemitic prejudices" or "asemitism" for short – the basis of these ideas was the distance to everything associated with Judaism. This also applies to the relatively systemised, "masculine hostile attitude" found in Jan Neruda's "political study" in *Pro strach židovský* [For the Fear of the Jews] (1870). From today's point of view, it contains unambiguous anti-Semites (theorems), but the book was, for example, strictly censored during the official anti-Semitism of the Protectorate of Bohemia and Moravia (1942). All relatively favourable references to Jews have been omitted. Furthermore, Neruda was perceived as a Czech-Jewish movement supporter (and a proponent of its founder, Siegfried Kapper). He was even considered a hidden Jew and a member of the Association of Czech Academics of Jews. The "Assemites," as we called them,

¹ Our study perceives anti-Semitism as verbalised, lexicalised, and communicated in a philological and partly psycholinguistic perspective. Although, as stated in the *13roční zpráva o projevech antisemitismu v ČR za rok 2020* (Annual Report on Manifestations of Anti-Semitism in the Czech Republic for 2020), published in 2021, violent incidents are "still rare in the Czech Republic, in 2020 one case of physical assault with an anti-Semitic motive was recorded [...] The vast majority of all recorded anti-Semitic incidents - 98% - are expressions of hatred on the Internet (articles, posts on social networks, anonymous comments and discussion posts). The enormous increase in the incidence of various conspiracy myths related to the coronavirus pandemic and related manifestations of anti-Semitism has been a global phenomenon over the past year. In the Czech Republic, these conspiracy theories were spread by traditional disinformation platforms, but also individuals and groups, with anti-Semitic theses about the deliberate spread of coronavirus or the promotion of financial interests concerning vaccination against the disease being a new phenomenon." An openly critical attitude towards Israel and its policy towards the Palestinian Arabs is somewhat problematic, it is perceived as a "new anti-Semitism" (cf. also Barna-Félix, p. 19-46). However, it seems to us that even one-sided criticism of Israeli military operations, for example, in Gaza, Syria or elsewhere, does not automatically mean verbalised anti-Jewish and prejudiced hatred; however, it may be associated with it (Žantovský, 2020) or may mask "legitimate criticism" of people of "Jewish origin" (Svobodová, 1994).

universally perceived as a derogatory mark, directly as an invective. However, for example, the idea that Jews are responsible for anti-Semitism themselves (e.g. by their behaviour) no longer seems problematic to some (and close to anti-Semitic theorems). Perhaps one can write about another paradox of anti-Semitic communication – the holder of anti-Semitic beliefs is convinced that they do not share anti-Semitic attitudes.

The fourth paradox stems from the fact that the suffix “-ism”, which originated the word “Semitism” (model “Semita” – “Semitism”) gives the impression of a systematic, centralized, hierarchical and positionally defined, i.e. programmatic direction with scientific, (pseudo) professionally universalist demands. In program articles, essays and monographs in the nineteenth and twentieth centuries, anti-Semitism was formed as an educational⁷, biological-sociological direction (interpretation of social events) and a political program based on social Darwinism and modern racism (Budil, 2013b). Therefore, it also acted as – at least partially – a systemized “-ism”, it wanted to be a legitimate scientific and educational direction withgnoseologically universalist demands; it also formed a programmatic political direction with its focus and peripheries. However, the fact that it evokes mainly negative emotions and will, non-intellectual components of the personality, is already paradoxical. The formally rationalized unit in which it acts (as a tract, book, article, discussion opinion) has an irrational content: systemized prejudices are functionally emotional, experienced, allow for elementary intuitive perception (according to the formula: look for everything a Jew and their golems), satiate out-of-reason and extra-intellectual, prejudicial aspects of the human personality.⁸ However, the combination of the pseudo-scientific form, given by presenting arguments in the form of numbers, statistics, elements of oral history, on the one hand, and irrational and traditionally fixed prejudices, which have different motivations, is not the last paradox of anti-Semitism.

The fifth paradox is the fact that the lexeme “anti-Semitism” semantically establishes the existence⁹ of a kind of “Semitism” (neologically translatable as “Judaisation”, analogous to nouns such as “Germanization” or “Hungarianization”, here interpreted as “being a victim of pernicious activity” by Judaism, assimilation to a murderer) against which it critically opposes. At the same time, it makes that “Semitism” the subject of its “research “and interpretation, re-presentation. Nevertheless, the authors we will not suspect of anti-Jewish hatred believe that defining oneself against “Semitism” means defining oneself against people of Semitic origin, especially against Arabs. So that the term is substantially incorrect, incorrectly formed, misleading and should not be used in the sense of “anti-Jewish prejudices”; it is an illogically created concept giving the impression that it is anti-Semitization, allegedly - according to the number of persons – anti-Arabization of the so-called endangered population. The word itself should be close to expressing concern about so-called political Islam, Islamism, and European society’s Islamization.

Even the paradoxically created concept is not the last contradiction of anti-Semitic communication: it certainly has its rational side (the need to find the “key” to understand the complex social world)¹⁰, emotional side (it manifests itself

immediately in negative emotions, the manifestations of which are referred to as hateful) and practical side (wants to be an answer with a clear link to some activity, preferably a guide to the “cleansing” of society from “Semitism” perceived as the unjust rule of the Jewish elite over the rest, suffering humanity). Naturally, there are negative emotions associated with denial, negation, resistance, contempt and resentment. On the other hand, however, the bearers of anti-Semitic stereotypes want to represent¹¹ a moral, intellectual elite with subsequent just opposite emotions, emotions sublime as pride, responsibility, bravery, truthfulness, with feelings of one’s moral prevalence, with enthusiasm for the “right thing”, growing into the need to bring ethically justified knowledge, rules, truths – to life, at the level of theoretical and practical action/negotiations/proceedings. To summarize this part of the reasoning, the following can be stated: anti-Semitism often presents us with a kind of activism that verbally (that is, by name) defines itself against a non-existent entity (i.e., “Semitism”). If it defined itself against the Semites in general, it would have to take a position against the identity most numerically represented by the Arab population (Arabic is the most widely used Semitic language). Anti-Semites as anti-Jewish activists today refuse to call themselves anti-Semites or anti-Jewish activists. In the case of so-called scientific anti-Semitism, their research fulfils not scientific hypotheses, but shared prejudices about the pathological nature of Jews, their inferiority, or their ingenious “group evolutionary strategy” with elements of tribalist behaviour (partly Bakalář 2003, 102 an.), or directly about their extreme danger to the majority society. Rationalized argumentation exists in the service of irrational ideas, which are thus objectified and made “reasonable” and generally understandable. Anti-Semitic communication is naturally negativistic in the sense that it creates an image of the enemy, “our enemy,” but its perpetrators feel like those who save “our people,” who “help” us navigate the tangle of “Jewish intrigues.” Finally, anti-Semitism has a very low or relatively low prestige in the current Central European discourse, whether in the media, school, academic or artistic creative world. However, the anti-Semite is convinced of their value, moral prevalence, and even intellectual genius.

To not be too speculative, let us state how this internally contradictory and discredited concept and the network of prejudices defined by it can be – in the undeclared, respectively encrypted form – relatively successful in social communication.

3 Functions of anti-Jewish communication

In our opinion, anti-Semitic communication cannot be unilaterally assessed only as a “hate speech”, or only as a “mistake”, as a “prejudice”, or as a “manifestation of mental illness”. If we look in particular at the current electronic communication network and within it social networks and various discussions (and so-called discussions), it cannot be overlooked that anti-Semites have reasons for activism, that their communication even has several functions the active participants may not be aware of in communication. However, the functions are inseparable from their writing’s meaning, establishing the reason for the existence of this activism.

The anti-Jewish discourse undoubtedly has the function of 1) group identification and integration: even the language used¹² creates a link at first glance hidden, sign, cryptograms obscure, a connection between like-minded users, similarly experiencing their situation and into a relatively complex and hierarchical social (generational, family, work, class, political and other) reality. Language is thus one factor in forming some kind of collective anti-Jewish “We”, metaphorically perhaps similar to “language in a social bubble”. Moreover, the system of used characters and codes, similarly to professional and hobby slang

were generally followers of assimilation and supported the Czech-Jewish movement; they did not hide their views, which were anti-Jewish from today’s point of view. The term was not accepted by the professional public, although this or another term would undoubtedly allow for better differentiation of various prejudices, prejudices”, and conceptualised experiences not only in the Czech cultural space.

⁷ It was more of a quasi-educational direction, but let us add that from a historical point of view, even such fields as phrenology or craniometric research represented science, scientific research, albeit from the current point of view, from the point of view of current scientific research they are evaluated as unscientific, pseudoscientific.

⁸ We have already shown elsewhere that anti-Semitism of the nineteenth and twentieth centuries followed the medieval and modern Christian, or Islamic anti-Judaism (Mikulášek, 2000).

⁹ Existence, at least mental, as a conscious construct, but it is often as crucial as objectively existing, real.

¹⁰ It wants to be a comprehensive and unambiguous answer to the complex questions of social existence, its functional stratification and hierarchy, mainly associated with the management of social processes (law, education, institutions), authority and power.

¹¹ This is how anti-Semites see and evaluate; this is how they expect the immediate surroundings to perceive them. Due to the idea of their exclusivity as potential bearers of charismatic authority, due to the need to educate (“realise”) the environment, they partially act as propagandists, preachers, as “heralds” of known truth, which must not remain unheard...

¹² The system of signs and cyphers as indicators of anti-Jewish narrative and discourse, aside from this reasoning, will be the subject of another study.

or even argot, mutually identifies the followers of this “-ism” (treating that his followers are not, but ...). Thus, language becomes an indicator of the attitudes and values of this community and a kind of “sealer”.

The connection with some form of faith that can compensate (or accompany) natural religious spirituality is certainly unmistakable. It is connected with beliefs, respectively, with irrational prejudices that are supposedly fully confirmed by experience or without direct life practice¹³. Anti-Semitic prejudices are primarily the subject of “faith”; respectively, deep and inner convictions may accompany some religious spirituality (Muslim or Christian, but also atheistic beliefs about the “virulence of faith”). It is the function number 2: conspiratorially spiritual, replacing, de facto compensating for classical supernatural spirituality, satisfying the need to enter the hieratic world of cognition with a different eye of mostly “Jewish-controlled goyim”, inaccessible, hidden, basically open to understanding (and experience) only for insiders; the knowledge presented in this way is experienced as hieratic, accessible to few, requiring courage. Anti-Semitism may directly accompany some Chiliastic religious conceptions (Spirago, 1924, here at the rise of the “Antichrist of the Last Days of Mankind”), may become a completely open, dominant and distinctive narrative (Pinay, 2002), or maybe only latently present in various literary, professional or in geopolitical forecasts.

Closely related to the above is another function, associated with the formation of awareness of the individual’s belonging to the elite, to the owners of the truth, i.e. number 3: the formation of the charisma (Weber, 1997, p. 132–162) of a kind of moral, intellectual elite. In their eyes, they are the bearers of moral authority. If an anti-Semite enters the prejudiced community with which he identifies, it is in his eyes a community of the elite, chosen, but also suffering for the truth, persecuted, contrarian, constrainedly secret. It is an elite community of owners - unquestionable in their own eyes - of discoveries and truths, people excluded from the “ordinary” world of Goyims controlled by so-called Jewish Kabbalah, collective blindness, or at least charismatic people following the right path to morally and intellectually “higher truth” than is generally accessible, preferred and widely mediated by the school and academy. Anti-Semite feels superior to those who do not share their prejudices, like a diamond among ordinary stones. He/she is superior to those who question their ideas or even openly ridicule them. The need to belong to the society of “bearers (albeit hidden) of the aura” and to experience one’s “chosen” identity is not uncommon.

Ideas about ethical and intellectual prevalence (and elitist self-experiences associated with them) create the ground for ideas directly related to them, accompanying them, namely the 4th messianic or liberating function. It is a compulsively fulfilled need to “proclaim” this “truth about Jews”, to disseminate it, justify it, systematize it, and defend it as a “holy word” in the media and other ways (e.g. through lectures, educational and other work). Anti-Semite writes because they must; they consider it an inalienable need. To a certain extent, he resembles an artist who is motivated to create only by an inner need (thus, according to F.X. Šalda), with the only difference that the compulsive need to spread, preach the truth (quasi-truth), persuade the “destructive effect of Judaism” far removed from artistic creation. Due to its pathological and perhaps also psychotic compulsion¹⁴, this discourse seems to be the opposite of culture and art, but because it undoubtedly satisfies these needs, these functions cannot be overlooked.

The purpose of a more comprehensive anti-Semitic communication is to express a rationalized and reasoned attitude to the subject of one’s anxiety, fears, and resentment and

convince readers and listeners of one’s truth. Suppose the anti-Semitic word is to be a proclamation and mission. In that case, it must also fulfil its fifth function, namely persuasive, promoted mainly in various polemics and discussions and rhetorical figures, parallels and techniques used in them. Its purpose is to be agreed with, thus, to question the validity of the opponent and the validity of their opinion, most often to ridicule them directly, degrade them intellectually and humanly, often also by “argumentation fouls” with which this electronic space is filled.

The lack of distance from the object of often experienced inward hatred often causes events evaluated by anti-Semitic optics; respectively, the monologues and dialogues presented to us, textual, pictorial and other outputs, are a valve for releasing the accumulated negative emotional energy—loneliness, exclusion, a feeling of exclusivity, but also salvation and communication inevitability. Paradoxically, however, they also generate and escalate this energy: if a Jew is ultimately responsible for everything wrong, the extent of his latent or actual crime is almost infinite and universally applicable. Thus, the anti-Semitic communication also has the 6th function, linguistically “interjectional”, emphatic. As such, it serves especially emotions dressed in verbal material as an expression of need, written in vernacular: “spit out”, “give it to them”, “relieve”.

As another function, naturally related to the above, we can summarize the 7th noetic function, or quasi-methodological, because anti-Semitism – not just language – appears as an unshakable tool for learning about the history and presence, state and causes of problems of society and the individual. It seems to be a kind of methodology of knowledge, the key to explanation. Anti-Semitism explains social and other problems, causes of economic, social, cultural, artistic and scientific trends and mega-trends, discourses, at a very trivial level (anti-Jewish activists do so). Sometimes it is more sophisticated, gives the impression of scientific work, wants to have an intellectual, analytical level, e.g. in the so-called evidence of denial of the existence of functional gas chambers (Rudolf, 2015). In the eyes of its users and followers, it appears to be something like Ockham’s razor in a somewhat trivialized form, according to which “truth and power lie in probability and simplicity”.¹⁵

Language in the role of naming and communication has one function that we would probably not expect in a deductive approach. However, it is essential because anti-Semitic communication enters the electronic space of the media and is, to some extent, subordinate to it. At the same time, it fulfils function 8, that of entertaining just like other journalistic, i.e. media manifestations that must entertain to be consumed. A particular linguistic invention, which some users of electronic networks show, their neologizing efforts and efforts to entertain themselves and others generates – apart from the ethical side of things – and changes the storehouse of new naming units, conversational pranks, exaggerations (perceived as reality). However, on the other hand, it also tends to content thematic (e.g. motivic - physiognomic) stereotyping and the unification associated with it. In other words, the anti-Semite enjoys the satisfaction of their and collectively shared prejudices and

¹³ Modelled: many Jews and Jewish identities in journalism, banking, the judiciary and jurisdiction, medicine are interpreted as “Jewish power” and “Jewish government” over the not Jewish. Alternatively, as the will of the subject, or entities standing above the society and deciding its direction; as a power delegating to the Jews some exclusive rights or directly impunity as a reward for their services in the system of management of society. Thus, for example, in Orwell’s *Animal Farm*, the figure of the raven Moses may appear anti-Semitic, however mainly in the so-called anti-Semitic reading: in such symptomatic reading, like reality (reality “as a text”), fictional texts are also read as examples, open or hidden examples of universal Jewish “evil, meanness, and filth.” This applies to several figures in Czech and world literature, whose anti-Semitic “reading” establishes the idea of pan-anti-Semitism in literature and theatre. We can also mention the Slovak Lowland literature as part of the Slavic “family”, in which the issue of Judaism and thus the standardized figure of the Jew also appeared in the 19th century. The priests (in the text of Ludovít Haan and Daniel Zajac, 1853) and the synagogue (in the text of Gustáv Augustín, 1885) are described in a positive light. With considerable negative features, the character of the Jew appears only slightly later – in Ondřej Seberín’s novel *Slováci a sloboda* (Slovaks and Freedom, 1886), in which the author also “criticizes Jews – he characterizes Judaism in the person of Ignác Sieber, who, according to him, confuses local people into the imaginary spider web of loans” (Šenkár, 2018, p. 131).

¹³ Anti-Semitism also existed in countries where Jews were expelled from or assimilated; it is so-called anti-Semitism without Jews.

¹⁴ This does not mean, however, that anti-Semites can be identified with the bearer of mental illness. However, prejudices can take some of their (phenomenal) forms associated with a panic fear of hostile power, ubiquitous, i.e. with a stigma and various psychotic states.

motivates them to play various “combat” attitude activities to document the prevalence of their ego and beliefs.

Linguistic communication tends towards a certain cryptolanguage, which hides and conceals specific contents and indicates them only to those “knowledgeable” of the code. This function is closely related to the first one, marked as “language integration” in our overview. The truth’s bearers associated with the elite and the truth’s disseminators are the owners of a specific language, the language to be learned. This communication function is a cryptogram, the secret message for those who know the language, cyphers, anti-Semitic “decryption code” in the layer of language names. E.g. the term Khazar, as already mentioned, is a pure cryptogram for a Jew in contemporary Czech anti-Semitic communication. Thus, the adopted stratification concept would be the first layer that the research of anti-Semitism should notice from a philological perspective.¹⁶

Lastly, we could define the 10th function – ideologically phatic: there is a clear link between anti-Semitic stereotypes and the will to implement some “solution to the Jewish question”, such as the unnamed, but in the consciousness of “Semitism”, somehow not always “final solution” (“endlösung”, i.e. extermination). It is primarily an elimination effort: our anti-Semite is mainly interested in the first two or three steps in the Nazi sequence of “divide-mark-concentrate-annihilate”; the “final solution” in the form of the extermination of the object of hatred, or the hatred of close (structurally justified and experienced) fear¹⁷, is, however, a borderline situation.

4 Conclusion

As follows from our reasoning, anti-Semitism can rightly be seen as a set of prejudices somehow rationalized and pragmatized, systemized, creating a trivialized viewpoint aspect, the key to cognition, and as a multifunctional communication. These intellectually emotional prejudices claim to be demonstrated verbally and non-verbally, e.g. in discussions on the network many a time expressively and emphatically manifested. They also want to be proven, i.e. somehow harmonized with reality, broad experience, using various analogies, and somehow confirmed by research, transparently or otherwise. They claim to be spread; the anti-Semite is thus styled into the role of one who independently researches and informs, so the anti-Semite is styled in the role of one who independently researches and informs, but also to the role of educator, preacher, instructor, mentor, punisher, moralist. Its activists are looking for ways to collective share it, both on specific printed and electronic platforms (anti-Semite is becoming the one who allows the “truth” to come to light finally). These ideas want to be experienced (deeply, experientially, with bitterly negative emotionality) and satisfied, as a need saturated, for internalized prejudices secondarily become a kind of psychic need; they represent a demand for fulfilling facts, quasi-facts and evidence, for stories.

¹⁶ The first of them is directly linguistic, lingvo-stylistic representation. The word-forming layer seems to be graspable (creation of linguistic neologisms and contaminated words as placeholder linguistic names, e.g. “xids” instead of “Jews”, many Anglicisms like “Ju”, “holohox” instead of the holocaust, “isaakpeople”, “Kosher isaakland”, the United States as “USrael”). On the contrary, once abundant expressions such as “Jewish”, “Jew-smell”, language markers in the form of “skobonosky – rulers of dear homeland’s fate” and the lexicon of the parody, speech comedy, the so-called „mauschelning – to speak Yiddish, or speak distorted German”, contamination of Czech with German or Yiddish), all as a lexically mental sign of “representation of a Jew / the Jews”, certainly in the Czech environment (Mikulášek, 2020).

¹⁷ In his novel *Sophie’s Choice*, William Styron portrays the commander of the Auschwitz extermination camp as a knowledgeable “member of the SS weapons” who despises common anti-Semitic notions of perverted subhumans – monkey-like Jews monkeys who rape non-Jewish virgins or inject poison into their victims’ veins, pretending that is a treatment. Nevertheless, he sees the need for a “final solution” because Jews are extremely dangerous because they are brilliant rivals: whose victory in the battle of the races would lead to the demise of Germanism and the West as a whole.

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Primary Paper Section: A

Secondary Paper Section: AA, AB, AJ

PERSONALITY FACTORS OF TOBACCO BEHAVIOR IN UNIVERSITY STUDENTS: COMPARISON OF CIGARETTE VS. SMOKELESS PRODUCTS USERS AND NON-SMOKERS

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This work was supported by the Scientific Grant Agency of the Ministry of Education, science, research, and sport of the Slovak Republic and the Slovak Academy of Sciences under the no. VEGA 1/0203/20

Abstract: The paper is aimed at the issue of tobacco behavior, specifically at the use of smokeless tobacco products. The goal of the study is to unravel the differences in personality traits among smokers and users of smokeless tobacco products in comparison with a non-smoker group, with regard to gender. The data were obtained by use of a battery composed of EPQ_R, STAI, and questions for the identification of the form of tobacco behavior. The sample was made up of 202 university (48.5% males, 51.5% females) aged 19-27. The results suggest a preference for the use of smokeless tobacco products in females, a higher degree of extraversion, and psychoticism in the users' personality profiles (in comparison with non-smokers) with no difference according to form of tobacco behavior. Further, anxiousness was discovered to be a protective factor in females while neuroticism was discovered to be a risk factor (for tobacco behavior) in males.

Keywords: anxiousness, cigarette smoking, extraversion, hot-not-burn products, neuroticism, psychoticism, tobacco behavior.

1 Introduction

In today's time, smoking is quite a common phenomenon in the young adult population. In smoking, a habit is formed quickly, it is difficult to stop and the risk of nicotine addiction is increased. It is also important to consider alternative tobacco products, which are becoming increasingly more popular and frequently used. Among these, there are shisha, bidis, kretek, and smokeless products such as electronic cigarettes and IQOS. Tobacco behavior (tobaccoism) is characterized as maladaptive repeated application of products containing tobacco, creating an intensive habit. Researches (e.g., 1) confirms that the habit smoking creates is more intensive than is the case with alcohol, cocaine, or heroin. The most common form of tobacco use in the world is smoking cigarettes. Cigarettes represent 96% of all tobacco products in the world today (2). Among more modern alternatives, there are electronic cigarettes or e-cigarettes (transforming nicotine and other harmful compounds into a vapor inhaled by the consumer), and products that heat up tobacco leaves creating an inhalable aerosol instead of burning it, also known as heat-not-burn products, e.g., IQOS¹. E-cigarettes are often signaled as an alternative to smoking or aid in breaking a tobacco habit, whereas the WHO has confirmed there are no studies proving the effectiveness of this nicotine alternative. On the contrary, new studies alert to the use of e-cigarettes in adolescence as possibly increasing the probability of the later use of cigarettes (3). Vansickel et al. (4) admit a certain significance to smokeless products which mitigate withdrawal symptoms while retaining a lower potential for use than cigarettes. Producers of heat-not-burn products present these as a safer alternative to cigarettes, but there is not sufficient information nor studies (5).

Alternative tobacco products (ATP) such as e-cigarettes, shisha, and smokeless tobacco are attractive to young individuals for various reasons. Some new products, like e-cigarettes, have become more accessible and can be used in places where smoking cigarettes is prohibited (6, 7, 8). Further, the aroma (9), the desire to try something new and some social situations can promote experimentation with ATPs. Some research (10, 8) suggests that a lot of young adults come to try ATPs through peer pressure if cigarettes are not available. Besides, it is more

likely for young adults to use more than one tobacco product and e-cigarettes simultaneously (11, 12).

The use of tobacco products has a multifactorial background, where one of the significant factors is the individual's personality. The personality of smokers has been looked into by Eysenck et al. (13). Using his three-dimensional model, he explains that extraverts smoke to achieve stimulation and mitigate boredom by increasing cortical excitation, while individuals with a high degree of neuroticism or anxiousness smoke to lower their tension. Releasing tension is one of the crucial factors forming and maintaining various types of addictive behavior such as smoking or alcohol use but also gaming or even self-harm (14). Psychoticism is connected to aggressive and ruthless tendencies interconnected with the impulsivity subdomain as a trait characteristic for the use of addictive substances (15, 16). The relationship between psychoticism and smoking has likely got a social base. In individuals with high degrees of psychoticism, it was supposed that they smoke more than their counterparts with lower values, given the social strengthening of the negative stereotype connected to smoking. (17).

A plethora of research (18, 19, 20, 21, 22, 23, 13, etc.) aimed at personality traits has shown that smokers exhibit higher values of extraversion, neuroticism, psychoticism and anxiousness over non-smokers. In the meaning of a gender comparison in tobacco behavior, some research (24) found out more frequent tobacco behavior in males, others found no difference whatsoever (25). Other experts (26, 27) researched affective states in males and females as mental health factors. They came to the conclusion that impulsive behavior and the sensation seeking, characteristic for the personality dimension of extraversion, belonged to masculine markers. Feminine markers included anxiousness and depressivity, characteristic for the personality dimension of neuroticism, which may be linked to the more frequent affective smoking habits of women than men (e.g., 28). Considering that, it could be supposed that personality specifics will differ between male and female smokers. Many studies (18, 19, 29) confirm that smokers exhibit higher values of stress and anxiousness compared to non-smokers, whereas they smoke in an effort to mitigate stress and anxiousness. Based on the above, we considered it important to include in the subject matter of research, in addition to neuroticism, extraversion, and psychoticism, also the trait of anxiety. Within the comparative research the following goals were solved:

- Describe the occurrence of the forms of tobacco behavior in university students and find the differences between the male and female groups.
- Find the differences in personality characteristics (extraversion, neuroticism, psychoticism, anxiousness) between nicotine/tobacco users and non-smokers in the whole sample and separately for the male and female groups.
- Find the differences in personality characteristics (extraversion, neuroticism, psychoticism, anxiousness) between cigarette smokers and smokeless product users in the whole sample and separately for the male and female groups.
- Clear up the risk potential of personality factors and gender for tobacco behavior (using nicotine/tobacco products generally) and for smoking cigarettes in contrast with the use of smokeless products.

2 Methods

2.1 Research sample

In the research, the sample was chosen deliberately, oriented at a sample of smoking and non-smoking university students. The research sample included 202 adult respondents, of which 103

¹ IQOS is a globally used term signifying a device working on the heat-not-burn principle using tobacco leaves.

were smokers (51%) and 99 non-smokers (49%), 98 males (48.5%), and 104 females (51.5%), the participants were aged 19 to 27 with an average of 23.4 years old. The respondents were university students in various fields: security management (26%), economics (15%), psychology (14%), protection of people and property (12%), foreign languages (11%), pedagogy (9%), transport (8%) and others (5%). The individuals from the smoker group were further divided according to the form of tobacco product use. For the most part, they used cigarettes (n = 50; 48.5%), followed by IQOS (n = 36; 35.0%) and e-cigarettes (n = 17; 16.5%). We named the groups for further use as follows: Non-Smokers (no use of nicotine products), Smokers (use of any nicotine products). The Smokers group was further divided into Cigarette smoking (Cigarettes; n = 50) and Smokeless product using (Smokeless-Pro; n = 53).

2.2 Data collection methods

The research was carried out in November and December 2019 and January 2020. A quantitative method was applied. A pencil-and-paper anonymous questionnaire was administered, where the participants answered individual questions concerning personality dimensions and anxiousness. The first part of the questionnaire was aimed at demographic data, where Gender, Age, Field of Study, Smoking (Y/N), and Type of tobacco product (cigarettes, electronic cigarettes, IQOS) were detected. To find out the personality characteristics, a standardized Eysenck Personality Questionnaire Revised was used (Slovak version by Senka, Kováč, Matejčík (29), of which three basic scales were handled in the study: Extraversion, Neuroticism, and Psychoticism. To measure anxiousness as a personality trait, a standardized STAI-X2 questionnaire (originally Spielberger et al., Slovak version by Müllner, Ruisel, Farkaš (30) was applied.

3 Results

In Tab. 1, the occurrence of the respondents exhibiting one of the forms of tobacco behavior and non-smokers is listed in males and females, as is the result of the statistical comparison. The differences between the groups are significant ($p < 0.001$), we see a higher count of non-smokers among females (58.6%, compared to 38.8% of males), higher counts of cigarette smoking in males (36.7%, compared to 13.5% of females). Smokeless products are used in 24.5% of males and 27.9% of females (of the entire sample). Overall, however, more male smokers smoke cigarettes while more female smokers use smokeless products.

Tab. 1: The occurrence of tobacco behavior forms and Non-smokers in groups of Males, Females and statistical testing of differences (Chi-Square test)

Group	Cigarettes	Smokeless-Pro	Non-smokers	Total sample	
Males	Count	36	24	38	98
	Expected count %	24.3	25.7	48.0	98
Females	Count	14	29	61	104
	Expected count %	25.7	27.3	51.0	104
Chi-square		7.552			
		$p < 0.01$		15.330	$p < 0.001$

In Tab. 2, the results of the personality trait comparison between smokers and non-smokers in the male and female subgroups as well as the entire sample, are listed. In the entire sample, there are significantly ($p < 0.05$) higher Extraversion and Psychoticism values in Smokers than Non-smokers. With regard to gender, significantly higher Extraversion ($p \leq 0.001$) and lower Anxiousness ($p < 0.05$) is observed among female Smokers than female Non-smokers. Significantly higher Neuroticism ($p < 0.05$) is observed among male Smokers than

Non-smokers and higher Psychoticism ($p < 0.05$) in Smokers than Non-smokers of both genders.

Tab. 2: The results of statistical testing the differences in personality traits between groups of Smokers, Non-smokers in the total sample and gender groups (Mann-Whitney's U test)

Group		Smokers	Non-Smokers	Mann-Whitney's U test p-value
Males	E AM (SD)	13.6 (4.8)	12.3 (6.2)	$p > 0.05$
	I-Q Range	9.5 - 17	8 - 18.5	
	N AM (SD)	11.7 (5.0)	8.7 (6.3)	$p < 0.05$
	I-Q Range	8 - 15	2 - 14	
P	AM (SD)	10.7 (3.4)	9.0 (4.0)	$p < 0.05$
	I-Q Range	8 - 13	1 - 15	
	A AM (SD)	41.8 (8.8)	40.5 (9.6)	$p > 0.05$
	I-Q Range	37 - 47	34 - 47	
Females	E AM (SD)	15.2 (4.2)	12.1 (5.1)	$p \leq 0.001$
	I-Q Range	13 - 18	8 - 15.5	
	N AM (SD)	13.7 (4.3)	14.3 (5.0)	$p > 0.05$
	I-Q Range	12.5 - 17	11 - 18	
P	AM (SD)	9.7 (4.4)	7.1 (2.6)	$p < 0.01$
	I-Q Range	5.5 - 13	5.5 - 9	
	A AM (SD)	42.4 (6.3)	46.4 (7.9)	$p < 0.05$
	I-Q Range	37.5 - 48	40 - 52.5	
Total sample	E AM (SD)	14.3 (4.6)	12.1 (5.5)	$p < 0.05$
	I-Q Range	11 - 18	8 - 17	
	N AM (SD)	12.5 (4.8)	12.1 (6.1)	$p > 0.05$
	I-Q Range	9 - 16	7 - 16	
P	AM (SD)	10.3 (3.8)	7.8 (3.3)	$p < 0.01$
	I-Q Range	8 - 13	6 - 9	
	A AM (SD)	42.0 (7.9)	44.1 (9.0)	$p > 0.05$
	I-Q Range	37 - 47	38 - 50	

Note: I-Q Range – interquartile range; E – Extraversion; N – Neuroticism; P – Psychoticism; A – Anxiousness

When comparing groups of users with regard to the form of tobacco behavior in the entire sample (Tab. 3) there were no significant differences found in personality traits ($p > 0.05$). When including gender, significantly higher Neuroticism in males using Smokeless products compared to males using Cigarettes ($p < 0.05$) were observed. In females, there were no significant differences found with regard to form of use.

Considering the last goal, the personality traits and gender were examined as predictors of smoking, as well as the predictors of the smokeless products using when compared to cigarettes using. As is visible in Tab. 4, gender, as well as Extraversion and Psychoticism, are significant predictors of smoking ($p < 0.05$), where the male gender increases the chance of the occurrence of smoking 1.904 times over females. With increasing Extraversion and Psychoticism, the chances of the occurrence of Smoking increase ($\text{Exp}(B) > 1$). In the other model, with Cigarette smoking as a dependent variable, the personality factors Extraversion and Psychoticism were not shown to be significant ($p > 0.05$). The chance of smoking Cigarettes is 3.020 times higher for males ($p < 0.05$).

Tab. 3: The results of statistical testing the differences in personality traits between groups of Cigarettes users, Smokeless products users in the total sample, and gender groups (Mann-Whitney's U test)

Group		Cigarettes	Smokeless-Pro	Mann-Whitney's U test p-value
Males	E AM (SD)	14.2 (5.3)	13.5 (4.2)	$p > 0.05$
	I-Q Range	12 - 18	9 - 17	
	N AM (SD)	11.1 (4.9)	13.7 (5.1)	$p < 0.05$
	I-Q Range	6.5 - 15	12 - 19	
P	AM (SD)	11.0 (3.2)	10.5 (3.4)	$p > 0.05$
	I-Q Range	8 - 13	8.5 - 13	
	A AM (SD)	41.5 (8.4)	43.9 (9.5)	$p > 0.05$
	I-Q Range	37 - 47	39 - 50.5	
Females	E AM (SD)	14.7 (4.8)	15.3 (4.0)	$p > 0.05$
	I-Q Range	9.5 - 18.5	13 - 18	
	N AM (SD)	14.9 (3.8)	13.1 (4.3)	$p > 0.05$
	I-Q Range	13 - 18	9.5 - 16.5	
P	AM (SD)	10.9 (4.1)	9.6 (4.7)	$p > 0.05$

		I-Q Range	8 - 14	5.5 - 13	
Total sample	A	AM (SD)	43.6 (6.5)	41.8 (6.3)	p > 0.05
		I-Q Range	38.4 - 49	38 - 48	
	E	AM (SD)	14.3(5.1)	14.5 (4.1)	p > 0.05
		I-Q Range	12 - 18	13 - 18	
	N	AM (SD)	12.2 (4.9)	13.4 (4.6)	p > 0.05
		I-Q Range	9 - 16	12 - 17	
	P	AM (SD)	11.0 (3.4)	10.2 (4.2)	p > 0.05
		I-Q Range	8 - 13	8 - 13	
	A	AM (SD)	42.1 (8.1)	42.8 (7.9)	p > 0.05
		I-Q Range	37 - 47	39 - 48	

Note: I-Q Range – interquartile range; E – Extraversion; N – Neuroticism; P – Psychoticism; A – Anxiousness

Tab. 4: The results of Binary Logistic Regression analysis for dependent variable: A. Smokers, B. Smokeless products use; and predictors: Gender, Extraversion, Psychoticism

		Predictors		Chi-square
		p-value	Exp(B)	p-value R ^{2a}
A. Smokers ^c	Gender ^b	p < 0.05	1.904	33.355 p < 0.001 0.144 - 0.192
	Extraversion	p < 0.05	1.076	
	Psychoticism	p < 0.001	1.170	
B. Cigarette smoking ^d	Gender ^b	p < 0.01	3.020	8.160 p < 0.05 0.076 - 0.102
	Extraversion	p > 0.05	1.002	
	Psychoticism	p > 0.05	1.039	

Note: ^a – Cox & Snell R² – Nagelkerke R²; ^b – Female is a reference category; ^c – the Odds Ratio is interpreted in comparison to Non-smokers; ^d – the Odds Ratio is interpreted in comparison to Smokeless product using

4 Discussion

The use of legal drugs is among the most frequent forms of risk behavior. After alcohol, nicotine is the second most used drug, despite obvious health and social risks. Tobacco (nicotine) products are legalized for sale and use in Slovakia, for persons over 18 years of age. It is common, despite this, that individuals start smoking during adolescence, which increases not only the risk of addiction but also of other adverse consequences to the health of young individual, such as, for example, somatic symptoms (31). Further, smoking and other drug use are associated with antisocial or risky sexual behavior during adolescence (32). These same health risks are what people come to think about once they stop smoking, or seek out products with an alleged lower impact on their health, at a later stage. Concerning this, and to some interventions of the state such as higher prices and the obligation for manufacturers to display images of the consequences of smoking on their products and so on, there is a slightly decreasing trend in the prevalence of use according to the Public Health Authority of the Slovak Republic (33). This trend has inspired tobacco manufacturers to produce alternative nicotine-containing products. In Slovakia, they have only become widespread in the last few years, with the first articles and studies dealing therewith appearing about 2015-2016 (e.g., 34). These are mainly e-cigarettes and heat-not-burn products. While these are by far not new to the country anymore, up until now none of the tobacco behavior studies that have been carried out have differentiated these forms of use from cigarette smoking. The determinants of choice among these products or their use in individuals have also not been investigated. Hence why, in our study, we have targeted not only the exploration of differences among, plainly said, smokers and non-smokers, but we also differentiated among smokers and the users of smokeless products. Within the first goal of the study, a higher number of smokers was found among males in comparison to females. In the smoker subgroup, there was a higher occurrence of females using smokeless products (67.4% of female smokers) than males (40% of male smokers). The ratio of smokers to non-smokers was intentionally equalized, which is why it does decidedly not represent the population. The sample was not, however, equalized deliberately in terms of gender nor form of use, thus, the gender differences can be considered valid. The prevalence of tobacco behavior in males can be considered a constant, unchanging fact in Slovakia (33) and across the world (35, 36, 37). For a ratio comparison of cigarette smoking and the

use of smokeless products, there is little data in Slovakia. Foreign studies show a prevalence of e-cigarette and heat-not-burn product users in males and females of the entire population, but not regarding cigarette smoking. Only in adolescents (13-15 years of age) in a WHO study (ibid), where the use of tobacco products was found to have an equal ratio among both genders, was the evidence of the occurrence of smokeless product use significantly more frequently in males, whereas it represented 11.7% of the whole population. In our study, an equal ratio of smoking and smokeless product use was found (50:50), while smokeless products were used more by females than males. The inverse results in university students can be explained by the 5-year gap on the one hand, and on the other hand, more likely, through the accessibility of smokeless products and a higher degree of self-care and concern for one's own health in females, given that smokeless products are considered to be less harmful to the user's health as well as to their surroundings. The preference for smokeless products in females can also relate to the design, the use of these being more attractive and looking more appealing, while not accompanied by unpleasant smells.

While comparing personality traits in smokers and non-smokers we interpret a higher degree of psychoticism and extraversion in smokers regardless of gender. When we include gender, we characterize female smokers (apart from the two aforementioned traits) as showing lower levels of anxiousness. On the contrary, male smokers exhibit a more neurotic, psychotic personality, but do not differ from non-smokers in extraversion. In the next comparison of personality traits among the groups according to form of use, there was only one significant difference found, in the neuroticism trait in males. Smokeless products using males show a higher degree of neuroticism when compared to cigarette smokers. There were no other significant differences found between the groups in females nor the entire sample.

The results are only partly in accordance with the starting points. The findings on psychoticism and extraversion are in accordance (27, 38, 39, 40, 41, 17, 42), while a higher degree of psychoticism as a base characteristic connected with addictive behavior appears in both the male and female subgroups. Extraversion is a significant factor for smoking in females, where there can be rituals connected with smoking as a means of socialization, to establish social contact, which can finally be connected to smoking under the influence of a group. On the contrary, in men, a higher degree of neuroticism is accentuated, marked by a higher tendency for an unstable experience in general, which shows an internal motive to smoking as a means to reduce tension or stress. Concerning neuroticism, we follow with the interpretation of the results regarding anxiousness, which (as a construct) is narrowly related to neuroticism. Many experts (18, 19, etc.) consider higher degrees of anxiousness as a trait of smokers (as compared to non-smokers), where others (e.g., 43) do not consider it a significant predictor of smoking. Our results suggest that the gender aspect likely plays a role here. Females, with their higher overall tendency to worry (about themselves and others), be concerned and be under stress (the perception of risk and threat), are more likely to be non-smokers, whereas males with their higher overall emotional instability (without the accent of higher degrees of anxiousness) are more likely to be smokers. These findings are peculiar considering the fact that neuroticism and anxiousness are related traits. It appears that anxiousness in women is more of a protective trait, in that it supports the realization of the risks of smoking and protects the individual from exposing herself to the risk (by stopping or never starting smoking). This differentiates them from males, wherein neuroticism increases the risk of smoking. Less emotionally stable men use smoking as a coping strategy to reduce a negative experience or stabilize an unstable one. A negative or unstable experience, however, does not have to be connected to worry or stress (as it is with neuroticism), but also with, for example, intensive emotional experience or tension, where the individual does not take risks into account. In males with a higher degree of neuroticism, then, there is a motive of escape from an unpleasant, unstable experience, which can be a trigger for the occurrence of nicotine addiction. (e.g., 44). On the other hand, the only difference between the smoking and

smokeless product using group in the entire sample as well as the male and female subgroups was in neuroticism in males. Males who use smokeless products have higher degrees of neuroticism than males who smoke cigarettes. Unlike the anxiousness observed in females as a protective factor in starting smoking, in males that already smoke, higher neuroticism can be a mediator between perceiving the risks of smoking and seeking (allegedly) less harmful alternatives.

To conclude we tested gender, psychoticism, and extraversion as predictors in regression models. After verifying the influence of the predictors on the occurrence of smoking (compared to non-smokers) we state that all three predictors hold significance while increasing psychoticism, extraversion and male gender are risk factors with a medium joint effect on smoking (15-20% explained). In the second regression model, where the occurrence of cigarette smoking was examined with reference to the use of smokeless products, the male gender was confirmed as increasing the chance of cigarette smoking threefold in comparison with females, who use smokeless products more frequently. Neither psychoticism nor extraversion is related to the choice of using smokeless products or cigarettes.

5 Conclusions

The identification of the risk structure of the personality consisting of a higher degree of extraversion and psychoticism in smokers can be useful in preventive or interventive strategies, with individuals who are trying to quit smoking, with an aim of reducing group influence and the need to socialize through smoker rituals. The higher degree of neuroticism as a risk factor for smoking in males and the higher degree of anxiousness as a protective factor in females are new findings. In the same vein, males use cigarettes more than smokeless products in comparison with women. With regard to the above, the highest-risk group is that of emotionally unstable males with a higher degree of psychoticism, wherein preventive activities targeted at the development of coping strategies, self-control, or the deflection of tension into other activities (e.g., sports) could be effective. Females, if they smoke, are more extraverted, less anxious, and with a higher degree of psychoticism, though even in this personality profile they prefer smokeless products, which points to either a higher awareness of the consequences on their health or aesthetic aspects. Effective prevention or intervention could be targeted at increasing awareness of the risks of smoking or the benefits of not smoking. The investigation of the complete spectrum of personality traits that predispose an individual for tobacco behavior would require research wider in scope, such as including the motives for tobacco behavior, which could improve the understanding of the mechanism that finally activates the risk traits into behavior.

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Primary Paper Section: A**Secondary Paper Section: AN**

THE “JOURNEY TO ISTANBUL” BY JOSEPH BRODSKY (REALITY AND METAPHOR)

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The study was supported by a grant from the Russian Science Foundation № 22-28-01671, <https://rscf.ru/en/project/22-28-01671/>; Russian Christian Academy for the Humanities

Abstract: The purpose of the study is to identify the formal and stylistic features of I. Brodsky's artistic narrative in the essay "Journey to Istanbul". The scientific novelty of the study consists in the fact that it offers a different judgment from the traditionally accepted in criticism both about the structural framework of the narrative and about the origins of the imaginary-negative pathos of the narrative facing the East. During the analysis, a number of dual motives were found in the text of the essay (namesake heroes, mirrors, reflections, dreams, etc.) and it was showed that the journey undertaken by Brodsky's auto-hero was not spatial, but temporal, anger directed at Istanbul was a sublimation of his own naivety and utopian dreams of returning to his "hometown".

Keywords: Brodsky; essay; prose and poetry; metaphor and metonymy; strategy of duality.

1 Introduction

The relevance of the research topic is due to the fact that the work of Joseph Brodsky, poet, Nobel laureate, is becoming increasingly popular not only in Russia and the USA, but also around the world.

2 Literature Review

The theoretical basis of the research was fundamental works on poetology (Novikov 2001, Trostnikov 1997), the peculiarities of inter-genre neoplasms, in particular, on the intersection of prose and poetry (Zhirmunsky 1997, 2001, Lotman 1972, 1973), on the history of the "Petersburg text" (Toporov 2003, Bogdanova 2021a). About antique verses in Brodsky's work there is a detailed research of N. Kazansky (Kazansky 1997, Bogdanova 2021b).

3 The practical significance

The practical significance of the study is that its intermediate and final conclusions, individual observations and judgments can be used in further study of the work of Joseph Brodsky.

4 Genre-style features and problem-thematic perspective of the narrative of Brodsky's essay

"Journey to Istanbul" by Joseph Brodsky is written in the genre of an essay – a prose genre, unloved by the poet. According to Brodsky, "prose is a means precisely because <...> and hateful because it is devoid of any form of discipline, except for the similarity of the one that arises along the way..." (Brodsky 1999, 299). However, it can be noted that against the background of Brodsky's other essays, "Journey to Istanbul" succinctly incorporates elements of metaphorical – that is, poetic – narration, which allows us (unlike other researchers) to look for the genre origins of the essay not in "Pilgrimage of Farther Superior Daniil" or "Pilgrimage of Afanasij Nikitin three sees abroad" (Venclova 1992), not in the "Journey From Petersburg to Moscow" by A. Radischev or "Journey to Arzerum" by A. Pushkin (Weil 1992, Glazunova 2005), and not even in "Journey to Armenia" by O. Mandel'shtam (Venclova 1992). There is to consider the Brodsky's essay not as a "journey genre", but to recognize the principle of the prosaization of poetry as

dominant in it, there is to find reflection of "rather the psychological state of the [author] than the state of the reality reflected by him" (Brodsky 1999, 281). "Travel to Istanbul" by Brodsky – not the "travel notes" (as, for an example, by Weil (in "The Genius of Place")), but only "a semblance of objectivity" (Brodsky 1999, 281), traditionally inherent in prose including essays. "The thing is strange and bizarre" (Venclova 1992, 171), Brodsky's narrative is penetrated with metaphorical subjectivity and has only a "certain degree of reality" (Brodsky 1999, 281; highlighted by us. – O. B. and others).

It is known that "Journey to Istanbul" exists in two versions – the essay was published in 1985 in Russian and in English. Moreover, the Russian and English versions have significant differences: in the Russian version there are 43 chapters and in the English version – 46. According to the commentators of the "Works of Joseph Brodsky", "individual sentences, phrases, in-text comments, etc. do not coincide" (Brodsky 1999, 372). "Jokes, puns, hints, and intra-textual comments differ: Russian readers, unlike Anglo-American readers, do not need to explain the name of the author's hometown or who Khodasevich and Tsiolkovsky are", "two variants are oriented to different literary subtexts" (Venclova 1992, 170). In this analysis, we will rely on the Russian version of the essay – the original and, as a result, more spontaneous and emotional.

Starting a conversation about Brodsky's "Journey to Istanbul", the researchers invariably and primarily focus on the negative reaction that Istanbul causes in Brodsky's mind. Almost every critic notes that "Eurasian Istanbul <...> appears in an apocalyptic light, symbolizing a civilization that has come to the brink of cataclysm, or rather, has already crossed the line" (Venclova 1992, 172). Almost every researcher states "angrily accusatory journalistic pathos" (Glazunova 2005, 330), "the irresistible disgust that the author feels towards the place in which he found himself" (Glazunova 2005, 331). According to P. Weil, Brodsky, a traveler, "resolutely does not perceive Istanbul ..." (Weil 1992, 321). Meanwhile, the question arises: why could a city with a great history and worldwide fame give rise to such an active rejection of the poet? what caused such a decisive rejection in Brodsky's soul and consciousness? why are there "irritation" and "almost grumbling about what they saw and experienced in Istanbul" (Weil 1992, 322)? In our opinion, the answer to this question deciphers the main pathos of "the most vulnerable" (as defined by P. Weil (Weil 1992, 322)) of Brodsky's work.

Explicating the main problems of the "Journey to Istanbul", critics and interpreters actualize, first of all, the historiographical perspective of the essay, emphasize the role of Brodsky as a "historian and thinker" (Venclova 1992, 171).

According to O. Glazunova, "the tasks that the author is trying to solve are to comprehend the laws of the development and spread of civilizations in space and time", to comprehend the "course of history" and "events of fundamental importance in the development of civilization" (Glazunova 2005, 331, 336, 339).

Indeed, T. Venclova is right in his own way, stating that "the main impression from the "Journey to Istanbul" is <...> freedom in handling material from various times, vigilance in catching analogies and structural similarities between phenomena distant from each other on the diachronic axis" (Venclova 1992, 172). Brodsky's essay seems to really have "signs of a scientific and philosophical treatise" (Venclova 1992, 172). However, the question remains: why should the poet desacralize traditional ideas about Istanbul, why "throughout a long (thirty-five pages) essay" (Weil 1992, 324) theoretically and historically justify the fierce rejection of the obviously great Byzantium-Constantinople-Istanbul? In our opinion, the fact is that Brodsky does not appear in this work as a theoretical historian or rationalist analyst following "chronology and historical logic" (Venclova 1992, 172). Rather, on the contrary, his entire text is purely emotional, irrational, subjective and therefore replete with reservations, alogisms,

tautologies, errors (some of which T. Venclova has already drawn attention to). From our point of view, the main strategies for constructing an essay in Brodsky are associativity and metaphorism, subtext and understatement. The non-textual space of Brodsky's thought – unspoken and unspoken – turns out to be at the center of the poet's psychological tosses, his mystical-metaphorical (almost dreamlike) wanderings in Tzargrad.

5 Compositional features of the essay

As already noted, the essay "Journey to Istanbul" consists of 43 chapters – not even chapters, but short chapters, each of which sometimes includes only 3-4 chapters, as already noted, the essay "Journey to Istanbul" consists of 43 chapters – not even chapters, but short chapters, each of which sometimes includes only 3-4 sentences, and once only two at all (chapter 43). Why did the author need to divide the narrative so fractionally, why create such a crushed mosaic – a kaleidoscope? (chapter 43). Why did the author need to divide the narrative so fractionally, why create such a crushed mosaic-a kaleidoscope?

Considering the fact that Brodsky is a poet, it can be assumed that the brief (almost poetic, almost elegiac) structuring of the text was closer to him (it is no coincidence that he complains about the lack of "discipline" in prose). Laconic forms inherited from the poetic text seem to "discipline", organize the prose text, "compressed" small chapters are perceived as stanzas, as independently integral judgments with a certain completed thought. Thus, highlighting the preliminary reflections in a separate first chapter (1), Brodsky consciously emphasizes and intentionally emphasizes the subjectivity of the journey he undertook-the narrative: "Taking into account that every observation suffers from the personal qualities of the observer, then <...> all of the following should, I believe, be treated with a degree of sarcasm – if not with complete distrust. A semblance of objectivity is probably achievable only in the case of a complete self-report given to himself by the observer at the moment of observation..." (Brodsky 1999, 281). And then he adds: "I don't think I'm capable of it; in any case, I didn't strive for it..." (Brodsky 1999, 281).

The author consciously orients the reader to the installation of "distrust" and only "a semblance of objectivity". The first introductory chapter is designed to emphasize and structurally highlight a special perspective of the perception of the text – its subjectivity and personality. And although Brodsky does not reveal the mechanism of actualization of the subtext plan, but he gives a hint about its presence, indicates its presence to the prepared (dedicated) recipient.

Following the first, the second chapter-the strophe concretizes and accumulates this personality – Brodsky confesses the real reason for traveling to Istanbul: he reports on "the promise given by me <him, Brodsky> to himself after leaving his hometown forever, to circumnavigate the inhabited world by latitude and longitude (i.e. by the Pulkovo meridian), on which it is located. <...> Istanbul is located only a couple of degrees to the West of the named meridian" (Brodsky 1999, 281).

The essay was written in 1985. Brodsky left Russia already thirteen years ago. However, it is significant that the anniversary date – "Today I am forty-five years old" (Brodsky 1999, 295) – the hero flew to meet in Istanbul, and the city he left in 1972 "forever", many years later still warmly calls "native". Moreover, when mentioning the "coordinate grid" – in order to avoid misunderstanding – the narrator clarifies (accentuated, in parentheses) that we are talking about the Pulkovo meridian, the iconic toponym for every Leningrad-Petersburg (Pulkovo Heights, Pulkovo Observatory, Pulkovo Highway, Pulkovo Airport, V. Inber's poem "Pulkovo Meridian" and many others). Partly excessive clarification in attribution of the "named" meridian is essential and, as it is clear, fundamentally for Brodsky-the narrator, Brodsky-(auto)hero.

The personal component of the narrative undertaken by Brodsky, the essayist, is strengthened from chapter to chapter, from stanza to stanza. And this strategy persists throughout the narrative – each

chapter about Istanbul with visible commitment and (outwardly careless and accidental) intention will be associated with his hometown, with the history of the Fatherland in which he was born. In some chapter names will be listed, in others cities are named, in the third quotes are given, in the fourth the subtext will come into force, etc. For example, the third chapter, picking up information about the true reason that brought the hero to Istanbul, begins with the phrase: "By its contrivance, the above reason does not differ much from the somewhat more serious, main one..." (Brodsky 1999, 281). It seems that there is no visible connection with the "hometown" or the "Pulkovo meridian" in the message. However, for experts immersed in the "Petersburg text", it is known that it was Petersburg that was named F. Dostoevsky "the most intentional city". The contrivance of the reason for the trip to Istanbul rhymes with the "premeditation" of the narrator's hometown. And this allusion is not arbitrary – Rome will be called a "deliberate" city (exactly so, using Dostoevsky's epithet) in the text a little later (Brodsky 1999, 293). Rome the First will incorporate the figurative and literary characteristics of Rome the Third.

Just as it happens in Brodsky's poetry, in a prose essay the author subtly and exquisitely exploits allusions and reminiscences, actualizes symbolic intertexts, resorts to metaphorical parallelism (and so on), forcing the attentive reader to focus on the "inner", "hidden" layer, take into account and not miss the subtext of the essayistic narrative. The laws of the poetic organization of the text are appropriated by Brodsky's prosaic discourse.

Critics, as a rule, emphasize that the entire narrative in the essay "is divided into two parts that do not coincide in genre, style and semantics" (Venclova 1992, 172), pay attention to the fact that Brodsky's essay is built on "alternation of live sketches and 'theoretical' fragments" (Weil 1992, 322). This is partly how Brodsky's essay is perceived (at first glance), but it is important to emphasize the author's counter-directional strategy – on the contrary, to emphasize the fusion of outwardly differing chapters, their thematic and stylistic proximity and mutual intersection.

Another short chapter-strophe (4) strengthens the correlation between Istanbul and the "hometown" (not named anywhere else in the essay) – both of them are embedded by the narrator in a single "trinity" series: "In the end, I lived for 32 years in the Third Rome, about a year in the First. It was necessary – for the collection – to get the Second" (Brodsky 1999, 282). Istanbul, located (almost) on the Pulkovo meridian, is intended for Brodsky to play the role of a substitute, a kind of synonym for his hometown (the First/Second/Third Rome). In its meridian proximity, the Second Rome should reveal the kinship and the desired recognizability of the Third Rome (as, probably, earlier this kind of similarity was demonstrated by the First Rome, in which the narrator lived "for about a year"). Thanks to multiple metaphors-metonymies, it becomes clear that the only real reason for arriving in Istanbul was the hope of the narrator-hero to mentally return to his "hometown" on the day of his anniversary.

The artist, on the one hand, opens the veil of mystery with a share of revelation (the true purpose of coming to Istanbul), on the other hand, no less carefully veils it. If in one chapter-stanza the "main" reason is named – a vow, a promise made to oneself, then in another – the voiced reason is canceled, replaced by another. Moreover, the artist (as if not noticing the substitution) calls both one and the other reasons "main" and "genuine", tautologically applies the epithet "far-fetched" to both. It is hardly possible to assume that the author accidentally admits such an element of absurdity, rather he consciously resorts to chaoticization and absurdization in order to shift the boundaries of truth and fantasy, reality and dream, authenticity and imagination. Subjectivity and distrust, declared by the author at the beginning of the essay as a strategy, allow him to ignore the principles of logic and accuracy of narrative, shift the chronology and break the vector, thereby blurring the boundaries between an external narrative (a trip to Istanbul) and a plotless narrative (dreamlike, associative - a trip to his "hometown").

Within the framework of the “sick” motive, the narrator, as if to poetize the syllable, confesses: “... I feel like a carrier of a certain infection, despite the continuous inoculation of the ‘classical rose’, to which I consciously exposed myself for most of my life” (Brodsky 1999, 283). T. Venclova shrewdly saw the name of V. Khodasevich behind the inoculation of the “classical rose” (Venclova 1992, 172), but, in our opinion, the more significant in the intended association is that Brodsky refers to the poem by Khodasevich called “Petersburg”. Without naming his “hometown”, without pronouncing his name in the essay, the narrator again and again “quotes” attributes it with all certainty – the “nominal” intertext from Khodasevich, Khodasevich’s Petersburg becomes a sign-code that opens the entrance to the second (subtext) plan of the narrative.

Brodsky’s auto-text also complements the subtext association – next to Khodasevich’s “classic rose”, the famous line of Brodsky himself is updated – “I am infected with normal classicism...” (“Toward one poetess”), for connoisseurs of the poet’s work, it is directly related to his hometown.

Thanks to the intertext, with the help of associations and parallels, Brodsky – almost imperceptibly – forms the motive of duality in the essay. Generating a bifocality of perception of the image and reality of Istanbul, the poet actualizes the motif of sleep (according to the text – the solution to the dreams of Constantine, the founder of Byzantium), and this dream perspective, on the one hand, allows you to mix the features of Istanbul and the “hometown” in a motivated way – “through a dream”, on the other hand, to introduce a duplicate of duality – the motif of the “namesake”.

In mentioning Emperor Constantine, the founder of Byzantium-Constantinople, Brodsky recalls a certain “famous namesake” (Brodsky 1999, 283) of the author, the biblical Joseph, who interpreted the prophetic dreams of Emperor Constantine. It seems that the roll call of namesake names is only limited to this. However, in terms of a mental return to his hometown, the image of another namesake of the author – Iosif Dzhughashvili (whose name will also flash in the text later (Brodsky 1999, 300)) also emerges: as Brodsky testifies in another essay, the portrait of the Soviet “namesake” hung protectively over his bed in the “one and a half rooms” of the Muruzi house. The biblical “namesake” is associated with the Soviet “namesake”, strengthening and increasing the dia- and poly-phonism of the perception of the narrative.

Reflections on the history of Byzantium-Constantinople are introduced into the text of the essay not because of “comprehension of the laws of the development and spread of civilizations in space and time” (Glazunova 2005, 331), not as “historical, ethical and aesthetic justifications” (Weil 1992, 322), which (allegedly) gave rise to a trip to Istanbul, but with the aim of awakening parallels, establishing comparisons, designating free calls that the meridian “namesake” Istanbul offered to the hero-traveler.

6 Poetization of prose, realization of the motive of duality

But on the other hand, it is a poetical course of duplication, pairing, assimilation, as a result – “separation”. Brodsky intentionally juxtaposes the city-reality and the ghost town, objective reality (including the history of the place) and the memory of the past, reality and dream, faces and faces. The author generates a mythical and mystical duality, in which one pretends to be another, the “native” takes on “alien” features. And such comparisons are of different sizes: if Istanbul does not directly stand in parallel with Leningrad (St. Petersburg), then nominatively it is associated with the Russian province: “this city – everything in it – gives very much to Astrakhan and Samarkand” (Brodsky 1999, 283), and somewhat later – “Astrakhan and Stalinabad” (Brodsky 1999, 311). Even if the narrator’s thought does not focus directly on the “hometown”, then the link to the fatherland, where the hero-narrator happened to be born, is preserved and constantly maintained (we emphasize – consistently and head-on). The sound level of the text also

corresponds to the duplication technique, including the author’s bilingualism: the Russian word “settlement” is doubled by English without “apparent need” «сетельментъ» (eng. settlement (Brodsky 1999, 284)), the “illustration” familiar to the Russian ear is tautologically duplicated. Namesake pairs, twin pairs, synonymous pairs permeate the entire text: “And the very cross of the crucifixion rather resembled a Russian (and the Latin capital) T...” (Brodsky 1999, 284).

The text remains, but the similarity of the triple names of Istanbul and the “hometown” is implied and guessed. Like “Istanbul, aka Constantinople, aka Byzantium” (Brodsky 1999, 290), Brodsky’s city was also “baptized three times, never defeated” (the famous chant about St. Petersburg-Petrograd-Leningrad was undoubtedly familiar to Brodsky from school years).

In some cases, Brodsky intentionally uses homonymy, polysemy, poetic onomasia. So, reflecting on the borderline essence between east and west, about the Bosphorus Strait, the narrator of the toponym Ural in a playful manner equates to the “impersonal” noun “mountains”: “Oh, these natural limits, straits and urals!” (Brodsky 1999, 290). Brodsky uses the antonomasia technique, turns a proper name into a common noun, invariably introducing two components into his thoughts, “alien” and “his own”, neutral (straits) and occasional (urals).

Essentially, the author is playing with the reader. Reflecting on the borders of the Empire (in particular, the Roman One), Brodsky designates its scope: “From Leptis Magna to Castricum <...> the citizen of the Empire always knew where he was in relation to the metropolis...” (Brodsky 1999, 284). Reflecting on the borders of the Empire (in particular, the Roman One), Brodsky designates its scope: Reflecting on the borders of the Empire (in particular, the Roman One), Brodsky designs its Speech in this case is definitely about the Roman Empire, but the full name is truncated to just “Empire” – and homonymy comes into play. The borders of the Empire are marked with Leptis and Castricum. However, Castricum is a city in the Netherlands province of North Holland, but Castricum is (also) a cape on the northernmost island of the Kuril Islands. Castricum is read by some readers of Brodsky as a point on the border of the Roman Empire, by others – on the border of the Russian Empire. “Borderline” Castricum also turn out to be “namesakes”, homonymous doubles.

Approximately in the same strategy – paronymy, polysemy, homonymy – the slogan “The Fatherland is in danger” sounds in the text (Brodsky 1999, 292), which Western readers should recall the famous declaration of the French Revolution “La patrie en danger” (11.07.1792), Eastern – an appeal to the slogan of the period of Soviet historiography: “The Socialist Fatherland is in danger” (decree of the SNK of 18.02.1918).

In line with the same “duplicating” trends, random names of firms in Istanbul are also played out – for example, an expected Australian office with the ethnic name “Boomerang” (Brodsky 1999, 296) actually turns out to be the company’s office, in line with the same “duplicating” trends, random names of firms in Istanbul are also played out – for example, an expected Australian office with the ethnic name “Boomerang” (Brodsky 1999, 296) actually turns out to be the office of a company serving Soviet cruises on the Black and Mediterranean Seas. The author’s rhetoric is ironic: “I wonder where the senior lieutenant on the Lubyanka, who came up with this name, came from? From Tula? From Chelyabinsk?” (Brodsky 1999, 296). “Everything is mixed up...” in Brodsky’s Istanbul. The chaos and absurdity of Istanbul is created by doubling, multiplication, reflection.

From chapter to chapter it becomes clear that Brodsky’s essay is not written about history, but about himself. The essay takes into itself the deep introspection undertaken by the autohero, who, in the days of his forty-fifth birthday, set out to return to the past. Brodsky entrusts the comprehension of historical facts (or pseudo-facts) not to reason and erudition, but to the subconscious (a lexeme that is unusually often present in the

text): "In general, enough to clog the subconscious..." (Brodsky 1999, 283).

In an essay about a trip to Istanbul, Brodsky-the author, instead of the traditional perspective of the "genre of travel" – tells about the sights he has seen and the impressions generated by them (see P. Weil's "The Genius of the Place") – the essay about Istanbul unexpectedly connects with reflections on the nature of Greek and Roman poetry, about the difference in stylistic intentions and genre forms of Ovid and Virgil, in the most general terms – reflects on elegiac and epic poetry, in structural terms – in connection with the poetics of circular and linear. Leaving aside the essence and differences of the poetic directories of Ovid and Virgil, let us note that literary (literary) retrospections are necessary for the poet not as a philologist (or "sociologist" (Glazunova 2005, 336)), but as a reference material for modeling associations and analogies, for understanding not antiquity, but modernity and oneself.

7 The duality of the chronotope, the mental principles of linearity and circle

It is known that in Brodsky's poetry the categories of time and space are constitutive and dominant, have an existential and substantial character. Time and space succinctly mediate all spheres of Brodsky's poetic world. Researchers have repeatedly written about this (see: Akhaphkin 2002, 2021; Kelebay 2001; Snegirev 2012, etc.).

In the essay, Brodsky presents the category of time in the system of laws of Ovid's elegiac poetry, space – through the epic narrative of Virgil. If, according to Brodsky, the graphics of the poetic creations of elegics (including Ovid) are mediated by the "tradition of symmetry", "proportionality" and "harmony" and tend to "a closed circle" (Brodsky 1999, 287), then Brodsky's Virgil "was the first <...> to propose the principle of linearity" (Brodsky 1999, 287). According to essayist, "most likely, this was dictated by the expansion of the empire, which reached a scale at which human displacement really became irrevocable..." (Brodsky 1999, 287).

In an isolated form, the principle of linearity (however, as well as closure), formulated by Virgil (or Ovid) – in any case, Brodsky, appears somewhat abstract and has little to do with the poet's thoughts about "self-affirmation".

But "example", which Brodsky illustrates his observation, says the opposite. Brodsky quotes Virgil's Aeneid and chooses the episode where Dido reproaches the hero: "I would still understand" – she says – "if you left me because you decided to return home to your own. But you're going nowhere, to a new goal, to a new city that doesn't exist yet..." (Brodsky 1999, 286–287). On the one hand, the above quotation is objective (artistic and historical) in nature and is associated with the actual events of the text of Virgil, on the other hand, it is marked by clearly subjective, personal, actually Brodsky connotations. The poet-essayist is trying to understand himself and find an answer to the question why he did not "decide to return home", but went to a certain "new ... city", as the association makes it clear – instead of his "hometown" he ended up in Istanbul.

In the appeal to ancient poetry, a new pair of "namesakes" and "doppelgangers" appears: Aeneas // Brodsky. And his (their) fate is interpreted in the axiology of the past: "in Virgil's eyes, Aeneas is a hero led by the gods. In Ovid's eyes, Aeneas is essentially an unprincipled scoundrel, explaining his behavior – movement along the plane – by divine providence" (Brodsky 1999, 287). Behind the temporal – ancient and modern – parallels, signs of the (psycho- and self-) analysis of the hero-author are guessed, comprehending the significant points of intersection of time and space, history and geography, latitude and meridian. In fact, the cross (urban and Christian) is being inspected, which is the basis for the architectural plans of large policies and the life of an individual subject-an individual. It seems that, turned to the contemplation of the "dusty catastrophe

of Asia", to Istanbul, Brodsky actually plunges into himself, into introspection, marked by an abundance of rhetorical questions:

"Racism?.. Snobbery?.. Misanthropy? Despair?.." (Brodsky 1999, 288). And one more question-the resolution: "But can we expect anything else from a linear principle that has survived the apotheosis: from a person who has nowhere to go back?" (Brodsky 1999, 288). And one more question-the resolution: "But can we expect anything else from a linear principle that has survived the apotheosis: from a person who has nowhere to go back?" (Brodsky 1999, 288).

As it is clear from (under) the text, this is Brodsky (the hero and author) – the person who "has nowhere to go back", whose life is subordinated to "the linear principle of existence" (Brodsky 1999, 288). His mother and father died in his hometown ("my mother <...> died the year before last. Last year – my father died" (Brodsky 1999, 294)) – the threads that connected him with his homeland have broken, and, according to Brodsky, it is impossible to return. The only real and effective way to overcome the "linear principle" – "to return to the circles of its own" – is mystical, "dual".

Following the metaphorical logic of the narrative, which Brodsky demonstrates, it can be noticed that the hero-narrator creates more and more pairs-doublets. Conditionally Brodsky is a poet = Ovid, conditionally Brodsky-essayist = Virgil. Brodsky's poetry = ring, multiple returns and spirals, his essay = epic realization of the principle of linearity. "Dual" in the status of an artist, poet and prose writer (essayist), Brodsky-personality seeks to "bypass" the principle of linearity: he hopes in a city located just a few degrees from the Pulkovo meridian to find the possibility of a mental ring, spiral, return-visit. Following the Emperor Constantine, Brodsky's hero believes that Istanbul-Byzantium will turn out to be "for him, the cross is not only symbolic, but also literal – a crossroads <...> from east to west no less than from north to south" (Brodsky 1999, 288).

The technique of "duality", the motif of "namesakes" and "reflections", the symbolism of sleep and delirium ("illness") allow Brodsky to talk about Constantine or Aeneas, and to imagine himself behind them, to talk about one city, but steadily (albeit allusively, subtext) to talk about another. It is difficult to determine the toponymic binding without "affiliation": "... the placement of the capital on the very edge of the empire, as it were, turns the edge into the center and assumes an equal space on the 'other' side, from the center" (Brodsky 1999, 289) – without context, it is hardly possible to understand whether we are talking about Istanbul or about the "hometown". Brodsky plays, juggles words, uses associative writing, actively turns to metaphor, metonymy, semantic polysemy and speech homonymy.

Between the lines, returning to the purpose of his journey, Brodsky's auto-hero "visit" to Istanbul metaphorically connects with spiritual "purification". "The process of purification (catharsis) is very diverse and has both an individual (sacrifice, pilgrimage to a sacred place, one or another vow) and a mass (theater, sports competition) character. A hearth is no different from an amphitheater, a stadium from an altar, a pot from a statue" (Brodsky 1999, 292). The "doppelgangers" reappear (hearth // amphitheater, stadium // altar, pot // statue), moreover, they are recognizably of Mandel'stam (i.e. intertextual and topographically iconic), and behind the abundance of words and images, a "proverb" is lost – a vow (= a promise made to oneself in 1972), a pilgrimage to a sacred place (= "hometown").

8 The West and the East as the embodiment of time and space

Being in Istanbul pushes Brodsky to think about the West and the East, about Islam and Christianity, about paganism and monotheism, about poly- and mono-theism, about despotism and democracy, about the individual and the mass (in artistic reality, starting, as if, from Istanbul, in the subtext drawing parallels to Russia and the USA, homeland and emigration). At

the same time, the pairing of concepts, concepts, ideologies that the writer concerns does not imply unambiguity of conclusions within the framework of a programmatically subjectivized narrative. The narrator's reflections lean to one pole, then to the other. The hero's thought leads him to recognize that being in Istanbul pushes Brodsky to think about the West and the East, about Islam and Christianity, about paganism and monotheism, about poly- and mono-theism, about despotism and democracy, about the individual and the mass (in artistic reality, starting, as it were, from Istanbul, in the subtext drawing parallels to Russia and the USA, homeland and emigration). At the same time, there are the pairing of concepts, ideologies: "The East is indeed the metaphysical center of humanity. <...> By the time of Constantine's accession, the Roman Empire, not a little due to its size, was a real fair, a bazaar of faiths. <...> the source of all the proposed belief systems and cults was precisely the East. The West offered nothing. The West was essentially a buyer" (Brodsky 1999, 291). Then (following the reflections on the cult in Islam and Christianity) Westernism triumphs: "... the longer I live <...> the more dangerous monotheism in its purest form seems to me. It's probably not worth calling a spade a spade, but a democratic state is actually a historical triumph of idolatry over Christianity" (Brodsky 1999, 293), over "just a monologue of the Koran" (Brodsky 1999, 295).

The hero's hesitations are always motivated and reasoned, but not absolute — a new turn of the character's thought leads him to different (often contrapuntal) preferences and conclusions. Moving linearly from east to west, the auto hero mentally makes circles, returning to what he seemed to have already abandoned. Starting a conversation about "the diverse dominions of the British Empire" (Brodsky 1999, 298), the author necessarily returns to the life of the multinational USSR he left ("... why go far for examples' — and in the text appear "Evenks who are Soviet citizens" (Brodsky 1999, 298)). As soon as the idea of a political system arises, its definition immediately sounds, which is undoubtedly based on one's own experience, on the past years lived in the homeland: "The disadvantage of any system, even a perfect one, is precisely that it is a system. That is, in the fact that, by definition, for the sake of its existence, it has to exclude something, consider something as alien and, insofar as possible, equate this alien with non-existent" (Brodsky 1999, 299). Echoes of Brodsky's own biography appear through the matrix of the above maxim.

Meanwhile, judging by the numerous invectives that Brodsky draws to Istanbul, a trip to the Second Rome was not able to provide the hero with a round of returning to the past. "An investigation is rarely able to look at its cause with approval" (Brodsky 1999, 291). Everything in Istanbul irritates the narrator, everything causes rejection. "The delirium and horror of the East. The dusty catastrophe of Asia. The greens are only on the Prophet's banner. Nothing grows here, except a mustache. A black-eyed part of the world, overgrown by the evening with three-day stubble. The embers of the fire filled with urine. That smell! Mixed with bad tobacco and sweaty soap. And the underclothes wound around their loins that your turban..." (Brodsky 1999, 288).

"Ubiquitous concrete, the consistency of dung and the color of an open grave. <...> And this everywhere, even in the city, sand flying into the muzzle, gouging the world out of your eyes <...> You can jump out into the street — but dust is flying there" (Brodsky 1999, 288, 303).

Examples of "irritation" and "anger" can be multiplied. However, Brodsky's dislike of Istanbul is not actually dislike of the city (as the researchers suggested (Weil 1992; Venclova 1992; Glazunova 2005)), rather irritation against himself, who dreamed of returning to the past along the spiral of time, but deceived in utopian expectations.

In the second half of the essay, after a series of Istanbul visual impressions, the narrator's negative emotions intensify, accumulate, and condense. The 26th chapter is entirely devoted to the statement of verbal inconsistencies and "discrepancies":

"Istanbul <...> sounds quite Turkish; for the Russian ear, anyway. In fact, Istanbul is a Greek name, it comes, as it will be said in any guidebook, from the Greek "stan polin" — which means (lo) simply "city". "The camp"? "Pauline"? Russian ear? Who can hear who here? Here, where "mess" means "glass". Where "fool" means "stop". "Bir mess tea" — one glass of tea. "Bus fool" — bus stop. At least the bus is only half Greek" (Brodsky 1999, 301).

Irritation reaches its apogee. Brodsky's hero does not restrain anger even in relation to Istanbul architecture, first of all goes to mosques and their "nameless orthodox creators", marked, according to the angry narrator, "aesthetic stupidity" (Brodsky 1999, 306). If in Central Asian mosques of the (former) USSR the hero sees "ideosyncrism, self-involvement, the desire to complete ourselves" (Brodsky 1999, 305), then the mosques of Istanbul are for the opinion of the disappointed essayist, — "the tent complex! pinned to the ground! Namaz" (Brodsky 1999, 306). "There really is something menacingly otherworldly in them, <...> absolutely hermetic, shell-like" (Brodsky 1999, 306).

Concluding his notes-impressions on Cape Sounion, not far from ancient classical Athens (Brodsky 1999, 285), Brodsky-narrator compares the "ornament units" of Eastern and Western European. According to Brodsky, these are spatial and temporal ornaments. The latter — Western — are inherent "its rhythmicity, its tendency to symmetry, its fundamentally abstract character, subordinating graphic expression to rhythmic sensation" (Brodsky 1999, 307). The Temple of Poseidon on Cape Sounion and the (implied, imaginary) twin image parallel to it — the Exchange building on Vasilievsky Island in the "hometown" ("It is ten times smaller than the Parthenon. It is difficult to say how many times it is more beautiful, because it is not clear what should be considered a unit of perfection" (Brodsky 1999, 312)), they become for Brodsky a triumph of harmony, a sign and a sign of the cosmos that has overcome chaos.

It has already been noted that in a number of interviews Brodsky has repeatedly admitted that for him, in the categories of space and time, the idea of time is more important and closer. Moving in space (the main one among them is from Russia to America), according to the poet, has determined little in his (self)consciousness. However, in the essay "Journey to Istanbul" Brodsky clarifies this conclusion: spatial linearity, as it turned out, was of great importance in his life. "The idea that everything is intertwined, that everything is just a pattern of a carpet trampled by a foot, no matter how exciting <...> it may be, is still much inferior to the idea that everything is left behind, the carpet and the foot trampling it — even its own — including" (Brodsky 1999, 308).

A visit to Istanbul, located near the "same" meridian, did not bring relief to the hero (and the author). The attempt to return to the "hometown" — at least mentally, mentally — failed. That is why the narrator is so angry at Istanbul, angry that the Second Rome could not help him overcome time and return to the Third Rome in imaginary space.

Somewhat calmed down, already transported to Sounion, the hero-narrator softens a little and comes to a philosophical judgment: "What should I say to that? and should I say anything? I am not sure; but, nevertheless, I will note that if I had not foreseen <...> objections, I would not have taken up the pen. That space for me is really both smaller and less expensive than time. Not, however, because it is less, but because it is a thing, whereas time is a thought about a thing. Between a thing and a thought, I will say, the latter is always preferable" (Brodsky 1999, 308). Somewhat calmed down, already transported to Sounion, the hero-narrator softens a little and comes to a philosophical judgment, Under the soothing emotions of Athens, the hero-narrator confesses to the realization of the futility of the undertaken journey to Istanbul, a journey geographical, spatial, but not mental, not temporal. Physical movement in the West-East direction is now felt by the hero and the author to be forbidden.

If the Islamic Istanbul caused the “traveler” exclusively anger and irritation, then the Christianized Fatherland (note, written with a capital letter), “we” and “ours” (note, marked possessive pronouns) gave rise to sadness and regret in the hero. Istanbul (unlike the “classical” Rome and Athens) forced the hero to actualize in memory the “zoomorphic” features of his native “corner of the earth”, to recall the dictates of his “system”, the principles of Soviet “monotheism”, military-police decrees and regulations. “It is enough <...>, having looked in the dictionary, to establish that ‘penal servitude’ is also a Turkish word. As it is enough to find on the Turkish map – whether in Anatolia, or in Ionia – a city called Nowhere” (Brodsky 1999, 313).

The name of the “negative” city, introduced in the text of the final chapters, becomes a verbal abstraction for Brodsky, a speech substitute (double) of another vow (not) given by the hero to himself: never to return to the past linearly, spatially, geographically. Between a thing and a thought, prefer the latter. Therefore, the definition that the hero gives to himself at the end of the journey, – “victim of geography” (Brodsky 1999, 313), thus parallel, but not “victim of history” (Brodsky 1999, 313), thus, meridian. In an interview, Brodsky always (following A. Akhmatova) persistently and resolutely refused to define “victim”, therefore he makes a reservation and clarifies: “no one can be blamed for anything” (Brodsky 1999, 314). The hero-Brodsky comes to the idea of humility, “with some effort of imagination – Christian humility” (Brodsky 1999, 314), of melancholy, even more precisely and of “justly – fatalism” (Brodsky 1999, 314). The author is a character trying to figure out who he is: “a hero led by the gods” or “an unprincipled scoundrel who explains his behavior <...> by divine providence” (Brodsky 1999, 287) – he inclines to the intertextual Lermontov fatality, to the fate and fate of the Pechorin type. Brodsky seems to join the classic: his hero, “my dear sirs, exactly, a portrait, but not of one person: this is a portrait made up of the vices of our entire generation, in their full development” (Lermontov 1962, 5). His philanthropy and misanthropy are universal qualities and properties, another thing is that the hero of Brodsky (as well as the hero of Lermontov) they are imbued with end-to-end self-reflection, immersion in introspection, “self-report” (Brodsky 1999, 281) and “self-affirmation” (Brodsky 1999, 285), related to the need to find your own coordinate in an extensive network of latitudes and meridians, between East and West.

9 Conclusion

Thus, answering the question posed at the beginning of the analysis: why could a city with a great history and worldwide fame give rise to such an irritated rejection of the poet (“almost grumbling” (Weil 1992, 322)), what caused the decisive rejection in Brodsky’s soul and consciousness? – it can be argued that the negative poured out by the hero-narrator on Byzantium-Constantinople-Istanbul was sublimated, redirected from himself (the idealist) to the great Ottoman city, which failed to give the hero and the author the expected return and peace. The hero-narrator is angry at himself, who imagined and allowed the possibility of a circular movement of memory and emotions in spite of the linear principle of life, hoped that the twin city located near the very “named” meridian would be able to replace him for a while (for the jubilee time) “hometown” and “Fatherland”.

As the analysis showed, the whole structure of the essay, its compositional features, strophic division, figurative series, motivics and symbolism (duality, pairing, reflections, “namesakes”, dream perspective, etc.), a system of artistic means (mainly figurative allusions and reminiscences, assonance-alliterated polysemy, paronymy and homonymy, with the dominance of metaphor approaches) they testify to the primacy of lyric-poetic strategies that Brodsky exploits and which powerfully represent his idiostyle in the generic constants of both lyrics and epic. The proximity of the artist’s prose to poetry (lines to a circle) actualizes the high degree of emotionality that the essayist demonstrates.

10 Prospects for further research

Concluding the analysis of Brodsky’s prose essayistic narrative, we can conclude that (unlike poetry) his prose is extremely poorly studied and, with a different angle of appeal to it, demonstrates new facets, offers new interpretations and discovers unexpected narrative and semantic moves. Attention to Brodsky’s prose creativity in the future will be able to actualize semantic and poetological strategies not previously considered, to identify special facets of inter-genre formations modeled by the poet in prose.

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Primary Paper Section: A

Secondary Paper Section: AJ

ADJUSTMENT OF CHINESE UNIVERSITY STUDENTS IN THE CZECH REPUBLIC: THE ROLE OF CULTURAL INTELLIGENCE AND ETHNOCENTRISM

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Acknowledgments: The result was created in solving the student project No. 7427/2020/06 "Intercultural communication: the research on the concept of cultural intelligence (CQ)" using objective oriented support for specific university research of the University of Finance and Administration".

Abstract: The article deals with two factors that affect the process of cross-cultural adaptation of foreigners in the Czech Republic in opposite directions: cultural intelligence (CQ) and ethnocentrism (ETN). Three hypotheses were tested: 1) cultural intelligence and its subdimensions (metacognitive, cognitive, motivational, behavioral) are positively related to intercultural adaptation, 2) ethnocentrism affects adaptation negatively, 3) the positive relationship between CQ and adaptation is weakened by ethnocentrism. The first two hypotheses were confirmed using a PLS-SEM statistical technique on a sample of 84 Chinese students studying at several Czech universities, and the third was rejected. In addition, the latent CQ construct was validated as a hierarchical component model. Means for easier adaptation of students/workers during a long-term stay in a culturally foreign environment are briefly also discussed.

Keywords: cultural intelligence, intercultural adaptation, ethnocentrism, Chinese students, PLS-SEM, hierarchical component model

1 Introduction

Applications for obtaining a temporary stay in the Czech Republic vary. Most often ask Americans for family reasons. Ukrainians, Vietnamese and Moldovans ask because of employment and business. Kazakhstan and Belarusians ask for their studies (Marešová 2016). According to the statistics of the Ministry of Education, Youth and Sports in the school year 2021/2022 (at 31st December 2021), 52,109 foreigners studied at Czech universities (public and private), of which 320 were students from China. Of the total number of foreign students, 50% studied in the given school year in the bachelor's study program, 17% in the master's study program, 24% in the follow-up master's study program and 9% in the doctoral study program. Quick adaptation to local conditions, way of life, different practices (often completely different from one's own), customs, etc. is important for every newcomer from the point of view of their life satisfaction and well-being (Sousa & Gonçalves 2017) or work performance. As he can cope with the effects of culture shock more quickly and get used to a new culture, he can focus more on fulfilling work (or study) tasks (Chen, Lin & Sawangpattanakul 2011). Therefore, it is important to examine the factors that facilitate intercultural (or also cross-cultural) adaptation and, conversely, those that make it difficult.

It is relatively well known that cultural intelligence (CQ) expresses an individual's ability to operate effectively in a culturally different environment and be successful there (Ang et al. 2007). A number of studies have confirmed that cultural intelligence has a positive effect on the level of adaptation (ADJ) (Chao, Takeuch & Farh 2017; Guðmundsdóttir 2015; Shu, McAbee & Ayman 2017). However, there is no consensus among researchers on how the individual components of CQ (metacognitive, cognitive, motivational, behavioral) contribute to this adaptation. It is also relatively well known that ethnocentrism (ETN) acts as a brake on effective intercultural communication and impairs the process of adaptation (Michailova, Piekari, Storgaard & Tienari 2017; Thomas 1996; Wu, Bodigerel, & Koehler 2013). However, the relationship between cultural intelligence and adaptability is not too much studied.

In this study, ethnocentrism acts as a moderator of the direct relationship between CQ (= independent variable) and ADJ (= output variable) and is understood as a certain contextual variable (relatively constant over time) that characterizes individuals. It is reasonable to assume that a person with ethnocentric views and a worldview will be less able to adapt to a culture (country) that he considers significantly inferior to his

own. Long-term stay abroad (Triandis 2006) usually develops intercultural competences (expressed by CQ), but it can also happen that based on one's own (perhaps even negative) experience and observation, one realizes the value of one's culture and its ethnocentric tendencies. The current (and mutual) role of cultural intelligence and ethnocentrism as two opposing forces in the mechanism of intercultural adaptation is not yet sufficiently clarified.

The aim of this study is to understand the process of adaptation of foreigners in the Czech Republic in the context of differences between two cultural environments: own and foreign. The more demanding and complex the two cultures are, the more difficult and complex the adaptation will be. This makes the significance of both variables (CQ, ETN) in the adaptation process better. The mechanism of adaptation in a culturally foreign environment is being investigated in Chinese university students. According to Hofstede's cultural dimensions, (e.g., Hofstede 2003) the Czech Republic and China are culturally dissimilar countries, which differ in at least three dimensions: distance, individualism vs. collectivism and avoiding insecurity. Data for this study were collected at several Czech universities among mostly foreign students; however, the research (ETN) of the moderated direct relationship between CQ and ADJ was conducted only on an ethnically homogeneous group of Chinese students. As CQ (motivational component) has been found to be related to general intercultural adaptation regardless of age and gender (Ang, Van Dyne, Koh & Ng 2007), the results obtained may not necessarily apply to academia alone, but are likely to be generalized to all foreigners (working or studying) residing abroad for a long time (in culturally different regions).

The paper is organized as follows. Individual constructs such as cultural intelligence (incl. individual components of CQ), adaptation, and ethnocentrism are firstly defined and described. Furthermore, three hypotheses are formulated in support of the existing literature and logical connections: 1. positive relationship between CQ and ADJ, 2. negative relationship between ETN and ADJ, 3. moderation (weakening) of the direct relationship CQ-ADJ due to ethnocentric thinking. Subsequently, the methodological part (data collection, respondents, analytical procedure) is described and the results are presented. Finally, some suggestions on how to mitigate the effects of the ethnocentric worldview are briefly discussed.

2 Literature review

2.1 Cultural intelligence

The construct of cultural intelligence (CQ) arose from the growing interest in non-academic forms of intelligence. The conceptualization of CQ was motivated by the practical reality of globalization (Mahembe & Engelbrecht 2014). The CQ construct was developed by Ang et al. and is defined as "the ability of an individual to function effectively to function in a culturally diverse environment and to cope with related situations" (Ang - Van Dyne 2015) involving contact with people from culturally diverse backgrounds in terms of race, ethnicity, nationality. This construct is based on intelligence theory: it consists of four components (metacognitive, cognitive, motivational and behavioral) that integrate different personality types (Crowne 2013). It is consistent with Gardner's perspective of intelligence (Gardner 2011), i.e. as certain abilities to adapt and adapt in a new (unknown) environment; a clear overlap that distinguishes it from other types of intelligence clearly exists here, as it relates exclusively to phenomena characterized by cultural diversity and diversity. Cultural intelligence is a unique approach to understanding situations where intercultural interactions occur; it is an expression of the different intellectual ability of an individual who is in a certain intercultural environment (Starčević, Petrović & Komnenić 2017).

The first component of CQ is metacognitive CQ, which refers to the processes used by individuals to acquire and understand a certain (cultural) knowledge. An individual with a developed CQ component determines a certain strategy of contact with foreigners in advance. In this sense, he carefully prepares and considers the short-term (or long-term) goals of his work in a culturally new environment. In addition, it plans (and intuitively correctly anticipates) certain measures that must be taken to succeed in dealing with foreigners within the set strategy. The plan focuses on three aspects: oneself, the stranger, and a specific environment. The individual is able to project himself into the feelings of his culturally different partner and look at the world through his eyes. In direct contact with foreigners, he is fully (in real time) aware of (or perceives in detail) this intercultural situation, i.e. how this interaction affects himself and his partner. Aware of the differences, he can refrain from premature and hasty conclusions about the course of the meeting until he has enough information (Van Dyne et al. 2012). After the first two phases, i.e. setting the strategy and drawing up the plan, comes the third phase: control. An individual with a high metacognitive CQ thinks about the end of the encounter (and new experiences), compares the set plan with reality, and adjusts his mental map (settings) if the reality differs from his expectations. The experience gained is processed and evaluated.

The second component is cognitive CQ. It concerns the knowledge and knowledge that an individual has about cultural institutions, standards, practices and conventions from different cultural backgrounds. Cultural knowledge is twofold: objective and subjective. In the first case, there are artifacts and cultural practices observable and visible to the naked eye, such as knowledge of economics (capitalism vs. socialism), law (continental vs. common law), political system (monarchy vs. democracy), traditional cultures (matriarchy vs. patriarchy), norms of social interaction (e.g. guanxi concept), religion, typical gender roles, socio-linguistic theories (incl. dialects and relevant vocabulary), nonverbal behavior (proximity, gesticulation, etc.), or Subjective cultural knowledge means a less visible (observable) psychology of culture: values, norms, beliefs and basic assumptions from which society draws its spiritual legacy (masculinity vs. femininity, individualism vs. collectivism, avoidance of insecurity, or power inequality in society.) Thanks to knowledge of a cultural nature, an individual with a high cognitive CQ better understands the influences that shape behavior and actions in different cultural environments and it is easier to imagine how different cultures differ from each other (or in what they resemble). Based on the acquired cultural knowledge, this individual is able to apply different cultural concepts to specific countries (e.g. in distinguishing high and low contextual cultures knows that the Japanese communicate indirectly, based on a certain context, Brazilians openly express their emotions, Indians have respectful respect for authorities etc.); they are well acquainted with cultural differences depending on certain professional groups (diplomats, managers, teachers) or demographic characteristics (by age, gender, education).

The third subdimension of CQ is motivational. It refers to an individual's ability to direct his or her strength, attention, and energy toward learning and functioning effectively in situations characterized by cultural otherness. The source of inspiration for the formation of motivational CQ are motivational theories such as expected value models, social cognitive theories, self-determination theories (Van Dyne et al. 2012: 303), which explain not only immediate (rather than permanent) differences between individuals, but also certain contextual variables beyond the control of the individual. The three components of motivational CQ are internal interest, external interest and belief in their ability to successfully adapt in a new cultural environment. A person has an inner interest if he evaluates a certain cultural diversity on his own (or for himself), because he has a feeling of inner satisfaction. Contact with people from different cultures, elements of novelty in intercultural interactions brings this individual pleasure, (often quiet) joy and personal fulfillment, which comes only from his inner (and inner setting) and are not dependent on other circumstances and

contextual factors. On the contrary, external interest is defined as the effort to achieve tangible personal gain (eg, thanks to foreign experience, to have better prospects of getting a better job, to increase one's reputation, to be promoted, to get higher responsibility). Self-confidence (as a third feature of motivational CQ) refers to one's own belief in being able to succeed in performing various tasks (activities) in an intercultural context. The individual feels that he or she can adapt to the new cultural environment and will be able to cope with the stress that these situations bring. Motivational CQ is associated with the belief that the individual will be able to communicate with people (local, co-workers) who come from other cultures. An important concept related to motivational CQ is self-efficacy, which is seldom translated into Czech. Its author is the Canadian-American psychologist Albert Bandura (Bandura 1977).

The fourth dimension of cultural intelligence is behavioral CQ. It concerns the ability of an individual to adapt a wide repertoire of verbal and nonverbal expressions to a specific intercultural situation. Thanks to this component, people control and regulate their social behavior in intercultural communication so as to prevent misperceptions and interpretations of their message from the other side and to avoid communication misunderstandings. Three types of communication behavior have been identified (Van Dyne et al. 2012): a) verbal (different accents, change of voice tone, melody, adjustment of speed, speech volume and style of expression, appropriate insertion of pauses and pauses), b) nonverbal (gestures, facial expressions, proxemics, eye and physical contact, e.g. during health), c) specific speech acts (words and phrases used to express a certain message; form of request, apology, expression of gratitude, disagreement, which is always governed by certain local standards). The means of communication used in one cultural environment may not be appropriate and appropriate in another. Therefore, people need to flexibly change their expressions and means of communication depending on the environment in which they find themselves, in order to avoid certain cultural faux pas.

2.1 Intercultural adjustment

Intercultural adjustment is defined as "the degree of psychological comfort and familiarity that an individual has in his or her new environment" (Templer, Tay & Chandrasekar 2006). According to another definition (Akhil & Liu 2019), it is a process in which it behaves and reacts to its surroundings in order to comply with it or not deviate from normal. Support for the organization (employer), support for the social community in the new environment, networking, previous training in cultural skills, knowledge of the language of the host country and special personality traits (Akhil & Liu 2019) help to better adapt.

Intercultural adjustment is a complex, multi-layered concept. It covers three main areas: a) at a general level, i.e. adjustment to the culture of the host country and local living conditions, b) at the social level, i.e. the smooth establishment of interpersonal relationships with members of the local community (ethnicity, culture), c) at the level work / study, i.e. acceptance and identification with organizational culture, work habits, human resources management, company management, etc.; this area also concerns study in terms of differences in education systems, teacher attitudes, classroom climate, etc. The three-dimensional model working with different types of obstacles and difficulties that an individual has to deal with and deal with abroad has been confirmed by a number of previous studies (Fitzpatrick 2017). Successful intercultural adjustment in the new culture reduces stress and psychological pressure, which results in increased work performance (Mehra & Tung 2017). However, the adjustment is not automatic. Conversely, many people who go (or are sent) to work abroad find it not easy to adapt culturally; he therefore often returns home prematurely (Akhil & Liu 2019).

2.2 Ethnocentrism

Ethnocentrism is one of the important concepts of the social sciences today. It is an important component of modern

nationalism and is associated with the formation of prejudices. Accompanying features of ethnocentrism are adverse effects on harmonious relationships between groups. This phenomenon is explained by a number of theories of social psychology: the theory of authoritarian personality, the theory of agreement of beliefs, the theory of realistic conflict and the theory of social identity. William Graham Sumner is widely regarded as a pioneer in the study of ethnocentrism. Sumner defined this concept in terms of the self-centeredness of one's own ethnic group and a negative understanding of all external groups (Bizumic et al. 2009).

Ethnocentrism is an example of cultural relativism. It is a tendency to evaluate and interpret the surrounding world only from the perspective of one's own culture (Průcha 2004). In intercultural oriented managerial literature, ethnocentrism expresses a certain attitude towards the categorization of cultural groups (Thomas & Peterson 2017). Ethnocentrism is an obstacle to communication (Browaews & Price 2015). Defining the other (s) occurs through self-perception, and in the case of ethnocentrism, the frame of reference is primarily one's own culture. Members of a certain culture relate to other people only through the prism of their own culture. Ethnocentrism inextricably defines belonging to a particular socio-cultural, ethnic or ethnic group.

Human beings are essentially ethnocentric (Miele & Nguyen 2019); Many people tend to think that their cultural norms are commonly accepted outside of their own social environment. Many researchers (Lee, Crawford, Weber & Dennison 2018) consider ethnocentrism to be a universal tendency among people that manifests itself in all cultures; in general, ethnocentrism is considered a negative trait that leads to negative phenomena, especially during intercultural interactions. A high level of ethnocentrism is dysfunctional because it creates obstacles to communication with foreigners or understanding of various intercultural situations; leads to misperceptions and subsequent misinterpretation of the behavior of people from other cultures, to whom it is given a different meaning than it has.

3 Materials and methods

3.1 Hypothesis about relation between cultural intelligence and intercultural adjustment

There is a clear link between cultural intelligence and cross-cultural adaptation, although these are still different constructs. Cross-cultural adaptation captures the daily experience of well-being and peace during a temporary stay abroad, while CQ refers to a sense of competence to adapt and work effectively in an environment where intercultural contacts and interactions take place (Chao, Takeuchi & Farh 2017). CQ and rapid adjustment have a positive effect on an employee's work performance. For CQ's personal disposition to be reflected in performance (positive), an environment with certain multicultural features is needed (Moon 2013). If this condition is met, CQ plays an important role in the quality of interpersonal relationships, which shows very well, for example, in international business activities (Charoensukmongkol 2015). Thanks to the developed CQ, the individual quickly adapts to a new (culturally unknown) environment, does not shy away from the team, is not afraid to explore original ideas, approaches work tasks and problems creatively (Darvishmotevali, Altinay & De Vita 2018) and more willingly shares his ideas, experiences, and knowledge for the benefit of the whole multinational corporation (Jiang, Le & Gollan 2018). This is because CQ helps to overcome cultural barriers, reduce stress; in addition, it facilitates intercultural contact and interaction. Metacognitive and cognitive CQs are a positive predictor of the employee's personal goals with the goals of the organization. As employees can adapt to the new (intercultural) work environment thanks to their high CQ, they are more involved in the work processes and actions that take place within the organization (Chen 2015). Although certain personality traits such as extraversion, diligence, and openness to new experiences are important for intercultural adaptation, it also depends to a large extent on how CQ is developed. Virtually the

whole construct (in all its components) is important for adaptation in everyday matters (general adaptation), social and work (academic) adaptation (Guðmundsdóttir 2015; Shu, McAbee & Ayman 2017). E.g., it was found that due to the high behavioral CQ score, individuals respond more flexibly to unusual cultural situations (Ang & Van Dyne 2015). If the right motivation is lacking, the relationship between CQ and intercultural adjustment in general applies regardless of gender, age and nationality (Ang et al. 2004). Without a developed CQ (especially cognitive, behavioral and motivational components), previous work experience abroad will not help to better adapt (in all respects) (Lee & Sukoco 2010). It is not even enough to live in a certain country to become an expert in the local culture. According to contact theory, occasional contact with local culture does not necessarily increase cultural knowledge. It is necessary to be proactive, to look for different situations of a cultural nature, to participate in various local practices and rituals; take for granted and regularly practice local, live the typical life of a local citizen. Getting to know the local culture and customs promotes quality (not cursory, superficial) contact with the locals (Chao, Takeuchi & Farh 2017).

Based on previous research and the characteristics of both constructs, we hypothesize that cultural intelligence positively affects intercultural adaptation. H1: Cultural intelligence positively predicts intercultural adaptation.

3.2 Hypothesis about relation between ethnocentrism and intercultural adjustment

An obstacle to adjustment and a successful stay abroad can be if one has an ethnocentric worldview while working abroad and comes into contact (not only working) with people who are culturally different from him (Thomas 1996). This may be the case, in particular, when he comes from an economically developed world and is posted to more lagging countries, i.e., his country enjoys a certain privileged position from which the inhabitants benefit practically from birth without deserving to do so. Foreigners are less able to adapt at work if they perceive the ethnocentric thinking of their surroundings. In addition to other stressors felt by all employees, this thinking will have an additional negative effect on them; in this case, he does not have to work for the organization with determination and full commitment (Florkowski & Fogel 1999). Even a foreign manager will get used to his new job and adapt to change worse if his subordinates (coming from this country) have ethnocentric attitudes and opinions towards him. These either exist a priori (before the arrival of a superior - a foreigner), or they develop in response to the inability to live well with their job requirements and demands (Templer 2010). Ethnocentrism is an obstacle to competent intercultural communication, damages relationships with local people and worsens interaction adaptation (Wu – Bodigerel & Koehler 2013). Based on logical reasoning supported by previous research (Michailova et al. 2017), it can be stated that an ethnocentrist-minded person will have a harder time getting used (professionally and generally) to a new relationship with another culture outside their country (will be less flexible in their responses to change). It is also harder to socialize with its culturally different colleagues and people from its new (temporary) residence abroad because it can look at them with a certain ethnic superiority, hidden ridicule and contempt. These feelings (perhaps hidden, but still felt) can prevent you from establishing closer (friendly) relationships with your new environment.

H2: Ethnocentrism is negatively related to adaptation.

3.3 Impact of ethnocentrism on the relationship between CQ and intercultural adjustment

The discussion about the relationship between CQ and ethnocentrism has started relatively recently, but the evidence presented is far from clear (Young, Haffejee & Corsun 2017). Ethnocentrism can be both a predictor (Ang et al. 2007) and an output variable in relation to CQ (Triandis 2006). Harrison (2012) confirmed the presumed negative relationship between

the two constructs, but no longer addressed the question of which quantity predicts the other. Further research (Barbuto, Beenen & Tran 2015) supported the findings of the study by Ang et al. (2007); it has been shown that motivational CQ is influenced by ethnocentrism. CQ has a dampening effect on ethnocentrism (Triandis 2006). An inverse relationship applies to both constructs: higher CQ is associated with lower ethnocentrism (Young, Haffeejee & Corsun 2017). However, in the light of other research (Bernardo & Presbitero 2017), this conclusion is no longer so clear-cut; international experience (one of the CQ antecedents) may raise the need to defend one's own culture (= a certain form of ethnocentrism) and lead to a tendency to exaggerate cultural differences between cultures, i.e. to think more rigidly about cross-cultural differences. It is also strange (and interesting) that the negative relationship found between ethnocentrism and CQ does not apply to the preference of domestic goods over foreign ones (measured by consumer ethnocentrism). This has been explained by consumer theory: while at national level national interests are at stake and preferential behavior, the consumer pursues his own interests and satisfaction, which is why ethnocentric consumers unexpectedly show a higher CQ (Pratono & Arli 2020).

There are several overlapping and interrelated variables between CQ and ethnocentrism. Therefore, despite the lack of studies that would directly confirm this relationship, it can be inferred indirectly. E.g. polyculturalism, i.e. the belief that there are more interacting cultures in the world or also multiculturalism, i.e. respect for other cultures, acts against ethnocentrism and at the same time polyculturalism was found to be related to CQ (Bernardo & Presbitero 2017). Another circumstantial evidence for the existence of a relationship between ethnocentrism and CQ is the theory of social dominance. This theory explains, *inter alia*, ethnocentrism (Bizumic et al. 2009). At the same time, it has been shown that there is a negative relationship between the orientation towards social dominance and the development of CQ; social dominance is the obvious link between the two constructs (Alexandra 2018). Another link is personality traits. Openness to new experiences and friendliness (tendency to cooperate, kindness, generosity and trustworthiness) are negatively related to prejudices (Ekehammar, Akrami, Gylje & Zakrisson 2004). In addition, flexibility, open mind and empathy are associated with motivational CQ (Ward - Fischer 2008). There is a clear sense of ethnocentrism in all of these output variables. The negative relationship between CQ and ethnocentrism can be indirectly deduced from another study (Korzilius, Bücker & Beerlage 2017). If multiculturalism (as the opposite of ethnocentrism) has a positive effect on CQ, then ethnocentrism must be negatively related to CQ.

In several studies, ethnocentrism has moderated CQ's relationship to other variables, such as foreign language skills, intercultural skills training at university, regular daily contact with people from other cultures, and experiences from traveling abroad. The authors of one study (Lee et al. 2018) hypothesized (and in part demonstrated) that these relationships are stronger for a group of students with lower levels of ethnocentrism than for a group of students who are more ethnocentric. The ethnocentric worldview is also created (and maintained) based on inherent individual dispositions. Long-term intercultural experience may reinforce certain stereotypes (such as ethnocentrism), which may affect, for example, the willingness to work abroad or negatively affect otherwise desirable outcomes associated with CQ (Livermore 2008; Priest, Dischinger, Rasmussen & Brown 2006). Another moderator between CQ (motivational component) and ethnocentrism is cultural identity (Peng, Van Dyne & Oh 2015). Cultural identity expresses the degree to which an individual perceives his own connection with members of the culture from which he comes (in the sense of sharing values with this culture). People with a strong cultural identity are less adaptable. They may even exhibit certain ethnocentric reactions to cultural otherness because they are unable to switch flexibly between cultural symbols and characters. Because they do not understand people who are "other", they express various negative judgments about them, and therefore these (ethnocentric) individuals are less effective

in an intercultural environment. Based on the above research and logic conclusions, the following hypothesis is formulated:

H3: Ethnocentrism weakens the positive effect of cultural intelligence on adaptation.

3.4 Data collection and sample

The online questionnaire was created in English. The link to the questionnaire was sent by university e-mail during the winter semester of the academic year 2021/22 or distributed via chat of certain platforms (such as MS Teams), in which online teaching took place at some universities. A Chinese student also helped collect the data, distributing the link via social networks to Chinese students studying at Czech universities. Students at several Czech universities (private and public) were addressed: VŠFS, Metropolitan University in Prague, VŠE (Prague), Charles University, CTU, Czech University of Life Sciences in Prague and others. A total of 194 respondents completed the questionnaire. Subsequently, only a group of Chinese students worked. 53 (63.1%) female students participated in the research, 31 (36.9%) students most often under the age of 24 (63 students; 75%). 46 (54.8%) respondents studied in a bachelor's degree program, 32 (38.1%) in a master's degree program and 6 (7.1%) in a doctoral degree program. 44 (52.4%) respondents had experience of a stay abroad (study, work or other) lasting 1 - 3 years, 15 (17.9%) lasting 3 - 5 years. 14 (13.1%) respondents declared sporadic contact with foreigners (local residents), 32 (38.1%) have occasional contact, 34 (40.5%) frequent and only 4 (4.8%) respondents were in permanent residence. contact with foreigners. 29 (34.5%) respondents rated their knowledge of English as excellent, 43 (51.2%) as candidates, 11 (13.1%) respondents described their knowledge of English as poor, 1 (1.2%) respondent did not speak this language at all. 24 (28.6%) respondents do not speak Czech at all, 41 (48.8%) respondents know the basics of Czech, 8 (9.5%) of them speak this language at a sufficient level and only 11 (13.1%) respondents' knowledges of Czech as excellent.

3.5 Measurement scales

Cultural intelligence was measured using the Cultural Intelligence Scale (CQS), known and often used in intercultural research (Ang et al. 2007), which measures human proficiency in cultural diversity situations on a seven-point Likert scale (Kaleramna, Saharan, and Singh 2019). It is a second-order reflective construct, which consists of four factors (components, dimensions): metacognitive, cognitive, motivational and behavioral first-order reflective constructs (Costers, Vaerenbergh & Van den Broeck 2019). Several studies (e.g. Ang et al., 2007) have confirmed that Cronbach's alpha CQS is high and satisfactory (Starčević, Petrović & Komnenić 2017). The 4-factor structure of the CQ construct and discriminant validity have also been demonstrated (Ang et al., 2007). A high CQ score indicates a better understanding of the new culture and local customs, which results in effective and appropriate behavior and leads to adaptation in an unfamiliar environment. In this study, the Cronbach's alpha for total CQ is very high (0.950), suggesting a problem with multicollinearity. To solve this problem, the CQ variable was investigated as a hierarchical component model (HCM).

Intercultural adaptation was measured on a 5-point scale using one of the most researched (most reliable) scales (Black & Stephens 1989). The measurement used consists of three dimensions (general, social and work / study) numbering 14 items. In this study, the third dimension was adapted to the university environment (Chao, Takeuchi, and Farh 2017). Respondents were asked to decide on a seven-point Likert scale (1 = zero adjustment to, 5 = very good adjustment or accustomed to) to what extent they adapted (or did not adapt) to various aspects of their stay in the Czech Republic. Cronbach's alpha equals 0.807 for general adaptation, 0.943 for adaptation in interaction with local ones; third dimension (academic adaptation) Cronbach's alpha showed a very value (0.941), resp. 0.955 for overall adjustment. Due to certain problems in scale

measurement, the subdimension was academic adaptation, and following the example of another study (Sharma & Hussain 2019), the target variable was a tailored construct composed of two dimensions: general and interaction.

Neuliep (2002) created and validated several questionnaires to measure ethnocentrism. He performed the first validation of his scale in the USA. The measurement of ethnocentrism in general (GENE) contains 21 items, 11 of these statements are formulated positively (Neuliep referred to as factor 1), 10 statements are formulated negatively (referred to as factor 2). The individual items have been created to reflect the concept of ethnocentrism that can be experienced by anyone, regardless of the culture they come from. Several adjustments were made in the following versions of the questionnaire: a) the word "country" was replaced by "culture", b) several items were reworded for clarity, c) several items from the original version were deleted, d) several new items were added. The answers were recorded on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Neuliep's scale of measuring ethnocentrism was also used in cultural intelligence research (Young, Haffeejee & Corsun 2017), although in this case the original GENE questionnaire was largely modified to 7 items; The purpose of this questionnaire was to find out individual perceptions of ethnicity, assimilation and attitudes towards multiculturalism. In our study, the revised GENE questionnaire was used in the English version, numbering 22 items. 7 of these items have only a balancing function: it balances the number of positively and negatively formulated questions (Neuliep 2002). Three items have been recoded. Cronbach's alpha for this construct showed a very high value (0.936).

4 Results

The collected data were subjected to further analysis using IBM SPSS 19 and SmartPLS programs (v.3.3.2). Although PLS-SEM works efficiently with small samples and complex models and requires virtually no basic data assumptions (it is essentially nonparametric), Hair et al. (Hair Jr, Hult, Ringle & Sarstedt 2016) recommend evaluating whether or not the data is normally distributed. As the Kolmogorov-Smirnov test showed, the data are normally only distributed for the CQ variable (Pallant 2020). Extreme values were also checked in the data set, which are usually eliminated from the analysis (they can significantly affect the final results), if there is no explanation for them. However, the data did not show an anomaly in this regard. The structure of the data and the individual responses of the respondents were also examined in detail to reveal certain biases. In several cases (for some variables), cases with a very low standard deviation were found, which means that the respondent answers questions and statements in a monotonous manner and probably does not seem to be very interested in research. However, after considering several facts (sample size and extent of these "doubtful" cases), no answers were therefore excluded from the analysis. Based on the recommendations (Hair Jr et al. 2016), incomplete answers were replaced by the average values of individual indicators, as they were missing less than 5% per indicator.

Since the construct of cultural intelligence consists of four factors, a hierarchical component model or higher order model was created to test the proposed theoretical model. This often happens due to the reduction of the complexity of the relationships in the model and in the interest of stronger parsimony of the model, or in an effort to avoid collinearity problems (Hair Jr et al. 2016). In this sense, the recommendations of Rockstuhl & Van Dyne (2018) are followed, who conceptualized CQ as a two-factor theoretical model: latent CQ factor (explains the shared variance between all CQ items) and four specific CQ factors, i.e. metacognitive, cognitive, motivational, behavioral, which explain the variance of specific factors in CQ items. The total CQ is an aggregated multidimensional construct that is constructed as a linear combination of five factors in a two-factor model. Using the PLS-SEM method, it is possible to observe each CQ dimension independently through a higher order construct, which by

definition HCM is a full mediator (Hair Jr et al. 2016) in the process of indirect relationship between each CQ component and adaptation. PLS-SEM allows each dimension of CQ to be analyzed separately with the possibility to present different theoretical explanations for each factor separately (Ott & Mikhail 2018).

There are four main types of hierarchical component models (Hair Jr et al. 2016). Although CQ can be modeled in the reflective-formative mode of the hierarchical component model (Vlajcic, Caputo, Marzi & Dabic 2019), in accordance with a number of other studies (Charoensukmongkol 2015; Gabel, Shemueli, Westman, Chen & Bahamonde 2019; Thomas 2015) the CQ construct was modeled in reflective - reflective mode in this study. Schlägel & Sarstedt (2016) performed a confirmatory four-factor analysis in PLS-SEM, which supported the original version of the reflective CQ model, although they believe that some dimensions of CQ (especially cognitive) should be designed more formatively than reflectively. For the reflective model, 1) indicators (i.e., observed variables of each of the dimensions) are highly correlated and interchangeable, 2) components (factors, dimensions) are not the result of a linear combination of indicators (or observed variables) and 3) each of the indicators represents effects of individual dimensions (Frías, Jamilena, Sabiote, Ortiz, Martín-Santana, Beerli & Palacio 2018).

Based on the literature, our CQ model is defined in a reflective-reflective mode as a latent second-order construct composed of four dimensions: metacognitive, cognitive, motivational and behavioral. The hierarchical component model was validated using a consistent PLS algorithm using a confirmatory factor analysis test using the repeated indicator approach. The charges of all twenty indicators of the CQ construct in its four dimensions range from 0.725 to 0.916, respectively. 0.570 - 0.787 for repetitive indicators for the latent variable, which fully meets the minimum criterion (= 0.5) for the reliability of the indicators, and therefore none of them had to be eliminated (Hair Jr et al. 2016). Then, a consistent PLS bootstrapping technique was performed and found that for all dimensions of CQ, t values are significantly greater than 2, i.e. statistically significant, and CQ as a second-order construct was thus validated. Subsequently, the scores of the latent variable CQ were calculated using the PLS algorithm.

The charges, validity and reliability of the other variables forming the conceptual model, i.e., ethnocentrism (ETN) and adaptation (ADJ), were also checked. The three items at the construct were recoded. Items with a charge of less than 0.7 (with two exceptions) were eliminated from the questionnaire. Other items were eliminated from the questionnaire in an effort to improve measurement indicators and avoid collinearity problems. In terms of achieving convergent validity, charge indicators were monitored (values should be greater than 0.70), AVE (> 0.50), in terms of reliability of internal consistency, it is an indicator of compound reliability (expected values: 0.60 - 0.90) and Cronbach's alpha (expected values: 0.60 - 0.90), in terms of discriminatory validity, the HTMT confidence interval should not contain 1, which was met. The following values were obtained: for adaptation (AVE = 0.698, CR = 0.941, Cronbach's alpha = 0.926), for ethnocentrism (AVE = 0.657, CR = 0.945, Cronbach's alpha = 0.936). The resulting values are quite high for both constructs (except for the AVE indicator), however, they are not greater than 0.950, which would be very undesirable, because then the items measure the same phenomenon (i.e., they are semantically redundant).

Furthermore, the scores of latent variables for all constructs were calculated, i.e. ethnocentrism (independent variable) and adaptation (dependent variable). The dependent variable (intercultural adaptation) was first examined for a three-factor construct, which was validated in SmartPLS as a higher-order construct for three dimensions (as well as the latent variable CQ). As a preliminary analysis showed that the independent variable (ethnocentrism) was not significant for the school subdimension, in the next analysis this dimension was

completely omitted from the construct following the example of another study (Sharma-Hussain 2019) conducted among university students. The results were obtained using PLS Algorithm and PLS bootstrapping tests. Hypothesis H3 (moderating the influence of ethnocentrism on the relationship between CQ and intercultural adaptation) was investigated in PLS using the two-stage approach technique recommended by Hair et al. (Hair Jr et al. 2016) if the constructs are not (as in our case) modeled formatively and the goal of bootstrapping is to reveal the significance of the moderating effect.

Tab. 1: Results of bootstrapping analysis

Hypothesis	Relationship	β	SD	t-value	Decision	LL CI 2.5%	UL CI 97.5%
H1	CQ->ADJ	0,769	0,061	12,628***	ANO	0,631	0,871
	EIN->ADJ(3)	-0,122	0,065	1,840	NE	-0,256	0,003
H2	EIN->ADJ	-0,218	0,079	2,789***	ANO	-0,372	-0,069
H3	CQ*EIN->ADJ	0,097	0,070	1,526	NE	-0,036	0,237

β = correlation coefficients between variables, SD = standard deviation, (LL CI) = lower confidence interval limit, (UL CI) = upper confidence interval limit, CQ = cultural intelligence (CQ), ADJ = adaptation, EIN = ethnocentrism as a moderator of the relationship between CQ (independent variable) and ADJ (dependent variable), *** (p < 0.01)

Table 1 shows the results of the bootstrapping analysis. Hypothesis H1 predicted a positive relationship between cultural intelligence and intercultural adaptation. Our data confirmed this hypothesis; the result is also statistically significant ($\beta = 0.769$; $p < 0.01$). H1 is accepted. Hypothesis H2 predicted that there was a negative relationship between ethnocentrism and intercultural adaptation. The data confirmed this hypothesis ($\beta = -0.218$; $p < 0.01$). Hypothesis H2 is accepted, but only for two subdimensions of intercultural adaptation: general and interaction (not for adaptation at school). Ethnocentrism does not exert its influence on academia, only in the general level of the adaptation process and in its interaction with local people. Nor can it be argued that this variable moderates the relationship between cultural intelligence and intercultural adaptation ($\beta = 0.097$; $p > 0.05$). The result is not statistically significant. Hypothesis H3 is thus rejected.

5 Discussion and conclusion

This empirical study deals with the mechanism of adaptation in a culturally unknown environment to the population of foreigners who apply for a temporary stay in the Czech Republic to study. The target group was Chinese students studying at Czech universities. The data were collected in the form of an online questionnaire at several Czech universities. The ability to adapt quickly and begin to function effectively in a new cultural environment has been linked to two variables: cultural intelligence and ethnocentrism. The first is a personal disposition to succeed in a culturally foreign environment and quickly deal with the negative phenomena that come to an unknown country usually brings, such as cultural shock, anxiety and stress (Sozobilir & Yesil 2016). This construct reflects (and indirectly includes) a number of factors that facilitate stays abroad and improve adaptability to local customs and practices such as individual personality traits (extraversion, openness to new experiences) (Presbitero 2018), language skills (Shannon - Begley 2008), previous international experience in the form of intercultural travel (Crowne 2008), work experience from culturally different countries (Takeuchi, Tesluk, Yun & Lepak 2005), life (residence) in different cultural environments (Tarique & Takeuchi 2008) or quality, frequency of intercultural social contacts in the form of diversity of social contacts of everyday life (Wang, Heppner, Wang & Zhu 2015), work with foreigners, i.e. routine interactions with them (Koo Moon, Kwon Choi & Shik Jung 2013). The second variable, ethnocentrism, expresses a distinctive understanding and definition of one's own ethnicity (culture, country) in relation to other ethnic groups

(cultures, countries). While the first variable (CQ) helps individuals to adapt in a culturally new environment, the second (ETN) works in the opposite direction and complicates adaptation.

The results of this study can contribute to the current understanding of the positive impact of cultural intelligence on an individual's ability to better adapt to a culturally new environment (Guðmundsdóttir 2015; Shu-McAbee-Ayman 2017), as the complex CQ construct was modeled in relation to adaptation. The analysis shows that all components of CQ are involved in adaptation. Although the adaptation construct was modeled in this study only for the general dimension (adaptation to a different standard of living, habits, etc.) and the social dimension (concerning contact with local people), ie the third dimension of work (study) adaptation as the main reason for staying abroad was deleted from the construct due to unconvincing measurement results of this subdimension, it can be assumed that well-being (satisfaction) from the easier course of adaptation in one area will be transferred (extended) to other spheres of life (Sambasivan, Sadoughi & Esmaeilzadeh 2017). The transfer of positive emotions, attitudes, moods and behaviors from work to private life (and vice versa) is explained by spillover theory.

Ethnocentrism is to some extent related to cultural identity (Peng, Van Dyne & Oh 2015). If a person is strongly connected with his country (culture), he will probably have difficulty getting used to and quickly adapting to change. While cultural identity in terms of the degree of connection with one's own culture is not limited to other cultures (countries), this is not the case for ethnocentrism: an ethnocentric person is also proud of his country (culture), but at the same time elevates it above others whom he despises. This attitude of life worsens the possibilities of adaptation in a foreign culture, as this study has shown. Thomas (1996) recommended blunting ethnocentrism in individuals potentially planning long-term stays abroad, thorough preparation before departure, for example, by increasing the frequency of cross-cultural contacts at home (and later abroad) or by training cultural skills. Thomas (1996) also recommended taking an active interest in life experiences and strategies in bicultural minorities. This could help them develop a bicultural or multicultural identity.

A study of the literature has shown that ethnocentrism moderates relationships between other variables (Lee et al. 2018). Although we assumed, based on the literature and logical reasoning, that ethnocentrism would set a certain context in the CQ-adaptation relationship and act as a weakening moderator of this relationship, our data did not confirm this hypothesis. In this respect, a larger sample would probably lead to more accurate results, although it is not very small (respondents made up about a tenth of the total population of Chinese students in the Czech Republic) and the SmartPLS program used can work with small files, i.e., it provides reliable outputs in these cases (Hair Jr et al., 2016). In addition to increasing the size of the sample, the research design can be improved in other ways, such as a modified measurement technique (instead of self-evaluation, the data would come from other entities, classmates, teachers). This study, following the example of others (Ang et al. 2007), showed that CQ is a predictor of ethnocentrism, but a longitudinal experimental study would be needed to definitively confirm this causality. In the future, it is also possible to include in the questionnaire survey the measurement of another variable, social desirability in order to avoid various distortive effects caused, for example, by the respondents' efforts to answer in terms of what is socially desirable and appropriate.

The proposed model introduced a new contextual (and relatively stable) variable into the study of the direct relationship CQ - ADJ: ethnocentrism. But it is also possible to suggest in the future that a certain dynamic of this relationship be taken into account and to examine how another moderator will have to adapt: a culture shock. In addition, the latent variable CQ does not necessarily have to be modeled in the reflective - reflective

mode as in this study, but in accordance with the literature also in another mode (reflective - formative).

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Primary Paper Section: A

Secondary Paper Section: AE, AH

REALIZATION OF CULTUROLOGICAL APPROACH IN CONTEMPORARY EDUCATIONAL SPACE OF UKRAINE

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Partnership Agreement between the British Council in Ukraine and public organization "Unique Country" No. P02/04/18

Abstract: The research is devoted to the results of effective implementation of Ukrainian Literature textbooks in the curriculum for the grades 10th and 11th of general secondary educational institutions based on the culturological approach. Particular attention is paid to the peculiarities of implementation of the social project «Art is the Realization of Dreams» in the Ukrainian realities. The high school students' motivation is traced. The effective mechanisms for developing the cultural competence of high school students is established and practical experience in the effective interaction of literature and art is described. The attention is devoted to creating the educational environment for modern high school students which requires the active integration of inter-artistic relations.

Keywords: artistic context, culturological approach, inter-artistic interaction, school education, students' cultural competence.

1 Introduction

In the context of school education upgrade in Ukraine the problem of its development in multicultural manifestation becomes more relevant. The empirical study presented here made it possible to determine the effective factors influencing the cultural development of a young person in conditions of educational-cultural environment as a coherent system based on the integration of science and art. Modern investigations are based on the fact that productive dialogue between cultures and generations is one of the optimal and intensive ways of human inclusion in the world of science, culture, society (Mashkina, et al., 2016; Semenova, et al., 2014; Filipchuk, 2014). Therefore, the main task of the teacher is creating a cultural environment for the comprehensive development of a young person, formation of a system of values, assistance in choosing the living environment and ways of cultural self-realization.

So, according to researchers the concepts of the culturological approach in education are 1) an attitude to the student as a subject of life, capable of cultural self-development and self-determination (Hushchyna, 2010); 2) understanding the role of the teacher as a mediator between the student and culture who is able to bring into the world of culture and support the growing personality in its self-determination in the world of cultural values (Mashkina, et al., 2016); 3) understanding of education as a cultural process, the driving forces of which is the personal meanings, dialogue and cooperation of its participants in achieving the goals of their cultural self-development (Semenova, et al., 2014; Ostrovska, 2009); 4) an attitude to the educational institution as a holistic cultural-educational space where the development of children's talent and culture education of a person are carried out (Snizhna, 2013).

At the same time, further thorough research requires the question of the organization of productive systematic work on the development of cultural competence in the high school students, both in terms of the educational environment (using a school literature textbook) and the cultural-artistic environment (mastering a certain kind of art). Empirical research is directed at

determining the effective factors for upgrading the cultural competence of high school students. An analysis of the real state of the problem under study in school practice is presented. The importance and novelty of the study are that: 1) the effective factors of influence on the cultural development of a young person in the conditions of the contemporary educational-cultural environment as a holistic system based on the integration of science and art are identified; 2) a system of development of the cultural competence of the high school students was developed. The conceptual principles of the system became the basis for the preparation and introduction of new literature textbooks for grades 10th and 11th in the educational process of Ukraine. In the textbooks the principle of inter-artistic interaction in the process of study of fiction is optimally implemented; 3) the social action project «Art is the Realization of Dreams» of the Program «Active Citizens» of the British Council in Ukraine was implemented and showed positive results in the development of creative abilities of students in the field of fine arts.

Qualitatively new literature textbooks for the 10th and 11th grades of general secondary educational institutions, prepared by one of the authors of the article and implemented in the educational process in the academic year 2018/19, became the practical outcome of this research. Using such textbooks with a broad artistic context in the future will contribute to the developing high school students readers' cultural competence including the formation of understanding of fiction as an important component of art, improvement of reading skills to analyze and interpret literary works in the artistic context.

The results of the research emphasize the importance of using quality textbooks prepared in the educational process based on a culturological approach; creation of a favourable cultural-educational space for high school students with the purpose of productive realization of their creative abilities. The effective implementation of innovative literature textbooks for the 10th and 11th grades in the educational process of institutions of general secondary education of Ukraine is emphasized. The concept of these educational books is based on the idea of considering the literary text as a piece of art and the implementation of the principle of dialogic interaction of different types of art in the process of studying literature, which promotes the development of students' cultural competence. The effectiveness of implementation in the Ukrainian realities of the social action project «Art is the Realization of Dreams» of the Program «Active Citizens» of the British Council in Ukraine is shown based on the study of European experience in the development, individualization and socialization of the gifted person through art.

1.1 Research Problem

A research problem helps in narrowing the topic down to something reasonable for conducting a study (Artut, 2001; Bryman, 2012; Denzin & Lincoln (eds.), 2005; Fraenkel & Wallen, 2006; Hatch, 2002; Pardede, 2018). Creswell (2012) defined a research problem as «a general educational issue, concern, or controversy addressed in research that narrows the topic» (p. 60). Our study describes the effective mechanisms for developing high school students' cultural competence, which is to involve them in the modern cultural and educational space based on the effective interaction of literature and art.

1.2 Research Focus

Contemporary socio-economic, political and cultural transformations actualize the problem of modernization of the sense of school education, the search of new educational paradigms focused on the development of a comprehensively educated creative personality. The task of the research is to determine the effective mechanisms of influence on the

developing cultural competence of high school students through fiction and their artistic creativity. The purpose of the study is to find out how the cultural orientation of school literature textbooks and developing the abilities in own creativity (fine arts) contributes to the development of students' cultural competence deepening their interest in reading fiction texts and intensifying their desire to apply their knowledge and skills to new learning and living situations.

1.3 Research Aim and Research Questions

In Ukraine, the question is acute about the importance of creating the educational environment for modern high school students, which involves active integration of inter-artistic links and will be aimed at forming a personality with a high level of literacy and cultural competence. The main purpose of the study is to find an educational-cultural environment for school students focused on the effective implementation of the principle of inter-artistic interaction. The current general issue of the research aims to find out the level of high school students' cultural competence development and to identify effective methods, techniques and means of organizing educational space that is effective for forming their cultural competence.

2 Research Methodology

2.1 Sample of research

The research was conducted in stages from 2018 to 2021. The empirical research aims to contribute to improving the quality of school literary education in the profile school, forming a competent student-reader with a high level of general culture; ensuring that students learn social experience in the process of realizing their creativity, developing the ability to discover national and universal values, live and act creatively in the context of globalized changes and multicultural society, determine the heritage of national culture and respect the achievements of other cultures.

To determine the real status of the problem of implementation of the culturological approach in the school practice of teaching literature, we surveyed scholars of language (interviewing method) and high school students (questionnaire method) of 10th grade of general secondary educational institutions in different regions of Ukraine (Vinnytsia region, Kyiv region, Lugansk region, Poltava region, Rivne region, Sumy region, Ternopil region and Mykolaiv region).

The sample included scholars of language (35 respondents) who have been working in general secondary education institutions, as well as high school students (730 people in total) who have been living in cities (610 people) and villages (120 people) in different regions of Ukraine. The teachers, who had taken part in the research, represented – east, west, north and south. They were philologists, who have been working at school from 10 till 30 years. As suggested, the number of teachers and students from different regions of Ukraine, with whom researchers had been working during the study, is sufficient to obtain reliable research results. The qualitative research interviews were used to collect data for they are characterized by many features of friendly interactions to obtain valid and reliable information. Semi-structured interviews were used for they allowed the researchers and the participants to adjust questions and answers (Bryman, 2012; Fraenkel & Wallen, 2006; Gray, 2009). Therefore, pre-determined guiding questions that could easily be adjusted depending on the course of the interview were used.

All the 35 teachers (the study participants) were approached verbally and in a written form requesting their consent to participate in this research. Verbal requests were intended to bring the researchers to face with the participants before the start of conducting the interviews. Research questions in semi-structured interviews for teachers were: 1) Do the textbooks of Ukrainian literature meet the requirements to the implementation of the ideas of the culturological approach to teaching literature in senior classes? 2) Does aesthetic extracurricular space affect the formation of young people's artistic preferences and the development

of talents through fine arts? 3) Is there a need for development and implementation in the practice of school literary education a modern textbook on literature, created based on culturological approach?

With the participants' permission, all the researchers' interviews were recorded on a dictaphone as a way of saving time on making field notes. On top of the recorded interviews, the researchers made some notes to capture the main points as they arose and important areas to re-visit during data analysis (Reissman, 2001; Rubin, H. J. & Rubin, 2005).

The semi-structured interview involved 35 scholars of language to clarify their pedagogical experience of using a school literature textbook as a means of implementing inter-artistic interaction in the educational process and as a factor in the development of students' cultural competence. Ukrainian scholars of language consider that the modern literature textbook should be oriented on the organization of subject-subject training in literature lessons, the consideration of literary work as an artistic phenomenon of world artistic culture, the unbiased presentation of the writer as an extraordinary and talented personality, increasing the level of students' independent work with the textbook. Respondents unanimously expressed the opinion that the recommendations of the programmatic heading «Art context» should be optimally implemented in the content and structure of modern Ukrainian literature textbooks for grades 10th and 11th, in particular in biographical essays, artistic-publicistic essays, literary-critical references, methodological apparatus and illustrations. Educators believe that the qualitative and methodologically competently presented educational material of cultural orientation in the literature textbooks is one of the factors of direct influence on the development of the students' key competence «Cultural Awareness and Expression». Therefore, choosing a textbook that will organize the study of Ukrainian literature in the current academic year teachers prefer ones that have innovative content and illustrative equipment to implement the principle of inter-artistic interaction. They claim that the organization of students' educational activities in such textbooks will help to improve high school students' reading skills and emotional-evaluative attitudes, such as comparing the specifics of disclosure of a particular topic or image in their various types, identifying themselves as a representative of a particular culture, understanding the role and place of Ukrainian literature in the Western European and world contexts, appreciating the acquisition of other cultures and expressing interest in them; using the experience of interaction of literature and related pieces of art in different life situations; being prepared and open to intercultural communication. Given the above mentioned, it was stated that in the majority of current Ukrainian literature textbooks for students of the 10th grade (Avramenko, 2018; Borzenko, 2018; Kovalenko, 2018; Slonovska, 2018) the cultural information under the heading «Art context» is insufficiently presented. These educational books only sporadically offer questions and tasks for the consideration of literary works in the context of different types of art, provide insufficient tasks aimed at developing students' creativity and their artistic preferences, etc.

According to the respondents, another important factor of increasing the cultural competence of the students is the creation of favourable aesthetic space in the institutions of general secondary education (art galleries, chambers, art workshops, artistic-aesthetic design of rooms, etc.) and establishing active interaction with cultural institutions (museums, philharmonics, theatres, art schools, etc.). Teachers mentioned that students getting an education in specialized arts institutions receive a comprehensive system of education and upbringing at all levels of the educational process. Such work is done with due regard for the age characteristics of the students, their creative abilities, cognitive interests and creative potential. However, as practice shows, children living in regional and district centres of Ukraine (as opposed to children from rural areas) have the opportunity to obtain secondary art education.

During the interview, the teachers emphasized the importance of organizing students' extracurricular creative activities aimed at

discovering and developing their artistic preferences and talents through visual arts. Educators are convinced that the optimal combination in the modern educational space of different types of organization of students' activity will develop high school students' reproductive and creative imagination, emotional sensitivity, empathy, aesthetic taste, artistic thinking will encourage them to identify and realize their creativity. The teachers point out that the students' awareness of themselves as an artist will deepen their understanding of the multifaceted world of art, in particular, fiction as the art of words will shape the ability to consciously grasp its aesthetic value.

An interview of scholars of language has enabled us to conclude that the qualitatively embodied in the current literature textbooks principle of inter-artistic interaction and the organization of work on the realization of student's artistic creativity in various artistic projects will positively influence the development of their cultural competence.

The purpose of the questioning of the high school students was to identify the interdependence of the level of formation of high school students' reading interests on the level of development of their cultural competence – the ability to consciously perceive the educational material of cultural orientation presented in the textbook, the ability to analyze and interpret a literary work in an artistic context, creatively performing the tasks of understanding the synthesis of the arts. The extramural mass questionnaire was conducted that allowed a large number of respondents to be interviewed, in particular 730 school students from different regions of Ukraine, including 610 residing in the city and 120 in rural areas.

Research questions in the questionnaires for high school students were: 1) Are you interested in the artistic context of current textbooks in the process of teaching literature? 2) Is it important for you to receive art information, creative tasks and projects involving related arts for personal self-development during the literature lessons and extracurricular activity? 3) Do you have the intention and desire to reveal your creative abilities and master the art of painting at the initial level?

Tab. 1. Identifying high school students' motivation to acquire artistic skills

N	Question	The answer «Yes»	The answer «No»	The answer «I don't know»
1	Are you interested in the artistic context of current textbooks in the process of teaching literature?	82%	5%	13%
2	Is it important for you to receive art information, creative tasks and projects involving related arts for personal self-development during the literature lessons and extracurricular activity?	79%	15%	6%
3	Do you have the intention and desire to reveal your creative abilities and master the art of painting at the initial level?	81%	15%	4%

The results of the high school students survey showed that 82% of the respondents are interested in the educational material of cultural orientation (information about different types of arts, their characteristic features, means of embodiment common ideas and images in related arts) presented in the literature

textbooks, are impressed with the clarity and logic of its presentation, are interested in work on questions and tasks of various thematic sections of the textbook, focusing on identifying the interaction of literature and art. 79% of respondents are convinced that obtaining cognitive information about well-known artists of Ukraine and the world, independent performance of tasks and creative projects with the involvement of related arts (painting, music, theatre, architecture, photo art, the art of design, etc.) in the process of studying the literature will promote the development of interest in works of fiction in particular and interest in art in general.

In the process of interviewing high school students their desire to discover their artistic abilities and their intention to master the art of painting at the primary level were also established. Most school students (81%) showed their interest in the idea of trying their creative forces in the visual arts. They mentioned that mastering painting will help them to perceive and comprehend paintings of outstanding artists, to understand other types of art including verbal. However, 15% of the student questionnaires stated a low level of understanding by the high school students of the inter-artistic parallels used by the teacher in the literature class. Such students are convinced that studying literature based on the culturological approach will not affect their artistic preferences and expression of creative abilities. Therefore, these respondents were not interested in the idea of mastering the art of painting. Only 4% of high school students are undecided on whether they want to master the art of painting at the initial level.

Consequently, a survey of scholars of language and an interviewing high school students confirmed that the development of students' cultural competence is effectively influenced by factors such as innovative learning support for the process of studying literature prepared based on a culturological approach, and organization of cultural-educational environment orientated at individual creative abilities of the students and creation of their artistic projects.

2.2 Instrument and Procedures

The important component in conducting qualitative research is reliability, which, according to researchers (Fouché et al., 2017; Maree, 2016; Reissman, 2001; Webster & Mertova, 2007) means confidence in how correct the chosen methods are and how reliable the research results are. In the methodology of the study, the reliability of the data was ensured by a detailed description of the methodological procedure and also by a long-term interaction with study participants.

At the first stage of the investigation, the theoretical research methods (analysis and synthesis) was used in the study of national and world experience in the development, individualization and socialization of the gifted person, his/her creative self-realization through art to clarify the main approaches to solving this problem in science and practice. At this stage of the study, empirical research methods were applied to conduct a statement experiment and summarize its results. Semi-structured interviews with vocabulary teachers were used to summarize the experience of teaching literature, taking into account the ideas of the culturological approach, as well as to clarify the impact of cultural and artistic (mastery of a particular art) environment on the formation of students' cultural competence and cultural socialization.

The use of a semi-structured interview with scholars of language was most appropriate at this stage of the study. The validity of using this method of study is confirmed by other researchers. In a semi-structured interview, the researcher prepares the questions in detail in advance (Maree, 2016). The interviewee receives questions in a certain sequence. The data obtained from the interview are recorded in digital format. During the interview, the researcher makes notes with the consent of the participant (Fouché et al., 2017).

The survey questions for high school students were developed personally by researchers based on the analysis of modern approaches to the developing questionnaires taking into account the psychophysiological features of students in this age group, their level of knowledge, skills, socialization of personality in the cultural space (MacDonald, 2012; Mason & Gearon, 2005; Muzyka, Korolov, Semenova, 2015; Snizhna, 2013; Sinner et al., 2006; Zembylas, 2015). The survey consisted of three questions. A questionnaire survey was conducted among 10th and 11th graders to make them aware of the inter-artistic interaction embodied in Ukrainian literature textbooks, as well as to clarify the aspirations of high school students to realize their artistic creativity in various art projects.

In the second phase of the study, the researchers analyzed semi-structured interviews with scholars of language (philologist) and high school students' questionnaires. Empirical indicators obtained as a result of interviewing scholars of language, including on Google-disk, analysis of personal data of high school students led to the following: 1) the need to compile textbooks of Ukrainian literature for 10th and 11th grades based on cultural approach; 2) the expediency of the influence of the modern educational and cultural environment, built based on the integration of literature and art, on the cultural development of the young person. The use of statistical research methods involved a quantitative and qualitative analysis of the results of experimental teaching of Ukrainian literature based on the culturological approach. Theoretical methods (analysis, synthesis, comparison) were also used during the generalization of the results at this stage.

The analysis results of the semi-structured interviews with teachers and questionnaires among high school students in the third stage of the study were the methodological basis for the preparation and implementation of the textbooks of literature for the 10th and 11th grades in the Ukrainian educational space. Taking into account the principle of dialogism in the process of considering the literary text as a text of culture, as well as focusing on the dialogue of different cultures in the cultural space contribute to the implementation of the ideas of the culturological approach in textbooks. The authors of the textbooks (Fasolia, et. al., 2018; Fasolia, 2019), co-author of which is the researcher of this study, realize the inter-artistic interaction in biographical essays, literary-critical material, methodical apparatus, illustrative material of textbooks, thematic-stylistic diversity of the works offered for consideration.

The successful implementation of the social project «Art – the realization of dreams», aimed at developing cultural competence, the creativity of high school students, their self-improvement, was the result of the empirical research. Practical teaching methods included eight master classes in fine arts for high school students in different regions of Ukraine and were aimed at developing students' creative abilities and the formation of their cultural competence.

2.3 Data Analysis

In our study, a cyclical approach to data analysis was used. In total, three main research questions for vocabulary teachers and high school students provided an important analytical situation in the study. Qualitative data from semi-structured interviews and questionnaires were organized, transcribed, and then coded for thematic analysis. Thematic analysis is the process by which data are identified, classified, and identified by topic in a data set (Braun, et al., 2016). The thematic analysis allowed the researchers to determine what is familiar with the data and make sense of the data collected. Transcribing of in-depth interview recordings were done concurrently with data collection from individual questionnaires for students. This allowed the researchers to consult participants for further information and clarity on some research issues. The researchers consistently referred to tape-recorded interviews to keep abreast with participants' views during data analysis. The transcribed data

was important in validating the tape-recorded data to ensure accuracy in reporting the findings.

At the next third stage of the study, researchers moved on to developing the effective ways and means to increase the cultural competence of high school students through literature and art, namely: 1) compiling, creating and implementing quality textbooks in literature for 10th and 11th grades based on a strong artistic context into the educational process; 2) a study of the experience of the United Kingdom in the development, individualization and socialization of the gifted individual through art; 3) creation of educational art space for students by conducting painting master classes in schools of Vinnytsia region within the framework of implementing the social action project «Art is the Realization of Dreams» of the Program «Active Citizens» of the British Council in Ukraine.

3 Research Results

3.1 Result 1. An empirical study aimed at determining the effective factors of influence the development of the cultural competence of high school students.

The result of an empirical study aimed at determining the effective factors for the development of the cultural competence of high school students in the Ukrainian literature textbooks for the 10th grade prepared by one of the authors of this article in co-authorship with other scientists-teachers (Fasolia, et. al., 2018) and 11th grade (Fasolia, 2019) which are based on the concept of the conducted empirical study and its results are taken into account. The textbooks are recommended by the Ministry of Education and Science of Ukraine. Their implementation into the educational process of general secondary educational institutions in different regions of Ukraine began in the 2018–2019 academic year. These educational books are characterized by a clear cultural orientation which ensures the implementation of the principle of inter-artistic interaction in the process of studying fiction and promotes the development of students-readers' cultural competence.

Another important result of the research is the successful implementation of the social project «Art is the Realization of Dreams» aimed at the development of cultural competence, the creativity of high school students, their self-improvement.

3.1.1 Result 1.1. Implementation of the inter-artistic interaction principle in innovative literature textbooks for students of grades 10th and 11th.

Content and structure of Ukrainian literature textbooks for 10th grade (Fasolia, et. al., 2018) and 11th grade (Fasolia, 2019) are based on the idea of considering fiction text as a text of culture that reflects the consciousness of people of a particular historical age, focuses on dialogue in the cultural space and dialogue of cultures. Let's analyze the created textbooks (Fasolia, et. Al., 2018; Fasolia, 2019) on literature and indicate how their authors managed to present a broad artistic context in the content and theoretical blocks of textbooks.

Each thematic block of these educational books (by the thematic-chronological principle of studying literature in grades 10th and 11th) begins with a brief overview of the development of Ukrainian literature of a certain historical period in the context of the world and national culture trends of a certain time. For example, such 11th - grade topics as «Executed Renaissance» and «Literary avant-garde» present not only a review of Ukrainian literature of the 1920s but also a piece of cognitive information about the stylistic diversity of Ukrainian art of this historical-cultural period. In particular, it focuses on the works of such Ukrainian artists as M. Burachek, O. Bogomazov, M. Boichuk, D. Burluk, K. Malevych, A. Malevych, M. Zhuk, O. Ekster, V. and F. Krychevskych, that were marked by the influence of the world painting trends. It also focuses on Ukrainian modernist composers B. Liatoshytskyi and M. Verykivskiy, features of the development of Ukrainian modern theatre and cinema (the art of Les Kurbas and

O. Dovzhenko). Such material of cultural orientation will contribute to enriching the 11th -grade students with knowledge about national cultural phenomena of the 1920s and deepening their ability to compare the specific manifestation of avant-garde trends in different types of art.

While learning the literature of the Second World War period and the first post-war years in the 11th grade an educational material about the socio-political events of the 1940s is also presented. These events led to the development of national literature. Students present a brief message about the development of Ukrainian art of that time in the classroom. Such classroom activities indicate students' understanding of artistic interaction in the process of studying literature of a certain period.

The following educational materials and a methodological apparatus for them aid the development of students' cultural competence: «Cultural-artistic Context», «Reading Leisure», «Reading Self-Control», «Your Reading Projects». Their content confirms the professional approach of the authors of the textbooks to the presentation of the educational material, which is most suitable for drawing inter-artistic parallels in a literature lesson.

In the section «Cultural-artistic Context» the interesting, cognitive information about the world and Ukrainian cultural heritage is presented for students of grades 10th–11th optimally to their age-specific features. It includes paintings reproductions, photos of sculptures and architectural monuments, aesthetic analysis of artistic canvases and musical works, etc. Such materials help students thoroughly comprehend the ideological-artistic content of literary work, improve their ability to draw artistic parallels in the process of studying, and help to form an understanding of Ukrainian literature as an integral component of world art. Here are some examples. While studying the art of the poet-symbolist M. Voronyi in the 10th grade, the material of the section «Cultural-artistic Context» provides students with information about the artworks of Ukrainian artists who worked in the symbolist manner (M. Zhuk, M. Burachek, A. Petrytskyi, O. Novakovskiy, P. Kovzhun).

Studying the art of the Ukrainian writer V. Stefanyk students of grade 10th at the literature lessons get acquainted with the phenomenon of expressionism in world art and have the opportunity to trace its characteristic features in the paintings of artists V. van Gogh, E. Munk, V. Kandynskiy. For example, after reading V. Stefanyk's book «The Stone Cross» students were offered to do a task to identify the consonance between the expressionist works of Ukrainian writer V. Stefanyk and Norwegian artist E. Munk.

The questions and tasks of a reproductive and creative nature that involve appealing not only to the reading but also the cultural experience of high school students, contributing to the development of their cultural competence are equally presented in the textbooks. For example, while studying the literature of symbolism the students of the 10th grade are advised to prepare a virtual excursion to the gallery of the symbolist artist M. Čiurlionis in Kaunas and to tell about the painting that impressed them most. The following tasks help students to understand the inter-artistic interaction and the development of students' cultural competence: «Explain why the artist uses musical terms in the names of his paintings. Why is this technique justified for his works?»; «Compare the techniques of creating a symbolic piece of art in the poetry of M. Voronyi and the painting of M. Čiurlionis. Select lines from poems of the Ukrainian poet that are consonant with the paintings of a Lithuanian artists», etc. (Ukrainian Literature. Standard Level: Textbook for grade 10th of secondary general educational institutions, 2018).

In the section «Your Reading Projects» grade 10th students are also offered the task of cultural orientation: «Prepare and discuss in groups messages about symbolic artists, representatives of different types of art»; «Describe Kyiv period of the art of the

symbolic artist M. Vrubel. Prepare a slide show «Murals of Volodymyrskiy Cathedral»; «Prepare for the debate: «Is M. Voronyi an imitator of the symbolic traditions of French poets or an original Ukrainian modernist artist?» (Fasolia, et. al., 2018).

Tasks of the same nature are found in the textbook for the 11th -grade students. For example, while studying the literature of the 1920s the following tasks are recommended: «Describe briefly the development of Ukrainian art in the 1920s. Name its outstanding representatives. What works of Ukrainian artists of this period do you know, and which works would you like to get acquainted with?»; «View reproductions of paintings by Ukrainian avant-garde artists. Which of them impress you most? Why? Prepare a virtual excursion "In the Art Gallery of Ukrainian Artists of the First Decades of the 20th Century» (Fasolia, 2019).

The methodological apparatus of the textbooks guides students to the creative-investigative activities of cultural orientation. For example, students in grade 10th need to prepare in a pair or a group a description of one of the paintings by Ukrainian artists M. Pymonenko and V. Orlovskiy in the context of the aesthetics of realism; to find information about the use of I. Franko's work in contemporary art (music, graphics, theatre) and write their comments; to select an audio recording of L. van Beethoven's compositions for the musical accompaniment of expressive reading of selected episodes from the book «The Stone Cross» by V. Stefanyk.

The 11th -grade students are offered creative-searching tasks presented in the section «Your Reading Projects». Thus, in the process of studying the art of the poet E. Pluzhnyk, whose works are filled with elegiac motives students should prepare a video excursion «Autumn in the paintings of Ukrainian artists of the first decades of the twentieth century» and it is recommended to make a selection of lyrics by E. Pluzhnyk, V. Svidzynskiy and other Ukrainian poets of this period that reproduce the beauty of autumn nature for the poetic accompaniment of the presentation of canvases of painting.

While studying O. Dovzhenko's art 11th -grade students are recommended to watch his films «Zvenygora», «Earth», «Ivan», «Enchanted Desna» and to prepare a multimedia project «Oleksandr Dovzhenko – classic of world cinema». Students' understanding of the synthesis of different types of art is also guided by the section «Reading Leisure». For example, a textbook for 10th- grade students has a task to visit the websites of world art galleries, to make a selection of reproductions of symbolic works of painting, etc. During the study of the literature of postmodernism, in particular, the works of contemporary Ukrainian writer Y. Andrukhovych, students of the grade -11th are offered to find in the Internet songs on his poems performed by Ukrainian and Polish rock groups etc.

The rich highly artistic, methodologically functional illustrative materials (portraits of writers, reproductions of paintings of artists, illustrations for literary works, etc.) are used in the textbooks. They help students of the 10th and 11th grades deeply understand the content of works of art in the context of different types of art. The presented reproductions of the artists' works must be consonant with the literary works, textually studied in the grades 10th and 11th, by theme, idea and images. Here are the examples. Thus, in the 10th -grade in the process of studying the art of the poet-symbolist M. Voronyi, reproductions of M. Čiurlionis's paintings are presented. The textbook focuses on the inter-artistic interaction – the Lithuanian artist's desire for the synthesis of arts and the search for analogies of music and fine arts, which is especially clearly manifested in his paintings «Sonata of the Sun», «Sonata of Spring», «Sonata of the Sea», «Sonata of the Stars». Studying the peculiarities of the artistic works of symbolism, the students are offered to get acquainted with the reproduction of the sculptural composition «The Bearing of the Cross» by V. Kravtsevych and to reveal the symbolism of the image of the cross in V. Stefanyk's short story «The Stone Cross».

Therefore, the content and structure of existing textbooks «Ukrainian Literature: Standard Level. Grade 10th» (Fasolia, et al., 2018) and «Ukrainian Literature: Standard Level. 11th grade» (Fasolia, 2019) attest to the systematic implementation of the principle of inter-artistic interaction as evidence of the study of literature based on the culturological approach.

In the 2021 year, the authors are actively studying the theoretical foundations and practical means of implementing the culturological approach to teaching Literature in general secondary education, in particular, they are developing the school literary education content following new standards, as well as are creating teaching materials for the Literature studying at school in an artistic context. The National Literature and integrated course for 5-6 forms of gymnasiums (Ukrainian and Word Literature) model curricula programs were created by one of the authors, which were recommended by the Ministry of Education and Science of Ukraine for studying in general secondary education institutions in Ukraine, and prepared Literature textbooks for 5th grade. The culturological approach according to the norms of the new State standards of basic secondary education (2020) is realized in the program and educational providing. In 2021, the testing of prepared new Literature textbooks for the 5th grade is underway, which will be widely implemented in general secondary education institutions of Ukraine in 2022.

3.1.2 Result 1.2. The implementation of the social action project «Art is the Realization of Dreams» of the Program «Active Citizens» of the British Council in Ukraine.

Based on empirical research among teachers and students, researchers have found that the development of students' cultural competence will be facilitated by their participation in various art projects. Thus, in 2018, researchers participated in the implementation of the social action project «Art is the Realization of Dreams» of the Program «Active Citizens» of the British Council in Ukraine. The practical implementation of this project in Ukraine provided a study of the experience of the United Kingdom in the development, individualization and socialization of the gifted individual through art. According to this purpose, the researchers analyzed the works of Ukrainian and foreign scientists on the problem of developing a creative personality through various arts in the UK.

The socially determined requirements for the system of education are changing according to the realities of the time, justifying new theoretical and methodological foundations for the education and upbringing of the emerging generation, in particular in the field of art. The research of domestic and world experience of development, individualization and socialization of gifted personality by modern Ukrainian scientists (Muguev & Romanov, 2009; Semenova et al., 2014; Muzyka, et al. 2015; methodical guide; Semenova, 2012; Snizhna, 2013;) attests that the means of art is one of the effective ways of enhancing the cultural development of the emerging generation and creative self-realization of the personality. Nowadays the European educational system concentrates great attention on the activities of specialized secondary schools of arts which is caused by the need to adapt education to modern requirements, to a new dimension of the cultural development of the personality, in particular its aesthetic basis. The analysis of sources related to the problem raised shows the constant attention on the issues of aesthetic education of students and the development of their abilities, as well as the distribution of responsibility for the implementation of its tasks among state institutions, local self-government bodies, public and cultural-creative organizations. Thus, specialized schools of arts in the UK cover three main profiles of study – the performing arts, the visual arts, the media arts, which give great opportunities to young people who tend to embark on professional improvement in one area of art or another and envision the university admission. In such circumstances, the basis of the aesthetic personality culture with the integration of general and artistic subjects plays a major role in the educational process of secondary specialized schools of arts in the United Kingdom.

Contemporary European trends in the work of specialized secondary schools of arts are evident in the mandatory introduction of integrated aesthetic courses into the school curricula; introduction of the artistic-aesthetic practice of schoolchildren under the guidance of artists, professional figures of culture in their creative workshops, museums, galleries, etc.; uniting efforts of teachers and specialists of creative directions for cooperation in the education of students' aesthetic culture; implementation of state programs, projects for the development of artistic-aesthetic and cultural trends in the education of students (Art Education in a Postmodern World, 2010; Barone, & Eisner, 1997; Boughton & Mason, 1999; Elliot, et al., 2004; Eyre, 2009; Fedorenko, 2009; Finley, 2005; Graham & Zwirn, 2010; Hammer, Bennett, & Wiseman, 2003; Harris, Hunter, & Hall (Eds.), 2015; Leavy, 2009/2015; Leeman, & Ledoux, 2003; Lustig & Koester, 2006; Mason & Gearon, 2005; Simonton, 2009).

The integrity and continuity of the process of developing the artistic gift of UK specialized secondary art school students provide a variety of forms not only for classes but also for extracurricular work. British educators guided by the aesthetic principles consider the organization of such students' activities as an additional opportunity to deepen and improve the already acquired knowledge and skills in the field of different types of art and purposeful influence on the emotional sphere of students, their cultural and aesthetic enrichment.

Studying the experience of developing a creative personality through various arts in the UK helped researchers to create the concept of the project «Art is the Realization of Dreams» and its practical implementation in Ukraine. Therefore, we will dwell in more detail on the implementation of the art project.

Today, project activity becomes a defining characteristic in the organization of work in science, education, culture and other spheres that require constant innovation, initiative, ability to attract resources and make decisions for positive change. Therefore, it is urgent to appeal to charitable organizations that fund specific projects or programs on a competitive basis. Thus, in 2018 the authors of the article prepared and implemented the project of social action «Art is the Realization of Dreams».

The purpose of the project is to develop the cultural competence of the high school students, in particular, their creative abilities through the means of fine art, formation of openness to intercultural communication. Achieving the goal involved the following tasks: 1) formation of students' ability to work in the chosen field of art; 2) formation of students' valuable attitudes to art, development of their skills in the field of fine arts, improvement of aesthetic tastes by integration of artistic disciplines; 3) involvement of professional artists to gain students aesthetic experience; 4) encouraging students to take an active part in activities that include various forms of art; 5) organization of creative cooperation with other educational institutions of general secondary education of the certain territorial community and beyond, with other local creatives and artistic institutions to study and use innovative experience in the development of students' cultural competence.

The authors of this article, being project organizers and participants, developed its concept, made an official presentation, as well as public relations campaign in educational institutions, social networks and print media on the implementation of the planned activities, evaluated the obtained results.

The project, held in January-February 2019, involved the 120 high school students of such villages in the Bar communities of the Vinnytsia region: Kopaygorod, Yaltushkiv, Tereshky, Luka-Barska. The time and the place of implementing the project «Art is the Realization of Dreams», the number of participants (high school students) were described in the grant application.

The organizers of the project «Art is the Realization of Dreams», in particular teachers of fine arts of Bar Humanities and

Pedagogical College named after N. Hrushevskiy, N. Pidgorna, R. Mocharnyi and N. Ivanyisko, the artist and the head of the artists union of the Bar region, held eight master classes for high school students from villages, distant from the district centre, aiming to involve them in artistic creativity. During the masterclasses by experienced fine arts teachers, students mastered new drawing and painting skills in various genres of painting. Thus, the first four masterclasses were aimed at teaching high school students to draw a landscape, the next four – still life. High school students performed their creative work with oil paints using a single-layer painting technique. The students performed the work on a pre-purchased primed canvas. The technique was as follows: students first applied the first layer of paint, let it dry completely, and then began to paint a picture with oil in a single-layer technique.

As a result, high school students' artworks, created during this project, were presented in the countryside and the Bar art gallery in Bar town of Vinnytsia region. The project ended with a final conference on April 16, 2019. During the conference participants of the project had a unique opportunity to get acquainted and to communicate with professional artists, scientists and art intellectuals from different regions of Ukraine».

The «Art is the Realization of Dreams» project has shown positive results. Thus, the students were given access to professional artistic activity, got enriched with knowledge about the development of artistic culture in Ukraine and the world, joined the cultural environment of their community. The involvement of professional artists in the acquisition of artistic and aesthetic experience by students influenced the formation of a stable motivation for them in the purposeful process of mastering the art of painting. The presentation of creative works at art exhibitions contributed to the formation of students' confidence in the realization of their creative abilities, increased self-esteem, professional orientation on the choice of future profession in the art sphere and most importantly – the fulfilment of the creative dreams of each project participant.

4 Discussion

The study aimed to establish the effective mechanisms for the developing cultural competence of high school students in the modern cultural and educational space based on the effective interaction of literature and art. The findings of the study confirm the opinion of researcher S. Zhyla, who claims that "the importance of a comprehensive approach to the use of the cultural influence of different types of fine art in the process of studying literature, and the need of personality to form a holistic picture of the world are deeply understood" (Zhyla, 2004).

Discussion During the research in January 2020 the results of the introduction of Ukrainian literature textbooks for the students of the 10th and 11th grades were monitored. Teachers and students of experimental institutions of general secondary education of different regions of Ukraine (Petropavlivsko-Borschagivska secondary school of Kyiv region, «Schaslivskiy educational complex» of Kyiv region, «Specialized school-collegium» No. 3 of Chervonograd city of Lviv region, Nizhyn Regional Pedagogical Lyceum of Chernihiv Region). The majority of the teachers-respondents (73.8%) confirmed that the textbooks fully implemented the principle of inter-artistic interaction in the process of studying literature. The expediency of considering a literary work as a text of culture and its comprehension in an artistic context is pointed out. According to the respondents, the modern, informative and accessible information for the students of grades 10th and 11th about the world and Ukrainian art of the second half of the 19th – beginning of the 21st centuries, which is presented in the content of various sections of the textbooks, contributes to a deep understanding of the ideological-artistic content of the literary work, improving the ability to draw artistic parallels in the process of its analysis and interpretation, and thus the development of students' cultural competence.

The monitoring showed qualitative indicators (76.7%) of the students' understanding of Ukrainian literature as an integral part

of world culture, its specificity as word art, the ability to analyze and interpret a work in an artistic context and an awareness of its artistic significance. Currently, these textbooks are being used in the educational process of different regions of Ukraine.

The conclusions of the study confirm the results of research by Ukrainian scientists (Pokatilova, 2013; Pustokhina, 2016) on the importance of forming cultural competence of high school students in literature through inter-artistic interaction, the feasibility of developing and implementing a modern textbook with effective artistic context into the educational process. The results of O. Pokatilova's (2013) research are presented based on the analysis of current textbooks on literature for the realization of their artistic context. They point to the insufficient presentation in the textbooks of the extensive artistic context and culturological material of informational nature. The results of the scientist's research confirm the need to develop and implement in the educational process a modern textbook on literature with an effective artistic context.

Innovative textbooks with several awards and medals were developed and put into practice in Ukrainian schools. Thus, the textbook «Ukrainian Literature: Level of Standard. Grade 10» (Fasolia, et al., 2018) was awarded the gold medal in the competition for scientific development in the nomination «Integration of State Standard Resources and Innovative Practices in the Process of Implementation of Cross-Line Content Lines in Education», held within the framework of the work of the X International Exhibition «Modern Educational Institutions – 2019» (March 14–16, 2019, Kyiv, Ukraine). Textbook «Ukrainian Literature: Level of Standard. Grade 11» (Fasolia, 2019) was awarded the title of laureate in the nomination «Textbook or training set for pupils, students» in the competition «National recognition of scientific achievements» held in the framework of the XI International Exhibition «Innovation in Contemporary Education» (October 22–24, 2019, Kyiv, Ukraine).

The results of scientists' research (Mashkina, et al., 2016; Muzyka, Korolov, Semenova, 2015; Snizhna, 2013) are consistent with the results of the current study on the impact of the artistic environment on the developing students' cultural competence, the feasibility of deepening and improving students' practical skills in the field of various arts, including fine arts. The results of the art project were discussed at the final conference on April 16, 2019, in Bar, Vinnytsia region, with the involvement of a wide range of public, scientists, teachers, artists from different regions of Ukraine. The organizers of the project and the participants of the conference concluded that mastering the visual arts affected enhancing their reading and cultural competencies, creative self-realization in the chosen field of art, forming a valuable attitude to artistic masterpieces, developing personal culture through profound influence of synergy of arts.

5 Conclusions and Implications

Studying the process of implementation of the culturological approach in the theory and practice of school literary education in Ukraine allowed us to objectively evaluate its current state. Our analysis of current Ukrainian literature textbooks for grade 10th showed a haphazardness in the organization of students' educational activities regarding the implementation of the principle of inter-artistic interaction in literature lessons and the formation of their cultural competence. Therefore in the context of the modernization of school literary education among the diverse selection of educational products, the leading place should belong to a textbook based on cultural principles.

Such tutorials as «Ukrainian Literature: Level of Standard. Grade 10» (Fasolia, et al., 2018) and «Ukrainian Literature: Standard Level. Grade 11» (Fasolia, 2019) were both based on the culturological approach to the study of literature in content, as well as methodical aspects. Their cultural orientation is determined in the implementation of the principle of inter-artistic interaction in the process of studying literary works, acquainting students with the key values of national and foreign artistic

culture, forming an understanding of works of fiction as a form of art, deepening interpretive skills in the context of cultural analysis. Therefore, the textbooks are considered by their authors as the effective means of developing the cultural competence of students of the 10th and 11th grades of general secondary educational institutions. Such educational books will help to integrate the content of school education, the readiness of the teacher to organize the study of literature, to use the integrative possibilities of related arts, to assist in the implementation of inter-art projects.

Using the development potential of the European experience in creating an educational environment for gifted students, they need to form a value-based attitude to art, to develop creativity, aesthetic taste through the integration of artistic disciplines, and to involve professional artists in the process.

Implementation of the Social Action Project «Art is the Realization of Dreams» of the Program «Active Citizens» of the British Council in Ukraine has enabled high school students to gain access to professional art activities, to enrich cognitive information about the development of various forms of art in Ukraine and the world, to participate in their cultural development community. Therefore, the creation of a modern educational space based on the culturological approach is a priority direction of the strategy of education development in Ukraine.

The results of the art project effectively contributed to the improvement of the educational activity of students who were directly involved in its implementation. Thus, the observation of the educational process in the Ukrainian literature classes in grades 10th–11th gave grounds for the following conclusions: increasing reading activity of high school students – answers to questions and tasks of cultural orientation were distinguished by emotionality, the manifestation of associations, emotional-empathic sensitivity, efforts to deeply grasp the facets of talent of famous artists; raising the level of readers' competence in the analysis and interpretation of works of art in an artistic context, a meaningful understanding of the embodiment of common ideas and images reproduced in related forms of art; productivity in carrying out independent research and creative activity; demonstration of valuable attitudes to works of art, understanding their significance, raising the level of general culture, expanding artistic preferences and aesthetic tastes; forming motivation for further creative activity.

Acknowledgements

We would like to thank the co-authors of Ukrainian literature textbooks for the grades 10 and 11 – A. Fasolia, V. Tymenko, V. Ulishchenko, G. Biichuk, teachers and students who participated in our study, the teachers of Mykhaylo Hrushevskyyi Bar Humanities and Pedagogical College – N. Podgorna, R. Mocharnyi and the head of the Artists Union of the Bar Region of Vinnytsia Region, artist N. Ivanisko for their assistance in the implementation of the project «Art is the Realization of Dreams».

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Primary Paper Section: A

Secondary Paper Section: AM

F MEDICAL SCIENCES

FA	CARDIOVASCULAR DISEASES INCLUDING CARDIO-SURGERY
FB	ENDOCRINOLOGY, DIABETOLOGY, METABOLISM, NUTRITION
FC	PNEUMOLOGY
FD	ONCOLOGY AND HAEMATOLOGY
FE	OTHER FIELDS OF INTERNAL MEDICINE
FF	ENT (IE. EAR, NOSE, THROAT), OPHTHALMOLOGY, DENTISTRY
FG	PAEDIATRICS
FH	NEUROLOGY, NEURO-SURGERY, NUERO-SCIENCES
FI	TRAUMATOLOGY AND ORTHOPAEDICS
FJ	SURGERY INCLUDING TRANSPLANTOLOGY
FK	GYNAECOLOGY AND OBSTETRICS
FL	PSYCHIATRY, SEXOLOGY
FM	HYGIENE
FN	EPIDEMIOLOGY, INFECTION DISEASES AND CLINICAL IMMUNOLOGY
FO	DERMATOLOGY AND VENEREOLOGY
FP	OTHER MEDICAL FIELDS
FQ	PUBLIC HEALTH SYSTEM, SOCIAL MEDICINE
FR	PHARMACOLOGY AND APOTHECARY CHEMISTRY
FS	MEDICAL FACILITIES, APPARATUS AND EQUIPMENT

KNOWLEDGE ON USE OF ELECTROTHERAPY AMONG NURSING AND URGENT HEALTH CARE STUDENTS

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Abstract: Abstract Defibrillation, cardioversion and cardiostimulation are the three most important procedures that use electric current in urgent and intensive care. Healthcare students start to study this issue during their Bachelor's studies. The objective of the present study was to identify and compare knowledge on the specifics of defibrillation, cardioversion and cardiostimulation in the third-year students of Urgent Health Care and Nursing. The research method was a non-standardised questionnaire. The data was analysed by the absolute and relative frequency, and chi-squared test. The sample consisted of 390 third-year students of Urgent Health Care and Nursing. Results: Overall, the students had 5,753 (86.77 %) correct and 877 (13.22 %) incorrect answers. More correct answers were given by the Urgent Health Care students. The difference was statistically significant at the value of the chi-squared test ($\chi^2(1.6630) = 30.639; p < 0.001$). Conclusion: Electrical therapies are life-saving medical procedures; every healthcare professional should have knowledge on them.

Keywords: cardioversion, cardiostimulation, defibrillation, urgent health care, nursing, student

1 Introduction

The essence of electrical therapy is the repeated rhythmic stimulation of the heart by electric current, supplied to the heart by an electrode from an external source. The tissue in the body behaves as an electrolyte which is an appropriate conductor of electric current. A prerequisite for successful electrical therapy is oxygenated myocardium. During contractions, cardiac muscle cells exhibit weak electrical tension. The slight potentials of a number of fibres are summed up and generate electrical tension that can be measured and taken on the surface of the body using an electrocardiograph (hereinafter ECG). The ECG curves can provide a lot of important information about the cardiac muscle activity and condition. On the other hand, an electrical shock can affect an impaired cardiac activity, and thus normalise it. Electrical therapy is also used in less severe heart rhythm disorders which do not result in the circulation failure immediately, but the patient is threatened by them. In this case, the patient is conscious and total desensitisation is required during an electrical shock (Dobiáš, 2012a). Defibrillation is defined as passage of electric current through the cardiac muscle. Its role is to eliminate the pathological electrical activity of the heart – ventricular fibrillation and non-pulsatile ventricular tachycardia. The defibrillation discharge represents an urgent solution to the cardiac arrhythmias. The cause of the non-physiological electrical activity of the heart is an impulse coming out from a location other than the sinoatrial node of the transmission system of the heart. Currently, the market offers monophasic and biphasic defibrillators. The difference between these two defibrillators is the time in which the voltage returns. The biphasic defibrillators are preferred. The reason is the lower defibrillation threshold. An important step is the adequate adjustability of the shock; in case of an inadequate setting, the desired effect would not be achieved, and therefore the arrhythmia would not be ended. A low gradient is insufficient, and a too high charge can cause damage to the myocardial muscle (Vančura, Rokyta, 2014). A biphasic defibrillator will give a lower energy shock than monophasic, and despite that it can still end ventricular fibrillation. The shock of 115-130 J given by a biphasic defibrillator has a greater effect than the shock of 200 J by a monophasic defibrillator. The monophasic defibrillator would have the same effect when charged to 360 J; also it has too short voltage duration. The biphasic defibrillators are used more often, because they are more compact, cheaper and more explored. Defibrillation itself can be classified as a

significant part of cardiopulmonary resuscitation (Dobiáš, 2012b). "Cardiostimulation is a therapeutic procedure used to treat bradycardia. It uses the principle of low voltage direct current. An electrical stimulus is sent from a pacemaker from one or more electrodes" (Bednářiková, 2012, p. 16; translated by the study authors). Synchronised electrical cardioversion (hereinafter SEC) is a therapeutic procedure used when the heart rhythm is irregular. The SEC indications are irregular rhythms such as fibrillation, atrial flutter and ventricular tachycardia. The result is an improvement in the manifestations of arrhythmias and haemodynamics, and a lower risk of thromboembolic events. Atrial fibrillation is the most frequent heart rhythm disorder. The SEC is an electric shock, carried out at the peak of the R oscillation, which in short time interrupts numerous so-called re-entry circuits while the activity of other bearings disappears (Remeš, Trnovská et al., 2013). Cardiostimulation should be adapted to each patient individually. If the patient has a stable pulse, the fixed frequency mode is set, i.e. the impulses are transmitted at the same level. If necessary, a pacemaker may transmit stimuli according to the patient's needs, i.e. in the absence of the stimulus, or if the impulse is slow. During physical exertion, it automatically increases the stimulation of the heart. Pacemakers are categorized as temporary and permanent. The temporary pacemakers are external, and the permanent pacemakers are implanted infraclavicularly on the left into the subcutaneous tissue. Complications of external cardiostimulation include the isolation failure and electrode break, also there is a risk of thrombosis and infection (Novotná, Majerníková 2010). The students of healthcare fields learn about the aforementioned life-saving conditions both theoretically and practically during their Bachelor's studies.

The objective of the present study was to identify and compare knowledge on the specifics of defibrillation, cardioversion and cardiostimulation in the third-year students of Urgent Health Care and Nursing.

2 Materials and Methods

The research method was a self-developed non-standardised questionnaire with 17 multiple choice questions. The questionnaire was divided into three thematic areas. The first one was the area on defibrillation with seven questions, the second area was on cardioversion with five questions, and the third part was on cardiostimulation with five questions. There was one identification question to find out the study field. The participants chose one response from the possible alternatives. The sample consisted of 390 third-year students of Urgent Health Care (220) and Nursing (170) in the Slovak Republic. The study was conducted in 2017 and 2018, and students' participation was voluntary. Data analysis methods were absolute and relative frequency. We used the descriptive statistical procedures to analyse the obtained data, and processed the responses using qualitative analysis. To compare the knowledge in the students of Urgent Health Care and Nursing, we used the chi-squared test.

3 Results

The first area of knowledge was on defibrillation, in which we focused on defining the procedure, defibrillation rhythm, first shock strength in biphasic defibrillation, electrode placement, a pause between rhythm analyses, the principles of proper manipulation with the automated external defibrillator (AED), and shock strength in a child weighing 4 kg. A specific degree of knowledge is shown in Table 1.

Table 1 Degree of students' knowledge on defibrillation specifics

Defibrillation	Correct answers		Incorrect answers	
	Count	Percentage	Count	Percentage
Defining the procedure	351	(90 %)	39	(10 %)
Defibrillation rhythm	339	(86.92 %)	51	(13.08 %)
First shock strength in biphasic defibrillation	390	(100 %)	0	(0.00 %)
Electrode placement	351	(90 %)	39	(10 %)
Pause between rhythm analyses	370	(94.87 %)	20	(5.13 %)
Principles of proper manipulation with the AED	361	(92.56 %)	29	(7.44 %)
Shock strength in a child weighing 4 kg	311	(79.74 %)	79	(20.25 %)

There was a total of 2,473 (90.58 %) correct answers and 257 (9.42 %) incorrect answers related to defibrillation specifics.

The second area of knowledge related to cardioversion, in which we focused on defining the procedure, complications, contraindications, biphasic shock strength, and an interval between shocks. A specific degree of knowledge is shown in Table 2.

Table 2 Degree of students' knowledge on cardioversion

Cardioversion	Correct answers		Incorrect answers	
	Count	Percentage	Count	Percentage
Defining the procedure	199	(51.02 %)	191	(48.98 %)
Complications	281	(72.05 %)	109	(27.95 %)
Contraindications	331	(84.87 %)	59	(15.13 %)
Biphasic shock strength	339	(86.92 %)	51	(13.08 %)
Interval between shocks	390	(100 %)	0	(0.00 %)

There was a total of 1,540 (78.98 %) correct answers and 410 (21.26 %) incorrect answers related to cardioversion.

The third area of knowledge related to cardiostimulation, in which we focused on defining the procedure, the use of external cardiostimulation, setting an external pacemaker, complications of an external pacemaker, and cardiostimulation electrodes. A specific degree of knowledge is shown in Table 3.

Table 3 Degree of students' knowledge on cardiostimulation

Cardiostimulation	Correct answers		Incorrect answers	
	Count	Percentage	Count	Percentage
Defining the procedure	298	(76.41 %)	92	(23.59 %)
Use of external cardiostimulation	370	(94.87 %)	20	(5.13 %)
Setting an external pacemaker	390	(100 %)	0	(0.00 %)
Complications of an external pacemaker	370	(94.87 %)	20	(5.13 %)
Cardiostimulation electrodes	312	(80.00 %)	78	(20.00 %)

There was a total of 1,740 (89.23 %) correct answers and 210 (10.77 %) incorrect answers related to cardiostimulation.

Furthermore, our objective was to compare knowledge on electrotherapy between the Urgent Health Care students and the Nursing students. The numerical data on the responses is shown in Table 4.

Table 4 Comparison of degree of knowledge between Urgent Health Care students and Nursing students

Students' responses	Correct answers		Incorrect answers		Total
	Count	Percentage	Count	Percentage	
Urgent Health Care	3,321	(88.80 %)	419	(11.02 %)	3,740
Nursing	2,432	(84.15 %)	458	(15.85 %)	2,890
Total	5,753	(86.77 %)	877	(13.22 %)	6,630
Chi-squared test	30.639; p < 0.001				

There was a total of 5,753 (86.77 %) correct answers and 877 (13.22 %) incorrect answers in all three areas.

When comparing the frequency of the correct answers in the Urgent Health Care students and the Nursing students, we found out that the Urgent Health Care students significantly more frequently ($\chi^2(1.6630) = 30.639; p < 0.001$) stated correct answers (88.80 %) than the Nursing students (84.15 %).

4 Discussion

We use electric current both in everyday life and in medical disciplines. Almost every person has negative connotations in relation to this concept, but in these frameworks it is possible to speak about its positives in providing health care, provided that certain safety measures are taken. "An electric current is defined as the movement of electrically charged carriers, in an electrical circuit, consisting of two places with different electrical potentials (electrodes) connected by a conductor (tissue)" (Poděbradský, Poděbradská, 2009, p. 59; translated by the study authors). Electrons moving in the crystal grid of metals allow the flow of electric current in metal conductors. The fundamental unit of the flow of electric charge is ampere. Electrical therapy is a physical-based therapy, used in defibrillation, cardioversion, cardiostimulation, and others (Königová, Bláha et al., 2010).

Defibrillation is part of cardiopulmonary resuscitation, according to Vančura and Rokyta (2014). Therefore, it is necessary for students of healthcare fields not only to define the procedure but also to characterise the defibrillation rhythm, and to know exactly the first shock strength in an adult and a child, the exact placement of electrodes, and the length of pauses between individual rhythm analyses. The total 90.58 % success rate in the students' responses is a positive result. The students had the worst degree of correct answers in the question on shock strength in a four-year-old child. This result reflects a more prominent focus of the study programmes on adult patients than children. Kozuharov, I. et al. (2014) state that the cardiac resynchronization therapy at the childhood represents 0.5 – 1 % from the total number of implantations of cardiostimulators. The principles of proper manipulation with the AED were correctly stated by 92.56 % of the students, but we expected a higher degree of correct answers, given the presentation of the said procedures not only for professionals but also lay people (Dobiáš, 2011). Rapid defibrillation by nonmedical personnel using an automated external defibrillator can improve survival after out-of-hospital cardiac arrest due to ventricular fibrillation. Intervals of no more than three minutes from collapse to defibrillation are necessary to achieve the highest survival rates (Valenzuela, et al., 2000).

The interruption of the various supraventricular and ventricular tachyarrhythmias, in which cardiac output is maintained at a sufficient level, can be carried out by pharmacological or electrical cardioversion (Vančura, Rokyta, 2014). The said intervention is most often performed in intensive care units; the more severe the symptoms of arrhythmias, the more urgent the indications (Dobiáš, 2011). In the study, we focused on the students' knowledge on defining the intervention, complications and contraindications in patients, and the technical parameters related to biphasic shock strength and the interval between shocks. A surprising finding was that only a half (51.02 %) of the answers were correct in defining the procedure, but there were up to 100 % of correct answers in identifying the interval between shocks. Related to the statement (Morrow, Antman, 2000) that electrical cardioversion is an important treatment for the survival of patients with cardiac arrest due to ventricular tachycardia or fibrillation.

External cardiostimulation is a treatment method used in serious life-threatening bradycardias. One of the causes of bradycardia and also an indication of cardiostimulation is sick sinus syndrome. The disease resides in a sinoatrial node which does not adequately stimulate the electrical impulses of the myocardium. The result is bradycardia. The procedure of the insertion of an external pacemaker includes the insertion of a stimulation electrode into the right ventricle of the myocardium. At the other end there is an external pacemaker which makes it possible to set the parameters. The heart rate and heart voltage are set (Vančura, Rokyta, 2014). Another method of stimulating the myocardium is transthoracic cardiostimulation. Stimulation is done with the use of self-adhesive electrodes attached to the patient's chest. It is indicated for bradycardia not responding to pharmacological treatment, an atrioventricular block of the 2nd degree which is haemodynamically unstable, an atrioventricular block of the 3rd degree, "sick sinus syndrome", and in carotid sinus hypersensitivity syndrome (Bulíková, 2010). The overall degree of students' knowledge on the said method of electrotherapy was 89.23 %. The students encounter the said method during their clinical training most often, and we expected a higher degree of correct answers.

The aim of electrical therapy is to restore the rhythm and improve the symptoms (Remeš, Trnovská et al., 2013). Very often it is part of the cardiopulmonary resuscitation in the patient. "Cardiopulmonary resuscitation is a set of procedures to restore failing or failed vital functions" (Tischler, 2017, p. 106; translated by the study authors). In Europe, the most common causes of circulatory failure are cardiac disorders, with the prevalence of more than 80 % (Tischler, 2017); and electrotherapy is an effective option how to save a patient or affect patient's quality of life.

5 Conclusions

The questions verifying the knowledge on the specifics of the use of electrotherapy were answered in most of the answers correctly; only the low number of students had incorrect answers. The biggest problem was the question on defining cardioversion. The knowledge that addressed the issues of cardiostimulation was answered correctly by most respondents. Similarly as in the previous findings, also in this case, we found out the highest error rate in defining cardiostimulation. We found out that the most problematic questions for the students were those on the professional definitions of the terms, particularly in case of cardioversion and cardiostimulation; the questions on technical performance of the procedures were answered correctly, and in a high rate. On the basis of the information, it can be stated that students have good knowledge on electrical therapy in intensive care. To improve students' knowledge, we suggest to increase the number of lessons on urgent and intensive care in cardiology, to develop modern methodological materials with the use of e-learning, and to provide interactive selective seminars focused on defibrillation, cardioversion, and cardiostimulation. Electrical therapies in emergency and intensive care in cardiology are life-saving

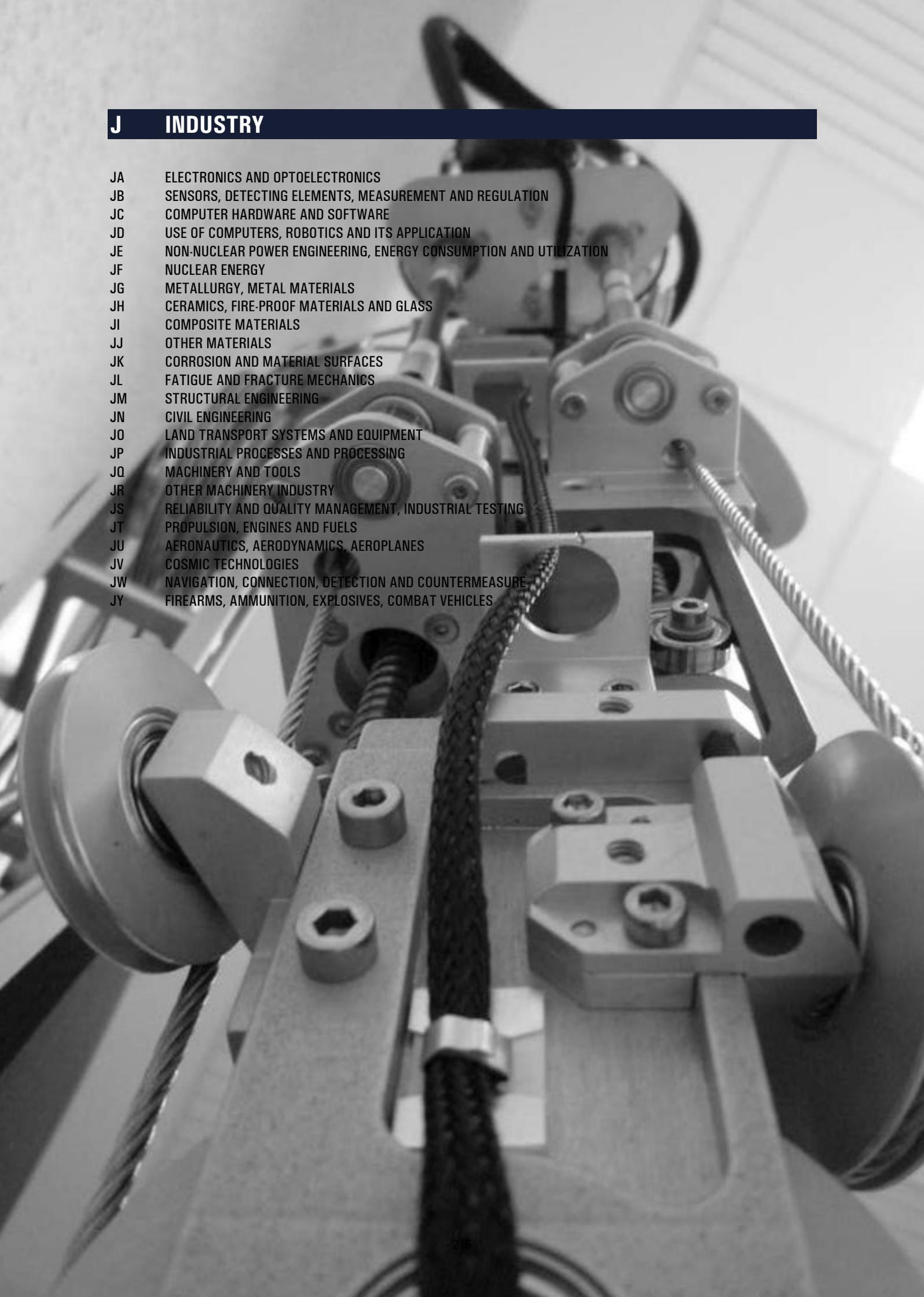
medical procedures, and every healthcare professional should have knowledge on them.

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Primary Paper Section: F

Secondary Paper Section: AM, FP



J INDUSTRY

JA	ELECTRONICS AND OPTOELECTRONICS
JB	SENSORS, DETECTING ELEMENTS, MEASUREMENT AND REGULATION
JC	COMPUTER HARDWARE AND SOFTWARE
JD	USE OF COMPUTERS, ROBOTICS AND ITS APPLICATION
JE	NON-NUCLEAR POWER ENGINEERING, ENERGY CONSUMPTION AND UTILIZATION
JF	NUCLEAR ENERGY
JG	METALLURGY, METAL MATERIALS
JH	CERAMICS, FIRE-PROOF MATERIALS AND GLASS
JI	COMPOSITE MATERIALS
JJ	OTHER MATERIALS
JK	CORROSION AND MATERIAL SURFACES
JL	FATIGUE AND FRACTURE MECHANICS
JM	STRUCTURAL ENGINEERING
JN	CIVIL ENGINEERING
JO	LAND TRANSPORT SYSTEMS AND EQUIPMENT
JP	INDUSTRIAL PROCESSES AND PROCESSING
JQ	MACHINERY AND TOOLS
JR	OTHER MACHINERY INDUSTRY
JS	RELIABILITY AND QUALITY MANAGEMENT, INDUSTRIAL TESTING
JT	PROPULSION, ENGINES AND FUELS
JU	AERONAUTICS, AERODYNAMICS, AEROPLANES
JV	COSMIC TECHNOLOGIES
JW	NAVIGATION, CONNECTION, DETECTION AND COUNTERMEASURE
JY	FIREARMS, AMMUNITION, EXPLOSIVES, COMBAT VEHICLES

PROFITABILITY OF COMPANY IN INDUSTRY

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Abstract: Profitability analysis is an integral part of financial analysis of a company. Profit is one of the most commonly used indicators of a company's performance and is used to evaluate a company's historical performance. Given their importance, it examines how the available information on company's profit can be used to increase the profitability. Stock markets are integral and irreplaceable part of a country's economy. The objective of the paper is to determine the relationship between the profitability ratios and the structure of small and medium-sized enterprises operating in industry in the years 2016 - 2020. The data used were obtained from the Cribis database for the given years. For each company, EBIT is calculated, which is also used for the calculation of ROA. ROE is used to determine the relationship to profitability. Further research should be focused on how the financial analysis influences the company's profitability and which companies show higher profitability.

Keywords: Financial analysis; enterprise, profitability, industry; ROE; ROA

1 Introduction

Company's profitability is one of the most commonly used indicators of company's performance and is used to evaluate the historical performance (Bui, 2019). According to Vlachy (2019), there are inevitable challenges companies have to face, such as competition, government policies, technological advance, management of company, human and financial resources, and other aspects. Stehel et al. (2021) state that given their importance, it is examined how the available information about company's profit can be used to increase profitability. Market participants and financial analysts can thus improve the profitability forecasting by using the average return (Schroder and Yim, 2018).

Stock markets are an inseparable and irreplaceable part of a country's economy (Jackson, Plumlee and Rountree, 2018). The influence of stock markets on a country's economy can be different in different countries (Vochozka et al., 2019). This means that the influence of stock markets depends on different factors, such as the organization of stock exchange, relationship with other components of the financial system, system of management, etc. All these factors are different for different countries; the impact of stock markets on a country's economy is thus different as well (Sobehart, 2018).

According to Kucera and Andelik (2021), stock markets have become the so-called global phenomenon. Many companies operating in this sector are either small or medium-sized enterprises. All countries, from developed to developing countries all over the world have established their stock markets. This sector plays an essential role in the global economy, it is a source of business, innovation, and new jobs. Therefore, the issue of financial analysis in small and medium-sized enterprises is paid constant attention to. Small and medium-sized enterprises are a backbone of each country's economy, and mechanical engineering is one of its key industries (Haviernikova et al., 2019).

The objective of this paper is to determine the relationship between the profitability ratios and the structure of small and medium-sized enterprises operating in industry. To achieve the objective set, the following research questions are formulated: 1) What is the situation of joint-stock companies and limited companies operating in industry in the years 2016-2020 in terms of profitability? 2) Is the situation of other companies in the years 2016 - 2020 better in terms of return on equity and return on assets?

2 Literature research

Vochozka et al. (2021) state it has been proven a company is not able to survive if it is not profitable, and a highly profitable

company is likely to generate high return on investments for its owner. Companies that want to achieve stable profitability thus need to know the internal and external factors that might have a significant impact on profitability (Alarussi and Alhaderi, 2018). In their study, the authors used ROE (*Return on Equity*) and EPS (*Earnings Per Share*), with pooled ordinary least squares regression.

Former and recent studies strived for determining financial indicators of profitability by empirical examining of various factors that are theoretically related to profitability, such as size, net operating earnings, liquidity ratios, debt turnover period, debt ratios, return on sales, return on capital employed, and return on assets (Sagapova and Gulyas, 2021). In contrast, according to Wassie (2020), there is no consensus on what optimal capital structure shall include. It is necessary to analyse the influence of capital structure on company's performance and profitability. Therefore, many studies have been conducted in order to determine the contribution of profitability in industry. Most studies were reviewed and various results and conclusions have been drawn.

All decisions made in a company are affected in some way by current financial situation or the impact of the decision made on the future financial performance. Any decision in a company is reflected in the financial indicators (Lesakova, Ondrusova and Vinczeova, 2019). Based on the data provided by the Statistical Office of the Slovak Republic, the following numbers were determined in individual groups of companies. To determine the sample of companies, the number of employees working in a company was used. The representativeness of the sample is verified by non-parametric chi-square goodness-of-fit test, where the size of the company is considered the main feature of representativeness. Therefore, managers need to analyse financial situation the company mainly with regard to its profitability and the factors affecting the profitability. Given that profit maximization is generally one of the most important financial goals, managers try to make decisions that support its achieving (Krucicky and Horak, 2021).

However, it should be borne in mind that the decisions that increase profitability usually increase risk; the decisions targeted at lowering risk are likely to decrease profitability (Detzel, Schaberl and Strauss, 2019). The authors assess the performance of expected various degrees of profitability. Using out-of-sample combination forecast, they predict the degree of profitability for operating profit, gross profit, operating cash flow, and net profit at the level of industry.

Profitability is generally understood as a relative relationship between profit, loss and certain base. Profitability expresses the level of business activity efficiency, which means that it is a result of the efforts of a company. Attention has been mostly paid to the predictive impact of profit or profitability of company on the cross-sectional average stock returns. Positive relationship between expected profitability and expected return is predicted by the valuation theory. The fitted values from first-stage cross-sectional regression for expected profitability as one of the explanatory variables in the second-stage cross-sectional regression. According to Rahim and Balan (2020), who show that the effect of profitability is not significant, hedge returns on profitability classes do not provide much support for the conclusion that there is a positive relationship between the average returns and profitability when considering the company size and the book-to-market ratio.

The objective of the study by Koralun-Bereznicka and Ciolek (2018) was to determine the importance of sector classification of a company and its size for the relationship of profitability and indebtedness in Polish private companies in order to determine the relationship of profitability and leverage effect. There were used only weighted averages from the database of BACH-ESD

(Bank of Company Accounts Harmonized – European Sectoral reference Database).

Abou-faul, Ruiz-Alba and Soares (2020) used a cross-sectional self-administrated survey as a means to gather data at the level of companies from the target population. This tool enables collecting a large volume of data by means of the questionnaire survey. It is possible to obtain a large volume of data from an extensive sample of population in a highly economical way. The advantage is also the confirmed validity and reliability.

Chen, Sun, Wei and Xie (2018) use data on stock return for companies in the USA from the CRSP (*Center for Research in Security*) and accounting data from the Compustat/North America. For companies in Canada, data on shares and accounting data are obtained from Compustat/North America. In the case of companies from other countries, they also obtain data from Compustat/Global. There are included all domestic ordinary shares listed on the major stock exchanges in each country; financial companies and utilities are excluded. To ensure the quality of the data, screening is used. As a method of calculation, the authors use *GP (Gross Profit)* for gross profit, which is a difference between *REV (Sales Revenue)* and *COGS (Cost Of Goods Sold)*.

Grau and Reig (2021) analyse the impact of operational risk on the factors determining the profitability of agricultural and food SMEs in Europe. The authors want to analyse the importance of financial leverage and operational risk when determining the profitability by means of studying other risk factors, such as indebtedness, size, specificity, or reputation, i.e. whether the impact of these variables on profitability depends on the level of operational risk the company bears. As a model, they use *ROA (Return on Assets)* and analyse the determinants of profitability.

Company performance is usually evaluated on the basis of comparison within sectors. Yamaguchi (2022) describes companies with a profitability higher than average in a sector as successful companies which have competitive advantage. The author used the method of *REM (Real Earnings Management)* and found out that monitoring analysts have a positive impact on *REM* and a negative impact on *AEM (Accrual Earnings Management)*. These impacts are stronger in companies that are close to zero-profit threshold.

Cross-sectoral market concentration studies face problems in defining markets, since readily available sectoral classification does not necessarily resemble product markets (Eide, Erraia and Grimsby, 2021). The authors wanted to identify the actual competitors of a company, which are able to restrict the company's behaviour and prevent it from behaviour independent of effective competitive pressure. Their findings explain the factor of slowing growth of productivity, decrease dynamics of business, and the increase in markup and concentration of companies, as well as a positive and significant relationship between market concentration (measured by the *HHI index - Herfindahl-Hirschman Index*) and profit margins (measured by return on assets [ROA], and operating margins) for US companies.

Wasiuzzaman (2018) mentions the use of leverage, in general, debt in financing a company's operations. It can be seen as an investment strategy of the company, when money is lent to finance the corporate assets in order to increase the potential return on investment, mainly return on equity. However, excessive indebtedness can increase the risk of a company's failure and bankruptcy.

3 Data and Methods

3.1 Data

The basic data source are data on the companies operating in the manufacturing industry obtained from the CRIF's (Czech Credit Bureau, a.s) Cribis database. The given dataset contains 158,151 rows and 372 columns. The data are processed in Excel of

Microsoft. In the dataset, only the columns containing *IČO*, the name of the company, active companies, *NACE – SECTIONS*, legal form, year, total assets, equity, registered capital, net earnings, total sales, interest expense, taxes.

The data are divided according to the legal form into joint-stock companies, limited companies, and other companies. Further division will be into the years 2016-2020, and only active companies will be analysed. Some companies will need to be excluded from the analysis, since there is a lack of data on equity or net earnings. Net earnings could not be calculated due to incomplete data.

The next step is editing the data and removing the rows with zero equity or zero total assets and zero sales.

3.2 Methods

First of all, *EBIT* is calculated (*EBIT – Earnings Before Interest and Taxes*) for the years 2016-2021. There are two methods of calculation. The value of *EBIT* is determined using the formula 1 below.

$$EBIT = net\ income + interest\ expenses + taxes \quad (1)$$

Then *ROA (Return on Assets)* is determined using formula 2 for all types of companies.

$$ROA = EBIT / Assets \quad (2)$$

The last step is to determine *ROE (Return on Equity)*, which is calculated using formula 3 for all types of companies.

$$ROE = net\ income / equity \quad (3)$$

Using formulas in Excel, other indicators are calculated, such as the arithmetic mean, median, the first and the third quartile for *ROE* and *ROA*, which are divided into individual years. These values are entered in a table.

4 Results

4.1 Joint-stock companies

Return on equity informs about the earnings generated by equity. As shown in Table 1, in 2017, 1404 companies achieved the lowest profitability. In contrast, in 2019, the highest value was recorded (15 %). Based on the calculated values of *ROE*, it can be said that the profitability trend of the analysed joint-stock companies fluctuated.

Table 1: Average values of return on equity for joint-stock companies in the years 2016-2020

Year	2016	2017	2018	2019	2020
Average	-0.286535151	-0.209060997	0.189886306	-0.205997151	0.094434935
1 st quartile	-0.473981191	-0.245929651	-0.080336356	-0.00623819	0.000257112
Median	0.038676343	-0.009277344	0.010064739	0.052874543	0.045953925
3 rd quartile	0.041061957	-0.003686891	0.084069583	0.148006871	0.097431994

Source: Author based on data from www.cribis.cz

Table 2 shows that in 2017, *ROA* achieved 2 %. In contrast, in 2020, the achieved value was highest. The profitability values for the years 2018 and 2019 were the same.

Table 2: Average values of return on assets for joint-stock companies in the years 2016-2020

Year	2016	2017	2018	2019	2020
Average	-0.280858741	-0.393814609	-0.191107308	-0.197921137	0.118445684
1 st quartile	-0.010989011	-0.034907224	0	0	0.019733107
Median	0.004244624	0	0.018778511	0.018853204	0.059343257
3 rd quartile	0.055762456	0.023966337	0.096774194	0.096950743	0.127584734

Source: Author based on data from www.cribis.cz

4.2 Limited companies

The sample included 975 limited companies. In the years 2016, 2017, and 2018, the profitability value calculated through *ROE* was the same. As seen in Table 3, in 2020, *ROE* was 15 %,

which is the highest value. Based on the calculated values of ROE, it can be stated that the profitability trend of the analysed limited companies was upward.

Table 3: Average values of return on equity for limited companies in the years 2016-2020

Year	2016	2017	2018	2019	2020
Average	-0.61724018	-0.476287135	-0.234146721	-0.142505168	-0.173915136
1 st quartile	-0.297501644	-0.420186869	-0.258253852	-0.230294232	-0.198118428
Median	0	-0.009646302	0.000929476	-0.000232992	0
3 rd quartile	0.13413506	0.127012544	0.134615385	0.137788544	0.153628569

Source: Author based on data from www.cribis.cz

Return on assets indicated that the value of profitability for the years 2016-2020 was the same (see Table 4). No increase or decrease was thus recorded.

Table 4: Average values of return on assets for limited companies in the years 2016-2020

Year	2016	2017	2018	2019	2020
Average	-0.163490146	-0.166656657	-0.16188571	-0.156383392	-0.160061814
1 st quartile	0	0	0	0	0
Median	0.019293626	0.019209247	0.019562903	0.019834115	0.019696286
3 rd quartile	0.097028376	0.097009126	0.09734484	0.097757683	0.097852896

Source: Author based on data from www.cribis.cz

4.3 Other companies

ROE indicated fluctuating values of profitability in the case of 13 companies. Table 5 shows that the lowest value was calculated for the year 2018, while the highest value is calculated for the year 2019.

Table 5: Average values of return on equity for other companies in the years 2016-2020

Year	2016	2017	2018	2019	2020
Average	-19.001337	0.040553762	-0.3	0.141819591	0.026322674
1 st quartile	-0.408730159	0.040553762	-0.3	-0.024028238	0.004050941
Median	-0.299603175	0.040553762	-0.3	0	0.026322674
3 rd quartile	-0.0625	0.040553762	-0.3	0.236757624	0.048594408

Source: Author based on data from www.cribis.cz

As seen in Table 6, the highest value was recorded in the year 2018, two identical values were calculated for the years 2016 and 2019. The profitability trend is thus fluctuating.

Table 6: Average values of return on assets for other companies in the years 2016-2020

Year	2016	2017	2018	2019	2020
Average	-0.347562646	0.030191565	-0.040431267	-0.238018536	-0.368231278
1 st quartile	-0.008105917	0.030191565	-0.040431267	-0.006453168	-0.036253776
Median	0.006329114	0.030191565	-0.040431267	0.007089913	0
3 rd quartile	0.062535269	0.030191565	-0.040431267	0.064125221	0.020564042

Source: Author based on data from www.cribis.cz

5 Discussion Results

Based on the results obtained, it is possible to answer the formulated research questions:

What is the situation of joint-stock companies and limited companies operating in industry in the years 2016-2020 in terms of profitability?

Based on the calculations using ROE and ROA, it can be stated that 975 limited companies achieve better profitability for the years 2016-2020 than 1404 joint-stock companies. Using ROE, it was found that both types of companies achieved the highest value of 15 %, while in the case of joint-stock companies, the value was even 0 % once, which did not happen in the case of limited companies. Using ROA, better results were achieved. In the case of joint-stock companies, both increase and decrease in profitability was recorded; in the case of limited companies, the same values were calculated for the individual years of the monitored period.

Is the situation of other companies in the years 2016-2020 better in terms of return on equity and return on assets?

ROE and ROA were used for the aforementioned types of companies, but also for other companies. It shall be noted that other companies (Evropská společnost, Družstvo, Veřejná obchodní společnost, Společnost komanditní), for which ROE was used, achieve worse results than the aforementioned two types of companies. Using ROA, better results seemed to be achieved but the values are still negative.

Similar conclusions were made by Lesakova, Ondrusova and Vinczeova (2019), who also used ROE and ROA and found out that limited companies achieve better profitability results than joint-stock companies. The authors also state that profitability is influenced by legal form as well as the size of the company.

According to Alarussi and Alhader (2018), who used ROE in their study, joint-stock companies and limited companies achieved better profitability than other companies. Finally, Grau and Reig (2021) used ROA in their study. They concluded that small limited companies achieve better profitability than other companies.

6 Conclusion

The main activities of analysts include the evaluation of company performance according to the profitability ratios. Analysts participate in the financial management and decision-making in company.

The objective of the paper was to determine the trend of a company's profitability in industry for the years 2016-2020. Using the return on equity and return on assets, it was found that limited companies and joint-stock companies achieve higher average values than other companies. The objective was thus achieved.

The analysis of selected ratios, ROA and ROE, showed a fluctuating trend for the years 2016-2020 in the case of joint-stock companies, and upward trend in the case of limited companies. In the case of other companies, the values were variable and rather low. ROE of limited companies and joint-stock companies achieved the highest value of 15 %. ROA shows better values for joint-stock companies. In the case of other companies, the worst values were achieved using ROE, with the lowest average value achieved was -30 %. Slightly better values (6 %) were achieved using ROA.

Profitability analysis is an integral part of business financial analysis. It enables a company to identify the strengths and weaknesses of its activities. The results of the analysis also enable companies to adopt measures that might help to eliminate unfavourable development and enhance processes increasing profitability and efficiency. The knowledge of factors affecting the profitability of a company may help companies operating in industry to adopt effective measures aimed at increasing profitability.

Acknowledgement

The article was supported by the IVSUZO001 project "Benchmark of the world economy in the context of the principles of the circular economy and the determination of business value".

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Primary Paper Section: J

Secondary Paper Section: AH

GEOMETRIC TOLERANCES APPLIED TO GEARBOX SHAFT DRAWINGS

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This work is a part of the project KEGA 029TUKE-4/2021 "Implementation of modern educational approaches in the design of transmission mechanisms".

Abstract: Gearboxes are among the most widely used transmissions. Technical documentation is used in all phases of the gearbox life cycle, which defines it and describes the processes taking place in it. The definition and correct prescription of the shape (geometry), and dimensions in the production drawing have an important role. This regulation ensures the optimal function of the component together with the scattering around the optimum, which also ensures a satisfactory function. All this is defined by the geometric specifications of the product. The paper deals with the application of these rules to the drawing documentation of gearbox shafts.

Keywords: standardization, geometric dimensioning, gearboxes tolerances, shafts.

1 Introduction

Today, gearboxes are an integral part of many machines. Mechanical gear transmissions generate a join between the drive and driven shafts and serve to transmit power and rotary motion. During transmission, the direction of rotation of the driven shaft, torque, circumferential or angular speed can change [1-3]. The mechanical transmission consists of at least two wheels connected to the shafts and the motion is transmitted from the drive shaft to the driven one [4-6]. Gears are, in practice, the most common type of gear mechanism and are used in a variety of forms.

Gears are used to transfer rotary motion and mechanical energy from one shaft to another [7, 8]. When the two gears mesh, i.e. in the gears, the tooth of one wheel fits into the tooth gap of the other wheel. The meshing wheel teeth touch each other with their sides and transmit the circumferential force from the drive wheel to the driven wheel by the pressure of the tooth on the tooth. The properties of the gear wheels have a significant effect on the functionality of the whole gear transmission mechanism. Gear transmissions are composed of non-standardized and standardized elements (Fig. 1).

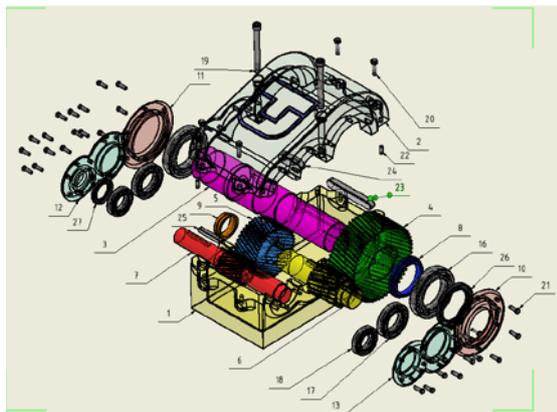


Figure 1. Elements of the gearbox.

Non-standard elements include gear wheels, shafts, covers, spacer and distance rings, and the bottom and top cover of the gearbox. Standardized elements include bearings, bolts, nuts, washers, seals, circlips, and seals.

The gearbox design process begins with a list of functional requirements and continues with the technical specifications for each gearbox element. The requirements arising from the manufacturing processes themselves affect the procedures for evaluating the geometry of the product [9-12]. The difficult economic situation and fluctuating demand greatly affect the designer's performance, which is reflected in significant speed,

accuracy, and flexibility. The current designer uses a CAD system, finite element method (FEA), and mathematical modeling to meet design requirements and product specifications. The result of his work is the creation of technical documentation for individual non-standardized gearbox components [13-18]. When creating it, he follows the rules of technical drawing.

The technical drawing is an important means of exchanging information and communicating with technical experts around the world. Its knowledge is essential for reading and creating technical documentation. The technical drawing is a tool used in product development, production, distribution, use, maintenance, repair, and disposal [19,20]. It is used in the description of technical processes and production technologies, in instructions for use and maintenance, and in various documents of a technical character.

In recent years, technical drawing has become a global problem as the exchange of technical information around the world continues to intensify [21-24]. The rules of technical drawing defined in the ISO standards create a universal, globally comprehensible means of communication. Insufficient drawing documentation leads to production delays and reworking of assembly procedures in the production area. The purpose of technical drawing is to display the requirements for a functional design with clear and relevant information so that the product is manufactured and these requirements are verified [25-27]. The methods used in the design process should be clear and concise so as not to cause confusion in the interpretation of the design and, consequently, should allow all participants in the process to interpret the design requirements [28].

2 Definition of the geometric product specification

The production produces parts that are not completely accurate and those show deviations from the nominal values and also from each other. Components are measured to compare with the specification [29,30]. The geometric product specification (GPS) defines in the engineering drawing the shape (geometry), dimensions, and surface characteristics, which ensure the optimal function of the part together with the scattering around the optimum, which still ensures a satisfactory function [31].

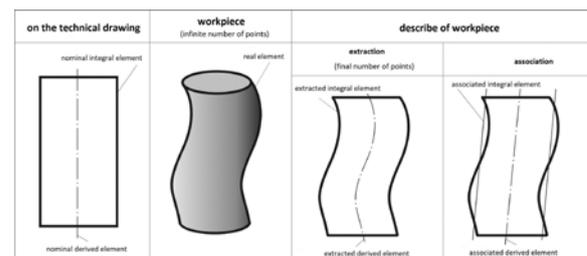


Figure 2. Definitions of geometric elements.

The aim of improving the geometric product specification system is to provide tools for effectively managing variability in products and processes. The committee envisaged a mathematical-based GPS language that allowed the expression of requirements for a wide range of component elements. It uses uncertainty as an economic tool to allow optimal allocation of resources between specification, production, and verification. The GPS language is based on sentence combinations, the graphical representation of which is given by the nominal model of the component. This model consists of nominal ideal areas (Fig. 2). GPS language semantics is based on an abstract geometric model of a part. This model consists of imperfect surfaces.

The integrated GPS system for workpiece geometry specification and verification is an improved engineering tool for product development and production. The system is necessary because

the company in the international environment is by carrying out certain activities using external resources (outsourcing), rapidly introducing advanced technologies, new production processes, new materials, and visionary products. The aim of GPS enhancement is to provide tools for the cost-effective management of variability in products and processes. This can be achieved by using a more precise way of expressing the functional requirements of the workpiece, complete and well-defined specifications, and integrated verification approaches. His improved GPS system has clarified the current practice and harmonization of the work of other relevant technical commissions (TC) of the International Organization for Standardization (ISO). This harmonization e.g. enables better integration with 3D CAD / CAM / CAQ systems.

3 Geometric dimensioning and tolerance

Geometric dimensioning and tolerance (GD&T) is a system for defining and communicating within technical tolerances. It is a set of instructions designed specifically for dimensioning and designing so that the part is correctly interpreted and also allows the designer's intention to be translated into all stages of the product cycle. Provides instructions for drawing and dimensional inspection.

GD&T uses markers and computer-aided three-dimensional body models in the drawing documentation that explicitly describe the nominal geometry and its tolerances. GD&T finds the widest application in mass production, where the interchangeability of manufactured components without counterparts is necessary.

The basic idea of GD&T is to determine the base of a part or assembly group element. This, of course, concerns the actual location and functional correlation. Bases are selected as starting points (starting points) for dimensioning and using tolerances or tolerance zones. Functional bases must be selected. Functional bases are simply one of the components of a part that determine the actual position of the part in the manufactured assembly (product). The use of any other basic system, such as axes, changes the overall tolerance.

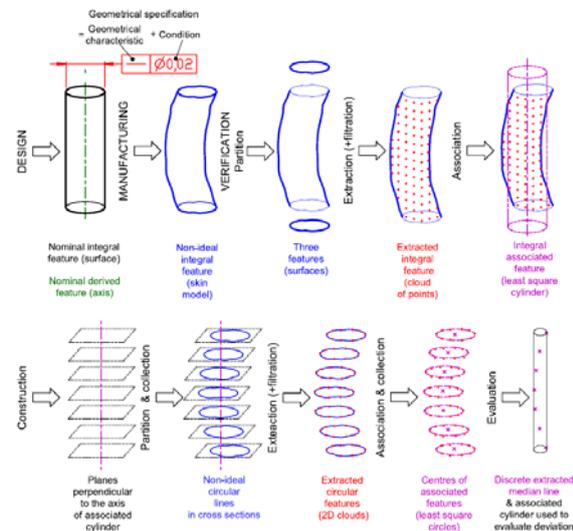


Figure 3. Definition of the basic idea of geometric dimensioning.

Geometric tolerances are determined on the basis of functional requirements for the product, and functional areas of the product and may be affected by the production and inspection of finished products. In this process, they are used in addition to dimensional tolerances and to check more accurate product profiles and shapes. Geometric tolerances are only used if the profile or shape has a certain function and errors could impair its performance.

The geometric tolerance applied to an element defines the tolerance zone in which the element must be located. In these tolerance zones, there must be extracted (real) elements, axes, cylindrical surfaces, planes of symmetry, common axes of holes, and the like (Fig.3).

By geometric tolerance we mean tolerances of shape, direction, and position. The basic concepts of geometric tolerance are deviation and tolerance. The term deviation is used to describe the geometry of actual surfaces and profiles in general and to uniformly evaluate the results of actual profile and surface measurements. Tolerances are generally defined only as of the maximum permissible numerical values that determine the characteristic dimension of planar or spatial tolerance fields. The tolerance fields must be clearly defined in terms of shape and size, as well as in terms of assignment to the shape element under consideration. The types of geometric tolerances are marked on the technical drawing with a graphic symbol and an additional mark.

3.1 Shape tolerances applied to shaft drawings

Shape tolerance is the largest allowable shape deviation value. The shape tolerance field is the area in space or in the plane in which all points of the actual element under consideration must lie within the range of the reference section. The width or diameter of the tolerance field is determined by the tolerance value, and its position relative to the actual area is determined by the packaging element. The shape deviation is quantified as the largest distance of the actual area (actual profile) from the packaging area (packaging profile) in the normal direction to the packaging area (packaging profile).

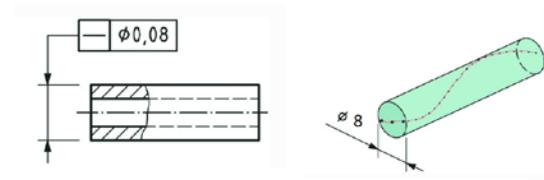


Figure 4. Straightness tolerance.

The application of a simple dimensioning of the straightness tolerance for the shaft is shown in Figure 4. The extracted (actual) center line of the cylinder for which the tolerance is intended must be located inside a cylinder zone with a diameter of 0.08 mm.

The principle of independence applies in general, but the limiting conditions are the condition of the packaging element, which is related to the different tolerances of the geometric elements. In order to achieve economic efficiency of production, it is necessary to mention what contributes to and helps the fitting of parts. The condition that contributes to the fitting of parts is the condition of maximum material.

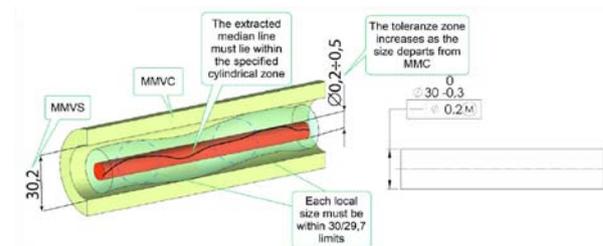


Figure 5. Combination of straightness tolerance and material maximum.

An example of the effect of the material maximum condition at the cylindrical end of the shaft is shown in Figure 5. The material maximum condition is indicated by the symbol M in the tolerance box next to the shape or position tolerance. In this case, the geometric element must not exceed the applicable condition. When a straightness control is applied to a feature of size, it is

possible to use the maximum material requirement. The combined effect of the size error and the straightness error generates a virtual size (MMVS), which represents the worst possible mating condition.

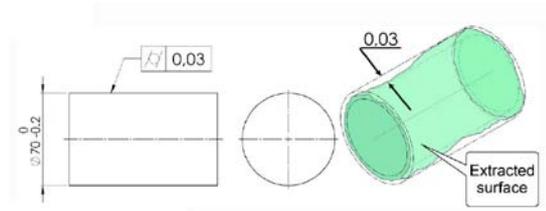


Figure 6. Example of a roundness tolerance rule at the cylindrical shaft end.

Other common tolerances applied to shaft drawings include cylindricity tolerances (Fig. 6). The deviation of the cylindricity is the greatest distance of the points from the actual area of the packaging cylinder in the range of the reference section. The cylindrical tolerance field is the area in space bounded by two coaxial cylinders spaced apart by a length equal to the cylindrical tolerance $T = 0.03$. The cylindrical deviation is used in production drawings of shafts and drawings of gearbox bodies, to tolerate the cylindricity of holes.

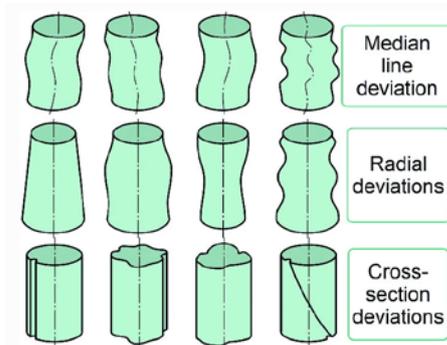


Figure 7. Deviations from the cylindrical shape.

The actual cylindrical surface may be subject to cylindrical deviation errors as a combination of simple elements caused by machining errors and/or deformations due to thermal, pressure, or stress effects, tool wear, and/or vibration. These deviations can be classified according to Figure 7.

3.2 Position tolerances applied to shaft drawings

Position deviation is the deviation of the actual position of the assessed element from its nominal position, which is determined by the nominal length and angular dimensions between the given element and the base, resp. among the elements considered (when no base was specified). The position tolerance field is the area in space or in a given plane in which the assessed packaging element must lie within the scope of the reference section. The width or diameter of the tolerance field is determined by the tolerance value.

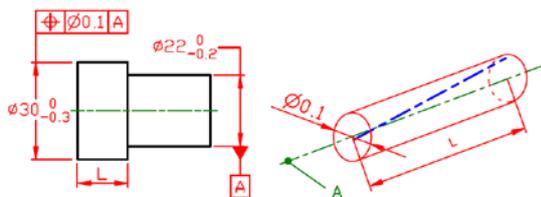


Figure 8. Example of position tolerance.

For the location of a derived element (axis plane or symmetry), the standard applies only the position tolerance. According to this regulation, the position tolerance is applied to the axis (plane

of symmetry) of an unrelated actual paired envelope. In Figure 8, the position tolerance rule is specified to control the coaxiality of the two-stage shaft flange with respect to base A.

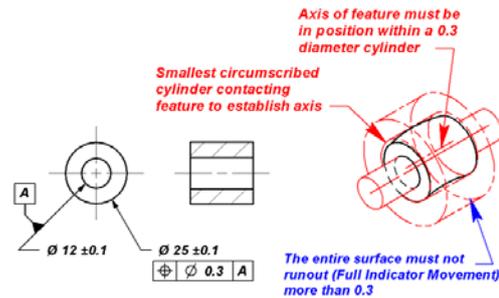


Figure 9. Example of position tolerance.

According to the Standard, when no modifiers are present, the implied condition is regardless of feature size as shown in Figure 9. In this case, the axis of the datum feature and the feature being controlled must be determined to find the error in coaxiality. Although this control may be applied to bearings and dynamic balance applications, the job can usually be accomplished at a lower overall cost by using one of the runout controls.

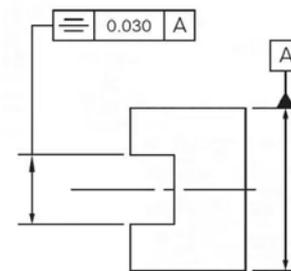


Figure 10. Example of symmetry tolerance.

Another tolerance used in the drawing documentation of the gearbox shafts is the center plane symmetry tolerance. A simple example of a prescription is shown in Figure 10.

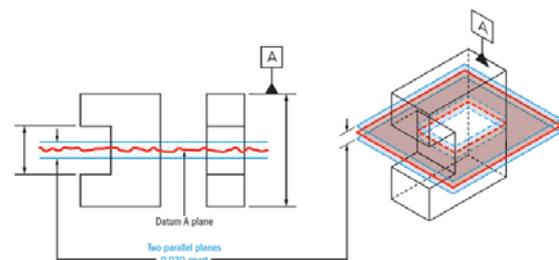


Figure 11. Symmetry tolerance zone.

In Figure 11, the median plane extracted must be between two parallel planes spaced 0.030 mm apart.

3.3 Example of GD&T application in a gearbox shaft drawing

Figure 12 shows a part of the bearing of the input shaft of the gearbox transmission, i.e. a part of the assembly drawing. In the example of shaft dimensioning, we will clearly show the regulation of dimensioning of individual tolerances on the production drawing of the shaft.

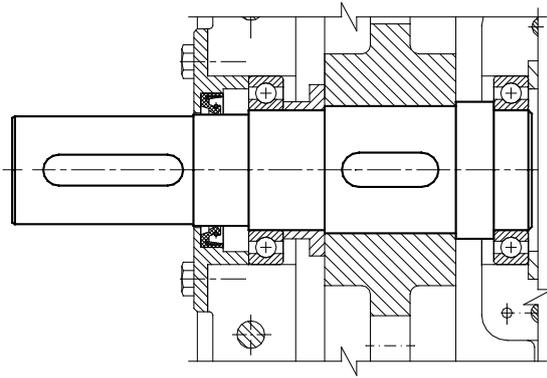


Figure 12. Part of the assembly drawing - input shaft positioning in bearings.

An example of the prescription of some tolerances on the shaft is shown in Figure 13.

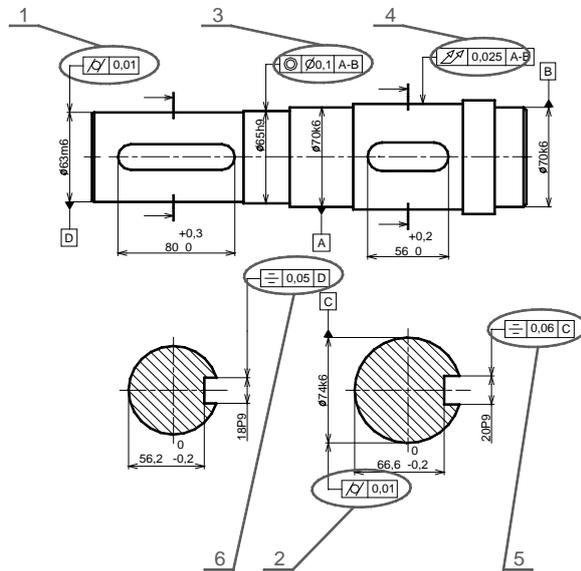


Figure 13. Prescription of geometric tolerances on the shaft – example

Figure 13 shows the tolerances for the shaft. Under item position numbers 1 and 2, this is the cylindricity tolerance rule. The concentricity tolerance is dimensioned under item position number 3. An example of the total circumferential runout tolerance rule is under item position number 4. An example of a symmetry tolerance rule is indicated by item position numbers 5 and 6.

4 Conclusion

An important part of the production is the drawing documentation, which contains all the necessary information about the product so that it can be used to create the desired and especially the right product. We create all drawings of parts and assemblies according to relevant and current standards. The drawing documentation may contain all the essentials that are needed throughout the production life cycle of the product, such as material, dimensions, tolerances, product structure, and a lot of other data needed for production, inspection, testing, and subsequent delivery to the customer.

The geometric product specification, abbreviated GPS, defines in the engineering drawing the shape (geometry), dimensions, and surface characteristics, which ensure the optimal function of the

part together with the scattering around the optimum, which also ensures a satisfactory function. The production produces parts that are not completely accurate and those show deviations from the nominal values and also from each other. This plays an important role in prescribing the tolerances of the individual functional dimensions on the production drawings of the component. Based on the analysis of the application of the basic principles of the geometric product specification, the drawing documentation of each non-standard gearbox element must comply with several rules. For assembly, this is an important role in the fact that all dimensions must have the prescribed tolerances.

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Primary Paper Section: J

Secondary Paper Section: JO, JQ, JR, JT

CZECH AUTOMOTIVE INDUSTRY AND COVID-19

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Abstract: The objective of this paper is to analyze how Czech car manufacturers have coped with the COVID-19 pandemic. Included are data on manufacturing companies taken from the Cribis database of the CRIF - Czech Credit Bureau a.s., specifically data on ŠKODA AUTO a.s., Hyundai Motor Manufacturing Czech s.r.o. and Toyota Motor Manufacturing Czech Republic s.r.o. Subsequently, the research comprises economic results, ROS (return on sales) and indebtedness calculated in relation to the aforementioned companies for the period of 2019-2020. The results show that the car manufacturers had greater losses during the COVID-19 pandemic than the year before. Additionally, they became more indebted in 2020 and had lower return on sales than in 2019.

Keywords: COVID-19; automotive industry; profitability; the Czech Republic; crisis

1 Introduction

The recent COVID-19 crisis has fundamentally changed the way car manufacturers operate. Although the automotive industry has experienced disruptions to CASE (connected, autonomous, shared, electric) in recent years, the COVID-19 crisis consequences are unprecedented for the existing car manufacturers (Choi, 2020; Genzlinger, Zejnilovic, & Bustinza, 2020; Venter, Aunan, Chowdhury and Lelieveld, 2020; Wang & Wells, 2020). According to Wiedermann, car manufacturing is a sector that strongly influences the external environment and has a major impact on the national economy through creating a multiplier effect, which makes the automotive industry key to a particular country's economic development (Wiedermann, 2007). The situation that emerged in 2020 significantly revised further growth and profit prospects of the automotive industry as a whole. As Xu, Liu, and Xie, (2022) correctly point out, the mere fact that the COVID-19 originated in a world manufacturing center such as East Asia is particularly important to the manufacturing industry. Second, the disruption to supply chains that followed the spread of the pandemic had a cascade effect on other countries.

The production of a new car is an extremely complex process where many entities in various stages of production are involved. It is also a huge organizational challenge due to the number of elements, components, parts and modules that are to be assembled. The growing interconnectedness of national economies and the well-developed network of external and internal ties pose a threat of a much faster spread of negative phenomena in the global system of flows, including resources, capital, production factors and services. In particular, the transmission of exogenous shocks caused by cyclical fluctuations in the economies involved in the global network system can be worrying. Thus, all types of damage, including those related to supply chain disruptions, can have a very significant impact on manufacturing companies and directly influenced the economies of individual countries (Łuka, Woźniak, 2012). The spread of the SARS-CoV-2 coronavirus worldwide has been an unprecedented event, and the resulting pandemic has systematically and adversely affected suppliers of individual automotive components. Zhurova and Krakovskya looked into the essence of supply chain strategies related to the automotive industry which is now being gradually disrupted as a result of the pandemic. As Ivanov correctly points out, the COVID-19 pandemic has been one of the most serious supply chain disruptions in recent history, affecting many organizations around the world. In an attempt to stop the virus from spreading, most governments around the world have responded to varying degrees by introducing measures to put a halt to travelling, such as border closures or general quarantine (Ivanov, 2020). The

disruption to supply chains due to the coronavirus is not the only problem in the automotive industry, as the virus has also directly contributed to a significant drop in demand for new cars and hence a reduction in the number of registered motor vehicles.

Moreover, the COVID-19 pandemic development has directly affected not only manufacturers of automotive parts, but also distribution companies and companies providing maintenance and repair services for vehicles. Countries around the world are taking steps not only to eradicate the disease with regard to infected people and stop the spread of the virus, which are the priorities, but also to save the world's economies and individual industries important for economic development.

The objective is to analyze how Czech car manufacturers have coped with the COVID-19 pandemic. To achieve the defined objective, the following research questions were formed: What were the impacts of the COVID-19 pandemic on the automotive industry in the Czech Republic? Did car manufacturing companies have greater profitability or loss during the pandemic?

2 Literature research

In the long term, the COVID-19 pandemic will have negative effects on European and global automotive companies, as evidenced by macroeconomic indicators and research by international audit firms to date aimed at highlighting the problem that carmakers will have to deal with. Hoeft (2021) explored how agile methods can be used as a strategic tool to manage established companies in times of unprecedented industry transformation. This goes beyond conceptualizations and previous attempts to improve empirical evidence on how firms use agility to explore and take advantage of market opportunities.

The complexity of processes taking place during the COVID-19 pandemic is particularly important given the number of entities involved in the automotive industry and the proportion of added value they create in the domestic market, which in turn has negative consequences for the economy. Pelle and Tabajdi (2021) collected a large (> 700 items) sample of relevant business decisions in the European automotive sector over four years (2017-2021), including those taken mainly due to the COVID-19 pandemic. The authors transformed qualitative inputs into a quantitatively analysable database with the use of coding. They then applied descriptive statistical analysis combined with qualitative content analysis behind the data.

The automotive industry is one of the fastest growing industries in Europe, being also a major employer and investor and one of the most determinative industries in the EU. Horobet, Zlatea, Alexe and Smedoiu Popoviciu (2021) used clustering algorithms to try and understand the automotive industry through several performance indicators in 478 companies. Due to high technological demands and apart from production, this industry traditionally plays a key role in research and development (R&D) as well. It is therefore a major innovator and has significant investment capacities (Vaidya and Hopkins, 2021). The European automotive industry involves more than 20 000 companies, produces around 7% of the EU's GDP, accounts for 8.3% of the manufacturing sector employment and 6% of total employment. In addition, European production accounts for 20% of the sector's global production. All of that underlines the importance of this sector in the European economy as well as the global importance of Europe. Raj, Beck, and Soliman (2019) analysed value-based management commitments in automotive companies and examined factors that explain management parameters in the automotive industry. They also considered control parameters of the companies, but there is little evidence of factors that explain which control parameters are used in the automotive industry. They used a survey on the basis of annual reports from 2008 to 2011. A total of 20 annual reports of such

companies were analysed. The results showed that the companies, particularly original equipment manufacturers and listed suppliers, were committed to value-oriented management and implemented value-oriented approaches.

However, the COVID-19 pandemic has affected the European automotive industry (and particularly Central and Eastern Europe) mainly through global value chains (Sameh et al., 2021). It was possible to identify the problem already at a time when the pandemic was only a problem for China. Over the years, China, and especially Wuhan, where coronavirus was first detected, has become a major supplier of intermediate products for the global automotive industry. Any major disruption to Chinese supplies was thus expected to have a significant impact on producers around the world. Hrusecka, Lopes and Jurickova (2019) studied limitations and necessary conditions that must be taken into account when implementing AGV (Automated Guided Vehicle) technology for the automation of selected logistics processes. Based on data collected through multiple observations, a three-phase methodology was proposed with regard to technological, organizational and security aspects and the main output.

3 Data and Methods

3.1 Data

The basic source of data shall be data on manufacturing companies taken from the Cribis database of the CRIF - Czech Credit Bureau a.s. containing 158 150 records. The data shall be processed in Microsoft Excel. The entire set shall include company name, active companies, NACE - SECTION, legal form, year, total assets, total liabilities, equity capital, own equity, net profit, costs, revenue, total sales, sales revenue, sales revenue of own products and services, EBIT, external resources and own resources.

Since data related to three companies shall be used, the overall data in the set shall be filtered and only the following companies shall be considered: ŠKODA AUTO a.s., Toyota Motor Manufacturing Czech Republic s.r.o. and Hyundai Motor Manufacturing Czech s.r.o. Also, a particular period (2019-2020) shall be reviewed and only active companies shall be examined.

3.2 Methods

First, the economic results for the year 2019 and the year 2020 shall be calculated to determine the profit of the above companies in the period under review. The following formula (1) shall be used:

$$\text{Revenue (Sales)} - \text{Costs} = \text{Profit} \quad (1)$$

Next, ROS (Return on Sales) shall be calculated using the following formula (2):

$$\text{ROS} = \text{EBIT} / \text{Sales of Own Product and Services} + \text{Sales of Goods} \quad (2)$$

Finally, indebtedness shall be calculated to find out debts of the above companies in the given period. The following formula (3) shall be used:

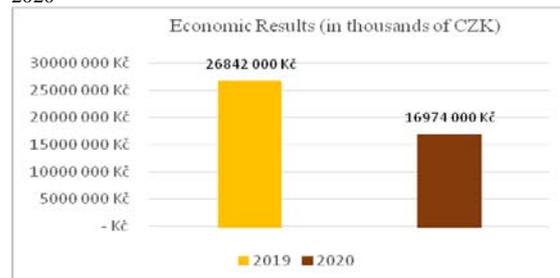
$$\text{Indebtedness} = \text{External Resources} / \text{Own Resources} \quad (3)$$

4 Results

4.1 ŠKODA AUTO a. s.

As shown in Graph 1, the economic results for the year 2019 (CZK 26 842 000 thousand) and the year 2020 (CZK 16 974 000 thousand) were calculated using the appropriate formula. The total difference between these years is CZK 9 868 000 thousand.

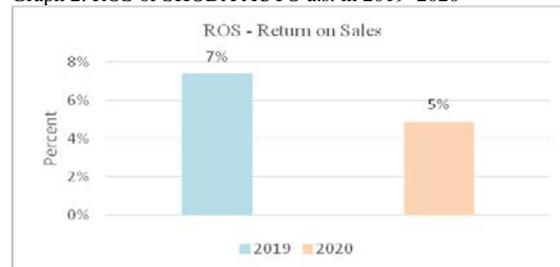
Graph 1: Economic Results of ŠKODA AUTO a.s. in 2019–2020



Source: Own processing based on Cribis data.

The following graph (Graph 2) illustrates ROS (Return on Sales) for the year 2019 (7%) and the year 2020 (5%).

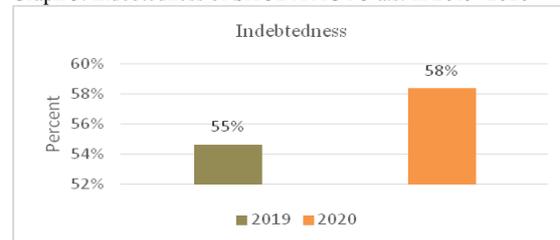
Graph 2: ROS of ŠKODA AUTO a.s. in 2019–2020



Source: Own processing based on Cribis data.

The last graph (Graph 3) reveals indebtedness for the year 2019 (55%) and the year 2020 (58%).

Graph 3: Indebtedness of ŠKODA AUTO a.s. in 2019–2020

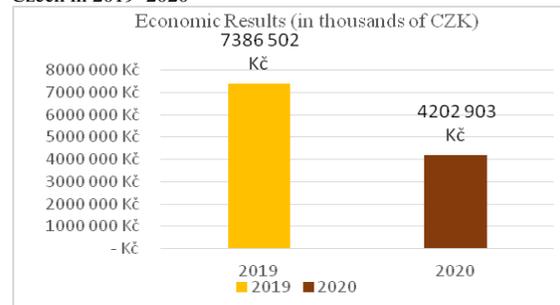


Source: Own processing based on Cribis data.

4.2 HYUNDAI MOTOR MANUFACTURING CZECH

Here, the economic results for the year 2019 (CZK 7 386 502 thousand) and the year 2020 (CZK 4 202 903 thousand) were also calculated. The difference between these years is CZK 3 183 599 thousand.

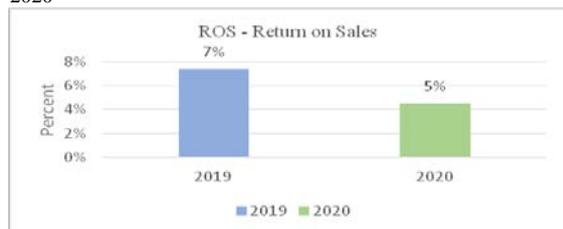
Graph 4: Economic Results of Hyundai Motor Manufacturing Czech in 2019–2020



Source: Own processing based on Cribis data.

The following graph (Graph 5) illustrates ROS (Return on Sales) for the year 2019 (7%) and the year 2020 (5%).

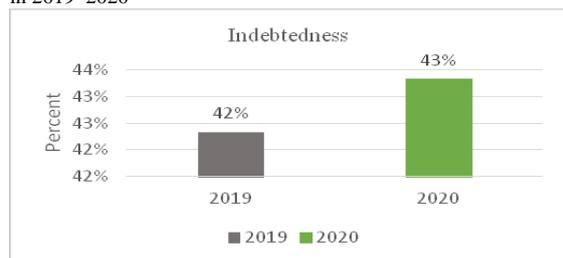
Graph 5: ROS of Hyundai Motor Manufacturing Czech in 2019-2020



Source: Own processing based on Cribis data.

The last graph (Graph 6) reveals indebtedness for the year 2019 (42%) and the year 2020 (43%).

Graph 6: Indebtedness of Hyundai Motor Manufacturing Czech in 2019-2020

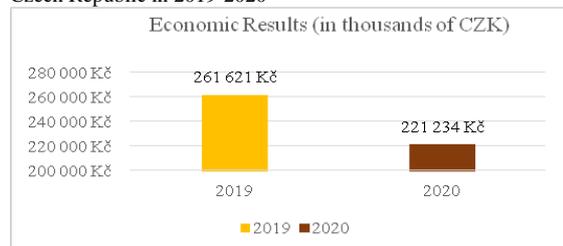


Source: Own processing based on Cribis data.

4.3 TOYOTA MOTOR MANUFACTURING CZECH REPUBLIC

The economic results for the year 2019 (CZK 261 621 thousand) and the year 2020 (CZK 221 234 thousand) were calculated for the above company as well. The difference between these years is CZK 40 387 thousand.

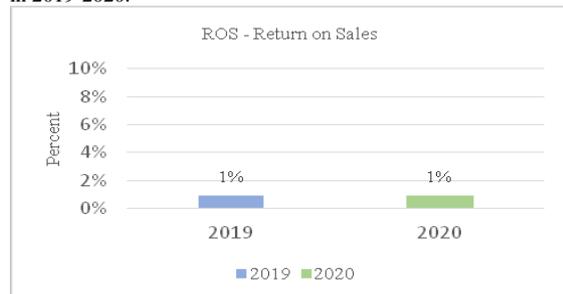
Graph 7: Economic Results of Toyota Motor Manufacturing Czech Republic in 2019-2020



Source: Own processing based on Cribis data.

The following graph (Graph 8) illustrates ROS (Return on Sales) for the year 2019 (1%) and the year 2020 (1%).

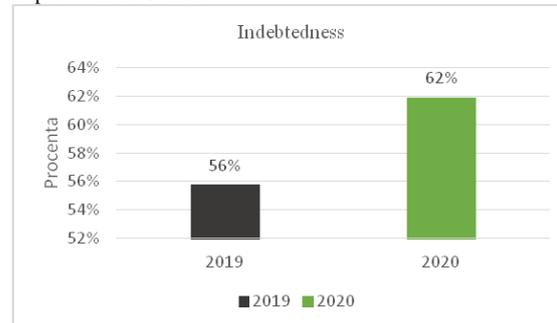
Graph 8: ROS of Toyota Motor Manufacturing Czech Republic in 2019-2020.



Source: Own processing based on Cribis data.

The last graph (Graph 9) reveals indebtedness for the year 2019 (56%) and the year 2020 (62%).

Graph 9: Indebtedness of Toyota Motor Manufacturing Czech Republic in 2019-2020



Source: Own processing based on Cribis data.

5 Discussion Results

Based on the results obtained, it is possible to answer the previously formed research questions.

Did car manufacturing companies have greater profitability or loss during the pandemic? Regarding ŠKODA AUTO a.s., there was lower profitability in 2020 than in 2019 by CZK 9 868 000 thousand. There was also a decrease in return on sales by 2% during the COVID-19 pandemic and indebtedness of ŠKODA AUTO a.s. was at 58% in 2020, which was 3% more than the previous year. Profitability of Hyundai Motor Manufacturing Czech was lower in 2020 than in 2019 by CZK 3 183 599 thousand. Return on sales decreased by 2% as well and indebtedness increased by 1% in 2020. Toyota Motor Manufacturing Czech Republic recorded the worst result since profitability decreased by CZK 40 387 thousand, return on sales was the same in both years (1%), but indebtedness increased by 6% in 2020. It follows that the total losses of the aforementioned companies were greater than their profitability during the COVID-19 pandemic in 2020.

What were the impacts of the COVID-19 pandemic on the automotive industry in the Czech Republic? During the COVID-19 pandemic the above companies had larger losses than in the previous year. Also, they became more indebted in 2020 and had lower return on sales than in 2019.

Pelle and Tabajdi (2021) came to a similar conclusion claiming that the COVID-19 pandemic triggered a number of temporary business decisions, particularly plant closures, thus reducing profitability. There were also redundancies, but this was not a prevalent issue. In the short term, it should be noted that the pandemic has affected the Czech Republic very quickly, which reduced domestic demand. The second wave of the pandemic at the beginning of 2021 brought about a worldwide shortage of semiconductor chips, which significantly affected the automotive industry in Europe as well.

Furthermore, Horobet, Zlatea, Alexe and Smedoiu Popoviciu (2021) achieved the same result in relation to the fact that car manufacturers became less indebted in 2019 than during the pandemic.

Finally, Wang and Wells (2020) as well as a number of analysts state that, due to low profitability, an important impact of the COVID-19 pandemic on the automotive industry will be reflected in increased car prices.

6 Conclusion

The objective of this paper was to analyze how Czech car manufacturers have coped with the COVID-19 pandemic. The objective was achieved. In the results section, economic results, return on sales and indebtedness in the years 2019-2020 were calculated for three car manufacturers. Subsequently, the

resulting figures were compared with the use of graphs illustrating how the companies were managing during the pandemic and the year before, when they had not been affected. As has been found out, the companies experienced serious problems during the pandemic. They became more indebted and had lower profits than the year before the pandemic. Given the COVID-19 government measures, the car manufacturing companies suspended production for some time, which did not help them much either.

Further research should be focused on a financial analysis of the European automotive industry before and during the COVID-19 pandemic to find out if this crisis has also affected other countries in Europe.

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