Gamification in Economic Education at Secondary Schools Reflecting the Value Orientation of Students

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Abstract

Gamification in secondary economic education mainly aims to produce a more engaging learning environment. In the paper, we argue that the effect of the game elements used with students during lessons should reflect their value orientation. If we want to increase the efficacy of games used in secondary schools, we should choose the educational objectives of each game very carefully and adjust game elements to the most important values recognized by most of the students in each class. Our sample of respondents considered educational values as very important, so teachers should always communicate the educational objectives to students clearly. Understanding the educational value of the game helps to increase students' interest, motivation and engagement in playing the game. For female students, it is even more important and motivating if the game also focuses on interpersonal relationships and helps them develop their social skills. On the contrary, male students especially appreciate practical focus of the game and economic significance of the knowledge or skills they learn while playing.

Keywords: Gamification, Economic Education, Secondary Schools, Value Orientation

1 Gamification in Education and Its Main Elements

The concept of gamification is often considered an innovative approach to enhancing student engagement and learning outcomes in various educational settings. However, the idea of learning through play dates to at least the 17th century, when the Czech scholar John Amos Comenius wrote *Schola Ludus*. Gamification is defined as the application of game-design elements in non-game contexts, leveraging mechanisms such as points, badges, leaderboards,

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and interactive challenges to create a more immersive and motivating learning experience (Deterding et al., 2011). It is often facilitated using digital platforms, aiming to solve problems, increase engagement, and motivate individuals towards their goals (Christopoulos & Mystakidis, 2023). Although most current examples of gamification are digital, the term 'gamification' should not be limited to digital technology. Not only are media convergence and computing all around us blurring the distinction between digital and non-digital, additionally, games are themselves trans medial categories (Juul, 2005). Regardless of its digital or non-digital form, gamification in education involves applying game attributes outside the context of a game to influence students' learning-related behaviours or attitudes. Thus, learning is affected by strengthening the relationship between instructional design quality and outcomes and/or by influencing learning directly. This is contrasted with a serious games approach in which manipulation of game attributes is typically intended to affect learning without this type of behavioural mediator/moderator (Landers, 2014).

Typical examples of game attributes were categorized by Bedwell et al. (2012) in a taxonomy derived from a comprehensive literature review and subsequent card sorts performed by subject matter experts. The categories of game attributes serve to provide a comprehensive collection of attributes, which includes, e.g., clearly defined rules and goals, action language, tracking game progress and assessment, challenge/conflict, control and ability of players to alter the game, human interaction etc.

Besides game elements or typical attributes, they should be based on, it is important to analyse the effects that games can have on student learning. Sailer and Homner (2020) conducted a meta-analysis to synthesise research findings on effects of gamification on cognitive, motivational, and behavioural learning outcomes. They found that the effect of gamification on cognitive learning outcomes was stable, whereas effects on motivational and behavioural outcomes were less stable. They found that the inclusion of game fiction and social interaction significantly moderated the effect of gamification on behavioural learning outcomes. Additionally, combining competition with collaboration was particularly effective in fostering these outcomes. Moreover, aligning game design with students' intrinsic motivations such as their value orientations can enhance the efficacy of gamification by fostering a deeper emotional connection to the learning content. Gamification combines motivational features such as rewards, challenges, and narrative storytelling to foster engagement and learning effectiveness (Jaramillo-Mediavilla et al., 2024). The results of the cited study reveal that gamification significantly influences motivation by facilitating the assimilation of knowledge, the improvement of skills and academic competencies of students, and specifically refers to a wide range of capabilities that can be enhanced through playful and interactive learning experiences.

Economic education at the secondary school level is particularly suited to gamification, given the subject's abstract nature and reliance on theoretical concepts that can often appear detached from real-world applications. That requires innovative teaching methods to make learning more interesting and tangible for students. Gamified learning environments can

provide students with simulated economic scenarios where they actively participate in decision-making processes, thereby fostering critical thinking and problem-solving skills. Students' motivation and their understanding of key economic principles can be increased by turning economic theories into interactive experiences. Furthermore, economic education offers an opportunity to integrate value-based learning with gamification since game scenarios simulating real-world economic challenges can encourage students to reflect on their personal and societal values. To maximize the benefits of gamification in economic education, teachers must carefully balance its entertainment value with educational objectives. This includes designing activities that promote collaboration, long-term skill development, and reflective thinking, as well as addressing diverse learning styles and value orientations. By doing so, gamification can transform the classroom into a dynamic space where students not only learn but also develop the values and skills necessary for responsible citizenship in a complex economic world. Research suggests that the effectiveness of gamification increases when it aligns with students' values. For example, economic simulations can include moral dilemmas or sustainability challenges that resonate with students' environmental awareness and social responsibility. Designing such scenarios fosters personal engagement and encourages learners to apply economic principles to real-world ethical decisions.

2 Value Orientation of Secondary School Students

Values in a person's life determine what they consider essential and what they believe in. They are an important determinant of human behaviour since they are related to motivation. The value orientation of secondary school students is formed under the influence of various factors, such as family, school, friends or the media. Understanding this process helps teachers and other professionals in the field of secondary education understand how and why young people adopt certain values and how they apply them in everyday life. The students' value orientation is related to their motivation, which is a key factor affecting educational outcomes. Also, the educational process can affect the ranking of students' values, which creates a mutual relationship between the students' value orientation and their learning and its outcomes.

Several factors are crucial for shaping the value orientation of students. It is well-known that family has a fundamental influence on the creation of the moral and ethical basis of young people, which determines their future value orientation. Research confirms that teachers and the school environment can also serve as models of behaviour and value systems (Lickona, 1991). Currently, the media and social networks have a growing influence on the value orientation of the youth. Young people are exposed to media pressure that can affect their self-perception, value system and attitudes towards life (Livingstone, 2008).

The student's value orientation can be understood as a system of values that they recognize and that influence their decision-making and actions. For high school students, values are

connected to their personal goals, social norms, ethical principles and attitudes towards life. Values also determine an individual's interactions with society. There are different types of values, such as moral, social, material (economic), personal, spiritual, cultural and aesthetic, ecological, etc.

Considering students' values is crucial in the educational process (Jardim et al., 2017). In this article, we do not examine how schools can influence students' value orientations; rather, we assume that students' values influence their school behaviour and approach to learning. Therefore, it is important for teachers to understand their students' value orientations to tailor teaching methods accordingly. For instance, a desire for new knowledge and a sense of responsibility, while consciously perceiving the social importance of learning for one's future activities, are dominant factors supporting student learning (Shuvalova & Korepanova, 2022). Understanding how secondary school students currently rank various values is essential for educators aiming to design effective learning experiences.

Although values are individual, it is usually possible to identify the prevailing values of students in secondary schools as the school environment in which they study has an impact on their value systems. At the same time, the dominant values may differ according to the age of the students, as well as according to their gender, as several studies point to differences in the values and attitudes of students from these points of view. For example, differences in attitudes towards school subjects and school performance according to gender were identified for students of economic subjects in secondary schools in a study published by Novák et al. (2024).

Our research aimed to analyse the contemporary value orientations of secondary school students in Slovakia and identify the most effective game elements for implementing gamification in Slovak secondary schools.

3   Data and Methods

In our research of secondary school students' value orientation, we decided to work with the standardized HO-PO-MO questionnaire (Vonkomer, 1991), as this questionnaire is suitable for comparisons of values between younger and older students as well as between male and female students. We used the first group of the questions in this complex questionnaire, which focus on the value orientation of the youth. In this part, the questionnaire contains 12 situations, but at the same time only 11 x 5 alternative answers, since two of the situations focus only on some of the studied areas of values, complementary to each other. We finally excluded this complementary pair of questions from the research, since more than half of the respondents, despite repeated explanations, filled in the answers incorrectly – as if they were independent questions, i.e. regardless of their complementarity. We do not consider this modification of the evaluated data to be a big problem, since the remaining ten questions provide a sufficient overview of the values that are important to the respondents. The questionnaire divides the value orientation of students into five areas:

- educational,
- aesthetic,
- moral,
- economic,
- social.

In each of the ten questions of the questionnaire, the respondents were asked to arrange five statements (each representing one value area in the given situation) from the most important (5 points) to the least important (1 point). In this way, each area in one questionnaire could have achieved a maximum of 50 points (if in every situation the respondent ranked the statement from that area as the most important) and at least 10 points (if in every situation the respondent chose that area as the least important).

The selection of the research sample was deliberate due to the availability and the need for direct contact of the researchers with the respondents to explain the meaning of the questionnaire and the entire research, as well as to ensure a higher return rate of the questionnaires. We focused on secondary school students in the Bratislava region, where a member of the research team travelled to selected schools in April and September 2024 and personally ensured the implementation of the survey with the students of the current third and fourth years in the respective month. Thanks to this, the return rate of the questionnaires was 100%. The total sample consisted of 179 students, out of which 86 were male and 87 were female (6 respondents did not want to state their gender). 72 of the students were already adults, whereas the remaining 107 respondents were 17 years old or younger.

To evaluate the results, we counted the points for each area for all 10 analysed questions attributed by all 179 respondents (and then separately for male and female respondents as well as for adult students and younger students). From the total sum, within each of these samples, we calculated the average score obtained by each of the investigated areas. The more points within a possible scale from 10 to 50 points the given area received, the more importance the respondents attributed to the value that the area represented.

4   Results of the Value Orientation Analysis and their Implications for Using Games in Secondary Education

On the total sample of 179 respondents, we found that secondary school students attribute the least importance to aesthetic values. The most important area was social values (33.82 points on average) and a very pleasant surprise for the researchers was that they attributed almost the same number of points to values in the educational field (average points = 33.78). These were followed by economic and moral values, as shown in Figure 1.
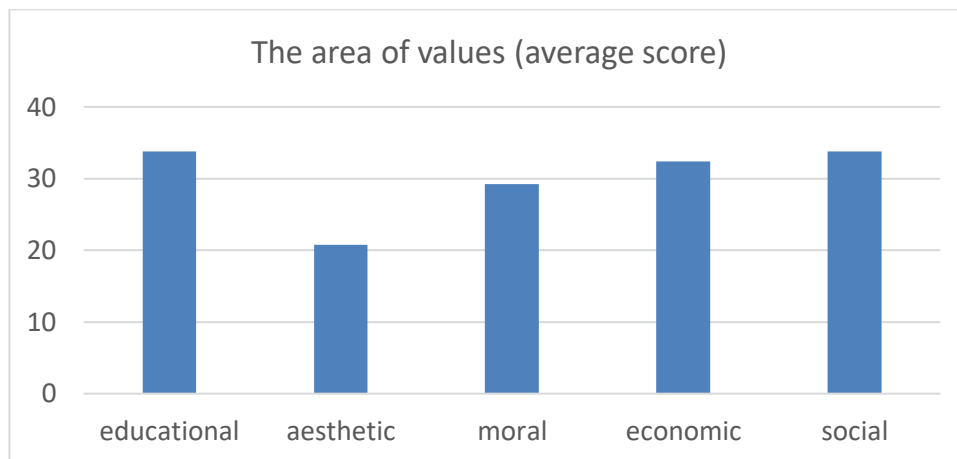
Figure 1: Average score of each area of values (n = 179).

We further analysed whether male and female respondents attributed the same importance to each of these groups of values. We found that the order of values differs between the two sexes (we did not take the six respondents who did not want to state their gender into account in this section, as their answers had no impact on the comparison of the value orientation of male and female respondents). For male respondents, economic values proved to be the most important area (34.52 points), followed by values in the educational area (33.52 points), and the social area came in the third place with a greater distance from the second (32.22 points). On the contrary, in female respondents' answers, the social area dominated on average with up to 35.38 points, closely followed by the educational area (34.24 points), and economic values came third in the ranking (30.20). The remaining two areas came in the same order for both sexes, with the least weight for aesthetic values (20.12 points on average for male students and 21.46 points for female respondents). We can conclude that all respondents see a high value in education, but for male students it was closely exceeded by economic values, while they attribute less importance to social values and, on the contrary, for female students, social values are somewhat more important than education and they attribute considerably less importance to economic values.

Regarding the comparison by age, we divided the whole sample into adult respondents (aged 18 and over) and students aged 17 and under. A comparison of the average point evaluations for individual value areas between these two age groups is summarised in Table 1.

Value area	Younger students (17 and less years old)	Adult students (18+ years old)
Educational	33.50	34.18
Aesthetic	21.08	20.28
Moral	29.50	28.86
Economic	31.48	33.76
Social	34.43	32.92

Table 1: Comparison of value orientation of adult students and younger students.

Table 1 shows that the field of education was ranked first in the group of adult students, whereas younger students considered it to be the second most important, with social values being at the top of their hierarchy. For adult students, social values seem to be less important as they came third in the ranking with economic values being more important. Younger students ranked economic values as third. A certain difference in the number of points can be noticed for aesthetic values, which were preferred more by younger students than by adult respondents, which confirms slightly more pragmatic value orientation of adult students. Moral values were in the fourth place in both groups of respondents.

If we were to draw a conclusion from these simple research findings for the work of a teacher and his or her teaching in class, they should focus a little more on methods that use or develop interpersonal relationships in the classroom for female students and emphasise the economic aspects and pragmatic benefit of assignments for male students. When using gamification, it is very important that the games follow clear educational goals, and when trying to slightly differentiate them according to gender, games for female students should also aim at the development of interpersonal relationships, while games for male students should be somewhat more practically oriented and show the economic significance of the knowledge acquired by the game for their future lives. Moreover, students' motivation will be increased if they know the educational objectives of each game, understanding clearly that the playful environment and time spent on the game will help them learn something new.

5 Conclusion

Our sample indicated that education has a high value for secondary school students at the analysed schools in Slovakia, which is in line with other research studies carried out in different countries (e.g. Shuvalova & Korepanova, 2022). Female respondents attributed slightly more importance to values from the social domain, while male respondents prioritised values in the economic domain. We can conclude that female students tend to be more socially oriented, with human relationships and social skills being of greatest importance to them, whereas male students in our sample were more economically focused, placing value on the pragmatic aspects of education. Of course, we cannot generalize this conclusion based on a survey with a limited number of respondents for the whole country. However, as educational, social, and economic values were clearly identified as the most significant for all respondents, it is advisable for teachers to consider how didactic games used in education align with these value orientations. If the games employed in the classroom have clear educational objectives, promote the development of social skills and relationships among students, and are connected to real-life problems and practical solutions, their efficacy is likely to be higher. Such games should, therefore, be more effective in fostering engagement and enhancing learning outcomes (Jaramillo-Mediavilla et al., 2024).

Acknowledgements

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