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THE IMPORTANCE OF OCCUPATIONAL SAFETY AND HEALTH EDUCATION IN THE EVENT OF ACCIDENTS AT WORK DUE TO NON-COMPLIANCE WITH OCCUPATIONAL SAFETY RULES AND STANDARDS

Abstract:

Non-compliance with occupational health and safety legislation leads to accidents at work which have consequences for employees, companies and the state. To prevent these consequences, an occupational accident prevention system, including education and training of employees in the field of occupational health and safety, is possible. The paper analyzes and presents the results of the research of the need to re-educate employees on the basis of three selected areas: compliance with working procedures, use of protective clothing and footwear and compliance with mental hygiene principles in which respondents do not comply with occupational health and safety rules, resulting in an accident at work in the transport sector. The contribution points out that formal education carried out by classical educational methods in the field of occupational health and safety does not have sufficient effect to change employees' behavior and does not replace the experiential form of education provided by modern educational methods. The paper is output solutions of grant tasks VEGA No.1/0447/19 – Economic consequences of non-compliance with the principles of occupational safety and health for companies in the Slovak republic.

Keywords:

occupational safety and health, work injury, education, e-learning

JEL Classification: I15, I25

1 Introduction

Non-compliance with occupational health and safety legislation usually leads to accidents at work. These are the consequences, in particular, for employees who are losing their health or life, hampering further social exercise, financial loss or reducing the quality of life of an employee and his/her family. The consequences of non-compliance to ensure health and safety at work also arise for companies as employers. For example, they may have social consequences (employee frustration and employee turnover, loss of employer's reputation), legal consequences (prosecution of responsible persons), economic consequences (cessation of production, compensation of injured parties, fines, additional measures). Last but not least, the consequences also apply to the state, because they represent the cost of medical care, the cost of social care, the failure to meet international obligations in relation to the protection of work.

Preventing these consequences and the costs associated with them is possible by preventing occupational injuries, by a system of measures planned and implemented in all areas of the employer's activity. The measures are aimed at eliminating or limiting the risk and the factors underlying the occurrence of accidents at work, occupational diseases and other occupational health hazards and identifying procedures in the event of an immediate and serious threat to the life or health of the employee. And this company management system also includes employee health and safety education and training.

According to Matulčíková (2002), it is important to pay attention to their continuing vocational education and personal development as part of employee care. The process of educating employees in the organization should be based on learning needs, which should be used to develop employee development and qualification plans.

Employee training methods are closely related to the forms of education that the organization prefers on the basis of an analysis of the acquired information about the educational needs of employees and the organization's skills needs. According to Szarková et al. (2013), however, we often encounter the phenomenon that an employee may acquire new knowledge and skills but is unable to use them in practice.

Occupational safety and health education is implemented through a system of education and practical training for which the employer is responsible. The system of education and training in the area of health and safety at work consists, according to Perichtová - Kordošová (2003), of the following components: initial education, held on the first day of the new employee's entry into the organization, before being assigned to work tasks. In large organizations, initial education can be divided into three parts: initial briefing, on-the-job briefing and training. In small and medium-sized organizations, or in organizations with a lower degree of risk to the life and health of the employee, the aforementioned parts of initial education merge.

Retraining employees is done at least once every two years, unless another time limit is specified in another regulation. Training of employees in transfer to other work, other workplaces, changing work procedures, returning to workplaces after occupational injuries, returning after long absence in the workplace (parental leave, long-term sick leave, etc.), before performing rare activities and education about work practices and protection against threats from performing activities with increased life and health threats. Training of professional employees of various professions, for which qualification requirements are set by regulations in the area of occupational safety and health protection (operation of technical equipment, operation of construction machines, drivers of forklift trucks, work with chain saw, work at height etc.) (Perichtová – Kordošová, 2003).

Companies realize their education and training duties either by their own lecturers or by contractors. Supervision and advice are carried out by labor inspection authorities. But the content and use of forms and methods in company education are problematic. For example, it often happens that employees re-training has the same content as initial education. Companies also undertake employee safety and health education through traditional learning methods. But classical forms of company education are no longer enough. Currently, according to the authors Novotný and Kordošová (2013) e-learning and application of various methods of e-learning are coming to the fore. New forms of education are the result of increasing financial demands for education, globalization and increasing competitiveness, with an emphasis on streamlining and improving the learning process. The information is most often transmitted via online distance courses. When interpreting legal regulations, there is the possibility of applying e-learning, in which animations or other elements are applied, which will increase the interest of the educational process. These elements can be videos, images, or a combination of text and word. In the area of occupational health and safety, e-learning is a relatively underutilized form of education. It is mainly used by the lecturer.

According to Stanček (2019), informal methods of education in companies and also digitization in education process are currently on the rise. Technology that helps in education needs to be simple, clear and part of what we use daily. Ideally, this technology is integrated into the company's learning environment or into the Intranet to create a corporate social network.

The final verification of the knowledge of the participants in the educational and training activities (final verification of knowledge) is performed by a written examination or an oral examination (at least 75% of correct answers are required for successful verification of knowledge), by a practical part if the practical part is part of education. A written record shall be made of the course of final verification of knowledge (Novotný – Kordošová, 2013).

According to Ministry of Labor, Social Affairs and Family of the Slovak Republic (2016) legal awareness regarding Occupational Safety and Health Protection Strategy, lack of awareness and the unreasonable underestimation of risks of health damage and the lack of effort and willingness to address working tasks also at the expense of one's own health and unwillingness to prevent health damage by preventative OSHP measures are pervasive in the Slovak Republic. Therefore education in this area and its coordination must be supported.

OSH education and training is a long-term process that continuously builds on the already acquired knowledge and experience and in an appropriate manner and is applied in retraining education and is implemented in specific forms also by employers. The employer is obliged to prepare a project of education for this purpose (Adamček, 2006).

The main aim of our research was to identify the need for repeated training of employees on the basis of three selected areas in which respondents do not comply with occupational health and safety rules, resulting in an accident at work. For the purposes of our research, we chose those areas of non-compliances that are the most common cause of occupational injury among respondents. These were three areas of occupational safety, where respondents most often do not comply with the rules and these are: compliance with working procedures, compliance with protective work clothes and footwear and compliance with the principles of mental hygiene.

The following section deals with the analysis of occupational injuries in Slovak companies, which is closely related to education in the field of occupational health and safety.

2 Analysis of occupational injuries in Slovak companies in years 2017, 2018

In this section, we deal with the analysis of occupational injuries in Slovak companies over the past two years. As can be seen from Table 1, based on data from the Slovak National Labor Inspectorate (2017, 2018) 9080 registered occupational injuries were reported in 2018. Of this number, 38 were serious occupational injuries resulting in death, which is three less than in 2017 (a decline of 7,3%). In the evaluated year, 69 occupational injuries with severe health injuries were recorded. Compared to 2017, the number of accidents at work with severe health injuries decreased by 49 cases in 2018 (by 41,5%). In 2018, there were 8973 other registered occupational injuries, it means injuries above 3 days of incapacity for work without fatal injuries and injuries with serious health injuries, which represents a decrease of 783 cases (decrease by 8,0%) compared to 2017.

The most important characteristics of accidents are sources and causes of accidents at work. According to Slovak National Labor Inspectorate (2017, 2018) most fatal occupational injuries (81,58%) have accumulated into three main source groups: vehicles (15 cases – 39,47%), work and/or road transport areas as a source of employee falls (8 cases – 21,05 %) and materials, loads, articles (8 cases – 21,05%). The most frequent sources of serious work injuries with serious health injuries were machines - driving, auxiliary, machining and working (18 cases – 26,09%), means of transport (16 cases – 23,19%) and handling of materials, loads, objects, sharp edges or their fall (14 cases – 20,29%). Statistics on the sources of registered accidents at work for 2018 show that most of these injuries were caused by material handling, loads, objects, sharp edges or their fall (2760 cases – 30,76% of the total). Accidents resulting from the fall of employees on road traffic areas (2465 cases – 27,47%) can be included in the next location according to their frequency.

The most common causes of fatal accidents at work were, apart from undetected causes (12 cases, 31,58% where labor inspectors only investigate the driving regime), especially the use of unsafe practices or modes of work, including without authorization (13 cases – 34,21%). The most common cause of occupational injuries with bodily harm was undetermined causes (20 cases – 28,98%) of which 13 were injuries with serious health injuries in road accidents. The second largest cause was the use of unsafe practices or ways of working, including non-professional procedures (16 cases – 23,19%). The third largest cause (11 cases – 15,94%) was the lack of personal preconditions for work at the time of the accident (various indispositions, inattention) and the threat of other people (distraction, jokes, quarrels and other dangerous actions) was the fourth largest cause of work injuries with severe health problems (10 cases – 14,49%). The most common reasons for the occurrence of registered occupational injuries were in particular shortcomings of personal preconditions for work performance at the time of the accident (various indispositions, inattention, etc.) 7,076 cases – 78,86% and dangerous actions of employees who suffered work injuries – use of dangerous procedures or methods of work including non-professional management (428 cases – 4,77%) (SNLI 2017, 2018). The analysis of occupational accidents is closely linked to the issue of non-compliance with occupational safety and health standards, as well as education and training needs in this area, which will be addressed in the following section.

Table 1: Occupational injuries and work-related diseases in Slovak companies in years 2017, 2018

Year	2017	2018
Registered occupational injuries	9328	9080
Fatal occupational injuries	41	38
Occupational injuries with bodily harm	118	69
Other registered occupational injuries	9169	8973
Work-related diseases	245	243

Source: own elaboration according to: National Labour Inspectorate. Collective of authors. (2017), (2018). Analysis of occupational injuries, work-related diseases and serious industrial accidents in organizations in the scope of labour inspection for years 2017, 2018 Košice: NLI.

3 Results of the research

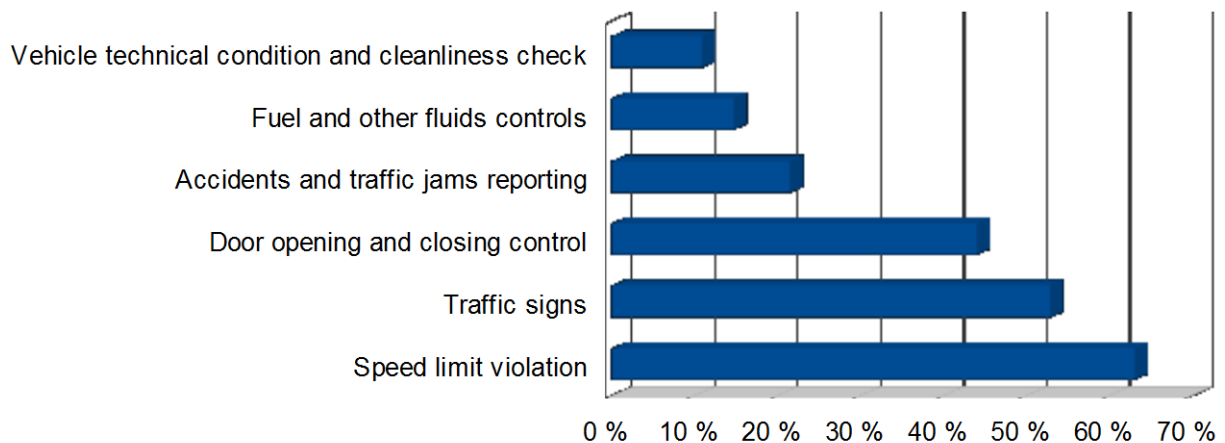
In the following section, we present the research results. The main aim of the research was to identify the need for repeated training of employees on the basis of three selected areas in which respondents do not comply with occupational health and safety rules, resulting in an accident at work.

Basic scientific methods, descriptive and content analysis methods, methods of synthesis, comparison and classification were used in the survey. We used a method of content analysis of internal company documents and training activity reports and employee test results. In these tests, the employees demonstrated that they understood the importance of occupational health and safety education. Also used was the content analysis of the causes of accidents at work from security technicians and experts.

Based on a survey of the entire research sample, we selected a group of respondents (targeted selection) for the following reason. We chose the respondents from the group where the number of accidents at work is the most frequent and that is the area of transport. Respondents consisted of employees of the transport company of the capital city of Bratislava, bus drivers. All respondents (N-78) had an accident at work, with no consequences. Employee education in the area of occupational safety and health is carried out in a complex way in the form of a lecture, interview and discussion, training, briefing and coaching.

For the purposes of our research, we chose those areas of non-compliances that are the most common cause of occupational injury among respondents. These were three areas of occupational safety, where respondents most often do not comply with the rules and these are: compliance with working procedures (Figure 1), compliance with protective work clothes and footwear (Figure 2) and compliance with the principles of mental hygiene (Figure 3).

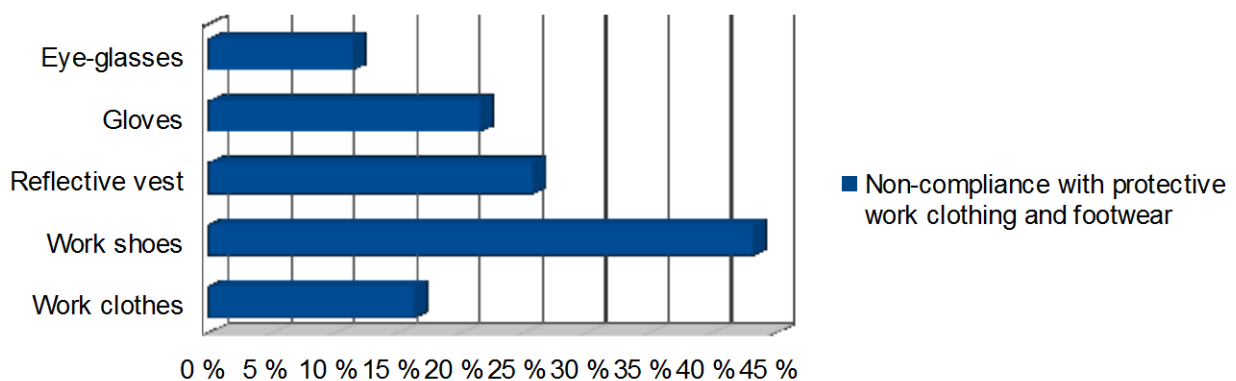
Figure 1: The need for re-education of employees in the area of compliance with working procedures



Source: own elaboration

Figure 1 shows that the need for re-education of employees has been demonstrated in the following areas of non-compliance: non-compliance with road traffic rules - speed limits violation – 63,04%, traffic signs – 52,81% and non-compliance with technical procedures: door opening and closing control – 43,97%, accident and traffic jams reporting – 21,46%, fuel and other fluid controls – 14,67%, vehicle technical condition and cleanliness check – 10,83%.

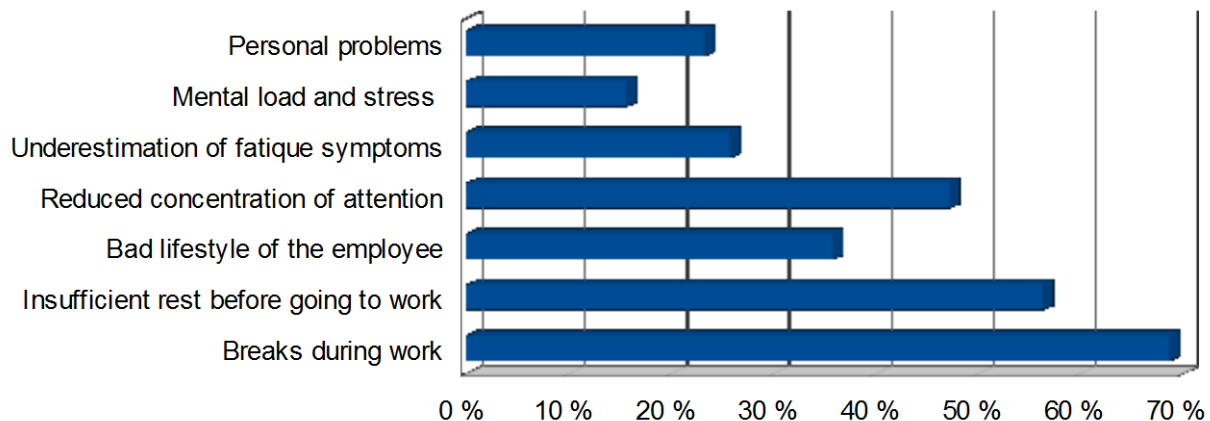
Figure 2: The need for re-education of employees in the area of compliance with protective work clothing and footwear



Source: own elaboration

As can be seen from Figure 2, the need for re-education of employees has been shown in the following areas of non-compliance with wearing and using protective work clothing and footwear, namely: work clothes – 16,31%, work shoes – 43,26%, reflective vest – 25,72%, gloves – 21,54%, eye-glasses – 11,42%.

Figure 3: The need for re-education of employees in the area of compliance with the principles of mental hygiene



Source: own elaboration

As can be seen from Figure 3, the need for re-education of employees has been shown in the following areas of non-compliance with the principles of mental hygiene: breaks during work (or use of mandatory breaks for other activities and not rest) – 68,75%, insufficient rest before going to work – 56,34%, bad lifestyle of the employee (nutrition, plenty of fluids) – 35,82%, reduced concentration of attention – 47,21%, underestimation of mental and physical symptoms of fatigue – 25,74%, mental load and stress – 15,63%, personal problems – 23,26%.

The results of the research showed the need to re-educate respondents in the areas of occupational safety and health, where they do not most often comply the rules and standards of occupational safety, resulting in a minor occupational accident. Therefore, respondents should be re-educated in the areas where an accident at work has been registered. However, despite the education and training in these areas, the increased incidence of minor occupational injuries persists and does not change, so it is important to change the form and methods of education in the area so that the number of such injuries is reduced. Classical methods of education in this area have proven not to have enough effect to change employees' behavior, and our goal is to choose in the future those methods that would reverse these conditions. Based on our observations, it appears that new education methods should include: solving model situations using information and communication technologies, sharing information through social networks, using websites and e-learning. It would also be beneficial to create a platform for employees to quickly discuss the issue of health and safety at work. The platform should be designed in such a way that the communication tool allows for quick advice and guidance on how to deal with the situation - using new ICT, including mobile applications.

Many accidents at work also arise because employees are accustomed to improvising in crisis situations and are also unable to perceive the severity of the situation, not always objectively assessing the gravity of a given situation, to act on the learned schemes, and in this respect, the defense-adaptive mechanism must be encouraged. This mechanism will prevent improvisation in critical situations in the final phase. This mechanism is the result of a targeted repetitive regular educational process, in which modern information and communication technologies, in particular, should be used. It appears that formal education carried out by classical educational methods in the field of occupational safety and health does not replace the experiential form of education

provided by modern educational methods. As the research results show, in Slovakia, the formal approach and use of classical methods currently prevail, resulting in a persistent occurrence of occupational injuries.

The number of accidents at work is closely related to the follow-up of education outcomes (standards testing), which is carried out continuously in the company on a monthly basis, or even within an operating session every day. In particular, the education, training and motivation of employees in the following areas is important for meeting the needs of repeated employee training and subsequent continuous control and verification of employee knowledge. These are the areas of compliance with the work procedures, in particular road traffic rules and speed limits, wearing and using protective clothing and footwear, compliance with the principles of mental hygiene, including socio-psychological driver training, such as a calm, defensive driving style or handling different situations the right lifestyle, including taking breaks and free time to rest and regeneration.

Last but not least, the diversity of employees must be taken into account in the education process, not only for the gender of drivers but also for foreign employees. Like other carriers in Slovakia and abroad, the Bratislava transport company has been struggling for a long time with the lack of professional drivers of urban public transport, as applicants' interest in this position is currently insufficient in the labor market. Therefore, they try to cover a part of the drivers acquired by the company in the recruitment campaigns in Ukraine. Nowadays, foreign drivers are working in the company, not only from Ukraine, but also from Serbia and Poland. As far as education is concerned, foreign drivers also complete a basic Slovak language course in order to be able to negotiate with passengers if necessary. In the following section, we present the research results. The main aim of the research was to identify the need for repeated training of employees on the basis of three selected areas in which respondents do not comply with occupational health and safety rules, resulting in an accident at work.

4 Conclusion

In the area of occupational safety, the effectiveness of education and training can be expressed by adopting and adhering to the principles of safe work, safe working practices, the principles of safe behavior and workplace behavior. However, the analysis of occupational accidents is closely linked to the issue of non-compliance by employees with rules and standards in the field of occupational safety and health and the need for their education and training in this area. For drivers it is of great importance to educate them in the form of their professional training, renewing their qualifications and ensuring proper compliance. However, this has to be done within a risk management organizational system with a clear management commitment. The diversity of the workforce, whether the needs of older and younger workers, female drivers and foreign workers (EU-OSHA, 2019), must also be taken into account in the educational process.

We can conclude, overall comprehensive training in the field of occupational safety and health at work is not enough. In companies it is necessary to analyze the results of the educational process for the occurrence of occupational injuries and to strengthen those areas in education beyond the law. In every team of employees there are employees whose behavior is not consistent with safe workplace behavior. This underscores the importance of the leadership and management activities of management, in particular the organization of the work process and the

compliance check and occupational safety guidelines. In these areas, it appears that education must be continuous and associated with control.

The transport sector is experiencing an overall lack of drivers in the labor market. There is also a high rate of fluctuation in this sector, which is also reflected in the selection of staff, people who are under-professional and can simplify standards and rules, do not give seriousness to education in the fields, as they seem to be simple and not dangerous or only focus on earnings. From the point of view of the efficiency of the education process, the company care is effective for employees and also high-quality and regular education and training, where the methods that ensure motivation (focus on practical application and experiential learning and are applied in practice), active participation (which facilitates acquiring new knowledge and skills by exchanging experience), an individual approach (which takes into account the needs and the level of the individual and his/her specific learning style), feedback (which allows the trainer to correct the timetable, pace of learning and methodology) and transfer, (which guarantees that participants will be able to apply the knowledge acquired during the educational program in practice (Novotný - Kordošová, 2013). Formal education carried out by classical educational methods in the field of safety and health at work does not have sufficient effect to change employees' behavior and does not replace the experiential form of education provided by modern educational methods.

There is currently a trend for modern methods such as solving model situations using information and communication technologies, sharing information through social networks, using websites, a platform for employees to quickly discuss the issue of health and safety at work, drive- simulator or e-learning forms of education. Education with the use of modern methods of training employees in the field of occupational health and safety is a long-term and continuous process and requires a lifelong education system in the company.

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