

MODERN FORMS OF OCCUPATIONAL HEALTH AND SAFETY TRAINING AS A FACTOR INFLUENCING THE DEVELOPMENT OF SAFE AND HEALTH-PROMOTING BEHAVIOR AMONG EMPLOYEES

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Abstract: In times of strong economic growth, one of the elements of a company's competitiveness is innovation. It determines a company's development and its success. Appropriate innovation management within a company is determined by specific activities in the areas of research, planning, implementation, diffusion and control. Innovation can relate to products, processes, organization and marketing. In the area of occupational health and safety, there are many innovations that improve the quality and productivity of work and have an impact on occupational health and safety. This paper presents the results of a study conducted using a survey of companies that use modern forms in the area of training to improve safety in their companies. The survey was conducted at the end of 2022 in 25 SME companies in the Silesian Voivodeship. The results of the survey were compared with trends in Poland and worldwide, based on publicly available reports and communications. The aim of the article is to highlight the level of training related to occupational health and safety and the demand for innovative forms of such training. Health and safety training is the cornerstone of creating safe work awareness in employees. Surveys of Polish companies indicate major problems in this area. According to Polish employees, training is boring, overloaded with theory and rarely deals with the practical side of work. This paper identifies modern forms of health and safety training and assesses the impact on safe employee behavior in the workplace. The results confirmed that there is a great need for modern training methods to improve the level of occupational safety in enterprises.

Keywords: innovations, training, occupational health and safety

1. INTRODUCTION

Innovation has a special role among the factors that influence the company's competitiveness. Regardless of the scale of the business, innovations affect the broadly understood development of the company. The origin of the word "innovation" comes from the Latin word "innovatio", which means renewal (PWN Encyclopedia, 1980). It was first used by J. Schumpeter in economic sciences. He understood them as the introduction of

a new product or method (Schumpeter, 1960). The concept of innovation has evolved over time. For example, Philip Kotler applied the concept of innovation to any good, service or idea that someone perceives as new. An idea may have existed for a long time, but it is an innovation for a person who perceives it as innovative. One of the most complete definitions of innovation seems to be the one quoted by many scientists, following the Oslo Manual (Oslo Manual, 2008). According to him, "innovation is the implementation of a new or significantly improved product (product or service) or process (Dereli, 2015), a new marketing method or a new organizational method in economic practice, workplace organization or relations with the environment" (Janiszewski and Siemieniuk, 2012, Ulewicz et al., 2021; Ulewicz and Ulewicz 2020). It should be remembered that in light of this definition, an innovation is a new idea or invention that will find practical application in the economy. There are many divisions of innovation. The classic division of enterprise innovation is the one in which product innovations (introducing a new product, item or service) and process innovations (introducing a new method of operation) are distinguished (Lewin et al., 2009). In addition, the literature on the subject distinguishes social innovations, including the introduction of new customs or social behaviors (Jamielniak and Koźmiński, 2011). There are also (Penc, 2003; Grebski and Mazur, 2022):

- organizational innovations related to the organization of work and production,
- the so-called eco-innovations that reduce or completely eliminate the negative impact of the production process on the natural environment,
- marketing innovations that are related to marketing strategies,
- technological innovations, which are aimed at introducing new production methods to improve the production process,
- managerial innovations that are related to changes in the processes of managing the enterprise.

Innovation in an area such as health and safety training is desired by companies, employers and employees alike. The term "innovation" (Latin *innovatio, innovationis*) simply means "novelty". In studies on business innovation, authors have attempted to redefine this concept and systematise it. Thus, according to the OECD, innovation can be divided into four categories, of which references to occupational safety and health (OSH) include innovations (OECD, 2005):

- product - the introduction onto the market of a product or service that is new or substantially improved in respect of its characteristics or use,
- process - introduction of a new or significantly improved method of production or delivery,
- organizational - implementation of new methods of enterprise management or changes in work organization,
- marketing - implementation of a new marketing method involving significant changes to e.g. packaging, distribution, promotion or pricing strategy.

In turn, organizational innovations are divided - according to the classification used by the Central Statistical Office (GUS, 2018) - into three basic groups: new methods in terms of the principles of operation adopted by the company, the new methods of distributing tasks and decision-making powers among employees and new organizational methods in terms of relations with the environment (Table 1). These innovations largely take into account innovations in occupational health and safety (Pęciłło-Pacek and Galwas-Grzeszkiewicz, 2022).

In the literature there is also the concept of workplace innovation, denoting both organizational and technical innovations, which cannot be ignored when talking about innovations in about innovations in health and safety. Workplace innovation is defined as follows:

- new, combined interventions in work organization, human resource management and enabling technologies (Pot, 2011; Grebski and Mazur, 2022a)
- changes in practices relating to the management, organization and development of human and material resources, which stem from the adopted strategy, are introduced with the participation of all employees and lead to improvements in organizational performance and quality of life at work (Eeckelaert, Dhondt, Oeij, et al., 2012; Krynke, 2019).

Table 1

Division of organizational innovation

Type of organizational innovation according to CSO	Scope of organizational innovation according to CSO	Examples of organizational innovation in occupational health and safety
New methods in terms of adopted by company operating principles	supply management, re-engineering business and organizational processes, lean production, or quality management systems	<ul style="list-style-type: none"> • system OH&S management, • integration system management system with other systems • evaluation system processes OSH MANAGEMENT SYSTEM
New methods distribution of tasks and powers and decision-making powers Among employees	introduction of teamwork, devolution, integration or disintegration of departments, new training systems, etc.	<ul style="list-style-type: none"> • programmes modifications behaviour dangerous • reporting system incidents potentially accident reporting system • remote working
New methods organizational methods in terms of relations with the environment - other enterprises or public institutions	use for the first time of forms such as unions (alliances), companies, so-called outsourcing (taking over the performance certain tasks by specialized external companies or subcontracting etc.	<ul style="list-style-type: none"> • take up cooperation with research • outsourcing of services or training in the field of health and safety

Source: (Pęciłło-Pacek, Galwas-Grzeszkiewicz, 2022).

Innovative health and safety training is primarily designed to minimize the risk of accidents in the company. An innovation aimed at reducing occupational risks can be defined as any change in OSH that is new to the existing situation and results in an increase not only in the level of OSH, as measured by the number of accidents or near-misses, but also in OSH communication or worker involvement (Ulewicz, et al., 2015). Innovations aimed at risk reduction also include modern forms of occupational health and safety training, both

initial, periodic, instructional and specialized. When planning a state-of-the-art training course, it is important to determine what the training will be about, what the training is supposed to teach and how to test the effects of the training. This process can be based on the Deming learning cycle (Kowal, et al., 2023). Figure 1 shows this process.

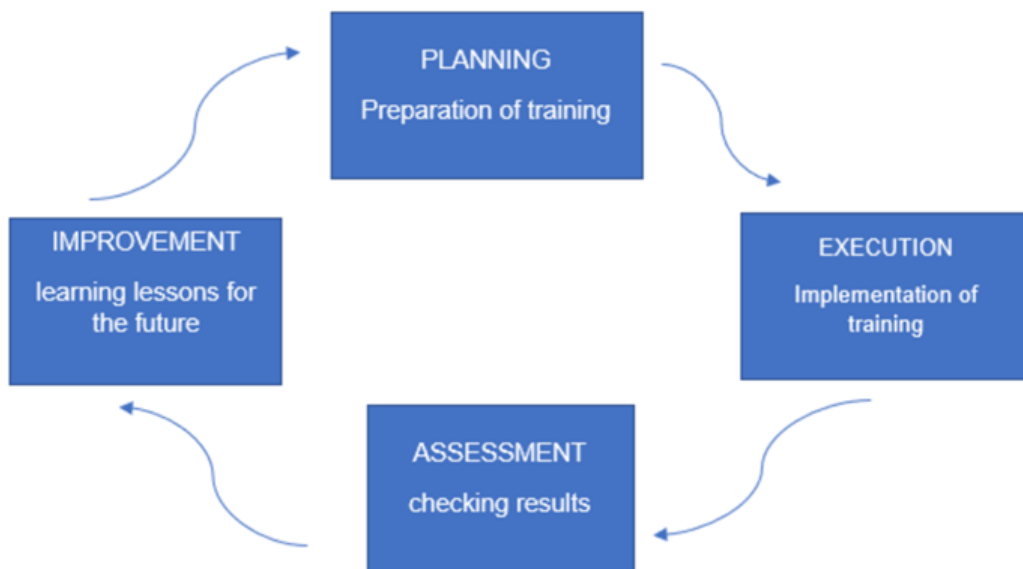


Fig. 1. The idea of a learning process based on the educational cycle - the Deming principle

Safety and the level of occupational risk are, among other things, determinants of company performance. Work cannot be carried out safely without the right attitudes and competences of workers. Attitudes can be formed directly at work, by setting an example, by informing employees of the importance of OSH. We can also use OSH training for this purpose, which increase workers' competence (Oleszak, 2016). The results of the National Labour Inspectorate's studies have confirmed for many years that the most important cause of accidents at work is the human factor, especially the inappropriate behaviour of employees. These are due, among other things, to low levels of initial, instructional and periodic training (PIP, 2022, PARP 2020).

2. METHODOLOGY

The study was carried out using a survey questionnaire on the impact of modern forms of training on workplace safety in companies. The research group consisted of manufacturing and service companies in the construction industry. The survey questionnaire was obtained electronically from randomly selected enterprises. The selection criterion was membership of the SME sector and a high accident rate. The process of obtaining questionnaires took 5 months. 40 responses (questionnaires) were obtained, of which 25 correctly completed questionnaires were selected for analysis. Author's questionnaire consisted of 3 parts. The first part concerned the characteristics of the surveyed company, the second part was a package of information characterizing the respondent, while the third part contained 6 problem questions related to the topic. For the most part, respondents were asked to rate the concepts and phenomena presented on a scale from 1 to 4. The higher the declared value for a given

problem, the more the respondent agreed with it. The results presented in this article are part of a larger whole.

3. RESULTS AND DISCUSSION

Of all respondents surveyed by questionnaire, 6 declared to be the owner of the surveyed company, while 5 respondents declared a working in a managerial position. The remaining respondents - 14 people - declared an employee position in the questionnaire. Three women and 22 men responded to the questionnaire. The overwhelming number of respondents was a group of employees with seniority between 5 and 10 years (15). 5 workers declared length of service in the range of 11-15 years. In turn, 5 declared length of service in the range of 16-20 years.

Respondents answered the following questions:

1. Does your company provide training resulting from the obligation imposed by the Labor Code?
2. Determine how innovative are the training methods related to occupational health and safety (4-point scale: 1. not at all innovative, 2. somewhat innovative, 3. moderately innovative, 4. very innovative).
3. Do the trainings exhaust the information needed during the training? (4-point scale: 1. not at all exhausting, 2. somewhat exhausting, 3. moderately exhausting, 4. very exhausting).
4. To what extent are the following innovations used in training?:
 - a) modern forms of visual communication – 4-point scale: never, very rarely, sometimes, always.
 - b) Instructional videos - 4-point scale: never, very rarely, sometimes, always.
 - c) multimedia presentations and shows - 4-point scale: never, very rarely, sometimes, always.
 - d) problem tasks to be solved in a group - 4-point scale: never, very rarely, sometimes, always.
 - e) virtual instructional training - 4-point scale: never, very rarely, sometimes, always.
5. To what extent would you like innovations to be used during training?
 - a) modern forms of visual communication – 4-point scale: never, very rarely, sometimes, always.
 - b) Instructional videos - 4-point scale: never, very rarely, sometimes, always.
 - c) multimedia presentations and shows - 4-point scale: never, very rarely, sometimes, always.
 - d) problem tasks to be solved in a group - 4-point scale: never, very rarely, sometimes, always.
 - e) virtual instructional training - 4-point scale: never, very rarely, sometimes, always.
6. To what extent do you think that modern training increases the level of safe behavior among employees? – (4-point scale: has no impact, sometimes has an impact, medium impact, very high impact).

Table 2 presents the summary results, taking into account each of the 6 questions asked.

Table 1
 Respondents' opinion on the need to use innovations in occupational health and safety training

Question	Answer			
	1	2	3	4
Determine how innovative are the training methods related to occupational health and safety (4-point scale: 1. not at all innovative, 2. somewhat innovative, 3. moderately innovative, 4. very innovative).	0	17	7	1
Do the trainings exhaust the information needed during the training? (4-point scale: 1. not at all exhausting, 2. somewhat exhausting, 3. moderately exhausting, 4. very exhausting)	0	3	10	12
To what extent are the following innovations used in training?:				
a) modern forms of visual communication – 4-point scale: never, very rarely, sometimes, always.	0	5	10	10
b) Instructional videos - 4-point scale: never, very rarely, sometimes, always.	0	0	15	10
c) multimedia presentations and shows - 4-point scale: never, very rarely, sometimes, always.	0	0	10	15
d) problem tasks to be solved in a group - 4-point scale: never, very rarely, sometimes, always	1	4	8	12
e) virtual instructional training - 4-point scale: never, very rarely, sometimes, always.	22	0	3	0
To what extent would you like innovations to be used during training?				
a) modern forms of visual communication – 4-point scale: never, very rarely, sometimes, always.	0	1	4	20
b) Instructional videos - 4-point scale: never, very rarely, sometimes, always.	0	2	8	15
c) multimedia presentations and shows - 4-point scale: never, very rarely, sometimes, always.	0	10	10	5
	0	4	6	15

d) problem tasks to be solved in a group - 4-point scale: never, very rarely, sometimes, always. e) virtual instructional training - 4-point scale: never, very rarely, sometimes, always.	0	1	6	18
To what extent do you think that modern training increases the level of safe behavior among employees? – (4-point scale: has no impact, sometimes has an impact, medium impact, very high impact).	0	0	2	23

Most respondents declared the need for modern occupational health and safety training. All respondents unanimously declared that information during occupational health and safety training is provided in a comprehensive manner (3 and 4 points). However, they also indicate that outdated forms of training are not as desirable as modern ones. The lowest rated forms of training were multimedia presentations, although this form is used in most of the surveyed enterprises. The desired forms of occupational health and safety training are primarily virtual on-the-job training and solving practical problems in a group. All respondents agreed that modern forms of occupational health and safety training will have a positive impact on safe behavior among employees.

4. CONCLUSION

The research results indicate that there is a great need among respondents for modern occupational health and safety training in enterprises, using innovations in the field of visualization or virtual reality. Traditional forms of training are boring for employees. They rated multimedia presentations and films the lowest. Unfortunately, the problem of the quality of training, including the use of innovations in this topic, is important for most enterprises. The lack of financial resources for modern forms of training, including the use of virtual reality, makes such training unattainable for many people. However, it is worth paying attention to the fact that reliably and effectively conducted training can bring tangible benefits in the form of eliminating accidents at work and minimizing occupational risk.

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