

# Innovations in OSH Trainings - Social Skills of Safety Instructor *Versus* On-line Training

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**Abstract.** A systemic approach to the issue of safety which participation of both workers and managerial staff is a part of is a trusted way of creating safety culture. The implementation of safe work in everyday practice is not easy, but possible. The OSH specialist plays a key role here, as changing workers' attitudes and values is an effective way to improve safety at the workplace. The OSH specialist must have high professional qualifications, including social competence. He most often acts as a safety educator or safety instructor. The article presents results of the research conducted on a group of 215 workers. The workers underwent the obligatory OSH training, after which the increase of their knowledge was analysed. What is more, their subjective preferences as to the form of OSH training were later determined.

**Keywords:** OSH training · OSH instructor · E-learning

## 1 Introduction

Computers are more and more often used in training people. Thanks to them a trainer may share his knowledge with the use of both text and graphics. He or she may also find specific information in the Internet. One of the most popular methods in this respect is e-learning. One of its biggest advantages is that the student may choose the best time and place to learn, as well as the pace of learning. What is more, the student may choose the appropriate scope of the material. Thanks to constant access to the material he may come back to difficult issues, analyse them again or comment on fora. It is a convenient solution for people who for some reasons cannot participate in traditional indoor training and therefore are unable to access the whole material.

However, contemporary OSH training didactics emphasizes teamwork skills. It is more and more often indicated that teamwork has an inspiring influence on the workers. It boosts their activity, co-operation, rational work management and responsibility for real effects. Interpersonal relationships within a group may help eliminate organizational difficulties and, as a result, tasks are easier to solve. In some cases the relationships and interpersonal communication may become more important than the task itself. Teamwork inspires building bonds among people, gaining new experiences and learning the ways to overcome difficulties. What is more, it is also much more fascinating and absorbing than individual work. It may also – in case of

OSH trainings build common responsibility for the safety of oneself and the rest of the team. This way safety culture in an organization is created [1].

## 2 Objectives and Methods

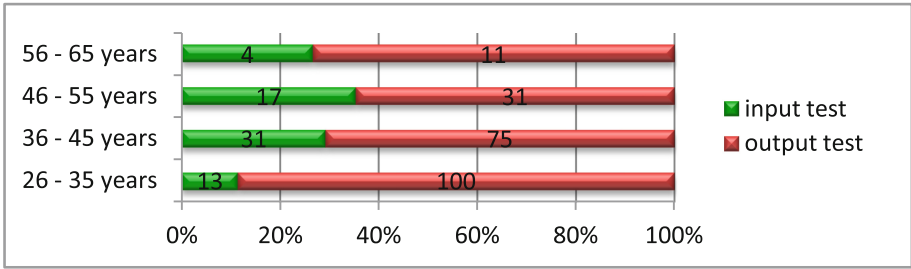
The aim of the research is to evaluate the OSH knowledge of office workers before and after the mandatory OSH training. It was also supposed to analyse the preferences of the trainees as to the form of training [2]. The methods chosen for the research were diagnostic poll method and achievement tests. To carry out the research a particular form (diagnostic poll) was prepared together with a number of examination questions (test) for the participants of period training. All of the participants held office workplaces. The researchers had to comply with the training dates and training places of particular companies. Before the training started, the employees were asked to fill in the form and answer test questions. The training, which started afterwards, lasted 8 classes, 45 min each. After the training, the employees were asked to answer the same test questions. The result of both tests were used to analyse the level of OSH knowledge of the participants before and after the training. The diagnostic poll answers help collect research material as far as work experience, the number of OSH trainings, the form of previous trainings and training form preferences were concerned. The research included five groups of workers from Poznań. The trainings were held in appropriately prepared conference rooms in respective workplaces on following days: the 16<sup>th</sup> of April, 2014; 22<sup>nd</sup> of April, 2014, 26<sup>th</sup> of April 2014, 29<sup>th</sup> of April, 2014, 6 of May, 2014 within the working hours.

## 3 Research Results

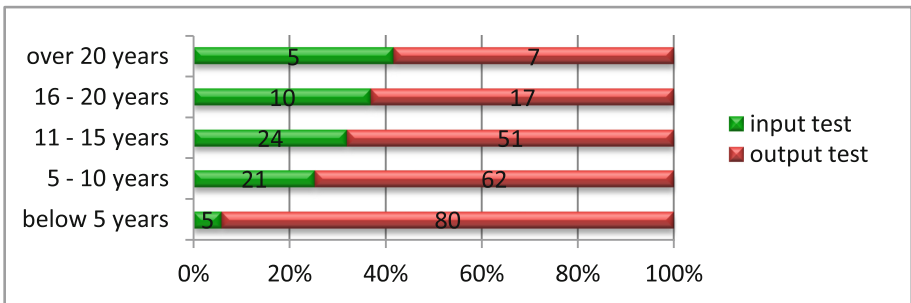
### 3.1 The Increase of Knowledge

Test questions help establish the level of OSH knowledge of the trainees before the period training. The test contained 20 multiple questions. In each of them the trainee was supposed to mark one out of three questions. To pass, one had to answer 12 questions correctly. Only 30 % of the participants passed the test before the training (28 % women and 32 % men). The remaining 70 % of office workers did not have sufficient OSH knowledge. Among those who passed, the most numerous group were women aged 36 to 45 (31 % of all the passed tests). As to men, those aged 36 to 45 and 46 to 55 had the best scores.

Comparison of the input and the output with regard to age groups and work experience is shown in Figs. 1 and 2. The period training was the most successful with office workers aged 26 to 35 and 56 to 65, because the test was passed by 77 % of the members of the first age group and 64 % of the members of the fourth age group. As far as work experience is concerned, the training was the most beneficial for those who were employed shorter than 5 years, as 94 % of them improved their score. Those with 5 to 10 years of work experience, as 66 % of them also improved their score. The score was later used in further analysis.



**Fig. 1.** Compilation of positive scores obtained after the input test and the output test according to age.



**Fig. 2.** Compilation of positive scores obtained after the input test and the output test according to work experience.

### 3.2 Preferred Form of Training

The information obtained from the form help visualise the number of training taken by the participants as well as where they happened and which methods were applied. They also made it possible to show preferences of employees as to the methods of period training. The number of period training as well as the work experience of office workers is shown in Table 1.

**Table 1.** The number of completed the period trainings of office workers

		office workers									
		females					males				
Work experience	The number of trainings	1	2	3	4	5	1	2	3	4	5
	below 5 years		42					38			
5-10 years		18	17				16	11			
11-15 years			19	13				12	7		
16-20 years				9	2				5	1	
above 20 years					2	2				2	1

Period OSH trainings, in which the respondents have previously taken part in, varied as to the method applied (Fig. 3). All of them underwent the initial, 8 h training in their workplace. The forms which require the presence of an OSH instructor are seminar (a lecture or a lecture with multimedia presentation - 67 %) and seminar with exercises (59 %). A considerable part of the respondents were also trained in ways which make it possible to choose the place and time, such as: e-learning (76 %) or controlled self-study without a computer (31 %).

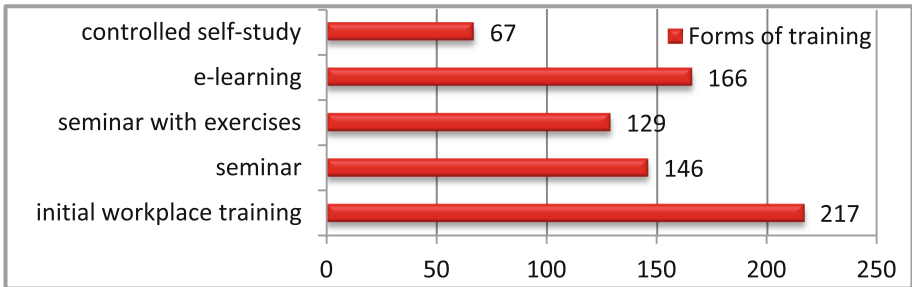


Fig. 3. Forms of accomplished OSH trainings

As to the preferred forms of period training, most people have chosen e-learning (66 %) and controlled self-study (25 %). The most prominent in those were younger respondents, aged 26–35 and 36–45. Older respondents have preferred traditional methods such as seminars (23 %) and seminars with exercises (17 %) (Fig. 4).

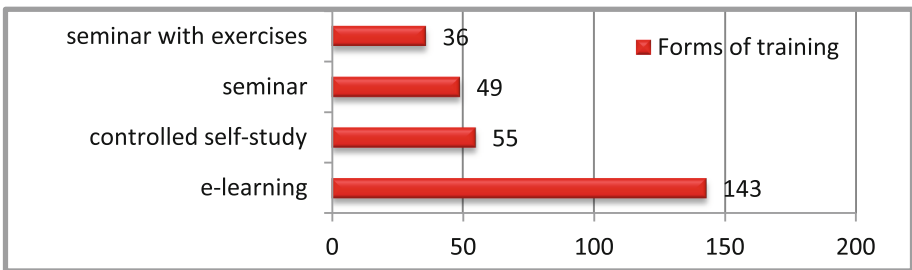


Fig. 4. Preferred forms of OSH period trainings

#### 4 Conclusions of Research

The analysis of research material, collected thanks to well-chosen methods, techniques and tools, led to certain conclusions:

1. Before the period OSH training the respondents exhibited a low level of knowledge. Only 30 % obtained a positive result of achievement test.

2. The worst results were obtained by young employees aged 26–35 who had maximum 5 years of work experience. Low level of OSH knowledge may result from a small number of accomplished trainings.
3. Respondents with work experience over 16 years obtained much higher results which may prove that their period trainings had been effective, as work experience corresponds with the number of accomplished period trainings.
4. In the second test (output test) all the respondents got a positive result. Period trainings make it possible to raise the level of OSH knowledge by even 90 %.
5. Preferences of OSH trainings forms are dependent on the age of respondents. Those below 45 chose e-learning and other forms of controlled self-study. Older ones prefer traditional forms such as seminars.

The culture of safety that protects employees needs to be enhanced by, among other things, period training in occupational safety and work quality. Models of work at individual workstations and models of accidents and near misses that generate losses for business organizations provide executives with valuable information for undertaking preventive measures. In view of the complexity of occupational safety issues and the large volume of data involved, it is best to apply computer tools in such modeling. One should mention for example the solutions that allow to use valuable management support tools such as Visual Interactive Modeling (VIM) and Multimedia Information Management Systems [3, 4].

The working environment is changing very dynamically - there are new threats: physical and psychological. The psychological ones include time pressure, excessive workload, violence or the risk of violence, harassment or mobbing, intimidation, and fear of losing the job. The results indicate that this new type of threat causes serious health problems for workers, which is a serious financial burden both in the country and across Europe. Over the years not only the types of risk occurring in the human environment have changed but also attitude towards safety. Work-related accidents as well as occupational diseases and pathological symptoms of behavior in a work place are the greatest factor suppressing market growth [5].

When it comes to OSH training, *e-learning* does not seem to be appropriate. The lack of direct contact between the instructor and the trainees makes it impossible to discuss ideas or exchange experiences. What also matters is that the instructor can greatly influence the training atmosphere, and good atmosphere increases the its effectivity. Open-mindedness, positive attitude and energy involve the trainees and appear beneficial in the long run [1, 6].

Younger employees prefer e-learning as a comfortable and easy method, but one may assume that such beliefs are ungrounded as young employees lack experience.

## 5 Summary

Systematic staff trainings is crucial from both legal and economic point of view. Such trainings are regulated by the Polish law.

Lack of trainings, which deal with occupational risks, hazard identification and prevention of accidents at work and occupational diseases, may have detrimental

consequences. The employees have to be systematically trained how to minimalise risk at work and how to work with machines and devices [7].

Depending on the type of industry, the human factor is recognized as the cause of up to 80 % of failures. This means that the human more or less directly contributes to a significant part of the failures. In order to reduce this problem there are many different methods and approaches that are used for obtaining the fallibility of the human [8, 9] – it is believed that training in 48 % leads to reduce human error [9, 10]. In Poland e-learning trainings are an innovation and OSH e-learning trainings are considered easy and comfortable. It is necessary for the conclusions to become a basis for further work on the development and implementation of effective OSH training methods.

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