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THE REQUIREMENTS FOR LEVEL OF KNOWLEDGE OF OSH EXPERTS

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ABSTRACT

One of the factors that contribute to the progressive increase and maintenance of the achieved level of quality of life in particular European countries is education. An important area in the context of lifelong learning is occupational safety and health (OSH). Education and training in OSH is carried out systematically at all levels and forms of education, from pre-school facilities through schools to universities, from formal to informal education. Within the lifelong learning in OSH there is a system created in which education of people performing activities in the field of technical and safety consultancy and training of civil employees, who supervise compliance about regulations governing occupational health and safety, is provided. Regarding business entities in the Slovak Republic in the area of the OSH, the training for employees and managers is guaranteed by advisory services; in particular safety services ensure this training. The education is provided by professionally qualified persons - the safety and security authorized technicians. The level of their professional competences, the ability to educate and provide adequate advice services is the input that significantly affects the quality of management in the organization. In the paper the current state of provision and quality of specialized services in this area is analyzed with emphasis on issues of occupational health and safety. The authors also focus on the definition of skills and competences that the experts in OSH should have.

KEYWORDS

Occupational safety and health (OSH); Education; Training; Skills; Lifelong learning.

1 Introduction

Education is one of the means which contribute to increasing and maintaining a high standard of living of people across EU. To achieve an appropriate standard of living, it is necessary to implement in the society also the education and training in the field of health and safety. This education has to be implemented systematically at all education levels from pre-schools to universities. It is therefore imperative, as regards to lifelong learning in OSH, to create a system, which provides a proper education and training for people performing work-activities related to health and safety or technical equipment safety, on the commercial level as well as on the level of civil servants, who provide attendance upon compliance with the regulations governing health and safety (Kozík, Feszterová & Bánesz, 2009; Burke, et al., 2006; Kordošová, & Perichtová, 2005).

Advisory services, particularly technical and safety services, i.e. safety technicians and certified safety technicians, play an important role in enterprise subjects in the area of employee and manager education. The expertise of these services along with the ability to educate and provide proper guidance highly affects the quality of the organization management (Tureková, Kozík & Bagalová, 2014; Frick, Jensen, Quinlan et al., 2000).

2 Education and training of professionals in the field of OSH

The roles of OSH professionals are highly differentiated. Division is explained in Fig. 1.

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Fig. 1 – Division of professional workers in the field of OSH

2.1. Education and training of civil servants (labour inspectors)

Education and training of civil servants administering practical activities in the field of labour inspection can be divided into two categories according the target groups:

- *Training of the candidates for the labour inspector appointment*
  The key point and purpose of this educating (training), which is followed by passing an examination, is to provide the candidates with knowledge and skills necessary to make them able to apply competently the legislation and different standards related to OSH area.
- *Labour inspector professional in-service training (further education)*
  The strategic objective of this education concept is a permanent and continuous improvement of work performance and ethical behaviour of labour inspectors, with the aim to develop a culture of services offered to the citizens. Continual education of civil servants is a basis to improvement of the performance and increase of efficiency of the relevant bodies of the state administration (Kordošová, 2005).

2.2. Education and training of safety technicians

Safety technicians and certified safety technicians perform security service tasks either as internal employees or as commercial suppliers. The professional contribution of safety technicians (ST) and certified safety technicians (CST) for the employers is most often in the advisory field regarding professional, methodological, organizational, coordination, inspection and educational tasks as well as other tasks to assure a higher level of safety and health protection.

Professional tasks in the field of safety and health at work for an employer, who carries out tasks of a higher risk which can cause serious damages to the health of employees, are independently carried out by certified safety technicians. In case of a serious accident at work, participation of an authorized safety technician to identify the causes of the accident is necessary.

The conditions to obtain a safety technician certificate or certified safety technician certificate are strictly defined by the law regarding OSH. The procedure of gaining the certificate is presented in Fig. 2.

Safety technician concessions and certified safety technician certificates are issued for an indefinite period. ST and CST are obliged at least every five years after the certification to undergo an upgrade training in the extent of 16 hours under the supervision of a person licensed to lead this education and training and who is a legal body. Without an acknowledgement of completion of the upgrade training, the certificate is invalid (Law No. 124/2006 Coll. of laws).

2.3. Persons entitled to maintain and work with the technical equipment

To perform certain activities (e.g. maintenance, reconstruction, assembly of the technical equipment) and to operate certain kinds of technical equipment (e.g. gas, electrical, compressive, lifting) professional competences are necessary. Appropriate professional competences have to be proved by a valid certificate which entitles a person to operate the concerned equipment. These certificates are issued either by a person entitled to train staff for the relevant kind of equipment operation or authorized legal entity. An alternative to the certificates is a written document, proving professional knowledge of the person, which is issued by an inspection technician (Regulation No. 356/2007 Coll. of laws).

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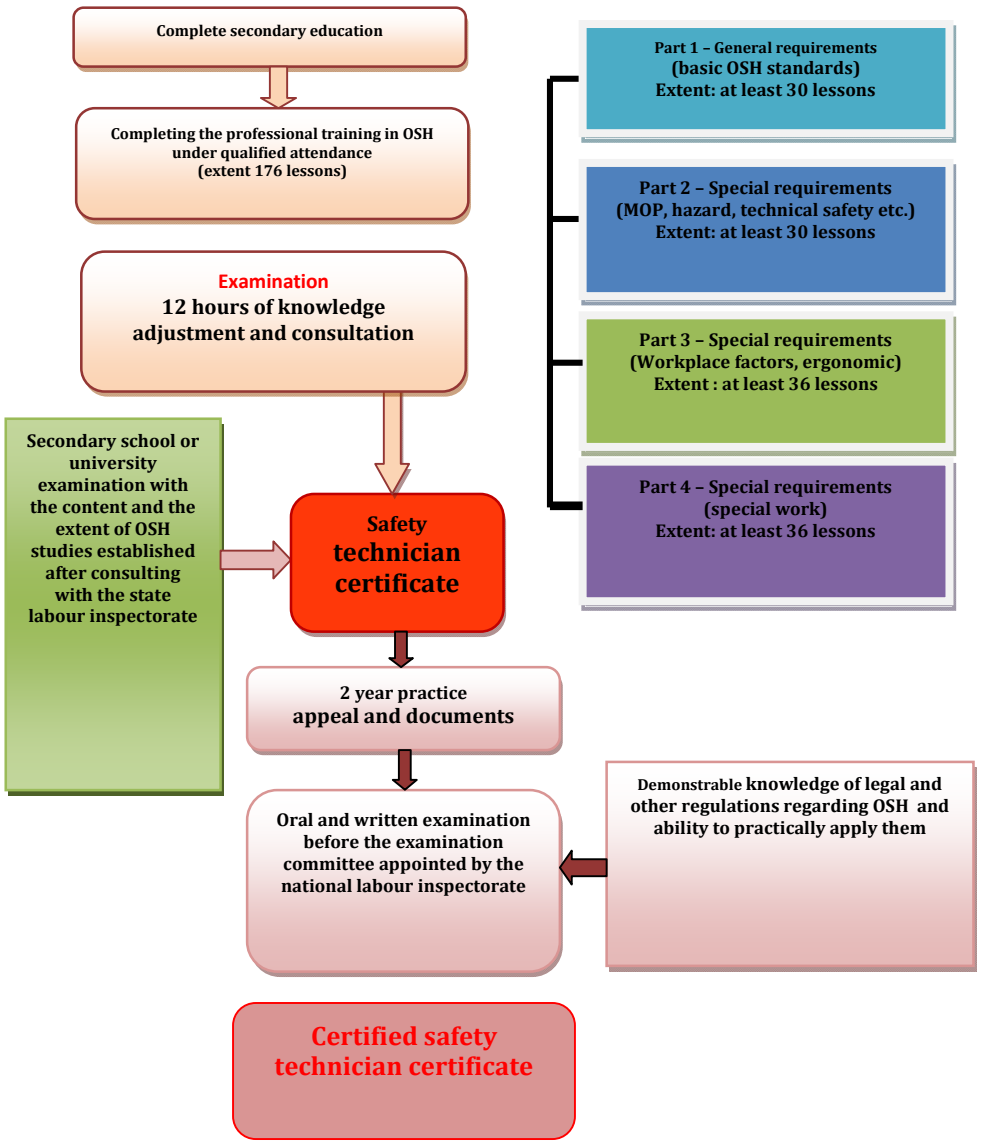

Fig. 2 – Procedure of the certificate gaining

An alternative to the certificates is a written document, proving professional knowledge of the person, which is issued by an inspection technician (Regulation No. 356/2007 Coll. of laws).

2.4. Authorized legal entity

The verification of technical equipment safety requirements comprises of:

- evaluation of the employer`s professional competences regarding professional inspection, professional examinations and maintenance of the particular technical equipment,
- carrying out inspections, management, evaluation or execution of examinations,
- evaluation of the personal entity`s knowledge on examination execution, professional inspection and maintenance of the particular technical equipment,
- evaluation whether the technical equipment, materials, building construction documentation, technical equipment documentation, and documentation of changes meet OSH.

Professional training and education of the inspectors who verify fulfilment of the OSH requirements at the technical equipment is completed by a qualification exam (oral and practical) in front of an exam commission (Regulation No. 508/2009 Coll. of laws).

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3 Evaluation of the OSH study programs

To determine how labour inspectors, who work professionally at the Labour Inspectorate, perceive the activities of the safety technicians in terms of educational achievement, quality of work and experiences there was carried out an anonymous questionnaire survey (Bagalová, 2014) in which 35 labour inspectors participated (27 men and 8 women).

The questionnaire was divided into 4 parts:

- 7 questions were aimed at gathering the labour inspectors` opinions on the quality of education/courses offered by different educational institutions, and on availability and diversity of OSH literature,
- 4 questions were aimed at learning the experts` opinions on the content and quality of the tertiary education ending with the safety technician certificate,
- 13 questions were related to assessment of subject composition and their curricula content within the OSH bachelor study program,
- 3 questions, the last of which had 7 sub-questions, were aimed at finding out what kind of skills and knowledge are the graduates of the OSH bachelor study program expected to dispose.

The respondents expressed their responses to the particular questionnaire items using the scale: yes, rather yes, I cannot judge, rather no, and no. The overview of the questionnaire items with the results is summarised in Table 1.

Table 1 Results of the questionnaire survey

No	Question	Yes	Rather yes	Cannot judge	Rather no	No
1.	Do you think that safety technicians should have a tertiary education?	43	29	3	17	8
2.	Is in your opinion the idea of educating professionals in the field of OSH a legitimate requirement?	77	17	6	0	0
3.	Would you say that the job market has enough qualified safety technicians?	14	9	26	37	14
4.	Are professional safety technicians sufficiently educated?	0	20	17	54	9
5.	Do you think that safety technician certificates obtained at an university and another institution are equal each other?	0	8	29	20	43
6.	Do you find the current state in literature on OSH and contributions published in the Slovak professional journals sufficient for experts?	6	14	26	40	14
7.	Do you participate in any university scientific research project regarding OSH?	6	9	3	0	82
8.	Would you say that in secondary education a sufficient attention is paid to the issues of OSH?	0	0	23	23	54
9.	Are graduates of technical schools at a higher knowledge level in terms of OSH than humanities´ graduates?	31	34	23	9	3
10.	Are secondary school teachers prepared enough to provide information about present-day OSH issues to students?	3	3	39	49	6
11.	Should OSH issues be a part of lifelong learning?	46	37	8	3	6
12.	Should the subject OSH be an obligatory part of teacher training?	29	48	6	11	6
13.	Do you think that also education in the field of OSH should be provided by experts from this area?	68	26	6	0	0
14.	Do you find it important that OSH study program graduates have lecture or skills?	40	43	11	6	0
15.	Do you think that an OSH graduate should have also some practical experiences resulting from e.g. some kind of trainee-ship?	57	37	0	3	3
16.	Do you find 2 weeks (80 lessons) to be a sufficient length of the professional practice within the bachelor studies?	3	8	26	26	37
17.	Do you think that a practice at work inspectorates should be	0	27	30	27	16

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	included in OSH study programs?					
18.	Should ergonomics be a part of OSH study program?	**23**	**43**	**31**	**3**	**0**
19.	Should laboratory exercises aimed at measuring and evaluating work environment factors be a part of OSH studies?	**6**	**51**	**34**	**3**	**6**
20.	Should OSH management be a part of OSH studies?	**35**	**44**	**12**	**9**	**0**
21.	Do you find risk management an important part of the OSH study program?	**51**	**43**	**6**	**0**	**0**
22.	Should the bachelor thesis be applied in practice in particular real proposals?	**43**	**34**	**20**	**3**	**0**
23.	Should civil defence be a part of OSH study program?	**9**	**37**	**34**	**11**	**9**
24.	OSH is an applied scientific field in which scientific monographs are achievable, especially at the university level. Do you agree?	**23**	**51**	**20**	**6**	**0**
25,	Do you find it as important that OSH study program graduates speak at least one foreign language?	**20**	**63**	**6**	**8**	**3**
26.	Do you find it as important that OSH study program graduates know the OSH legal framework and its definition?	**73**	**24**	**3**	**0**	**0**
27.	In your experience, which of these skills the current safety technicians lack:					
	– communicativeness	**26**	**13**	**26**	**16**	**19**
	– work consistency	**35**	**38**	**24**	**3**	**0**
	– knowledge of legal regulations	**34**	**30**	**21**	**15**	**0**
	– technical thinking	**25**	**22**	**41**	**12**	**0**
	– continuous education effort	**40**	**29**	**23**	**8**	**0**
	– ability to discuss	**22**	**11**	**25**	**16**	**15**
	– ability to solve problems	**32**	**21**	**20**	**21**	**6**

Explanation note:

General questions
Requirements on school-leavers beginning their OSH studies
OSH study program requirements
Expected outcomes

4 Discussion of the survey results

The results of the survey show that 63 % of the respondents assess the current level of the safety technicians as insufficient, what is an alarming finding. According the labour inspectors` opinions (77 %) safety technicians should have completed tertiary education. Their responses to the questionnaire items point out a requirement to accept only those applicants for the study who have successfully passed the entrance exams, i.e. who are interested in the studies and have met the requirements set by the university.

In the respondents` opinions the most important skill for a safety technician is the knowledge of legal regulations knowledge and majority of the respondents agree that safety technician profession requires speaking at least one foreign language. This can be a consequence of the globalisation of the (European) legislation as well as of the proclaimed lack of the professional literature available in Slovak language (contributions regarding OSH issues published in Slovak professional journals). In this context also the cooperation with universities in scientific project is very low. Only 5 of the respondents actually participate in joint research projects with universities.

The respondents consider lack of continuous education effort, work consistency, legal regulation knowledge and inability to solve problems as the most serious problems in terms of safety technician work. For us a curious result of the survey is the fact that 41 % of the respondents indicated *cannot judge* as a response to the question whether OSH employees lack technical thinking. It is important to stress that inspectors do not care for neither they inspect the knowledge of the person but the outcome of his/her work.

The second group of the questionnaire items tried to find relevant information on the knowledge level and awareness of safety and health in secondary schools. The survey clearly shows that pupils in secondary schools receive insufficient information on OSH. The survey also indicates a better preparation of technical school graduates in comparison with students from the humanities. Answers to the questions in this group confirm that students enter the university with insufficient knowledge on safety and health protection. It is important to note that not all graduates of secondary schools continue in further study at university, but many move on to their professions into the real life where they are assumed to know the basic rules and have the proper knowledge on safety at work. One of the causes of the lack of OSH awareness and knowledge at secondary school students can be that not all of the secondary school teachers are prepared enough to deal

with these issues. This can be caused by the long-time absence of an obligatory subject dealing with OSH in the educational system of future teachers (was confirmed by 77 % of the respondents). According to the survey results, such subject/topic should be included in the system of lifelong learning, too.

Another group of questions in the questionnaire was focused on the quality of education and the content of OSH study programs. Respondents confirmed that the training of specialists in the field of OSH should be led by professionals. As to the practice the respondents evaluated the two week practice during the bachelor study as insufficient or rather insufficient. But at the same time they do not find the practice at the Labour Inspectorate as necessary. From this we predict a conclusion that the job candidates should gain professionalism, skills and experience in real-world practice conditions.

Further additional requirements on the content of the study program OSH arising from the survey results can be summarized in the following points:

- To include acquisition of lecturing and presentation skills into the curricula of OSH study programs.
- To devote part of the curricula to ergonomics, health and safety management, risk management and civil protection.
- To teach OSH students to analyze problems and to develop their ability to design realistic measures with particular application outputs (to be reflected in the bachelor thesis).
- To include practical exercises contributing acquisition of measurement methods of measurement and methods for evaluation of working environment factors.

5 Conclusion

The aim of the survey was to analyse how labour inspectors, in the context of their experiences, perceive the role of safety technicians. The authors` intention is consequently to broaden this research. This means that the carried out survey can be seen as a pilot research. The final research sample should consist of representatives of all labour inspectorates in Slovakia (the sample of the pilot survey consisted of 35 labour inspectors only from Nitra region). The intention of the planned research is to use its final results as one of the bases for a new OSH study program development. However even the already carried out survey has pointed out a lot of important facts from which important conclusions for creation of the new study program can be derived. The following belong to them:

- University education has its merits in training experts providing safety and technical services.
- The study program must highly reflect on practice and its current demands and needs.
- In education and training not only knowledgeable teachers but also field professionals should be involved.
- It is necessary to incorporate a subject dealing with OSH issues into the teacher study programs.
- Students, while studying, should gain some lecturer skills to become qualified persons whose competences include introducing employers and employees to the development and changes regarding the safety and health at work.

Education and training is indirectly related to the quality of services, offered to employers, carried out by safety technicians and certified safety technicians. Only a curriculum of a high quality can contribute to qualitative improvement of the concerned personnel competence. It is important to pay attention to the forms and content of OSH education at all educational levels with the aim to provide the school-leavers entering the working process with proper awareness, knowledge, skills and abilities which they can further efficiently develop in various forms of lifelong learning. Practical knowledge confirmed by the research results of the carried out survey indicates not just an ideal level of OSH education on all education levels. It is therefore desirable to create proper conditions for a qualitative change in OSH education on all levels including universities and consider the education in the field of OSH an important factor of life.

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