EDUCATION AND PREVENTION OF SELECTED GROUPS OF HUMAN RESOURCES IN THE FIELD OF FIRE PROTECTION

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ABSTRAKT:

Článok predstavuje vzdelávanie a prevenciu vybraných ľudských zdrojov (deti, žiaci základných škôl, stredných škôl a vysokých škôl, vzdelávanie hasičov a verejnosti) v oblasti protipožiarnej ochrany. Článok sa venuje vzdelávaniu detí v zahraničí (konkrétne USA) a na Slovensku, predstavuje preventívny program pre deti piatych ročníkov základných škôl na Slovensku s názvom „Buď múdrejší ako oheň". V článku sa uvádzajú stredné a vysoké školy zaoberajúce sa problematikou vzdelávania v oblasti protipožiarnej ochrany, ako aj význam Dobrovoľnej požiarnej ochrany z hľadiska vzdelávania a prevencie v oblasti protipožiarnej ochrany na Slovensku. Článok obsahuje informácie o vzdelávaní hasičských jednotiek a informuje o preventívnych programoch pre verejnosť a starších ľudí v zahraničí a na Slovensku.

INTRODUCTION

Education can be characterized as a permanent process, which occurs in adaptation and change in professional behavior, knowledge, skills and motivation that people learn by using different methods. It is conditional on the current challenging environment that requires constant improvement, adapting and developing the educational level of people. Education must be permanent and should take into account the actual needs of all reality-induced changes. Education in fire protection and fire prevention is very important for all of us. Already the preschool age children should know about the negative effects of fire and how to protect against it. Young children and older adults are the two groups with the greatest risk of dying in a fire. Education in fire protection and fire prevention should be part of the school program, therefore it should be given the same level of attention as mathematics or Slovak language.
Fire protection is the study and practice of mitigating the unwanted effects of fire. It

involves the study of the behaviour, compartmentalisation, suppression and investigation of fire and its related emergencies, as well as the research and development, production, testing and application of mitigating systems. In the event of fire emergencies, firefighters, fire investigators, and other fire prevention personnel called to mitigate, investigate and learn from the damage of a fire [1]. Fire safety and protection can be an exciting and interesting field. Firefighting usually requires someone who has good judgment, courage, and mental alertness. Due to the high demand, benefits, and pension after retirement, the job competition for firefighters is keen. However, employment continues to grow and layoffs are highly unusual. Some fire departments now require a degree and there are many opportunities for promotion [2]. Fire protection engineering (also known as fire engineering or fire safety engineering) is the application of science and engineering principles to protect people and their environments from the destructive effects of fire and smoke [3].

EDUCATIONAL PROGRAMS FOR CHILDREN

Children are one of the highest risky groups for deaths in residential fire. At home, children usually play with fire - lighters, matches and other ignitables - in bedrooms, in closets, and under beds. These are "secret" places where there are a lot of things that catch fire easily.Children of all ages set over 35,000 fires annually.Every year over 400 children nine years and younger die in home fires. It is necessary to teach the child, that fire is a tool, not a toy and keep matches and lighters locked up and away from child [4].

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In Slovakia in the field of education in fire protection for children is a significant gap. Children in preschools education receive basic information about the use of matches and the destructive power of fire, visit the fire stations.
Voluntary fire protection has an important place in education of children and it gives to children the possibility to get deeper into this issue.In the groups of Young firefighters now works 10 000 children aged 8 to 16 years. Activity of these children is reflected in the game called The flame, where children develop their physical and vocational capabilities. Members aged 15 to 18 year form fire adolescent. Voluntary Fire Protection of Slovak Republic has a professional school in Martin, where are organized professional courses designed to youth education. These courses are closed down tests and issuing certificates of completion. Voluntary fire protection publishes the magazine called Fireman. Fire and rescue brigade of Slovakia Rebublic is also involved to education and promotional activities in the field of fire protection. The basic tasks of the regional directorates of the Fire and rescue brigade is organization and implementation of preventive, educational and promotional activities, as well as the professional, methodological and advisory activities in the field of fire prevention [5].
On the web site www.nfpa.org [6] you can buy for $ 12 the preschool program for your child in the preschool age. This preschool program is based on National Fire Protection Association's (NFPA) belief that fire safety information should be presented in a positive, non-threatening manner, its Learn Not to Burn (LNTB) programs teach children how to make responsible choices regarding health and safety. The Learn Not to Burn (LNTB) Preschool Program uses original songs, games, and activities to teach eight basic fire and burn prevention behaviors to children ages 3-5. The lessons in the program are short and simple and encourage active participation. The program includes a 60-page teacher's guide featuring detailed lesson plans, fire safety background information, letters to parents and reproducible coloring sheets. Each lesson is reinforced with a lively, easy-to-learn fire safety song included on a cassette tape of original music.
Even in primary schools is not a subject with a focus on fire protection. Education was limited to the Fire brigade contest and demonstration of firefighting equipment or visit open days at fire stations. Primary schoul can provide training for interested students through the groups and can provise thein financial support. Apart from some primary schools are based groups Young firefighters, which lead mentors and leaders of the volunteer firefighters. Children have still little information in the fire prevention. In the year 2005 - 2006 was a verification test as a preventive program called „Be wiser than the fire“, a pilot project at 20 selected primary schools in the Prešov region for 513 children.The target group was the fifth year pupils in primary schools. The purpose of the program was comprehensively preventive act to the pediatric population, targeted and long term. In school year 2006-2007 participate in this program already two regions – Prešov region and Košice region. Program was financed by the agents of the Government Council for Crime Prevention of Slovakia. The program has involved 18 schools, about 500 school children and 18 school firefighters. In school year 2007 - 2008 was a preventive program implemented in the Prešov region, approximately for 300 children in 9 primary schools with 9 school firefighters. Thus it was due to lack of funds. Although had this preventive program significant advantages, still lacked funds, the program had vague objective. It was still unresolved personnel and organizational coverage of this preventive program [7].

SECONDARY SCHOOL EDUCATION IN THE FIELD OF FIRE PROTECTION

Secondary school education in the field of fire protection provides the Secondary school of fire protection in Žilina. This school operates as a facility of Fire and rescue brigade and it performs the function of secondary vocational school, vocational school and sectoral educational facilities in the area of protection against fire. The school provides complete secondary and higher vocational education, a full-time and distance learning. The Secondary school of fire protection organizes basic training and specialized training of members of Fire and rescue brigade, including a system of lifelong learning. School is also involved in content preparation and implementation of basic and specialized training of employees of occupational and general (city) fire department. The school carries out basic and further training fire protection engineers and fire protection specialist. The school cooperates with secondary schools and universities that provide instruction with the study focusing on fire protection [8].
The Secondary Vocational School of Wood Sciences in Zvolen also provides secondary school education in the field of fire protection.

HIGHER EDUCATION IN THE FIELD OF FIRE PROTECTION

Higher education in the field of fire protection provide in our country The Technical University in Zvolen, Faculty of Wood Sciences and Technology, field of study is Protection of persons and property and school provides BSc - degree programmes, MSc - degree programmes and PhD - degree programmes. Department of fire protection was founded under the name Department of fire protection as a separate department 1st January 1998.
The specialisation of the department is created mainly by teaching of technical (profile) subjects as well as specialised subjects of theoretical basis in the accredited branch of Fire Protection. The subject profile focuses on development of disciplines in fire protection from the point of view of material burning (reaction of materials to fire), fire –technical properties of materials leading to fire prevention and safety of structures, safety of technological processes from fires and explosions, material means, fire-fighting technique and fire-fighting tactics [9].
The graduates of the first stage of the study programme will be able to master problems of how to manage problems of how to manage the institutional security structures, economic and entrepreneurial organisations as well as the systems of persons and property protection against fire which ase used in the organisations. They will gain basic knowledge of the principles of the technical equipment and methods of how to apply them in practice.
The graduates of MSc – degree programme obtain a detailed knowledge from the field of legislation, system analysis, projecting and management. They are skilled in various analytical methods of judging and projection of security system, they can manage special work teams and co-ordinate their performance and control in the more complex systems. They are also able to analyse safety situations on the scientific and creative basis and project suitable solutions for protection of persons and property, evaluate the quality of the solutions from the legal, technical and economic aspects.
The graduates of PhD - degree programmes will find job on the national and international level in expert and managerial functions in fire and rescue services as wll as in services of other safety systems, further in education, science and research, certification and projection and as university teachers, too [9].
Higher education in the field of fire protection provides University of Žilina, Faculty of Special Engineering, Bc., MSc, PhD. - degree programme is Fire protection.
This branch has manager - technological direction in which are trained professionals able to undertake preventive administrative, salvage and disposal tasks in the field of fire protection to the individual organizational levels of state administration, in the production and marketing organizations, but also professional departments of fire protection. May perform specialized work duties in the performance of the state fire surveillance and identifying the causes of fires, command and technical functions in the units, fire protection, fire protection specialist in industrial sectors and fields of Slovak Economy [10].
Higher education in the field of FP provides also the Police Avademy in Bratislava, the University of Security Management in Košice and the Slovak University of Technology in Bratislava.

FIREFIGHTER TRAINING

Education is important for every fireman – rescuer in any level (interventer or manager) at present. It is said that fireman needed courage and water in the past but however he needs much more nowadays. He has to handle difficult machines. Modern fire brigade car contains more electronics than lunar module that landed on the moon in 1969. He has to know fire stopping and rescue works that are physically and mentally demanding. Just after complete physical preparation and whole-life education via various courses, seminars, conferences and university study, it's possible to fulfill mentioned tasks [11].
A fire fighter is an emergency safety professional who responds to fire scenes to extinguish fires and assist fire victims. Many fire fighters are certified first responders, meaning they can assist victims by providing CPR (cardiopulmonary resuscitation) and other basic life saving techniques. Fire fighters work in teams at the scene of an emergency. They are in good physical condition because they must be able to carry and handle heavy equipment. While carrying their equipment, they must endure the heat and smoke conditions inside a burning structure as well [12]. These highly trained specialists risk their lives every day fighting fires. It's easy to see why so many people aspire to become firefighters: serving as one is heroic and adventurous. But becoming a firefighter takes more than brute strength and guts of steel. Education of Fire units is according to the Law Nr. 611/2006 about firefighting units. This decree divided fire education of units to: basic

training, improve preparation, specialized training, cyclical training, physical training, tactical exercise and inspection exercise. Basic training consists of 90 hours of theoretical training and 310 hours of practical training.
Improve preparation is carried out during the training year, from 1.9. to 31.8. within the next year of service. In the improve preparation participate all employees and members of the Fire Unit. At the end of training is verifying the knowledge and practical skills.
Specialized training is designed to increase the qualifications of staff and members and consists of training and verification of competence for the intended function of the fire unit. Cyclical training is intended to deepen the knowledge, skills, physical fitness and skills needed to conduct activities in combating fire and other emergency. Physical training is divided into general and special. General training is carried out year round in order to consolidate and improve physical fitness and develop movement skills.
It is verification of physical fitness training at the end of the year before the Commission. In the preparation participate all employees regardless of age. Special training is a part of service and is aimed at strengthening and developing the power and endurance skills. Fire units conducted tactical exercise with a view to enhancing the ability of commanders in the management of forces and the use of fire technology and material resources for intervention. The objective of inspection exercise is to verify the readiness fire unit commanders and operational preparedness of fire technology and material resources [13].
Firefighting is, without question, a highly physical and demanding activity. The intensity and prolonged duration of firefighter training evolutions place substantial physical stress on trainees and instructors. Injuries that commonly occur during training evolutions involve knees, lower back, strains, and sprains. The best means for preventing these potential injuries is by promoting physical fitness and proper lifting techniques. Although it is impossible to completely prevent these types of injuries, increased fitness and conditioning helps to reduce the incidence of injury and enable firefighters to cope with the intense physical demands of practical training and tactical operations. Simple techniques, such as warm-up exercises to prevent muscle injuries, although not routinely employed, should be done prior to any training. It is also important to rotate training crews and instructors during training to provide adequate time for rehabilitation. The risk of injury increases during later stages of live fire training if multiple scenarios are used in the same training session and fatigue becomes a risk factor [14].
Firefighters trained in high training facilities at fire stations. The task of training is increase physical performance by repeatedly overcoming height differences and the habit to work at height and over free depth. Today there are already modern training facilities in which can be realistically modeled real fires and firefighters to better prepare for the real action [15].

PUBLIC FIRE EDUCATION

Fires causing loss and damage can occur wherever human activity occurs. Perhaps the most frequent location for fires are within buildings. These include both domestic and nondomestic premises, and the latter can extend to a wide range of occupancy, such as factories of various kinds, buildings where there are special risk to the public, including places of public assembly and places where people sleep, such as hotels and hospitals [16].
Fire is a universal problem that can be reduced and even prevented through concerted educational efforts. Although fire affects all people, certain groups are more vulnerable and subsequently at higher risk of injury and death than others. Young children and older adults are the two groups with the greatest risk of dying in a fire. Accordingly, they are the target of much public fire education and attention. Through widespread educational campaigns, various fire service advocacy groups and public safety agencies disseminate vital fire safety tips to these groups as well as to their caregivers. These efforts have resulted in increased fire safety awareness in these populations [17].On the website www.nfpa.org [18] you can learn how to safely use dryers and washing machines, portable generators, you can learn somethig more about campus and dorm fires, candles, safe cooking, escape planning, etc. This website provides safety tips for each activity, which may result in fire .

EDUCATIONAL PROGRAMS FOR OLDER PEOPLE

Older people are at risk for fire death and injuries for a number of reasons: They may be less able to take the quick action necessary in a fire emergency, they may be on medication that affects their ability to make quick decisions.Many older people live alone and when accidents happen others may not be around to help. On the website www.firesafety.gov [19] you can find a fire and

fall prevention program for older adults, which was developed by NFPA and the Centers for Disease Control and Prevention (CDC) to help older adults live safely at home for as long as possible. Knowing what to do in the event of a fire is particularly important for older adults. At age 65, people are twice as likely to be killed or injured by fires compared to the population at large. And with our numbers growing every year - in the United States and Canada, adults age 65 and older make up about 12 percent of the population - it's essential to take the necessary steps to stay safe. This page contains safety tips for older adults as well.

CONCLUSION

The topic of fire protection is recently becoming more interesting. Foreign websites provide useful information for different age groups of population. On the website www.nfp.org you will find safety tips for kids, older adults and a lot of interesting tips and information for using appliances with respect to the risk of fire. In our country, this area is developed primarily through the Voluntary Fire Brigade, which has become increasingly interested - children, adolescents and adults. Further education is possible in the Secondary School of Fire Protection in Žilina and in the Secondary Vocational School of Wood Sciences in Zvolen. The BSc, MSc and and PhD study is possible at Technical university in Zvolen, at University of Žilina, Police Avademy in Bratislava, the University of Security Management in Košice and in the Slovak University of Technology in Bratislava. This area has significant gaps particularly in primary schools where there is no fire protection as a separate subject, but only as part of Geography or other subjects. But there are good future prospect in this area in Slovakia.

REFERENCES

[1] Fire protection, on the website: http://en.wikipedia.org/wiki/Fire_protection, 19.3.2009.
[2] Firefighting: Fire safety and Protection, on the website: http://educationportal.com/search/quicksearch.html, 19.3.2009.
[3] Fire protection engeneering, on the website: http://en.wikipedia.org/wiki/Fire_Protection_Engineering, 22.3.2009.
[4] Kids and Fire: A Bad Match, on the website: http://www.firesafety.gov/citizens/firesafety/bedroom.shtm, 23.3.2009.
[5] Husa, P.: Methodology of the youth focused on activities in Voluntary fire protection, Master's thesis, Zvolen, p. 25, 2006.
[6] Preschool programs, on the website: http://www.nfpa.org/itemDetail.asp?categoryID=202&itemID=17837&URL=Safety%20Information/For%20public%20educators/Education%20programs/Preschool%20programs, 20.4.2009.
[7] Dvorščáková, D., Galajdová, V., Mihoková, D.: The Prevention - a bridge between theory and practice, Proceedings of 6th International Scientific Conference: Wood&Fire Safety, The High Tatras, Štrbské Pleso, 2008, p. 73, ISBN 978-80-228-1870-4, 17.4.2008.
[8] Secondary school of fire protection of Slovak Republic Ministry of Interior in Žilina, on the website: http://www.hazz-sspo.sk/index.php?lang=en, 21.4.2009.
[9] Department of fire protection, on the website: http://www.tuzvo.sk/en/organizational_structure/faculty_of_wood_sciences_and_technology/organizational_structure/departments/department_of_fire_protection/teaching/teaching.html, 27.4.2009.
[10] University of Žilina, Faculty of Special Engeneering, on the website: http://www.utc.sk/menu/inc.asp?menu=7&ver=sk&sub=FSI.htm, 26.4.2009.
[11] Osvald, A.: Evolution trends in fire protection education, In Proceedings of 2nd International Scientific Conference: Fire engineering – Proceedings, Lučenec, 2006, p. 315, ISBN 80-89241-03-4.
[12] Fire Fighter Defined, on the website: http://educationptal.com/articles/Fire_Fighter%3A_Overview_of_Fire_Fighting_School.html, 27.4.2009.
[13] Law Nr. 611/2006 about The firefighting units, 27.4.2009.
[14] How Firefighter Training Works, on the website: http://people.howstuffworks.com/firefighter-training.htm, 29.4.2009.
[15] Flachbart, J.: Appraisal of the fire-working stress, In Almanac of 2nd International Scientific Conference: Fire engineering – Proceedings, Lučenec, 2006, p. 65, ISBN 80-89241-03-4.
[16] Kandola B., Law M.,Ramachandran G., Rasbach D., Watts J.: Evaluation of fire safety, England, 2004, p. 4, ISBN 0-471-49382-1.
[17] Public Fire Education, on the website:http://www.usfa.dhs.gov/downloads/pdf/publications/fa-205.pdf , 7.5.2009.
[18] Safety tips and fact sheets, How to keep family and community safer from fires and other hazards,v on the website: http://www.nfpa.org/categoryList.asp?categoryID=1491&URL=Learning/Public%20education 14.5.2009.
[19] Education programs for older adults, on the website: http://www.firesafety.gov/citizens/firesafety/older.shtm, 14.5.2009.