APPROPRIATE LEARNING APPROACHES AND TECHNOLOGIES FOR DISASTER PREPARATION OF THE POPULATION

M. Titko, M. Jánošíková, V. Benedik, V. Moricová

University of Žilina, Faculty of Security Engineering (SLOVAKIA)

Abstract

In the process of education and training of population, in the field of disaster prevention and solution, it is not possible to practice a standard response to such a situation, however, there is a range of approaches, methods, and technologies that are applicable for use in this process. The suitability of these education and training tools may differ greatly for different target groups (e.g. primary schools, high schools, adults, or elderly people). The target group in this article will only be adults (people after high school), because there are no precise and properly specified ways of education, training or preparation in this area in the Slovak Republic. From this reason is the aim of the article to identify and select appropriate educational approaches, methods, and technologies for this target group. This will be done by an analysis of the current state of education of this population group in the Slovak Republic, analysis of foreign experiences and best practices in preparedness of the population, and analysis of new learning approaches and technologies exploitation which are of particular interest. The results should serve for local level government and authorities which are responsible for education and preparation of the population in the field of disaster prevention and solution.

Keywords: education, learning technologies, methods, disaster preparation, population.

1 INTRODUCTION

This article focuses on adults as the target group of the education and training in the field of disaster prevention and solution. The emphasis is on approaches, methods, and technologies that are applicable for use in this process. More attention has been given to this area through disaster education programs and media in previous decades [1], but in conditions of the Slovak Republic there are still missing precise and properly specified ways of disaster education, training or preparation for adults. Despite the preferred the child-led disaster risk reduction efforts and initiatives, the research still points to the need of disaster education and training of adults because they lack knowledge and practical experiences in this field, and their level of disaster preparedness is low. From this reason is the aim of the article to identify and select appropriate educational approaches, methods, and technologies for this target group.

According to research done, an advanced disaster preparation can save lives, reduce number of injuries, prevent damage to property, and moreover shortens recovery time [2], [3], [4]. Disaster risk education, education about mitigation and preparedness strategies are possible approaches to reduce above mentioned impacts on society [5], [6]. Historically were targeted education groups mainly adults [2]. They were informed about disaster risks and ways how to prepare their families on disaster [1]. Despite these efforts, preparedness levels have remained low and generally unchanged [7].

In this article, we will address the identification and selection of appropriate learning approaches and technologies for disaster preparation of this population group. By analysing the current state of implementation of education in this population group in the Slovak Republic, analysing foreign experience and analysing other possible learning approaches, appropriate methods, methods and approaches for competent authorities will be identified, which could then be applied in practice in the implementation of education. The use of modern technology will be discussed as well.

2 ADULT’S DISASTER AND RISK EDUCATION, DISASTER LEARNING TOOLS

Majority of adults participate in adult learning for job-related reasons [8]. Participation for personal and social-related reasons also plays an important role [9] and this very important aspect from civil protection and crisis management point of view. Findings suggest that adult’s learning has positive effects also on social outcomes [10], [11]. We assume that one of outcomes could be also more resilient society to disaster and better prepared for its negative consequences. Question is how to motivate and engage the adults into such type of learning and education.
Shaw and Takeuchi (2009) proposed that disaster education should go beyond textbooks and involve experiential learning. Important is to transform the knowledge into practice, and this would involve practical training, capacity building, and experiential learning [12]. But, in the process of education and training, it is practically not possible to practice a standard response to disaster and to allow participants to become acquainted with the real conditions of crisis solution. To practice the activities that are associated with solution of such a situation, it is possible to use a range of tools, e.g. a professional practice in the crisis management-oriented institutions, simulation exercises, case studies, project lessons, etc. The disaster education tools can be divided based on: (1) mode of education (i.e., formal, non-formal, and informal education) and (2) type (i.e., printed, virtual, etc.) [13].

Formal learning – takes place in organised and structured environment (an education institution or on the job) and is explicitly designated as learning. It is intentional mode of learning from the learner’s point of view. Outcome is typically a certificate [14]. From perspective of adults the formal learning and education it seems to be inappropriate for enhancing disaster awareness and preparedness while workload of the adult’s majority should be high.

Non-formal learning – is embedded in planned activities not explicitly designated as learning, but which contain an important learning element. It is intentional mode of learning from the learner’s point of view. It does not lead to certification [14]. Regarding to the opinion of the authors [12] the non-formal learning seems to be the most appropriate way how to increase the knowledge and simultaneously practical skills of adult population within disaster risks prevention and solution. We assume that non-formal education mode is suitable for adults mainly from the perspective of practical training and capacity building. This education mode is time-flexible and can better address actual needs of the learners because there is no explicitly set learning objectives.

Informal - Learning resulting from daily activities related to work, family or leisure; not organised or structured. It is unintentional mode of learning from the learner’s perspective [14]. This mode of learning can be understood only as a supplementary tool of previous two modes. It could be usefull for child-led disaster risk reduction initiatives rather than for adults-led ones.

3 DISASTER PREPAREDNESS AND EDUCATION IN THE SLOVAK REPUBLIC

The crisis management and crisis event solution system is functional and, despite several shortcomings, it enables us to respond to the problems encountered in the required extent and quality. The system is organizationally, materially and personally prepared and secured to deal with such events. However, the solution to the larger-scale or even states of crisis remains questionable. Scepticism is conditioned by the fact that (1) events of such magnitude have not occurred in the Slovak Republic yet; (2) and experience of responding to large floods in the Czech Republic (1997, 2002) pointed to a number of systemic problems that are similar in the Slovak Republic. The question is whether the level of our preparedness for crisis events is sufficient.

So far, the disaster education and training of adult group in the conditions of the Slovak Republic is only carried out under an independent decision of the competent local government authorities and more emphasis is being placed on the education of children, while adults represent the majority of the population (64% +18% over 63 years) (Fig. 1).

As previously suggested, preparedness affects several levels, ranging from central government authorities, through regional state administration, local governments, legal entities, executive elements
of the security system to the population. Thus, it is not enough to only prepare the professional level solution system, but also a population that is resilient to the possible consequences and able to respond to the situation individually or as part of a community. This need is also highlighted by the Sendai Framework for DDR 2015-2030 [15]. One of its guiding principles is the requirement of the engagement from all of society [15].

The preparedness of the population lags behind the preparedness of the professional rescue services. Not enough attention is paid to it by the State and by the population itself. Achieving the appropriate level of population preparedness requires the existence of a comprehensive system of training and education. In the Slovak Republic, such a system has been implemented only partially. Moreover, participation in these activities requires the motivation and interest of citizens. Pursuant to the Act, the preparation of the population is understood to be the preparation of the population for self-protection and mutual assistance, as well as preparation for administering first aid [16]. Specifically, it is a purposeful and continuous process of preventive, educational and promotional activities, theoretical and practical training [17]. These activities are intended to enable the population to acquire the necessary theoretical knowledge, practical skills and habits of self-protection, in other words, "assistance with their own means and forces that aims to protect one's own person and their immediate surroundings and to mitigate or prevent the effects of an extraordinary event [16] but also assistance to others in need [17].

The preparation for civil protection is carried out by district offices, legal entities, natural persons - entrepreneurs, self-governing regions, municipalities and humanitarian associations (Slovak Red Cross, Office of Civil Protection of the Slovak Republic) [16]. This training does not only include the population, but, of course, other entities such as threat originators, civil protection units, and so on. From the point of view of the population, the municipality plays an important role, as it is the primary point of contact for its inhabitants in terms of subsidiarity. The municipality ensures and performs the preparation of the population for self-protection and mutual assistance in cooperation with public-law institutions with a humanitarian mission [16].

4 FORMS OF DISASTER PREPARATION IN THE SLOVAK REPUBLIC

The content and form of population preparation for emergencies and disasters is actually chosen by the municipalities and given district offices [18]. Mostly it is done by non-formal one-off activities by various education types. These can be training sessions, discussions, workshops, meetings, seminars, competitions of young rescuers, demonstrations of rescue techniques and rescue activities, as well as local TV channels. Information regarding the prevention and resolution of specific incidents (listed in [19]) can be distributed via bulletin boards, official announcements, local TV channels, municipal information centres, etc. In case of a current threat of an extraordinary event (e.g. a declaration of one of the flood activity levels), a higher interest in information can be assumed. At that time, it is recommended to publish it by the municipal radio and information centre, it can be distributed in the malls, health centres, post offices or by text messages in order to be available to as many people as possible.

The preparation of the population is also part of the population protection plan elaborated by the municipality. The Population Protection Plan contains tasks, measures and procedures to ensure the protection of the population in the extraordinary event [16]. Thus, residents should be prepared for a specific type of threat that may threaten their security in a given municipality. As there is no methodological approach to define the precise principles and modalities of the plan, its implementation, therefore, depends on the plan processor. As a rule, some of the methods defined in Section 9 of the Act no. 42/1994 Coll are applied. For the preparation of the population, it is possible to use: information and advisory services, radio and TV programs, editorial and publishing activities, preventive and educational activities, the publication of information in an electronic form. As far as natural disasters are concerned, the most common forms are information leaflets, organizing discussions aimed at explaining the nature of the potential threat to the municipality and the prepared measures to ensure the protection of life and health of the population. These forms are based on the initiative of the person and his willingness to study the material or participate in the discussion and the effectiveness of achieving the goal is therefore questionable. When it comes to the risk of leakage of hazardous substances or the occurrence of industrial accidents, the threatener sometimes organizes practical exercises to respond to these events, which can be considered a very positive step towards both his employees and the surrounding area.
5 PRINCIPLES AND CHALLENGES IN USING APPROPRIATE METHODS AND APPROACHES FOR ENHANCING DISASTER EDUCATION AND PREPAREDNESS

The State must ensure that the population is sufficiently prepared for extraordinary events and the population must perceive preparation as a measure to help them. The preparation of the population for extraordinary events is an interdisciplinary problem [20]. On the one hand, there is a prominent need for the preparation of the population, i.e. the acquisition of certain knowledge and skills, on the other hand, there are forms, methods of education in preparation [21].

There are a lot of methods used to support disaster education and preparedness in the Slovak Republic which are appropriate for this purpose (mentioned above), however, in developing the population's preparedness for disasters, they should simultaneously follow the general education principles developed by [21] which we have modify for the conditions of the crisis management system:

- raising awareness and preparing training activities – they represent a form of training that will be positively perceived by the people; as they will be able to develop a positive relationship to them and will actively engage in the learning process,
- to apply visualization, animation, etc. while ensuring proportionality between the ability of the citizens to acquire the necessary knowledge and skills, and the need to teach them necessary minimal knowledge; the content and scope of preparation, difficulty and method must approximate the abilities and level of the population,
- permanence - the population should keep the information obtained as long as possible and use it when appropriate;
- consistency - the subject matter is logically organized, the structure and knowledge at the same time enable to acquire the ability to understand a coherent system, preparation is to continue from elementary school to old age,
- practice orientation - the information obtained should be linked to practice and used in practice,
- timeliness - the information provided must reflect reality or must enable the citizens to obtain minimum information valid for the future,
- participation - citizens should be able to participate to some extent in the preparation, even in such a way that they will to some extent determine the scope and form of training,
- individual approach – the training should allow at least partial adaptation to the needs of the population, which may have different learning skills, eg. also in terms of age and needs for life,
- permanent feedback – the training system should allow to obtain and evaluate the feedback and, based on it, to modify the forms and methods of preparing the population.

In developing the population's education about disaster risks and preparedness for disasters we see opportunities especially in development and implementation of disaster education methodology with accurately determine goals and disaster preparedness level which should be achieved among the adult population. Current methods should be used consistently and reflect the needs of different population groups.

The use of modern technologies in the field of disaster risk reduction and management is getting very prominent. In the conditions of the Slovak Republic is this process very slow. There are missing modern technologies, e.g. new applications for smartphones as well as websites that contained the necessary information for the different population groups and, moreover, delivered in an interesting way. Technologies and applications that can alert the population are missing as well. Basically there is limited information about civil protection, disaster risk reduction possibilities for the population.

Cooperation with municipalities, which usually have their home web pages, where at least a link to important information could be incorporated, or one sub-page devoted to this issue, which would be covered by the Ministry of Interior as the guarantor of civil protection, we assume as a good starting point. This could be complemented by non-traditional methods of education which most adults prefer [22]. Among these methods can be included learning by observation and trying out new procedures, reading professional literature and magazines, one-time lectures, seminars [22]. Important aspect of implementation of these methods will be to follow education principles mentioned above.
6 CONCLUSION

The adults learn within their capabilities and opportunities that each type of education offers. For education beyond common scope, it is specific that people learn, in particular, what they considers as important for their life. Education is perceived as a tool to be able to help people to prepare for current and future problem solving. Therefore, we should explain and introduce the disaster preparation in way which will motivate the population to learn something, even if it does not feel it as necessary and important. Motivation seems to be the main issue of low disaster preparedness level, therefore we should addressed this aspect at first.

At the same time, it is necessary to be aware different ability of the population groups to learn and perceive the information provided and therefore it is necessary to address as closely as possible the demands of the population and offer a variety of learning options and tools.

ACKNOWLEDGEMENTS

Made as a part of the project: University of Žilina Enhancing Quality of Education based on Internationalization, project Nr.: 004ŽU-2/2016, supported by the Ministry of Education, Science, Research and Sport of the Slovak Republic.

Publication of this paper was supported by the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic – VEGA No. 1/0805/18 „Establishing the principles and sequence of steps to measure the awareness and preparedness of the population to the risks of natural disasters and institutional grant project. “

REFERENCES


