Currently Required Education of Crisis Management Personnel

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Abstract

The requirements of changes in the educational systems originate from the social requirement to increase the quality of education in specific fields, including the crisis management field. The common fault of current educational systems is detachment of the taught theory from the real practical requirements. That is the reason why it is necessary to focus more on the new way of education, in which the participants of lifelong learning can be prepared for today’s new challenges, which emerge from the labor market as well as competencies required by the practice. In crisis management field is the problem how to link the different educational levels more efficiently and which forms and methods to apply in education process. By analysis of the current approaches in the area of crisis management personnel preparation we will identify the most appropriate forms and methods of education, focusing on the specific needs of crisis management, such as case studies, interactive methods, training, and other methods where information technology can be used as a support learning tool. In this way we can support the expertise of crisis management staff and their competencies. The main objective of the article is to propose possible forms and methods of education to make information technologies within crisis management field more effective. Our main suggestions are focused on the use of simulations and learning by experience.

Keywords: Education, Methods, Information Technologies, Simulation, Crisis Management.

1 INTRODUCTION

Specifics of the work and demands on crisis managers require them to be constantly educated. It is not only within the mandatory school system but also after taking up their working duties. In traditional education systems, there are less opportunities to gain practical experience in the field of crisis management. Therefore, it is necessary to use interactive methods that bring the practice closer to academia. During education process, the Kolb’s Learning Cycle can be applied. It shows the need for experiences in the learning process and it shown in Figure 1. and it consists of several types of cognition.

![Kolb’s Learning Cycle](image)

Figure 1. Kolb’s Learning Cycle [1].
The cycle can be spirally repeated and based on a richer experience. It consists of the following steps [1; 2]:

- practical experimentation (experience),
- observing the reality and its reflection (within an experience),
- comparison of knowledge among known theories or formulation of observed principles, generalization of the observed, explanation of a certain phenomenon,
- applying knowledge and actively experimenting with it, transferring it to other conditions.

In Slovakia, the KEMSAK (CEMSAC) education model Orientation of Education at Targeted and Systematic Development model is also applied [2; 3] Cognitivisation (cultivation), development of cognitive functions (to know, to think, to solve the problem, learn how to learn myself, to search and select information and to use them). Emotionalization, development of human emotional adulthood. Motivation for continuous improvement, interest in learning. Socializing, developing social behaviour, developing skills for cooperation and communication with others, and the ability to help or create progressive interpersonal relationships. Axiologization, development of progressive value orientation of personality, evaluation, orientation in values, decision making. Creativity, the development of creativity, creative problem solving, a creative approach towards life, people and situations.

In education, it is possible to apply different forms and methods that activate students, such as dialogue (discussion) methods, methods of group teaching and cooperative learning, project methods, methods of critical thinking development, case studies, role playing (dramatization), simulation methods, method of discovery and guided discoveries and research methods [4]. These methods can be enriched with the possible use of information technology to bring them closer to practical experience.

2 RESULTS

In the preparation of crisis managers, data on the occurrence of Disaster Events in Slovakia can also be used (Figures 2). Data about Disaster Events is processed by the Central Monitoring and Control Centre under the Ministry of the Interior of the Slovak Republic, based on the Decree of the Ministry of the Interior of the Slovak Republic No. 388/2006 Coll [5]. On Details on the Provision of Technical and Operational Conditions for the Civil Protection Information System, as amended. The recorded incident data is then evaluated and processed in summary reports. Individual data are based on terms of the Disaster Event occurrence and the declaration of a Crisis Situation, further according to the type of Disaster Event, in specific region and district in Slovakia.

![Figure 2. Number of Disaster Events in Slovakia in 2014-2018](image-url)
simulated scenarios. Based on the statistical data about disaster events, it is also possible to focus on the most common incidents in particular region of Slovakia, or the most dominant incidents throughout Slovakia.

2.1 Education of Crisis Management Experts

Education of crisis management experts who can work in positions in the crisis management system takes place at high schools and universities. It is also relevant after taking up a job, mostly as the training and it is provided through specialized seminars, courses and other forms of training focused on crisis management. In Figure 3. it is illustrated a schematic representation of the preparation of crisis management experts in Slovakia. In high schools future workers are prepared in the context of crisis management at general grammar schools or secondary vocational schools focused for example in the field of medical rescuers, fire protection, fire engineer, security services (private, public-police). A general overview of civil protection and safety at high schools will be given to pupils through the subject of Human and Nature Protection (OČaP), or at the similar course (KOČaP). In Slovakia, universities that prepare experts in the field of crisis management based it on the group at study field Security Services, in which they are educated in areas such as Civil Security, People and Property Protection, Security Public Services, Theory of Police Science, Criminology, Occupational Health and Safety and Rescue Services. Also, universities can prepare experts in the field of study such as Safety of Technical Systems, National and International Security, Military Interconnection and Information Systems.

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![Diagram](image.png)

**Figure 3. Possibilities of education in Crisis Management in Slovakia.**

Education should be aimed at protecting the population, civil protection, crisis management, crisis planning, risk analysis, national security, security, psychology (behaviour of individuals in border situations, psychological aspects of crisis, social psychology), integrated rescue system, fire engineering, modelling of crisis phenomena. The preparation of crisis managers specifically focused on personal development, stress situations, their management and increasing psychological resilience is also done during university studies in Slovakia, mainly in the form of lectures and seminars in institutions that provide this education. One of the universities in the Slovak Republic dedicated to the preparation of students in the field of civil protection, focusing on crisis management and fire protection is the University of Žilina, Faculty of Safety Engineering. FBI UNIZA has four study programs and one of them is crisis management, where crisis managers are prepared mainly for public administration, but also for
industry. Specific software in laboratories are also used during preparation (such as ALOHA, TerEx, EPSIS, VR-Forces).

Preparing to perform a job within a particular job position should not be completed by completing the required level of education. Applying a graduate in practice, education should be further deepened, qualifications should be increased by acquiring and renewing knowledge, skills, abilities in accordance with the requirements for performing job positions at different levels of crisis management.

Preparation of crisis managers in public administration is subject of Act No. 400/2009 Coll. on Civil Service, which describes the deepening and increasing the qualifications of civil servants [11]. The initial document for the training of state administration employees is the Plan of Continuous Education of Employees of the Ministry of Interior of the Slovak Republic, issued at the beginning of each year for one year. The education of public administration staff under this plan consists of five areas [12]:

- Professional education,
- Management education,
- Personal Development Education,
- Information Technology Education,
- Language education.

Different forms of education are used within individual areas, chosen on the basis of current needs and requirements. The most frequent of them are lectures, conferences, courses, seminars, workshops, trainings, tutorials, consultations, webinars, self-study.

Employees of the Ministry of Interior of the Slovak Republic also include employees of Crisis Management operating at individual levels of state administration. Thus, their education system is also based on the Plan of Continuous Education. It is provided by the Ministry of Interior of the Slovak Republic, particular by Section of the Crisis Management. This education is focused on the development of managerial competences, personal development, the development of language skills and information technology education, which is a general basis for all public administrators. Crisis management personnel are specifically trained depending on their job description in a particular environment. Preparation of crisis managers is subject to the Ministry of Interior Internal Order No. 5/2017 on tasks fulfilment in the preparation process on crisis situations and their solution, as amended [12]. Under this Internal Order, preparation is carried out in two ways, through training and exercises. Illustration of the preparation for Crisis Situations in Slovakia is shown in Figure 4.

![Preparation for Crisis Situations](image)

**Figure 4. Illustration of the preparation for Crisis Situation in Slovakia [13].**

**Training** is an activity that aims to create the conditions for acquiring and deepening the knowledge of crisis management personnel in preparing for and dealing with crisis situations. Training is divided into basic training and advanced training [13].
Basic Training is mainly conducted in a theoretical way, where employees learn basic information about the preparation for crisis situations. It is made on the theoretical basis.

Advanced Training is used to supplement and update the knowledge and skills needed to perform crisis management activities. This type of training is done in the form of theoretical training (interactive lecture) or practical activity in the form of exercise.

Exercise is a basic form of preparation of crisis management elements focused on a solving of crisis management. It can be theoretical or practical. Depending on the type of activity, we can divide the exercises into advanced, cooperative and verification exercises [13].

Advanced exercise is primarily designed to increase the level of preparedness of a department’s crisis management elements. This kind of exercise is done in the form of theoretical training.

Cooperative exercise serves to improve synergies between the various elements of crisis management with the use of information and telecommunications systems. These exercises are done in the form of theoretical and practical training.

Verification exercise is conducted to verify the level of crisis management and preparedness of the crisis management elements of the department within the jurisdiction of the Ministry or district office. These exercises take the form of practical training.

Planning and performing exercises as a practical form of education is challenging to organize, time, material and financial. That is why this method of preparation is used primarily for the executive components of crisis management, such as professional rescue units (firefighters, rescuers, police officers). Exercises are usually performed such as a live simulation. Crisis management personnel are rarely involved in practical exercises. Their preparation is carried out mainly through lectures and seminars, which are conducted in a theoretical way. During the preparation of crisis management personnel, it is also possible to use interactive methods, which are aimed at gaining experience in solving this issue in specific situations supported by information technologies.

2.2 Competencies of Crisis Managers

Crisis managers differ from managers in business entities, or in public administration. They are subject to requirements that are based on the competencies necessary to perform this specific profession. Horáček [14] divides the responsibilities and competence of crisis managers into three groups, which is shown in Table 1.

Table 1. Competencies of Crisis Managers [14].

<table>
<thead>
<tr>
<th>Group of Competencies</th>
<th>Competencies</th>
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<tbody>
<tr>
<td><strong>Special (Technical) Competencies</strong></td>
<td>- education and practice</td>
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<tr>
<td></td>
<td>- decision-making skills</td>
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<td></td>
<td>- organization skills</td>
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<tr>
<td></td>
<td>- ability to control</td>
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<tr>
<td><strong>Social Competencies</strong></td>
<td>- the ability to lead people</td>
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<td></td>
<td>- communication skills</td>
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<td></td>
<td>- the ability to create, develop and effectively manage crisis teams</td>
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<td></td>
<td>- Interpersonal conflict management skills</td>
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<td>- moral qualities of personality of crisis managers</td>
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<tr>
<td><strong>Conceptual Competencies</strong></td>
<td>- ability to accept</td>
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<td></td>
<td>- Crisis planning skills</td>
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<td></td>
<td>- the ability to anticipate the consequences of their decisions</td>
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</table>

The competencies of the crisis managers of each level of crisis management result from the workload and scope of the specific job position, so the requirements for their overall work ability to hold a particular job position are different. However, general requirements for crisis management personnel should be
included, which should be available to every manager. For more details, references and discussion for required competences of crisis managers see also [15; 16; 17].

Mika [18] lists the skills that a crisis manager should have:
- ability to make decisions independently and responsibly in non-standard conditions,
- ability to recognize what is most important in a given situation,
- psychological resilience and readiness to solve unexpected problems,
- to make clear and concise statements and take decisions,
- be able to motivate and lead people in difficult conditions,
- ability to understand information,
- know how to negotiate, persuade,
- the ability to bear the workload in the long term.

The crisis manager should be a leadership type that can guide direction, have a clear vision of how to solve problems, be able to resolve conflicts, make decisions under pressure, delegate tasks. Increased demands are placed on crisis managers because they work in specific conditions, addressing challenging challenges, which require lifelong learning.

2.3 Ways of crisis managers´ education

The essence of activating methods is to plan, organize and manage education in the way that students - crisis managers reach the goal of education through their own cognitive activity. They are to actively participate in development of their knowledge, abilities and skills [19]. These methods include discussions, with or without associated lectures, panel discussions, group problem solving, discussions in a small group, brainstorming, brainwriting, case analysis, role-play, excursions, model situations, mind maps, work with literature, worksheets, movies and videos. In the next section, we will describe selected ways that can be applied in the education for crisis management.

The Philips 66 method is a problem discussion method focused on creativity, decision-making swiftness, designing of proposals and communication. The basis of the method is that 6 participants (1 leader / spokesman, 5 members) in the group discuss 6 minutes about a problem on a given topic. The lecturer distributes the crisis managers, assigns the theme. After 6 minutes, group representatives report the results of the group. Following discussion is led by a lecturer [20; 21].

The analysis case study is focused on solving problematic life situations. The initial problematic situation should be based on a specific situation, where it is possible to demonstrate the process of activities in praxis. Crisis managers can work individually or in smaller groups. To apply this method in education, it is advised to follow the procedure [20]:
- assign a problem situation in written form to participants,
- let the participants study the situation and analyse the conditions and causes of the problem,
- let the participants suggest possible solutions to the problem,
- lead summarizing plenary discussion and selection of the most appropriate solution.

Snowballing is a method, meant for introduction of a new specific issue or its repeating. Crisis managers work individually at first, after that they work in groups. The method consists of more phases, that will lector base on the difficulty of the topic and on number of participants.

Realisation of the method [21; 22]:
- assign a topic and write it on a blackboard, flipchart or view it as a presentation (so that participants do not stray from the topic),
- explain the topic,
- set up a goal, method of work and its evaluation,
- distribution of work material (images, texts, books),
- set up the time for elaboration of each phase and solution (5-7 min.).

Each crisis manager works independently and after time, given to solve the task, pairs are created. Afterwards, existing groups are merged into larger ones (maximum of 8 members in the group). Each time a group is merged, the lecturer repeats the method of work and the goal to be fulfilled by the participants. At the end of the work, the group speakers present the results of the group work in any
chosen form (for example poster, mind map, notation). In conclusion, the lecturer summarizes the results and adds further information, opinions and study materials about the topic. The lecturer also evaluates the participants' work and invites them to self-evaluate themselves [21; 22].

Information technology can also be used as a tool to support education in crisis management education. One such option is to use Agent-Based Computer Simulation during crisis management training. Computer simulation that allows real-time simulation is a useful decision support tool. Based on real-world emergency data, it can provide better support in creating rescue strategies and planning the necessary resources by creating different scenarios. These can be differentiated by the number and the use of available forces and resources in different model situations. The main objectives of this type of training are to improve the quality of decision-making processes of crisis managers, to improve their psychological resilience, to create model situations of crisis phenomena in different environments and evaluate the data to increase decision-making efficiency and human factor reliability [23].

eSEC portal - Competency Based e-portal of Security and Safety Engineering - allows users (e.g. students, professionals, teachers, researchers) to acquire special competencies in the field of security. Innovation of eSEC portal lies on increasing of employability of wide public based on connection of competences required by practice and those the eSEC portal user may acquire, that is bringing education closer to requirements of practice. [15].

3 CONCLUSIONS

From the required demands point of view on crisis managers, it is analysed that the most severe is the phase of reaction on crisis phenomena. Within this phase, the physical and psychological aspects of crisis managers are crucial. It requires a high amount of preparedness of crisis management personnel in terms of physical, mental, professional and moral aspects. Crisis affects the quality and efficiency of managerial decision-making processes in not only crisis management. The development of crisis managers is also achieved through lifelong learning processes. In addition to the process of preparing of crisis managers it is important to include interactive methods and the use of information technology enriches this preparation. During education process the information technologies enable crisis managers to better verify problem solving (of crisis phenomena), identify deficiencies and errors in decision procedures, resources allocation, communication improvement, overlook at the situation and approach the practice.

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