CRISIS MANAGEMENT AND SIMULATION OF PROCESSES AS EDUCATION TOOL

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Abstract: The vision paper deals with the current project named „Simulation of crisis management processes in the system of lifelong education of integrated rescue system units and public administration bodies" that is based on the determination, description, and simulation of crisis management processes. The objective of the present research is to create a tool enabling first-rate preparation for the regional and local authorities, and unit of rescue system[1]. This tool will enable the preparation to be performed under conditions maximally similar to those of real situations, including psychological and physical time factors. The paper describes individual tasks of educational process and their phases, means of extraordinary events selection and the progress of the project phase being in progress at present.

Keywords: crisis management, tool of education, extraordinary events

1 Introduction

In 2010 the Faculty of Safety Engineering, VSB-Technical University of Ostrava obtained a project within the Security research of the Czech Republic. This project is called „Simulation of crisis management processes in the system of lifelong education of integrated rescue system units and public administration bodies"(the SIMPROKIM).

The aim of the project is to design a system of lifelong education in crisis management for employees working in the rescue system units and public administration bodies. These employees are divided into crisis management groups and other bodies involved in crisis management in the territorial unit. The educational process is based on the assumption that these employees are expected to have knowledge of security issues of the territory. The educational process will be implemented using a simulation of crisis management in conditions similar to real life conditions, including psychological and temporal aspects.

Crisis management is an important tool in providing assistance to the public during emergencies. A two-stage crisis management model was selected for the needs of this project: the Protection module and the Response module that are graphically illustrated in Figure 1. Note: EE is extraordinary event.

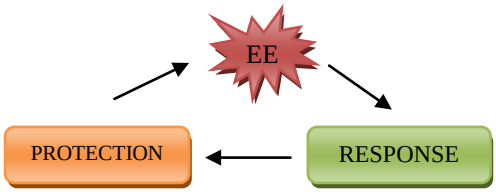

Figure 1: Basic modules

Each module is defined by a knowledge base and set of skills that a participant of the project should obtain during the educational process.

The "Protection" Module includes a complex of activities executed during the preparation for emergency. Generally, it covers identification of possible emergencies in the area, assessing their risks, reducing the effects of emergencies and emergency preparedness.

The "Response" Module in general includes a complex of activities needed for dealing with the consequences of emergencies that occur in the territory.

The educational process in both modules operates in three stages: teaching, training and testing.

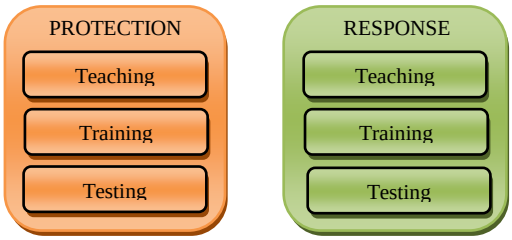

Figure 2: Basic modules – individual phases

Teaching

In general, the "Teaching" phase will have the form of controlled lecture. The instructor will gradually give participants the information about basic attributes needed for the assessment of "Protection", "Response", and "Reconstruction" problems. The instructor's involvement will reach up to 100%.

Training

The „Training" phase will comprise the testing of skills acquired by participants during the previous phase "Teaching" Practice of given problem and correct reaction to emerging situations in the scope of permanent working group field of activity will be part of training. The instructor's should be around 50%.

Testing

Testing of participants, who attended a course or one of partial problems, will be performed in this phase. The aim of this phase is to verify the adequateness of knowledge gained by participants. The instructor's role is minimal, 10% at most.

2 The Protection module

The "Protection" Module is currently focused on the creation of "didactic" texts for the course participants. The aim is to introduce and teach the participants to assess the "security situation" in the territory. The participants will use the knowledge and skills obtained during the course to prepare the crisis management group chairman decision.

Measures to protect the population, infrastructure, and environment belong among monitored parameters of the security situation. A possible occurrence of emergencies in the territory is taken into account.
The assessment of the security situation consists of:

- assessment of the monitored territory characteristics,
- identifying emergencies in the monitored territory,
- identifying safety-significant objects,
- comparison of the current situation in a territory with existing security documentation and
- presentation of differences between the current situation in the territory and the documentation.
- Evaluation of the current security situation is executed for two reasons:
- to improve existing condition or
- for the need to prepare a response to the emergency in the territory

The first reason puts the trainee in the workplace of public administration crisis management group with a task to prepare materials for the security situation documentation. For the second reason, the trainee is in the role of crisis management group member. Principally in analysis group of permanent crisis management group.

3 Training center

The training workplace is conceptually consists of several sectional workplaces: the workplace of crisis management group, the workplace of communication with media and the workplace of direction. The whole training system is designed in such a way that the training can be realized either in regular spaces established for this purpose, or in mobile form in the room provided by the subject whose employees will be trained. The software solution in the form of server part communicating with mobile computer workstations, the separate telephone system based on IP telephony, and mobile center for the support of multimedia communication are adjusted to this purpose.

3.1 Software system

Software system supporting the training of crisis management group members has two main functions: simulate the course of crisis situation and support the activities of crisis management group, that the group must perform in order to fight the crisis situation effectively. The system support is planned during the whole organization of training and educational process, from the course announcement to the registration of participants, to creating their accounts, to final issuing of certificates on passing the course.

4 The Response module

The training was held in November 2012 and March 2013 within the "Response" module at the premises of the SIMPROKIM project. The theme of the training was

- floods in 2010 in the territorial self-government (TSG) of Bohumín (real training November 2012),
- flash flood in 2009 in the territorial self-government (TSG) of Nový Jičín (real training March 2013).

The first training was in floods Bohumín. The second training was flash floods in Nový Jičín. The reason was the difficulty in the preparation for exercise and development flash floods.

The aim of the training was to test some of the proposed procedures, especially the time allocation, realistic assignment of tasks in a prepared scenario, reaction of the participants to the assignment and situations and other.
Total training time both exercise was 180 min. Table 1 presents detailed time analysis.

Table 1: Time analysis of the training

Part of training	Time allocation
Introduction to the topic	15 min
Theoretical part	60 min
Break	15 min
Practical part	60 min
Evaluation of the training	30 min

The theoretical part of the training was executed in the form of lectures using audiovisual techniques. The lecture contained introduction to the security situation in the territory and information necessary for the operation of the permanent crisis management group.

Security situation to describe complex information about area:

- describe of area (characteristic of the area - geographic, demographic, climatic and hydrological information, infrastructure, safety or risk objects)
- information about risk and risk evaluation
- map information
- preparing of area at definition risk

In the theoretical part students were divided into roles of the permanent crisis management group.

The permanent crisis management group operated in this composition of roles:

- Dispatcher,
- Evaluator of the situation,
- Resource Manager (Logistics)
- Response Planner
- Representatives of the emergency services bodies and
- Experts chosen according to a type of emergency.

For the training was prepared several documentation

- flood plan,
- hydrologic situation and
- security situation.

For the both training were selected from students of the Safety and Security Planning master's degree programme (Safety planning) at the Faculty of Safety Engineering VSB-TU Ostrava. Students were put in the role of permanent crisis management group members of the territorial self-government.

Presentation of theoretical part was the same for both training. The difference of both training was in scenario situations and practical part of the training.

4. 1 Training of flood in Bohumín

In the practical part of the training, the trainees were introduced to the situation of the territorial self-government of Bohumín, hydrometeorological situation and other necessary documents (e.g. emergency plan). After that, according to the scenario (see table 2), the trainees were informed about the development of the situation in the self-government territory and about their tasks by an operator. The trainees were to perform their tasks immediately or to prepare proposal of the solution for the discussion of the permanent crisis management group. Trainees were intentionally working under time pressure. The reason was to provide participants with partial stress environment. A technical support was available for the participants: laptop, SmartBoard, video conferencing system.

Observers of the training then observed the communication between members of the crisis management group and the correctness of the proposed measures and procedures. Training was captured on video recording for other use of the project.

Table 2 Example of a list of information and tasks

Character of report	Date	Time*	Text
Information	29.11.	10:00	river level rises
Task	29.11.	10:02	water pumping
Task	29.11.	10:05	evacuate hospital

*****it is real time of flood

The evaluation of the training was executed with the participation of trainees and the SIMPROKIM project working team. Head of the permanent working group summarized the work of trainees during the training, execution of the assigned tasks and prepared proposals for measures. Findings shown in Table 3 for training Bohumín.

Table 3 Table 3 findings from training assessment – Bohumín

	Findings	Solution
1.	The premises of the SIMPROKIM project determined for the work of the crisis management group are relatively small and practically don´t alow to execute a training	After completion of the extension and renovation of the Faculty of Safety Engineering, suitable premises will be allocated for purposes of the SIMPROKIM project
2.	A geographic information system must be available for the	This tool is being prepared in the course of the project

	trainee	
3.	For further training validation it is necessary to add telephony equipment to the premises	This equipment has already been purchased
4.	Suitable software tool should be used for preparation and execution of the training	A suitable software tool is being prepared in the course of the project

4.2 Training of flash flood in Nový Jičín

The trainees (students) were introduced to the situation on the territorial self-government of Nový Jičín. According to the scenario (see Table 4) were informed of developments in the territory and tasks. Tasks had to solve promptly in a stressful environment (time pressure on the trainees). Observers of the training then observed the communication between members of the crisis management group and the correctness of the proposed measures and procedures. During exercise was used a form of "time jump" - this is the shift operating time. A technical support was to same as for training situation in Bohumín - laptop, SmartBoard, video conferencing system. Training was captured on video recording for other use of the project.

Table 4 Example of a list of information and tasks

Character of report	Date	Time*	Text
Information	19.3.	21:00	river level rises
Information	19.3.	21:02	static distortion of the dam
Task	19.3.	21:03	ensure accommodation for the people

*it is real time of flash flood

The evaluation of the training was executed with the participation of trainees and the SIMPROKIM project working team. Findings shown in Table 5 (new findings) for training Nový Jičín were observed during the training. Points 1 to 4 are to same problems as in training situation in Bohumín (it is in solving).

Table 5 findings from training assessment – Nový Jičín

	Findings	Solution
1.	Use of mail, ICQ, SKYPE to receive information only one member	This member will decide whether the information is / is not important for other members – saving time
2.	Need to see real and operating time for the trainees.	Use a separate screen for these times.
3.	Trainees give a choice of functions.	It will be tried at the next training.
4.	For longer training need to prepare technical support - phones, GIS applications, shared documents for trainees.	It is in solving.

5 Summary of findings from both training

On the basis of practice are gaining weaknesses in the training. These experiences are then used in the creation of new exercises. Some don´t immediately implement in practice. Software support is developed.

The first scenario was created for situations (floods) in Bohumín. Experience has shown that it is necessary to use additional technical support - phone and software support - GIS. To exercise students were selected master's degree (wider knowledge in the area).

The second scenario was created for the situation (flash flooding). Here again showed the need for technical support (for additional exercises will be provided). Trainees were the same as in the situation Bohumín of the Safety and Security Planning master's degree programme. Here it was shown that they have the experience of previous exercises (better response). For further training are selecting students for doctoral studies.

The second training gave important knowledge to be applied when creating the next exercise.

6 Conclusion

This article captures the SIMPROKIM project that focuses on crisis management training for employees involved in the rescue system and public administration bodies that are involved in crisis management groups and other bodies involved in crisis management of the territory. A module called "Privacy" is described within an interactive learning environment. In this module participants are introduced to security problems in the territory. Within the "Response" module a training that took place in the premises of the SIMPROKIM project in November 2012 (flood in Bohumín) and in March 2013 (flash flood in Nový Jičín) is presented.

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