HOW ARE SIMULATIONS USED IN SECURITY SECTOR TRAINING IN FINLAND?

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Abstract: This article will describe a research project concerning the use of learning simulations in security sector training organisations supervised by the Ministry of the Interior in Finland. Information will be gathered about the use of simulations in basic degree training of the Border and Coast Guard Academy, Crisis Management Centre Finland, the Police University College and the Emergency Services College. The aim of the research project is to establish a common and pedagogically grounded view of the use of simulations as a teaching method. A common language and a basis for cooperation inside and amongst the training organisations will be created.

Keywords: security sector; training methods; simulations; Finland.

BACKGROUND AND INTRODUCTION

The Police University College gathers information about the use of simulations in the basic degree training of security sector training organisations supervised by the Ministry of the Interior in Finland, i.e. the Police University College, the Emergency Services College, Crisis Management Centre Finland and the Border and Coast Guard Academy. The project is funded by the Ministry of the Interior. By gathering pedagogical understanding of simulations as a teaching method and best practices of their use and by establishing a common vocabulary, it is possible to enhance the use of simulations in developing vocational competence. A shared view of simulation learning is likely to promote cooperation inside and amongst the training organisations, which will open possibilities for cost savings.

This article will provide an overview about the research project for security training organisations in Europe that are interested in simulation learning. References are warmly welcomed and information about the research results will be shared with those who are interested, as they become available. The research project started on 1 October 2014 and will finish at the end of February 2016.

THE AIMS OF THE RESEARCH

The aim of the research project is to create a theoretically multidimensional and practically fruitful understanding of simulations as a part of vocational training and to establish a comprehensive view of the use of the simulations as a teaching method in the abovementioned training organisations.

The main research questions are as follows.

1. What kind of simulations are used in the basic degree training of security section training organisations supervised by the Ministry of the Interior in Finland (the most representative simulation exercises/other simulation exercises and classifying them, studying them with the help of a simulation element framework, integration with other teaching)?

2. In which phases of basic degree studies are the simulation exercises carried out to different degrees (police officer, firefighter, emergency response centre operator, border guard)?

3. What kind of best practices emerge in the simulation exercises (existing research results
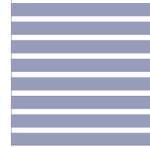
compared to the practical experiences of simulation learning, accomplishment of the exercises, origin and further development of the exercises)?

Also, the aspirations and needs of the training organisations that are the target of the research will be taken into account as much as possible, especially concerning the future directions and needs of simulation learning.

DEFINITION OF CENTRAL CONCEPTS

At the beginning of the research project, we started to search for information about existing simulation exercises using a wide-ranging definition of simulations according to which any exercise that simulates some aspect of practice or a real situation was regarded as a simulation, as well as simulators that simulate a technical system. A wide-ranging definition was reasonable to make sure no simulation exercises were omitted from the study in the first phase, because it seemed to be common to regard only simulators as simulations.

Based on the literature review and discussions held with representatives of the training organisations, the definition of simulations was clarified and tightened. A lot of reflection about simulation learning has already been carried out at the Emergency Services College, and also other elements than the simulation itself have been seen to be essential (Helveranta et al., 2009). Other elements are, for example, the theoretical understanding needed before the exercise, the preparation and orientation of the exercise and the learning discussion or debriefing accomplished after the exercise, according to the simulation setting model of Dieckmann (2012) (Figure 1). Typical for a simulation exercise is a systematic, repeatable design carried out

through a manuscript. It is also typical to video the exercise in order to support a learning discussion afterwards.

Debriefing is an essential part of simulation; it can even be regarded as the most important element of the simulation exercise (Crookall, 2010). The importance of debriefing is also supported by the research results from another strongly experience-based learning method, namely learning games. It has been discovered that learning from games is most effective when methods that structure the learning (such as debriefing or reflection) are used along with the games (e.g. Sitzmann, 2011; Wouters et al., 2013; Wouters and Oostendorp, 2013; Kiili and Ketamo, 2007; Mayer and Johnson, 2010).

In this research, simulation has been defined as a teaching method that simulates real situations or systems, is structured with methods encouraging reflection and further analysis of learning and is operated according to a manuscript.

Because simulations and the goals of their use differ from each other, a simulation taxonomy will be created. Simulations can be classified into different categories based on their type and the features and learning goals that are best supported by each of them. Also, the context where the information will be used, varying from simple and static to highly complex and chaotic, can be taken into account (Kurtz and Snowden, 2003). The taxonomy may help in planning simulation-based teaching. So far, simulations or simulators have been classified according to the modelled object, its type and the relationship between the model and modelled object, how simulations are linked with learning objectives and learning assessments, and partial or whole-task viewpoint and integration of technical systems (Joolingen and Jong, 1991; Miller et al., 2010; Galloway, 2009; Alinier, 2007.)

Figure 1. Simulation setting (adapted from Dieckmann, 2012, p. 629)
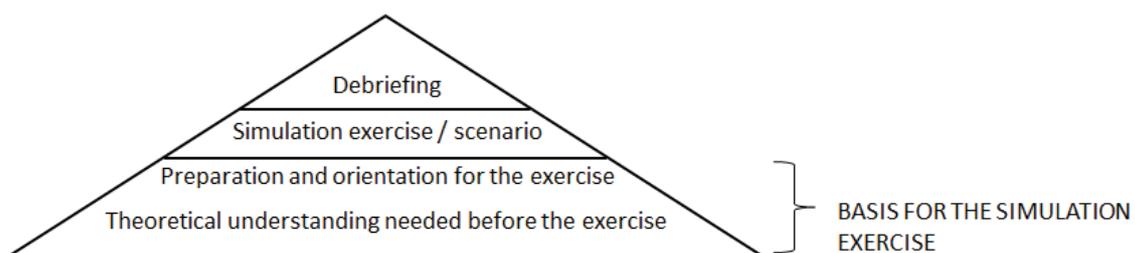
THEORETICAL BACKGROUND

At the beginning of the project, research articles about simulation learning were studied thoroughly. Attention was specifically directed to learning the theoretical characteristics of simulations. Several learning theories can be found behind learning simulations. Salakari (2007) has studied the use of simulation in the context of learning skills. He identifies theories such as constructivism, contextual learning, cooperative learning and experience-based learning behind the simulations. A constructivist-realistic-experience-based view of learning forms the basis of simulation learning in the Emergency Services College (Helveranta et al., 2009). This kind of learning view also appears to be suitable for the other training organisations in the security sector.

The student is seen in an active role, constructing his/her own competence based on what has previously been learned, but the training organisation also guides the development in a certain direction. Learning is based on both theoretical and practical information, which together are merged into experiences. Simulations can offer the learner the possibility of applying theory in practice and gaining experiences. It has been seen as crucial for the development of the expertise to offer learners plenty of different kinds of learning situations resembling the authentic situations at work and as much practical training as possible (Daley, 1999; Ericsson and Charness, 1994; Haskell, 2001; Helveranta et al., 2009; Miettinen, 1998; Poikela, 2012; Salakari, 2007; Saugstad, 2013; Siljander, 2014.)

Learning goals should guide the selection of learning methods used, and the development of simulation taxonomy may help in these decisions. What is special for simulation learning compared to other practical learning methods should also be clear and taken into account when one decides to use simulation learning. The relationship between simulations and reality is not an exact one. This should not be seen not as a downside of simulations, but as a strength. The surface fidelity of simulations should not in all cases be seen as the ultimate goal, since, for example, for novice learners it may be of more help to be shown what is not present in the simulation but is present in reality, and why something is done in a certain way. In this way, it may be easier to gain the tacit knowledge which

is seen as the most difficult to learn (Bradley, 2011; Hindmarsh et al., 2014; Kinchin and Cabot, 2010.)

Certain principles, implementation models and best practices that should be part of a simulation exercise emerge from the research into simulation learning: clear and defined outcomes and their measurement, repetitive practice, time spent learning and distribution of the training over several days, curriculum integration, variation in scenarios and difficulty level, cognitive interactivity, team training, deliberate practice, mastery learning and feedback, just to mention a few (Cook et al., 2013, McGaghie et al., 2010, Issenberg et al., 2005). Simulation exercises in this research project can be compared with them.

RESEARCH FRAMEWORK AND IMPLEMENTATION OF THE RESEARCH

The research will be carried out according to the framework of case study research. Case study research is empirical research studying a phenomenon in its real context to gain a thorough understanding of it. The aim is to describe and make understandable the phenomenon studied — in the case of this research project, simulation learning in the training organisations supervised by the Ministry of the Interior (Yin, 2013).

It is typical of case study research collect several kinds of research data (Yin, 2013). In this research, data is collected using three different methods — observations, interviews and a questionnaire. To answer the first and second research questions, a comprehensive view of the simulation exercises in the training organisations studied must be obtained. In the early phase of the project, it was realised that this kind of information is not available in a concentrated form — instead the information must be gathered from teachers. Study guides and implementation plans do not give enough information about the simulation exercises used. The questionnaire will be used to form a comprehensive view of the simulation exercises and their characteristics. The abovementioned simulation taxonomy will help in classifying different exercises and illustrating their specific features. Information is also collected to obtain a general idea about
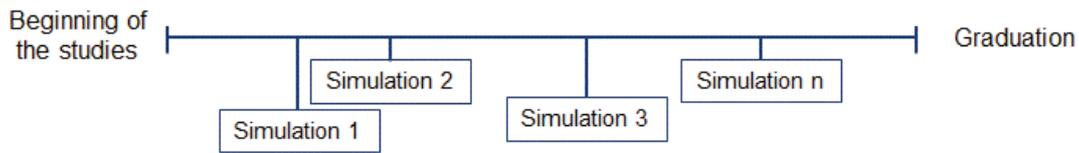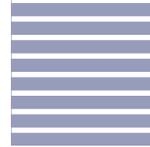
Figure 2. Situation of the simulation exercises in the curricula

the point in the curricula at which the simulation exercises are situated, from the beginning of the studies to graduation in different degree training, according to the following model (Figure 2).

In addition to the mapping of existing simulation exercises, selected and most representative simulation exercises of the training organisations will be compared to the research results about the best practices of simulation learning (e.g. how they are accomplished, what kind of elements of simulation can be identified from them). The exercises are selected based on the discussions with the teaching personnel of the training organisations. The selected exercises should fulfil the criteria of a simulation (i.e. be systematically designed and be comprised of at least some of the structuring elements presented in the simulation setting model) and represent different subjects. In this way, answers are gathered for the third research question.

The data about the exercises is collected by direct observation and interviews. The level of the observation is general, and the aim is to acquire a grasp of the accomplishment of the exercise and study especially the interaction between the learners and teachers during the exercise. The purpose of the interview is primarily to support and supplement the data collected through observations, but also some more general questions concerning simulation learning are presented in the interviews.

DISSEMINATION OF THE RESULTS

The final report will be based on several distinguished articles in the subject area instead of a traditional research report. As an article collection, the research report will probably best serve a broader group of readers. Articles are based on theoretical considerations and data collected during the research.

The future of simulation learning and technology aspects will be analysed. It will also be possible to include articles from teachers and experts in training organisations, if a willingness to write is expressed.

The transparency of the research process has been taken care of. Research papers and presentations will also be offered for Finnish conferences and research journals. A portal site has been set up for the project, offering information about the project and simulation learning for the personnel working under the organisations of the Ministry of the Interior in Finland. Unfortunately, at the moment there is no public website for the project. Project communication will be mostly in Finnish, but since we do not wish to restrict our research project and its results in Finland, value was seen in, for example, writing this article in an international publication to provide information about the ongoing research project, and we welcome references and experiences from organisations, researchers and teachers interested in simulation learning from other countries as well.

DISCUSSION

At the moment, we already know that some of the simulation exercises are the results of years of development, and practical experiences have guided the development of the exercises. On the other hand, research results have been applied in the development of some exercises. It is not necessarily enough to apply the already existing models without modifying them, since the special requirements of the subject matter and teaching situation must be taken into account.

Restrictions in the teaching resources available in the training organisations place new demands on teaching and the students. The resources allocated for classroom teaching are diminishing, and students are expected to take more responsibility for their own learning. On the other hand, the technical development of our operational environment sets new expectations, especially considering the new

student generations. What are the chances of simulation learning offering solutions for these developmental trends?

It has been seen as important that each of the training organisations see themselves as co-researchers with the Police University College, and are thus able to bring out their own aspirations and needs to be taken into account in the research. In this way, the research project can offer the best possible benefit for all of the training organisations.

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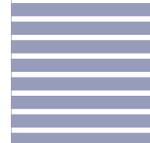
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