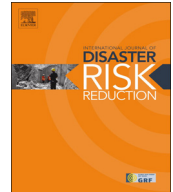




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Contents lists available at SciVerse ScienceDirect

International Journal of Disaster Risk Reduction

journal homepage: www.elsevier.com/locate/ijdr

Learning effectiveness of discussion-based crisis management exercises

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ARTICLE INFO

Article history:

Received 16 November 2012

Received in revised form

25 April 2013

Accepted 6 May 2013

Keywords:

Crisis management exercise

Discussion-based exercise

Learning

Variation theory

Intended learning outcome

Capability

ABSTRACT

Crisis management exercises sometimes produce weak or vague learning results with very limited applicability. This paper addresses these problems by developing a theoretical framework on learning from crisis management exercises. The framework focuses on necessary requirements and beneficial factors for the conceptual learning of individuals from discussion-based exercises. The variation theory of learning was identified in the literature. According to this theory, a learner's capability stems from his or her ability to discern relevant situational aspects and the resulting potential for simultaneous awareness of and acting upon them. The central assumption of the framework is that learners are required to experience variation to achieve conceptual learning. The framework connects learning aspects of scenarios and discussions to the potential for improvement of the individual's capabilities. Based on the framework we suggest that exercise scenarios should be represented as a set of parameters, and that variation of the parameter set and the parameter values becomes the central theme of the exercise activity. Thinking in terms of parameters emphasizes variation and invariance before, during and after an exercise session, thus supporting learning. The proposed framework can be used to understand and manage discussion-based crisis exercises from a conceptual learning perspective.

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1. Introduction

Society is constantly putting effort into crisis¹ preparedness, which can be seen as a process that builds, improves and maintains crisis management capability [1]. Crisis management exercises play a central role in this

process, and often expose the existing capability so that it can be assessed. However, the learning potential of these exercises is often far from fully utilized. It is not unusual that the deficiencies, problems or dysfunctions in crisis management observed during an exercise remain unmanaged afterwards, and thus reappear in the next exercise or actual crisis response [2]. Ideally, the weaknesses identified in an organization's performance through exercises should be subject to sustainable changes in the organization's behavioral potential.

Crises are expected but unpredictable. It is virtually impossible to pinpoint in detail what competence will be required to manage crises that will occur. Consequently, crisis exercises should aim to develop generally applicable capabilities that are useful in a large set of possible futures

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E-mail addresses: jonas.borell@design.lth.se (J. Borell), kerstin.eriksson@brand.lth.se (K. Eriksson).¹ The semantic distinctions between the concepts *crisis*, *emergency* and *disaster* have been extensively debated, yet the concepts are sometimes used interchangeably. In this article we have chosen to primarily use the term *crisis*. However, we sometimes use the related terms *emergency* or *disaster* to follow referred sources.

[3]. However, learning results generated by exercises are often specific to situations similar to the ones exercised [4], which renders weak transfer potential to different situations. Looking to the past for lessons from practical experiences of crisis management is also a delicate matter [5,6], since one should "...not prepare to fight the last war" [7], p. 489. The learning results achieved may be clear and focused, yet still of limited value because they are too specific and thus not applicable to a large set of possible future crisis situations.

When certain problems reoccur in successive exercises without significant improvements in the corresponding crisis management capabilities, it is easy to wonder why. How come identified issues are not learnt and successfully transferred from exercise events? A slightly different and perhaps more constructive way to put the question is: what is needed for successful learning? This can be transformed into: when exercises do produce the desired learning effects, what are the critical conditions? How can the chances of successful learning and hence of positive transfer of learning results be increased?

An act of learning can be viewed as having a process aspect and a content aspect; together they shape the learning results cf. [8]. Learning results in the form of goals for crisis management exercises are a common theme in the literature, while the actual process of learning is not as well researched in the crisis management exercise context. The focus of this article is on the process of learning rather than on the content of learning.

The aim is to propose a theoretical framework for understanding and managing learning from discussion-based crisis management exercises. In developing the framework, necessary requirements for individual learning and beneficial factors for individual and organizational learning are taken into account.

2. Scope and theoretical points of departure

This article addresses the challenges of sub-optimal learning and learning results with limited applicability from discussion-based crisis management exercises. Based on theories of learning and crisis management, a theoretical framework is developed that describes some necessary requirements for individual learning and beneficial factors for individual and organizational learning from crisis management exercises. The framework puts the enabling of participant learning in the foreground, and is intended to be useful in planning, performing and evaluating exercises. Guidelines are derived from the framework that are intended to support and facilitate practical work with learning-focused crisis exercises. This is done through the following steps:

- In this section, a theoretical foundation is laid out.
- In Section 3 we frame the concept of crisis management exercises with a model that links them to their functional surroundings.
- Sections 4 to 6 present three central elements of the framework: *variation*, *scenarios* and *interaction*.
- In Section 7 the central elements are integrated into a theoretical framework for understanding and managing learning-focused crisis management exercises.
- Finally, in Section 8, the application, limitations and further development of the theoretical framework are discussed.

Throughout this article we illustrate some of the theoretical ideas through examples from an exercise in a Swedish local authority, referred to as *the example exercise*, which was designed and performed according to the framework. Swedish local authorities provide such services as social welfare, schools, eldercare and rescue services. By law they are obliged to prepare for crisis management, for example, by performing exercises. The example exercise involved eleven participants, who were all working in managerial positions in the authority and had specified roles in the event of crisis management. The example exercise was prepared by the authors, who also acted as facilitators during the exercise and documented the developing scenarios.

Societal crisis management relies on organizations and their capabilities, and improvement of these capabilities can be seen as organizational learning. However, the capability of organizations relies on the capabilities of individuals, as individual actors and as coordinated agents, and organizational learning is ultimately performed by individuals [9]. Thus, models of organizational learning should be based on and compatible with individual learning theory [10]. Consequently, the developed framework on learning from crisis management exercises primarily considers requirements for individual learning. The framework is limited to only consider learning mediated by people. This means that organizational learning from exercises carried by artefacts, such as changes in formal standard operating procedures, is not covered.

Crisis exercises and training can be structured in different ways, ranging from table-top to full-scale exercises [11]. The scope of this paper is limited to discussion-based exercises. These are arranged situations wherein participants, under the guidance of a facilitator, interact in a scenario. Typical characteristics of such exercises are that they are performed in table-top settings rather than out-in-the-field, and that they do not require chronological realism or real-time properties [12]. Discussion-based and conceptually oriented forms of crisis exercises are suitable for shaping an organization's crisis management capabilities by enhancing capacities relevant for the strategic and tactical aspects of crisis management cf. [13,14,15].

Learning may produce different kinds of outcomes. Gagné [16] identified five categories of learning outcomes on the individual level: intellectual skills, verbal information, cognitive strategies, attitudes, and motor skills. This paper focuses on learning that aims at conceptualizations, which emphasizes the first three (as compared to learning that aims directly at potential for physical action, for example). There are several noteworthy reasons behind the choice to focus on conceptual learning:

- *Concepts are necessary for perception:* Human cognition involves a substitution of a conceptual order for a perceptual order, which forms the foundation for awareness. The conceptual repertoire of a perceiver limits what enters awareness: "In order

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