

Engage the engaged to continue crisis training and other lessons learned from two demonstration exercises with LMS

John Sören Pettersson

Karlstad University

Karlstad, Sweden

john_soren.pettersson@kau.se

Geir Ove Venemyr

Inland Norway University of Applied Sciences

Rena, Norway

geir.venemyr@inn.no

Abstract

The adage practice makes perfect is well-known by safety coordinators and national contingency agencies. However, it has been reported that managers outside the rescue forces have difficulties finding the time to participate in exercises to become able members of their own organisations' crisis management teams. Moreover, trainers would welcome uncomplicated digital tools for planning and preparing exercises.

To address this, a concept geared towards table-top (seminar) exercises was developed and used in several pilot exercises with trainees who did not belong to the project. We also undertook two demonstration exercises for professionals affiliated with the project, where representatives from different organisations worked through exercise scenarios. Here, we report on these demonstration exercises. Although the participants made good progress through these exercises and also enjoyed the experience sharing opportunities they provided, we noted that there were some traps that lessened the efficient performance of the ICT-supported crisis management training.

Keywords: Collaborative learning, LMS, Crisis management team training

1. Introduction

We report on two crisis management exercises whereby municipal safety coordinators and others were invited to experience a training format that crucially relied on digital tools to support the exercise. The reason for this "going digital" was originally driven by the desire to overcome scheduling hurdles for the efficient collaborative training of department heads: as noted also by other researchers [5] [9], scheduling even a simple table-top exercise is difficult if everyone must be located in a specific place at a specific time. Lately, the coronavirus pandemic has taught most managers how to use videoconferencing and screen sharing, but there is still the problem of allocating and coordinating time [12] why other forms of collaborative distance training still needs to be elaborated. Moreover, experienced safety coordinators have suggested that the planning process, on their side, might be further simplified if exercise structures and contents could be shared digitally [16]. In addition, participants' comments and any other material produced during the training can be directly stored in the digital tool used for hosting the training material, which would facilitate evaluation of the group's competence and elaboration of future exercises.

This picture of factors inhibiting frequent exercising and the promises from digital support was collected in [16] within a project where IS and crisis researchers collaborate with stakeholders in rescue services [4]. Although these challenges are well-known in the literature on crisis management, there are few studies on digital attempts to alleviate these challenges, particularly studies discussing basic features relating to the needs of exercise planners and trainers [10].

In our project, we conducted several small exercises that elaborated on different dimensions of what a digital learning management system (LMS) can provide. The

literature on distance learning discusses several aspects of how learning is both facilitated and hindered by moving into cyberspace, where distance teaching is made possible and students' collaboration may or may not be facilitated by the use of LMSs (e.g., [2] [7], and after the first wave of the COVID-19 pandemic there are many reports from applying distance learning to campus courses, e.g. [15]). Together with crisis management trainers, we designed short crisis management exercises inspired by the common table-top format [3] [14] but supported by digital means. Some were conducted almost exclusively asynchronously through LMSs [12]. Table-top exercises cannot replace field exercises, but for role training, understanding contingency plans, and inter-organisational bridging, these exercises have proven value [6] [13]. The two demonstration exercises for expert trainers reported here were held to create environments for in-depth critique of our digital support.

When digitizing collaborative learning, there are many dimensions available to play on. For this short presentation we mention two dimensions often highlighted by distance educationalists: co-located—distributed and synchronous—asynchronous. The demo in Sect. 2 was co-located and the one in Sect. 3 distributed with mixed synchronicity. Other details are explained in respective section. Sect. 4 highlights the main results.

For crisis response training, evaluation is in-built so that crisis plans can be adjusted and future exercises designed for better crisis management team (CMT) performance [3]. This also coincides with what researchers would want from a study object. Observations, evaluation questionnaires, and protocols from evaluation discussions have been used in this research, but also post-exercise interviews and responses keyed into the LMSs during the digitally supported exercises. All the participants were informed about the two-pronged objective of our exercises (i.e., the exercise and research) and gave their consent.

2. A Face-to-face CMT Demonstration Exercise

From 2018 to 2019, we used a customised blog system [1], which was replaced in 2020 by the Canvas LMS [8] to gain first-hand experience of the transferability of the digital crisis-training concept between various platforms for education. This worked well for a pilot exercise that used the same structure as previous pilot exercises, namely five modules spread over 1–3 weeks ended by a sixth module for evaluation, where each module took 15–45 minutes to complete, depending on the trainee (or trainees if the module was run as a real-time discussion; that is, synchronously) [12]. Simultaneously with the pilot exercise, quite another type of exercise was also conducted: a one-day demonstration exercise where project partners gathered to either monitor or participate in the exercise. This was not a real training session but rather an opportunity for safety coordinators from different municipalities to exchange ideas and see how an LMS could work when exercises are co-located and run synchronously (requirements from [10]). A special feature was included, namely, recorded video snippets produced by a professional media company.

This demo exercise generated many insights. While some of the videos made a strong impression on the participants and notably raised engagement, there were also questions regarding a few of the videos. In an analysis during the Evaluation of why some of the discussions during this exercise had sometimes derailed into meta-discussions about the scenario, it was agreed that when a video clip left certain things open to interpretation, the participants tended to discuss this and forget the questions of the inject (task) for a while.

Another thing which pertains to having an LMS-based exercise, where everything seemingly is served for the participants, is that we used only one trainer (a.k.a. facilitator) even if the participants were divided into two groups for some hours; effectively, each group had the trainer present for only half the time. From a questionnaire and timestamps we concluded that to drive discussions and avoid derailing into meta-discussions and for simple timekeeping, every group, even with experienced people (often acting as trainers themselves), benefited from a trainer guiding the discussions.

A third insight about the digital artefact of the exercise was to not copy injects directly from PowerPoint slides or A4 sheets previously used to train managers and staff. An LMS creates a type of tunnel vision for participants because the window scrolls downwards as the team elaborates their answers, and the questions, instructions and time limits disappear.

This problem is possibly slightly graver for synchronous events, particularly where participants are in control of the screen estate because then there is no active trainer moderating the utilisation of the screen.

An exercise like this with experienced participants from various organisations functions very well even though roles are not assigned to participants. In this case, only a note-taker was assigned in each group, whose screen was shown on a big screen in each seminar room (but everyone could add comments from their laptops). Overall, we can claim that the technology did not hinder the purpose of the exercise: the participants were as eager as in ordinary discussion exercises to share and listen to each other's experiences and how contingency plans were designed in their organisations.

These lessons learnt are valuable, but the question of how easily a dialogue can be conducted if made at a distance remains. In some previous pilot exercises [in prep], we noted that a chat function, if specially designed, can function for a group which is training according to a specific crisis plan. A videoconference could provide a more natural CMT meeting scenario as it allows for oral discussions. However, in our study, during the discussions within the two groups, it was noticeable that the discussion went back and forth between whole-group discussions and smaller parallel discussions between two or three members. Such spontaneous parallel discussions where everyone is still aware of every subdiscussion going on would be harder to conduct in a videoconference meeting, while not so difficult in a chat forum. With the corona pandemic and concomitant physical distancing, there is a need to investigate the dynamics of video discussion exercises.

3. A Distance CMT Demonstration Exercise, partly asynchronous

A second demo exercise was held in April 2021 for some of the project stakeholders. Because the participants were experienced with coronavirus pandemic management via videoconference meetings, this time, the purpose was not to demonstrate video content and the LMS; the purpose was to demonstrate the following four things. i) How an LMS can support videoconference discussions in crisis management exercises. In particular, show how alternating writing and speaking can let everyone develop their thoughts despite the single-speaker character of videoconferences and while restricting the chat function to discussion management. ii) That an untimed module predating the joint event facilitates discussion. We had good experiences with several slow-paced exercises that ran almost entirely asynchronously. This is not far from what we do as academics for both campus and distance teaching when students are asked to read and submit comments before the class meets. iii) How break-out rooms can facilitate discussions. We had learnt that not all organisations have installed group functions after a year of CMT video meetings. iv) Whether a module that opens for suggestions from the participants on the next step in the scenario would be treated cursorily or with engagement. This module was inspired by suggestions from participants in two previous exercises on different forms of continuation (and by a crisis trainer interviewed in [16] that much is learnt in *planning* an exercise).

As we had four municipal safety coordinators and four other stakeholders signed up for this demonstration in addition to a safety coordinator, who participated in the asynchronous part, the participants were divided into one municipal group and an "other actors in society" group, except for the evaluation module, which was undertaken in plenum. The two groups each had an assigned trainer and an observer.

Module 1 opened on a Monday, and a researcher acted as support for people needing to check the videoconferencing functionality or who had difficulties entering the LMS. Two people asked for help. The 3-hour synchronous videoconferencing covering modules 2–6 did not start until Thursday, which provided ample time for support. Module 1 consisted of the scenario and three injects, with 1–2 questions each. The Discussion function of Canvas was used. The three discussion threads were set to "Users must post before seeing replies". The same setting was used for the inject questions in modules 3–4. Module 2, the first synchronous module, conducted with the videoconferencing system, consisted simply of discussing the input to module 1. For documentation, one member of each group noted the group's conclusion. In modules 3–4, group discussions followed

immediately after the individual inputs had been provided. Module 5 asked for what would happen next, and the module 6 evaluation consisted, like the other modules, of individual comments and then a group discussion (which was screen recorded for research purposes).

The modules were set to be closed for comments one hour after the exercise was completed to allow for the registration of any afterthoughts from the participants after the joint evaluation. However, three of the participants had to leave during module 6, including one who had participated while simultaneously participating in field exercises on forest fire (indeed, we live in a marvellous time of mobile internet connection). All three were eager to provide evaluation comments, but we unintentionally prohibited this by closing for comments one hour after the evaluation module had ended. So, instead, the participants emailed letters later the same day, and email texts were pasted by us into the module 6 discussion for record-keeping (and to demonstrate this function to the stakeholders).

Comments, both written and oral, from the participants were very positive about having questions that were initially answered individually and having an asynchronous module with questions before the videoconference – the recorded answers provided a flying start for the discussion in the videoconference. Some people had obviously also read the concomitant material (two reports about the topic of the scenario).

Bearing in mind that this was an open, discussion-based exercise with stakeholders from different organisations rather than two teams being trained to act in the same CMTs, the following insights can be highlighted. When planning a table-top exercise, it will be up to the discretion of the trainer to judge the applicability of these insights.

1. Invite more people than merely the participants to respond to asynchronous modules. Experts most probably give answers that are valuable for the discussions.
2. Ask participants for further scenario development. A few steps into the scenario, participants are engaged and full of anticipation and expectations. This can possibly also focus the evaluation discussion on group performance and what was learnt rather than on the scenario itself.
3. Open question: how far can suggestions for further scenarios be used in a continued exercise, and how far can different groups (units) be used to give injects to other groups?
4. Keep the system open for comments after the exercise has officially ended. This facilitates documentation and later in-depth evaluation.

4. Concluding Discussion

There is a way to overcome scheduling hurdles for efficient collaborative training of department heads if safety coordinators and security managers are given access to LMSs, not only crisis management systems, and to some methodological guidance. Moreover, documentation should go beyond what goes into the crisis documentation system to facilitate analysis of CMT behaviour. However, people must be willing to practice, and here we might have found a key: *when people are training and engaged, ask them about possible continuations*. The blog-like functions of an LMS are a good way to capture an individual's ideas and, if the training continues, possibly also sustain a discussion in parallel on what the team needs to train on.

It will be interesting to see to what extent such exercises as the ones mentioned here can be self-extending. While trainers are needed for moderating, this is no barrier in cases where the trainer is also a member of the CMT and thus participates in the setting up of new challenges and negotiating opening times for individual modules. In other organisations, this might be harder to achieve when the trainer is more external to the organisation. Nevertheless, the stand-alone character of an asynchronous exercise could be monitored in an on-and-off manner by, for example, a busy part-time municipal safety coordinator who serves several municipalities [11], especially if the organisation has undertaken one or two exercises in this manner before.

Acknowledgements

Project “CriseIT 2” grant number 20201866 EU/Interreg, Sweden-Norway Program.

References

1. Bellström, P., Persson, E., Magnusson, M.: Elaborating requirements for a digital crisis training tool: Findings from a pilot study. In: Siarheyeva, A., Barry, C., M. Lang, M., Linger, H., Schneider, C. (eds.), *Information Systems Development: Information Systems Beyond 2020 (ISD2019 Proceedings)*. ISEN Yncréa Méditerranée, Toulon (2019)
2. Berdun, F.D., Armentano, M.G., Berdun, L., Mineo, M.: Classification of Collaborative Behavior from Free Text Interactions. *Computers and Electrical Engineering* 65, 428-437 (2018)
3. Coppola, D.P.: *Introduction to International Disaster Management*. Elsevier (2007)
4. CriseIT, CriseIT 2 —Implementing Future Crisis Management Training. (2016-2018, 2019-2022) <https://www.criseit.org/about-criseit/> Accessed July 21, 2021
5. Field, J., Rankin, A., Lemmers, A., Morin, M.: Instructor tools for virtual training Systems. In: *Proceedings of the 9th International Conference on Information Systems for Crisis Response and Management, Vancouver* (2012)
6. Granasen, M., Olsén, M., Oskarsson, P.-A., Hallberg, N.: Assessing Interorganizational Crisis Management Capability: A Systematic Literature Review. *International Journal of Information Systems for Crisis Response and Management* 11 (2), 38-56 (2019)
7. Hrastinski, S.: Asynchronous and synchronous e-learning. *Educase Quarterly* 31 (4), 51-55 (2008)
8. Instructure Inc.: *Teaching and Learning. To the Power of Canvas LMS*. (2021) <https://www.instructure.com/product/higher-education/canvas-lms> Accessed June 08, 2021
9. MacKinnon, L., Bacon, L.: Developing realistic crisis management training. In: *Proceedings of the 9th International Conference on Information Systems for Crisis Response and Management, Vancouver* (2012)
10. Magnusson, M., Pettersson, J.S., Bellström, P., Andersson, H.: Developing crisis training software for local governments: From user needs to generic requirements. In: Andersson B., Johansson B., Barry C., Lang M., Linger H., Schneider C. (eds.). *Advances in information systems development: Designing Digitalization*, pp. 79-96. Springer, Cham (2019)
11. Meum, T., Munkvold, B. E.: Information infrastructure for crisis response coordination: A study of local emergency management in Norwegian municipalities. In: *Proceedings of the 10th International Conference on Information Systems for Crisis Response and Management. Baden-Baden* (2013)
12. Pettersson, J.S., Bellström, P., Persson, E., Magnusson, M.: When a state of crisis becomes the normal, who has the time for crisis training? Presented at NEON2020 – Network for Organizational research in Norway, Oslo (2020) <https://app.oxfordabstracts.com/events/1684/program-app/program>
13. Rotstein, N.: Designing, conducting, and evaluating tabletop exercises: A primer on optimizing this important planning tool. University of Minnesota, Center for Infectious Disease Research and Policy. (2007) <https://www.cidrap.umn.edu/news-perspective/2007/05/designing-conducting-and-evaluating-tabletop-exercises-primer-optimizing> Accessed April 26, 2021
14. Salas, E., Tannenbaum, S., Kraiger, K. & Smith-Jentsch, K.: The science of training and development in organizations: What matters in practice. *Psychological Science in the public interest*, 13(2), s. 74-101 (2012)
15. Van Slyke, C., Topi, H., Granger, M. J.: Special Section: COVID-19, Learning, Pedagogy, and Educational Systems. *Communications of the Association for Information Systems*, 48, 476-486. (2021) <https://doi.org/10.17705/1CAIS.04841>
16. Wik, M., Nyberg, L., Magnusson, M.: Behov av datorbaserade metoder och verktyg för krisövning: Intervjustudie i Inre Skandinavien (in Swedish). Karlstad University, Karlstad (2017)