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# Testing a methodology to improve organizational learning about crisis communication

Pauliina Palttala and Marita Vos, University of Jyvaskyla, Finland

## Abstract

**Purpose** – The purpose of this paper is to introduce a measurement system with performance indicators to improve organizational learning about crisis communication by public organizations. The tool can be used to conduct a preparedness audit or to evaluate communication performance in a real situation or in an emergency exercise. Evaluation is part of the strategic planning and development of crisis communication. The construction of the instrument and its theoretical underpinnings are first explained, after which the series of empirical tests that were implemented to scrutinize the clarity and appropriateness of the indicators as well as the usability of the instrument are presented.

**Design/methodology/approach** – The process approach to crisis management, in which the various phases of a crisis are seen as a continuum, and the stakeholder perspective, in which both the diversity of public groups and the network of response organizations are taken into account, are applied in the paper.

**Findings** – The tests of the instrument revealed much interest in its use, and it was seen as a potential tool for the improvement by public organizations of their crisis communication. The tests led to improvements in the structure as well as in the phrasing of the individual performance indicators and their explanation. The indicators were considered relevant and important but too many in number. Therefore, a possibility to use the instrument in three separate parts, relating respectively to the period before, during and after a crisis, should be offered.

**Research limitations/implications** – This study addresses the main factors relevant for crisis communication with respect to the approach chosen, but does not report all the literature and empirical findings that validate the individual indicators as this has been done in other publications. It also presents a series of first test findings but not as yet the results of improvements initiated by using the instrument.

**Practical implications** – The instrument developed shows weak and strong points in crisis communication on the level of single indicators, but also allows comparison of performance in different phases and for the various stakeholder groups, showing where more attention is needed. The instrument developed will be available on an open website and users will be asked to make the measurement results, rendered anonymous, available for its further improvement.

**Social implications -** The paper contributes to effectiveness of emergency management by testing an instrument to facilitate learning about crisis communication.

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**Originality/value** – Much of the crisis communication literature focuses on reputation crises. This paper discusses crisis communication supporting crisis management in the case of disasters and other emergencies that are handled by a response network instead a single organization. It provides a clear framework for analysing and assessing the quality of crisis communication and stimulates and thus enables learning and further improvement.

**Keywords** – Crisis communication, disaster management, performance indicators, quality control
**Paper type** - Research paper

## Introduction

In a globalised society the impact of crises on citizens is expected to grow (Boin & Lagadec, 2000). Crises challenge the abilities of response organizations and call for cooperation in society which requires communication efforts. This paper introduces an instrument to systematically learn from experiences to further improve the quality of crisis communication. Much of the crisis communication literature focuses on reputation crises; this paper, however, discusses communication supporting the management of disasters and other emergencies by public organizations. These communication activities aim at explaining the crisis event, identifying its probable outcomes, and providing specific harm-reducing information to affected communities in an honest, candid, prompt, accurate and complete manner (Reynolds & Seeger, 2005; Coombs, 2007).

Various case studies have enhanced the understanding of crisis communication and have led to a body of best practices. These can be seen as lessons for organizational learning (Seeger 2006). However, the uniqueness and large variety of crises complicate the application of best practices, creating a need for integrated models which promote organizational learning for various scenarios. Boin and Lagadec (2000) state that new ways of thinking and training are needed to cope with unforeseen emergencies with large impact caused by destabilising and unprecedented events. Crisis communication doesn't need rehearsal of routines but rather reflection on actions and decisions taken. After a crisis people want to forget what happened which makes learning difficult to arrange. Boundaries for effective learning after crisis are both political and organizational (Birkland, 2009). Notably policy development should not be separated from practice, i.e. improvement of operative crisis management, or in this case, communication tactics (Elliott 2009). Learning in networks is also seen more challenging (Moynihan, 2009).

An instrument to further improve the quality of crisis communication and increase preparedness by public organizations has been developed and tested[1]. The tool facilitates learning and serves as a framework for evaluation, analysis, and decision making in crisis communication. It can be used within one organisation or in the network of relief organizations.

[1] The research project leading to these results has received funding from the European Community's Seventh Framework Program (FP7/2007-2013) under grant agreement number 217889.

In constructing and testing the instrument, demands for the assessment of crisis communication were investigated. The instrument consists of performance indicators for crisis communication, and in its structure follows a process approach throughout the various phases of a crisis, while supporting a strong orientation on stakeholders' needs.

## Performance indicators

The use of performance indicators for organizational learning in crisis communication is inspired by Kaplan and Norton (e.g. 2001 and 2004), who propose a balanced scorecard as a system for improving and assessing quality, and converting strategy into action. The purpose is to assess quality, facilitate decision making, steer strategy choices and enable learning. Wouters (2009) suggests that performance measurement should primarily facilitate improvement of processes, enabling performance rather than acting as a control device. It should show capacitators instead of just measuring results and help to identify priorities for action (Mooraj, Oyon & Hostettler, 1999). Performance measurement aims at identifying and monitoring those areas which are particularly important for the successful implementation of strategy, the so called critical factors (Kald and Nilsson, 2000).

Balanced scorecards have mainly been developed for business organizations, but scorecards or similar instruments using performance indicators are also used by public organizations. The method has been applied to organizations as a whole and to business units. It has also been discussed for application in the area of communication management (e.g. by Hering, Schuppener & Sommerhader, 2004; Zerfass, 2008; Vos, 2009). For crisis communication such an instrument does not yet exist, although a scorecard has been developed for crisis management, using a limited number of metrics but also structured according to the phases of a crisis (Moe, Gehbauer, Senitz & Mueller, 2007).

## A process approach to crisis management

The instrument developed is characterized by a clear connection between communication and crisis management, seeking to increase the added value of communication for response activities. To be effective, crisis management requires communication to strengthen cooperation, explain rescue activities and instruct public groups in the event of an emergency. Communication strategies can help to manage uncertainty, respond to the crisis, resolve it, and learn from it (Ulmer, Sellnow & Seeger, 2007).

Public organizations have a mandate to serve the public interest and secure the safety of citizens by managing crises effectively. Crisis management involves preparedness as well as response in order to prevent and reduce harm. Communication contributes in various ways, for instance by enhancing societal understanding of risks, empowering citizens and facilitating cooperation during response activities. In this way, communication objectives support the goals of crisis management.

This can similarly be seen in the well-known process model, called the 'Crisis and Emergency Risk Communication Model', (CERC), in which communication tasks are developed according to the various phases of a crisis (Reynolds & Seeger, 2005). A crisis is seen as a

continuing process starting in the pre-crisis phase, culminating in the emergency phase, and ending in the post-crisis phase (e.g. Ulmer, Sellnow & Seeger, 2007; Coombs, 2007). The challenge for management is that the beginning and end are difficult to predict. Reynolds & Seeger (2005) distinguish five phases according to the following communication tasks: (1) pre-crisis risk messages and preparations to gain understanding and affect behaviour; (2) initial event uncertainty reduction and reassurance to ease emotional turmoil and add to understanding of the situation; (3) support personal response and informed decision making by the public, collect feedback and facilitate cooperation with response efforts; (4) resolution updates and discussions about rebuilding efforts; and ( 5) evaluation and discussion of adequacy of response and consequences of lessons learned. Although in reality events unfold in different ways, not necessarily reflecting a linear process (Chess, 2001), the use of linear steps facilitates crisis communication planning as it points out some of the demands for communication. This foregrounds the fact that situational factors affect the choice of crisis communication strategies (Coombs, 2006).

## Stakeholder orientation and response network

The instrument supports a strong orientation towards the various stakeholder groups, and emphasizes paying attention to public perceptions. Alpaslan, Green and Mitroff (2009) propose a stakeholder model approach to crisis management that attends to the interests of those affected by a crisis through developing stakeholder relationships based on trust and cooperation. Understanding and building trust aims at partnership-like relations with the public, and is considered to be one of the best practices in crisis communication (Seeger, 2006). The stakeholder approach in crisis communication is a human-centred approach that is based on what people want and need to know. To help empower people in crisis situations it is crucial to understand the diversity of public groups in respect of how they use media, and what they want and need to know.

Furthermore, the network of the relevant response organizations should be taken into account. In complex crises, response activities are initiated by several organizations that need to cooperate and to be coherent also in their communication with public groups. This calls for a similar awareness of the importance of crisis communication and the empowerment of civilians. However, lack of coordination and communication often hinders rescue work (Toivonen, 2003: 236). Nowadays crises require cooperation among the various response organizations, as the quality of the overall performance is based on the functioning of the whole system. For this reason Abrahamson, Hassel and Tehler (2010) propose a system-oriented framework for analysing and evaluating response to emergencies. Of course, such an approach is also valuable for planning and preparedness.

## Structure and content of the instrument

In the light of the above considerations, the structure of the present instrument was formed according to the generally agreed phases of a crisis and the primary stakeholder groups (see table 1). The crisis phases were: (1) Preparation phase, (2) Warning phase, (3) Emergency phase, (4)

Reconstruction phase, and (5) Evaluation phase. The primary stakeholder groups distinguished by the instrument were citizens (directly and indirectly involved individuals and communities), news media and organizations in the response network.

The next step was to fill in the framework with content gathered from research. Literature reviews provided insight into the development of crisis management and the best practices of crisis communication, while empirical research delivered additional knowledge (Vos, Lund, Harro-Loit & Reich, 2010). More specifically, best practices were identified in expert-interviews with communication officers and journalists. Also, in an online survey addressed to crisis communication experts, bottlenecks in management and in communication that have become apparent in practice were identified. Furthermore, focus groups, interviews and a survey clarified the citizen perspective, especially in respect of media use and reception of messages in stressful situations.

On the basis of the literature and empirical research critical factors for crisis communication were identified. The critical factors were sorted by the tasks specified for communication and organized into measurement instrument according to the five crisis phases and three stakeholder groups. Next the factors were rephrased as statements (i.e. performance indicators) that can be rated (for example: “Citizens’ needs for information and risk perception are monitored” and “Affected citizens, families and first responders are protected against overwhelming media attention”). Currently, the instrument contains 63 performance indicators: 18 for the preparation phase, 8 for the warning phase, 20 for the response phase, 12 for reconstruction phase and 5 for the evaluation phase.

An explanation was added to each performance indicator as practical instruction and references were given to scientific sources supporting their relevance. To ensure that the instrument would strongly support learning, a system for the assessment of the performance indicators was developed that allowed:

- using the framework for a case evaluation by external auditors to reflect and learn from a real crisis situation;
- implementing a preparedness audit using the preparation phase in a group discussion in a target organization
- evaluating a crisis communication exercise using the warning, response, reconstruction and evaluation phases in a target organization.

The instrument reveals weak and strong points on the level of the indicators, but also shows which areas (tasks or crisis phases, or stakeholder groups) need more attention. In this way, it facilitates decision-making, and focuses improvement on deficient areas.

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**Table 1: Structure and overview of tasks mentioned in the instrument**

| **Time** | **The phases of a crisis and emergency management activities** | **Communication tasks** (to be further specified per task by listing performance indicators) | **Stakeholder groups** | | |
|---|---|---|---|---|---|
| | | | **Citizens** (directly and indirectly affected individuals/ communities) | **News media** (local, national, international) | **Response organization and network** (level, line of authority) |
| **Before** | **[1] Preparation:** *Prediction, preparedness and mitigation* | 1.1 Knowing the public groups and their media use | X | | |
| | | 1.2 Monitoring of risk perception and general public understanding of risks | X | | |
| | | 1.3 Contribution to the general public preparedness | X | | |
| | | 1.4 Establishing cooperation with news media and journalists for crisis situations | | X | |
| | | 1.5 Improving preparedness in the organization and in the network of response organizations | | | X |
| | | 1.6 Improving network facilities and availability of manpower | | | X |
| | | 1.7 Improving information exchange and training of crisis communication activities in the organization and within the response network | | | X |
| **During** | **[2] Warning** | 2.1 Targeting and distribution of warning messages | X | | |
| | | 2.2 Issuing instructions to public groups and monitoring reactions | X | | |
| | | 2.3 Informing the news media | X | | |
| | | 2.4 Information exchange and coordination in the organization and within the response network | | | X |
| | **[3] Crisis response:** *Emergency* | 3.1 Instructions on how to prevent further damage | X | | |
| | | 3.2 Clarifying the situation to help public groups to cope with the situation | X | | |
| | | 3.3 Continuous monitoring of needs and perceptions of public groups | X | | |
| | | 3.4 Direct means of communication | X | | |
| | | 3.5 Designated crisis agency spokespeople and services for journalists | | X | |
| | | 3.6 Assist cooperation in the organization and within the response network | | | X |
| **A** | **[4]** | 4.1 Instructions for recovery efforts *(Instructive communication)* | X | | |

| | | | | | |
|---|---|---|---|---|---|
| **f t e r** | **Reconstruction:** *Recovery* | 4.2 Stimulating a more accurate public understandings of the recovery and ongoing risks *(Affective communication)* | X | | |
| | | 4.3 Ongoing monitoring of needs and perceptions of public groups | X | | |
| | | 4.4 Ongoing media relations | | X | |
| | | 4.5 Stimulating cooperation and coordination in the organization and within the response network | | | X |
| | **[5] Evaluation** | 5.1 Supporting reflection | X | | |
| | | 5.2 Evaluation and conclusions for the future via media and public debate | | X | |
| | | 5.3 Supporting evaluation and learning about communication in the organization and within the response network | | | X |

## Policy levels

The instrument is designed to facilitate learning and increase the added value of communication for emergency management. Preparedness for emergencies requires policy making and at each level of policy making communication should be included. Communication is an inseparable part of strategic crisis management, and policy making can be done on various levels. In business literature three levels are distinguished (e.g. Alblas & van de Vliert, 1990): (1) **strategic policy**, providing the direction for strategic decision-making, (2) **organizational policy**, giving structure and clarifying preconditions, and (3) **operational policy**, concerning the execution stage of activities.

The strategic policy, based on a clear vision regarding the role of communication in crisis management, guides scenario-based communication strategies. The organizational policy provides the structural aspects of the chosen approach and the preconditions for the establishment of crisis communication activities, clarifying facilities and procedures. The operational policy specifies the communication activities in the various phases of a current crisis, including various forms of interaction with public groups, monitoring of public perception and coordination between the response organizations.

In table 2 each of the policy components is further explained to show how communication contributes to all of the policy making on the strategic, organizational and operational levels. While filling in the indicators of the scorecard based on research outcomes, we made sure that a balance was kept and all the levels of policy making were reflected in the instrument.

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**Table 2. Overview of policy levels in crisis communication**

| Policy components: | Stakeholder groups:<br>**A. Citizens** | **B. News media** | **C. Response organization and network** |
|---|---|---|---|
| **1. Strategic policy** (developing the communication vision and scenario strategies) | **- Developing** crisis communication strategies that **empower** civilians to act, by providing clear information and instructions (repeating essential features like place and time), while showing **empathy** for civilians involved and facilitating sense making of the situation.<br><br>- Preparing **scenario-specific strategies** (e.g. for pandemic flu, flooding, terrorism) based on knowledge of the stakeholder segments and **media use**, information seeking and processing, including what are considered reliable sources and intermediaries.<br><br>- Investigating which **risks** are felt and how they are understood (e.g., are they sensitive topics prone to cause fear or misunderstandings) for strategy development. | **- Stimulating** a public service orientation in media cooperation that prioritises human interest and empowerment of citizens involved, by both the media and response organizations.<br><br>- **Developing strategies** to provide information and explain the response openly, while ensuring an efficient response.<br><br>- **Respecting** the freedom of the press, while also protecting the privacy of victims and families. | **- Planning** for joint objectives and strategies for crisis communication (e.g. for complex scenarios that require involvement of various organizations).<br><br>- **Decision-making** about up-scaling principles (as for communication up-scaling may be needed more often and earlier than for the rescue activities).<br><br>- **Developing** strategies that enhance trust and cooperation within the response network. |
| **2. Organizational policy** (arranging facilities and procedures to be prepared for the communication with the target groups) | - Arranging and preparing well-known websites and call centre **facilities** by response organizations.<br><br>- Ensuring the **integration** of communication expertise about public reactions in crisis management plans and procedures of response organizations.<br><br>- Arranging enough trained personnel and exercises to ensure communication **preparedness** in response organizations.<br><br>- Arranging (e.g. half-ready) **adaptable** communication materials for crisis situations. | - Procedures for **round-the-clock media service.**<br><br>- Developing a **code of conduct** that prioritises human interest and empowerment of the citizens involved, by both the media and organizations.<br><br>- Arranging enough trained personnel and exercises to ensure media communication **preparedness.** | - **Procedures** for exchange of information and cooperation, clarifying responsibilities.<br><br>- Arranging **facilities and communication channels** beyond the level of the home organization (e.g. alarm system, national crisis website and call centre) and joint exercises.<br><br>- Procedures for **pooling** of trained manpower in round-the-clock service (e.g. regional) and **evaluation** (how to retain lessons learned). |
| **3. Operational policy** (implementing communication in the current situation, during various crisis phases) | **-** Continuously **monitoring** information needs and what is perceived as challenging (e.g. by fast surveys, analyses of online discourse and experiences of those in contact with target groups).<br><br>**- Targeting** communication at the various public groups by a diversity | - **Following media reports** in written press, radio and television, also including news sites on the web (e.g. by content analyses),<br><br>**- Providing** information to the media that is correct, trustworthy and timely, | - **Currently exchange** of information and cooperation, pooling of resources, evaluation. |

| | | | |
|---|---|---|---|
| | of well chosen media and intermediaries (with special attention to vulnerable groups such as the handicapped, schoolchildren and institutionalized elderly ).<br><br>- Providing information that is **accessible** and **reliable** (e.g. updated websites and call centres, with round-the-clock service) with content that is correct, trustworthy, up to date and timely. | - Providing current information that is highly **accessible** (e.g. up-to-date web info and round-the-clock media service). | |

## Methodology

In practice, the instrument can be used to conduct a preparedness audit and test the crisis communication plan beforehand, to evaluate communication in a preparedness exercise or in an actual crisis situation, and to learn from what happened. During the development period, the instrument was tested with diverse methodology. A series of tests was implemented, including pre-tests of the clarity and appropriateness of the content in interviews and focus group, followed by three tests of the usability, i.e. case analysis, preparedness audit and evaluation of simulation exercise. An outline of the testing is shown in Table 3 and explained in the following sections.

**Table 3: Overview of the test design**

| | | | |
|---|---|---|---|
| **Pre-tests for clarity and appropriate-ness** | **INTERVIEWS**<br><br>All indicators<br>Individual assessment<br><br>8 interviewees<br><br>Communication managers of 2 ministries, 2 cities' central administrations, 2 rescue departments, and 2 hospital districts in Finland | **INTERVIEWS**<br><br>All indicators<br>Individual assessment<br><br>5 interviewees<br><br>International experts, practitioners /consultants in Norway, Romania, Spain, the Netherlands, Finland | **FOCUS GROUP**<br><br>All indicators<br>Individual assessment and group discussion<br><br>5 interviewees<br><br>Members of the Advice Committee of the project, active in the rescue and contingency sector |
| **Tests for usability** | **a. CASE ANALYSIS**<br><br>All phases<br>2 auditors<br><br>Recent case of water contamination in town of Nokia, 2007 in Finland, based on facts derived from two previous investigation reports | **b. PREPAREDNESS AUDIT**<br><br>Phase 1<br>Individual assessment and group discussion<br><br>Crisis communication preparedness was assessed in a middle-sized municipality including various units, also based on existing preparedness plans | **c. EVALUATION OF SIMULATION EXERCISE**<br><br>Phases 2-3 (, 4-5)<br>Individual assessment and group discussion<br><br>Communication quality was assessed after an emergency exercise, a simulation of a complex case |

**The pre-tests for clarity and appropriateness**

During the pre-tests expert-practitioners were interviewed in order to evaluate the clarity and appropriateness of the performance indicators. Interviews were conducted with 13 individuals, followed by a focus group session with 5 participants. In the pre-tests each individual interviewee received the instrument in beforehand and was asked to assess performance indicators separately. Next to that they were asked: Are the indicators and their explanation understandable? Are the indicators appropriate and important for the evaluation of crisis communication in the organization they represent?

The answer alternatives were yes and no, and for the latter arguments in support were requested. In addition, the interviewees were asked if the instrument was easy to use and suitable for their organization. The indicators were presented as they were formulated, in English.

After self-assessments, the results were gone through in face-to-face or telephone interviews with researchers for more detailed feedback. In addition, the focus group session with specialists of rescue and contingency management allowed more in-depth discussion to clarify the feedback.

**The tests for usability**

For usability, the instrument was tested in three different ways. First, the instrument was used to evaluate a recent crisis concerning water contamination which took place in the town of Nokia, Finland in 2007. To justify the results, the analysis was done by two independent researchers who were cast in the role of an auditor. One of the researchers was also a member of the national Accident Investigation Committee appointed to report on the accident. The individual ratings were then discussed face-to-face and average of the scores was calculated. The analysis was conducted from the point of view of the town of Nokia's central government, waterworks, regional official health and environmental health care and based on two previous research and investigation reports on the emergency.

Next, the instrument was tested in an audit of crisis communication preparedness, and finally, in the context of a simulated emergency exercise carried out in the city of Kuopio, Finland, with 130 000 inhabitants. Communication personnel from different departments of the city (Centre for Administration and Development, Education Department, Centre for Social and Health Services), and a representative from the city rescue department (Pohjois-Savo Region Emergency Services) participated in both of the tests. Both the audit of preparedness and the evaluation of the emergency exercise were conducted as self-assessments followed by group talks enabling in-depth reflections. When reflecting on the assessment they were asked: Is it easy or difficult to use the instrument? Are the indicators relevant for your organization/unit? Is the instrument suitable for the evaluation of preparedness?

## The pre-test results

All comments were carefully documented in a report and the researchers considered for each comment what adaptations, if any, were needed. In table 4 an overview is given of the main feedback received and the action initiated as a result.

**Table 4. Results of the pretest**

| Pre-tests | Feedback received | Action initiated |
|---|---|---|
| **Clarity and appropriateness of the indicators** | - Most indicators are understandable and concrete enough to recognise the relevance<br>- some terms are unclear, e.g. response network, reconstruction | - A glossary will be added to the user guide, some statements have been rephrased and explanations improved |
| | - The indicators seem relevant but the list of indicators is too long | - The indicators will be presented in 3 parts; the whole list is not usually used; the layout of the online instrument should improve this |
| | - The phases need explanation as similar matters are repeated throughout the instrument | - The user guide will explain the phases and their objectives; certain elements are relevant in more than one phase |
| | - A numeric scale is preferred by some interviewees | - A scale ranging from 'this is not taken care of' to 'this is a systematic component of action' has been introduced |
| **Appropriateness** | - Attention to the network is needed, but internal processes of a single organization should also be addressed | - Some text has been added at various places better address the internal processes of an organization |
| | - The instrument is comprehensive<br>- The structure is functional in combining tasks and stakeholders in different phases of a crisis | |
| | - It could be adapted by an organization | - Adaptability will be mentioned in the user guide |
| | - It is appropriate for different sectors and levels of administration, and may suit higher administration best | - The user guide will explain how the instrument can be used by different organizations |
| | - Translation into the native language is deemed necessary | - Translation will be recommended, and for the main tests the indicators and explanations have already been translated |

The comments on the various performance indicators were documented in detail in a report. The interviews stimulated lively discussion about crisis communication as a result of which the instrument has been further developed, especially in terms of its relevance. One interviewee commented: *"The instrument is useful but different from practice and presents an ideal model (criteria) for communication. Crisis communication plans are required of public authorities but these are merely operative and do not provide quality standards for communication."* Another respondent emphasized the importance of strengthening coordination: *"The network approach is welcome due to coordination problems among response organizations."*

After the pre-tests the phrasing of some indicators and explanations was improved and other necessary adaptations were also made before proceeding to the tests. Also, the requirements for the user guide were listed in detail.

## The tests results

All comments were carefully documented in a report and the researchers considered for each comment what adaptations, if any, were needed. In table 5 an overview is given of the main feedback received and the action initiated as a result.

**Table 5: Overview of the results**

| Tests for usability | Feedback received | Initiated action |
|---|---|---|
| **a. CASE ANALYSIS** | - The analysis provides a clear overview of strong and weak points, but still is time-consuming and needs good documentation | - This will be explained in the user guide |
| | - An auditor needs first-hand knowledge about the user organization<br>- An internal and an external auditor could cooperate | - This will be mentioned in the user guide |
| | - The difference between the two most positive alternatives in the six-point scale is too small | - The scale has been simplified to a five-point scale |
| **b. AUDIT PREPAREDNESS** | - The audit session is considered useful and time-efficient, and could be done annually | |
| | - The indicators and explanations are guidelines, not strict instructions or demands, and it is up to the organization how they deal with the tasks in practice | -This will be mentioned in the user guide |
| | - The option 'Do not know/ not for this organization' is lacking. | This option will be given and explained in the user guide; also space for open comments will be added |
| **c. EVALUATION OF SIMULATION EXERCISE** | - The instruments adds to the evaluation and can lead to follow-up plans | - This will be mentioned in the user guide |
| | - Some indicators, e.g. about media relations, were debated as their intention was unclear or seemed to contradict the views of the respondents views | - The indicators about media have been reconsidered, rephrased and better explained |
| | - The scenario used for the simulation was appreciated and could be made available for wider use | - The scenario will be provided with the instrument |

**The case analysis**

The results of the reflection on the Nokia water contamination incident was based on two previous research reports.[2] The contamination occurred during November 28–30, 2007, when large parts of the drinking water network in Nokia, Finland, were contaminated when clean and spoiled water became mixed. This caused an epidemic with thousands of cases of diarrhoea and vomiting, primarily due to a Norovirus and Campylobacter infection. Hundreds of the 12,000 inhabitants were hospitalised and the town board issued an order that all water used for human consumption must be boiled and at one stage banned. The cause of the contamination was a mistakenly opened valve between drinking water and treated waste water pipes at the waste water treatment plant. Warning and crisis communication management had failed, and this had led to erosion of reputation as well as having long-lasting effects in the area.

The test showed that the instrument can be used to evaluate and learn from crisis communication in a real-life case. After an acute event, the evaluation can be carried on the basis of the relevant documentation. However, sufficient knowledge about the organization in question is required. It is suggested that auditors compare their scores, for example, an external and an internal auditor. After this first test the scale was slightly adapted to: (1) *This is not taken care of at all, (2) The importance has been recognized, (3) We have started to manage this, (4) This is part of the action, but non-systematic, and (5) This is a systematic and expected part of the action.*

The audit of communication preparedness was done by using the first part of the instrument, the preparation phase, in individual self-assessments followed by a discussion session. The participants were asked to give their scores so as precisely to reflect the present state of the unit. In the meeting the scores were compared.

The communication officers of the city departments, the general communication manager and a rescue department representative participated. The city (central city administration and sector units) and rescue department have different responsibilities in an emergency situation but work closely together. For the rescue department crises are its regular work and it is the leading authority. The city, however, has a more supporting role, being responsible for maintaining e.g. education, child and elderly care, infrastructure and health services to citizens. These differences in emphasis were also seen in the audit results, as the different respondents rated the relevance of indicators differently.

The participants said that the instrument was easy to use and that most of the indicators were clear and relevant. The five-point scale worked well but for those statements that were not within the organization's sphere of responsibility, the option of indicating irrelevance was lacking. The participants did not mention any constraints on the fit between the instrument and their unit's specific needs. For the rescue department, the indicators could in parts be more detailed so that it suits operative management. Each indicator stimulated useful discussion. The participants said that the instrument is especially good for the development of communication and therefore worthwhile. To help users, an example could be given about how, for instance, a

[2] The investigation by the national Accident Investigation Committee, and a study 'Crisis Management and Communications: The Case of Nokia Water Crisis' published by the Association of Finnish Local and Regional Authorities.

test organization uses the instrument to evaluate preparedness. It should be made clear that the instrument is first and foremost intended for emergencies that may harm the safety and well-being of citizens.

**The exercise**

The exercise was based on experience of crisis exercises in practice, but also inspired by an analysis of a simulation about communication in the case of a pandemic (introduced by Freimuth, Hilyard, Barge & Sokler, 2008). A table-top format was used and in addition a game centre with actors was arranged to provide realistic input and simulate the activities of journalists and citizens. The scenario for this exercise was a school fire in a building where a child health care centre and kindergarten were also located, and it was developed in cooperation with the test organization and researchers.

The goals for the exercise were to test the communication preparedness of the municipality, the warning system, the call centre for public information, and the instrument for evaluating the exercise. As in the case of the audit, in the exercise individual self-assessments were given and a group session was organised. In this session the participants reflected on the exercise and on the usability of the instrument. The exercise was about crisis phases 2 (Warning) and 3 (Response), but for the sake of evaluating the instrument, the later indicators of phase 4 (Reconstruction) and 5 (Evaluation) were also briefly discussed. Both the exercise itself and the instrument were considered useful. It made sense to evaluate the exercise in this way. Most of the indicators were relevant in the crisis situation. Some indicators or explanations still needed clarification at this stage. The section most in need of attention concerned media relations since the roles of and cooperation between public authorities and the media were seen as sensitive.

The tests confirm that the instrument provides opportunities for organizational learning and stimulates reflection on the quality of the communication used in a crisis. When weak and strong points are pointed out clearly, the organization can set up improvement teams to amend weak points that are deemed important and feasible at the time. In this way, communication quality as a whole will rise while the quality cycle is continued.

## Conclusion and discussion

Crises shake the existing societal and organizational structures, paralyse functions, and thereby challenge public organizations. In the instrument described here, various communication tasks are clarified by specifying critical factors and phrasing these as statements that can be assessed. This is done on the basis of the literature and empirical research.

The structure of the instrument is characterized by a process approach, linking tasks to crisis phases and connecting with crisis management activities. It is also characterized by a stakeholder approach, emphasising orientation to the needs of citizens. It acknowledged that crises are unique by nature, and that situational factors determine the selection of communication strategies. Therefore, the instrument does not) give detailed operational instructions but stresses the principles behind the lessons learned, such as the importance of continuous dialogue and monitoring of public perceptions throughout the crisis.

The aim of the integrated evaluation instrument is to provide a comprehensive performance measurement system specifically tailored to facilitate learning of crisis communication and, in this way, to contribute to communication policies to serve the needs of the stakeholders in each phase of a crisis. The tests showed that the purpose of the instrument was understood by potential users in various public organizations. The relevance of the indicators was acknowledged and useful comments were given and utilized to further improve the instrument.

The tests also raised some dilemmas for the researchers. The instrument uses insights gained by scientific research to help improve organizational learning in crisis communication in practice. When bridging research results and practice, one faces the dilemma of either letting the detailed approach of the scientist prevail or the wish of the user for concise information that can also be used efficiently. This dilemma became very clear in the discussion on the length of the list of indicators. The pre-test interviewees criticised the sheer volume of the instrument as a whole, but on the other hand confirmed that most of the indicators were too relevant to be omitted. The researchers opted for a middle way; the instrument would consist of parts that were easier to overview, which did not compromise scientific insights, while some related indicators were combined for the sake of clarity even if this meant they would then contain more elements. The latter did not result in problems during the test phase. The remaining part of this issue may be solved by making the instrument available online, so that some details will only be disclosed if the user clicks for additional explanation.

The instrument needs to provide enough information for learning, but its results should also be easy to overview and interpret. When measuring the quality of communication, a low number of available metrics can be selected to obtain quick feedback; however, organizational learning is only stimulated when the tool is specific enough to point out clear possibilities for improvements. This more specific instrument is more precise, not only in its measurements, but especially in making options for improvement concrete, which is why this was the choice made.

Another dilemma was that, on the one hand, the researchers realised that crises differ so much that it is virtually impossible to capture them all in one instrument. On the other hand, for some scenarios even a series of instruments would not be sufficient. This dilemma may be partially resolved by adding some case insights that show how different situations require an emphasis on different factors mentioned in the instrument. The instrument should not invite a passive attitude of relying on its indicators, but rather stimulate alertness to changing circumstances that require adaptation of strategies.

A similar dilemma, and limitation of the instrument, is that a crisis response network contains various types of organizations that could require adaptations to make the instrument more suitable for their purposes. To this end, more tests could be done to develop applications of the general instrument. But, equally, each organization is free to customise it, which may result in a much more powerful instrument then would be gained by providing special applications for different types of organizations or scenarios. It could be used in a structural quality cycle by an organization and each time be better customised to fulfil its specific purposes.

Future research could implement tests in various countries. The instrument could be used as a benchmark, to learn from and compare various outcomes and gain a better understanding of differences in how crisis communication is arranged. Such a comparison could also benefit international cooperation in crisis communication.

The instrument developed is now made available on an open access web platform and its users are asked to make the measurement results, rendered anonymous, available for its further improvement. The users will be able to use the instrument to facilitate lessons learnt after a crisis has occurred, implement a preparedness audit and evaluate crisis communication exercises. This way, the instrument supports learning and, in this way, increases crisis communication preparedness by public sector organizations. Its contents inspire the organizations involved in emergency management to be more aware of the added value of communication and the need to integrate and further develop communication expertise.

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