

Sensemaking as a Methodology for ISCRAM Research: Information Processing in an Ongoing Crisis

Willem Muhren
Tilburg University
w.j.muhren@uvt.nl

Gerd Van Den Eede
University College Brussels
gerd.vandeneede@hubrussel.be

Bartel Van de Walle
Tilburg University
bartel@uvt.nl

ABSTRACT

This paper attempts to reveal the “black box” of information processing activities by relying on Sensemaking as a methodology and as the object of research. In particular, this research aims at studying intuitive information processing activities in ongoing crisis situations, one of the most extreme contexts in which discontinuity is the rule and continuity the exception. The authors argue that this Sensemaking approach offers valuable insights for the design of information systems for crisis response and management (ISCRAM). This paper describes an interpretive case study methodology as it was applied to discover Sensemaking episodes in the daily work of humanitarian relief actors in the ongoing crisis of the Democratic Republic of Congo.

Keywords

Research method, Interpretive case study, Sensemaking, IS design, Ongoing crisis, Humanitarian relief.

INTRODUCTION

The issues of information processing pose a major challenge for the field of crisis management, both conceptually and empirically. Commonly, research is aimed at how often, when and why process members use a certain technology. However, such research does not address the more fundamental and underlying question of what kind of processes take place when people make use of the information they retrieve (Van Den Eede et al. 2004). Usually, because of conceptual and methodological difficulties, information processes are left within a “black box” (Savolainen 2006). A first rationale of this paper is to open this black box by drawing on the ideas of Sensemaking (Dervin 1983; Weick 1995) as opposed to the rational decision making principles.

The second – but main – contribution of the paper is to the field of methodology as we use an interpretive approach to accomplish our objective of gaining insight in the information processing black box. For this purpose we rely on Sensemaking, and this from a double perspective. Primo, we see Sensemaking as the subject of our research, as a means to realize our objectives. Brenda Dervin’s (1983) approach to Sensemaking is aimed at how the meta-theoretical assumptions underlying Sensemaking affect how research questions are framed, how interviews are designed, and how results of research are analyzed and applied (Walker 2006, p. 394). Secundo, referring to the work of Karl Weick (1995), we rely on Sensemaking not as a methodology but as the purpose of our study. We will show in which way both notions relate by pointing out the interplay between them.

A third and final justification for this paper lies in the fact that we apply the aforementioned framework to the field of ongoing – also referred to as *protracted* – crisis situations. Despite the high practical relevance of the topic, literature shows a notable lack of research in the domain of ongoing crisis situations, in particular research that is based on empirical data.

In order to accomplish this threefold objective, we first give an overview of aspects of literature that constitute the foundation for our research. We outline the origins of Sensemaking methodology and the theoretical premises on which it is based. Subsequently we link Sensemaking to ongoing crises to show how it can help our practice and research. Next we show in what way Sensemaking can influence the discipline of information systems (IS) design for crisis management. The second part of the paper discusses how Sensemaking is intertwined with the interpretive case study methodology, and discusses an application in the protracted crisis of the Democratic Republic of Congo (DRC).

LITERATURE REVIEW

Modern management and IS design have been heavily influenced by Herbert Simon's rational decision making schemes (March et al. 1958), suggesting a scientific deductive decision making with an almost complete knowledge of all relevant variables and from which an optimization can be made. Interestingly, Lindblom (1959) challenged this view on decision making (and hence also the consequences for information processing) by a "science of muddling through". Ratio became complemented by intuition in the sense that Lindblom acknowledged the importance of previous experiences. Even though the role of intuition as a black box thinking was inherent to the work of Simon from the start (Frantz 2003), the way management was conducted and IS designed has been based on rationalistic models ever since. In a postmodern view on organizing and management, however, the role of intuition and gut feeling becomes increasingly accepted (e.g. Shapiro & Spence 1997). But research on the less rational information processing schemes is not well represented in the field of crisis management (Van de Walle & Turoff 2008). For this purpose we have found the framework of Sensemaking very useful because it offers an analytical tool - in form of constructs - that make it possible to name and understand information processing activities that go beyond the rationalistic decision making schemes. In the remainder of this literature review section we will first study Sensemaking as a lens that allows us to *see* how information is processed. After that we will go into the link between Sensemaking and crises. Finally we will dwell on the relevance of Sensemaking for IS design.

Sensemaking as a lens

The conceptual focus of the present paper is Sensemaking, which literally means making sense of things, as we feel we need to explore how our research participants continuously make sense. The central activities of Sensemaking are information seeking, processing, creating, and using (Thomas et al. 1993), meaning that Sensemaking is not a noun, but a verb; that it is a process, with sense as its product. Sensemaking encompasses intuitions, opinions, hunches, effective responses, evaluations and questions (Savolainen 2006). Another important feature of Sensemaking is that it deals with omnipresent discontinuity in constantly changing situations. "*To understand Sensemaking is also to understand how people cope with interruptions.*" (Weick 1995, p. 5). Dervin (e.g. Dervin 1999) labeled this 'gappiness', meaning that people are constantly confronted with dissonance, ill-structured problems, ambiguity and equivocality (Figure 1), which is especially the case in crisis situations. The observation is that discontinuity is the rule, continuity the exception, and yet again, management and IS are designed according to the exception.

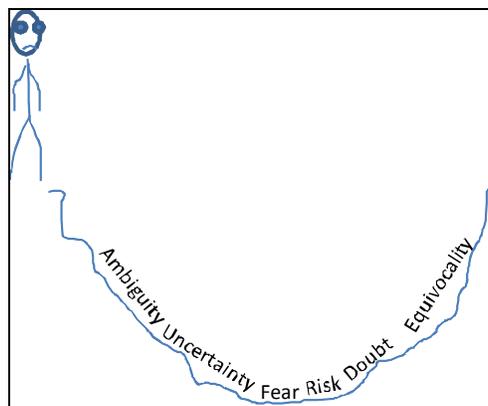


Figure 1 - Gappiness (Adapted from Savolainen 2006)

In his groundbreaking work on information processing in organizations, Weick (1995) distinguishes between seven properties of Sensemaking. Although they might not be fully exhaustive nor exclusive in the scientific sense, they still are a grand attempt to render the way people deal with interruptions more tangible. Therefore they act as constructs that underlie our research and will allow us to *see* how people close the gaps they are confronted with (Figure 2).

1. **Identity construction:** Depending on who the Sensemaker is, the definition of what is happening will also change. What the situation means is defined by who one becomes while dealing with it or what and who one represents (Weick 1995, p. 20).
2. **Enactment:** “People often don’t know what the ‘appropriate action’ is until they take some action, guided by preconceptions, and see what happens. Action determines the situation: The product of action is an orderly, material, social construction that is subject to multiple interpretations.” (Weick 1988)
3. **Retrospection:** “Sensemaking is an examination of past practices in order to learn (and unlearn) things about the current context.” (Nathan 2004)
4. **Social:** “People learn about events when they compare what they see with what someone else sees and then negotiate some mutually acceptable version of what really happened.” (Weick 1995)
5. **Ongoing:** Sensemaking has neither a beginning nor a formal end. Instead, it “takes place in a continuing and dynamic fashion as events unfold and we continually seek to understand what events mean in relationship to our organizations.” (Nathan 2004)
6. **Cue Extraction:** “We decide what to pay attention to.” (Nathan 2004)
7. **Plausibility:** “Looking for what is plausible is often of more practical help than finding accuracy.” (Nathan 2004)

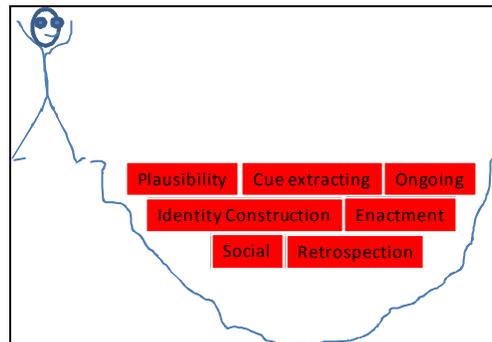


Figure 2 – Sensemaking properties as bricks bridging gappiness

Weick et al. (2005, p. 419) formulate a gripping conclusion on what the seven Sensemaking properties are all about: “Taken together these properties suggest that increased skill at Sensemaking should occur when people are socialized to make do, be resilient, treat constraints as self-imposed, strive for plausibility, keep showing up, use retrospect to get a sense of direction, and articulate descriptions that energize. These are micro-level actions. They are small actions. But they are small actions with large consequences.” The fact that Sensemaking is about small actions poses a problem, namely that what we are looking for might remain unnoticed. This calls for a special research method. We will elaborate on this in the Methodology section.

Sensemaking and crisis

The question arises to which extent an ongoing crisis is different from an ‘ad-hoc’ crisis. Ongoing crisis situations have no real beginning and no real end; envisage constraints and objectives tending to change continuously *en cours de route*; are characterized by changing staff composition; and are running the risk of fluctuating morale and motivation. Such circumstances are out of the ordinary and cannot be compared to *ad hoc* crises since they do not suffer from the difficulties mentioned above.

In an ongoing crisis the expectation is that bad things will happen. There is no real end to their occurrence and as such the probability of them happening is high. This fact is important because this means that discontinuity is the rule, continuity the exception. People tend to like continuity and dislike interruption (Van Den Eede et al. 2006). They will do whatever they can to eliminate discontinuity and (unconsciously) will rely on the Sensemaking information processing mechanisms.

Despite the high practical relevance of the topic, literature shows a notable lack of research in the domain of ongoing crises, in particular research that is based on empirical data. Partly this could be due to the fact that it is not easy (e.g. manifest and/or latent danger, lack of trust, expensive, time consuming, planning-wise demanding...) to conduct research in this environment, and to gather useful data.

Sensemaking and IS design

What we want to stress in this contribution is that in ongoing crisis situations there is a need of IS that support users in their daily routines as well as in their management of contingencies. We argue therefore that systems are needed that are designed in line with their mental schemata. We believe that the design of such IS should encourage and support a Sensemaking process. In practice, however, it can be noticed that IS design does the opposite because it aims at replacing or suppressing the possibility to ‘make sense’ of situations. IS are conceived as a “*repository of best practice*” model (Boland & Yoo 2003) which puts an emphasis on data storage, instead of on connecting people and stimulating reflection and building one’s own story line. What becomes important in the Sensemaking view is the issue how systems allow their users to “*access information, to conduct exchange, and to communicate in ways that foster mutual-personal relations*” (Woodward 2001, p. 283). We can learn from this for the way future IS should be designed. Indeed, the current leitmotif in IS design lacks a reflection on the nature of information technology (Orlikowski & Baroudi 1991) and could do with a strong antidote against a tendency towards oversimplification.

METHODOLOGY

Under this section we deal with the methodological issues of our research. In that respect we enlarge on the notion of interpretive case study, elaborate on the characteristics of Sensemaking as a method, and show how this fits with the notion of Sensemaking as a lens (supra) and how this aligns with our research objective.

Sensemaking’s fit with the interpretive case study methodology

In the ambiguous context of a protracted crisis it is of little use to define dependent and independent variables, but it is much more interesting to focus on the complexity of human sense making as the situation emerges (Klein & Myers 1999). A critique often heard with regard to case study research – and other qualitative methods for that matter – is that they ostensibly allow more room for the researcher’s subjective and arbitrary judgment than quantitative research methods and hence are seen as less rigorous. Together with Flyvbjerg (2006) we believe that this critique is wrong “*because the case study has its own rigor, different to be sure, but no less strict than the rigor of quantitative methods. The advantage of the case study is that it can ‘close in’ on real-life situations and test views directly in relation to phenomena as they unfold in practice.*” These are virtues that are of particular importance in the real-life field of ISCRAM. Stronger even, we posit that only a special kind of case study can yield satisfying results in such circumstances, namely the *interpretive case study*.

Interpretive research attempts to understand phenomena through the meanings that people assign to them (Orlikowski & Baroudi 1991). The interpretive case study approach is very relevant for this type of research, since it connects to the concept of Sensemaking as a methodology. Sensemaking is not only a set of constructs to be validated, it also offers a methodology that fits very well with the objective of looking for small and unobvious actions. Dervin (1999) explains that Sensemaking as a methodology is special because there is a quadruple kind of hermeneutic operating: “*Any methodology involves interpretations (hermeneutic #1). In the case of studies of human beings, the focus is the interpretations of interpretations made by researched human beings (hermeneutic #2). But Sensemaking is self-consciously focused not on interpretations per se, but on interpretations, those of researchers- interpreting interpretations (hermeneutic #3) of human-beings- interpreting interpretations (hermeneutic #4).*” Sensemaking is a kind of thinking that underscores the centrality of language in human existence. Walker (2006) describes Sensemaking as helping respondents to talk from within their own phenomenological worlds.

Furthermore, Sensemaking offers insights that can be valuable in helping the researcher concentrate on the individual dealing with a particular and unique set of circumstances, and provides ways to listen more closely to what respondents say.

Sensemaking and interpretative studies go hand in hand. Our Sensemaking approach perfectly aligns to Klein and Meyers' (1999) set of criteria for interpretative studies in the IS domain. To illustrate this we will discuss their principle of interaction between the researcher(s) and the subjects (1999, p. 74). Interpretive methods of IS research take into account the context in which the information system is used with that particularity that it also acknowledges the mutual interaction between the system and its context. In order to succeed in the opening up of these mutual interactions, the researcher has to interact with the research participants. Klein and Myers state that the *“data are not just sitting there waiting to be gathered, like rocks on the seashore”*. Data are produced in a social interaction of the researchers with the participants. On the practical level this shows itself throughout our research by means of a colorful and provocative interviewing style. In our interpretive case studies we adjust our style to the respondent: his language, his world view, professional experience, personality etc. We use statements, dichotomies, metaphors and dilemmas, we rely heavily on examples and anecdotes and call on their imagination to find out the bottom-line. They function as heuristic devices by which we may develop hypotheses concerning the phenomena they refer to. In our case, for instance, the metaphor of gap-bridging yields insight into the phenomenon of information processing (Savolainen 2006).

In the next section we will describe the application of our methodology in an ongoing crisis context.

APPLICATION OF SENSEMAKING IN AN ONGOING CRISIS

In August 2007 two of us traveled to Kinshasa (DRC) where we carried out an interpretive case study to examine how actors in an ongoing crisis make sense of their environment. We conducted 17 one hour (on average) lasting interviews with senior level key actors in the humanitarian relief sector (UN agencies, NGOs, and donor organizations). For each interview permission for tape-recording was asked for and granted, and confidentiality guaranteed. For our research design we drew on Walsham (2006) and Klein & Myers (1999), who provide comprehensive guidelines on how to conduct interpretive case study research in the IS domain. This led us to the semi-structured interview technique as primary evidence generation mechanism (Palvia et al. 2003).

The context of the Democratic Republic of Congo

Despite the marked progress in recent years towards recovery, humanitarian needs in the DRC remain high. An estimated quarter of the population has critical food needs, and 71 percent of the people live on less than one dollar a day (UNDG 2007, p.12). On top of this, especially in the East of the country people are suffering from conflict. Although they are subject to years of war in the region and the UN peacekeeping mission has deployed more than 17,000 troops in the country, they endure more armed conflict and related violations of international law in the last two years (HRW 2007). The civilian population is not only in the line of fire, but is also specifically targeted by both militia and unpaid and unfed governmental soldiers, causing hundreds of thousands of people to flee their homes in the past year.

UN OCHA's "Humanitarian Action Plan 2007" (UNOCHA 2007) identified several constraints to the humanitarian response in the country. The endemic instability and insecurity in the DRC is one of the major constraints that hinder humanitarian access to the most vulnerable people. The other major constraint is the scale of the country and the poor infrastructure: The DRC is vast, more than two-thirds the size of Western Europe, but lacks reliable transport and communications infrastructure.

As can be stated, the DRC has a complex and dynamically changing environment. This affects the everyday activities of humanitarian aid actors: There are continuously crisis situations that threaten humanitarian actors in their work, even in Kinshasa. Two violent incidents (August 2006 and March 2007) recurred in most of the interviews we conducted, and characterize the turbulent and dynamic environment.

One interviewee characterized the turbulent environment like this:

“The crisis is always here. Many incidents show up now and then: Sometimes they may be a passing cloud, but sometimes they continue to build up and build up, and keep on boiling and exploding.”

It is difficult to imagine another context where actors would need more support for their Sensemaking activities. Under the next title we will describe the approach we took to uncover how actors make sense of their environment.

Implementation of the case study

Our main strategy was to let the interviewee tell his/her own story. Based on what he/she said, we followed up our questions in that direction in a semi-structured manner. With these questions, related to Weick's Sensemaking properties (1995), we tried to find out how interviewees made sense of their situation in this protracted crisis.

Our approach enabled us to gather rich data, data that we would not have obtained if we had not conducted the research in this manner. An indication for this is that we could notice that the interviewees were at ease with our approach, that they were not feeling any burden at all to talk about their experiences. Some interviewees even shared highly confidential information with us, or even made incriminating statements to their colleagues, superiors or the local authorities.

The interviews were mainly conducted in English, but for the benefit of some interviewees parts of it were in French, which made the interviewees feel more relaxed. We could notice that it was a pleasure to many of the interviewees to talk to us about their experiences in the DRC. Perhaps because it is such a hectic job they have, and a small break from their daily routines was welcome. But we also sensed their need to tell their story. They were very happy that we, as researchers, were interested in their problems and the work they do.

Construct validation

It appeared that actors often feel the need for Sensemaking support in the context of the DRC. For example, talking about the incident in March, one interviewee told us:

“There were 300 people blocked here in this building for two days, without having access to any information. They could not figure out what was going on.”

And the interviewee continued talking about other experiences, this time about the August incident:

“Again we were caught. We weren't here, but at home, for two days. And again there was a problem with the information system.”

By giving some examples of quotes from the interviews we will illustrate how actors try to bridge the 'gappiness' by using the Sensemaking constructs, as is shown in Figure 2.

One respondent was very aware of the implications of one of his previous experiences (Retrospective), a traumatic event in Ivory Coast, on his actions (Identity construction). To avoid his decisions to be biased by this, he felt it was important to discuss (Social) them with a good colleague of his:

“If it's a new phenomenon (what's going on) which we are not familiar with, I call my colleague...because I'm already biased, deep-down subconsciously. Because I already survived once in Ivory Coast.”

In one instance he was thinking of sending his staff into an insecure area, but he wanted to discuss this decision with his colleague:

“...and I got a strong conviction from my colleague. If he hadn't been sure, I wouldn't have done that”.

Indications of the security situation are an important cue. Organizations are constantly (Ongoing) alert for threatening situations to them and their staff (Cue extracting). The following respondent's organization has procedures in place for this. In case they notice something, they have contacts to find out what is happening (Social):

“You can see a situation developing (...) We're constantly monitoring the political and military situation, being alert to indicators we've established: “Why did I see five trucks full of heavily armed soldiers going on my way home today?” The next day I would go to the duty officer: “Look, I just saw this, what's going on?” And he'll call. Once I had been downtown and seen hundreds and hundreds of people marching down the central boulevard. I called our security officer: “What's going on?” And he answered me: “There's a demonstration this morning, people are on strike.””

Often people working in such environments have to act without knowing what the appropriate action is (Enactment). Mostly time makes them refrain from acting based on accuracy (Plausibility). One respondent explained that he would not take any risk in this case:

“In a crisis situation you should react. You might react wrongly, but you should react in a way that doesn't harm. That's why we shut our office to help the local people. If it turns out that it wasn't necessary, what do you lose? A few working hours, it doesn't cost you very much, but if you wait it often is too late.”

DISCUSSION

Crisis situations like the one in the DRC sadly enough have acquired the status of an ongoing crisis. By this we mean that the crisis seems to have no real beginning, and no real end, but that crisis is part of daily routine and that one crisis smoothly goes over into another crisis. Especially from an academic point of view this type of crisis constitutes a separate category on which very little research has been effectuated so far. On more ad hoc crisis situations a relatively small but substantial body of research has been conducted. The number of information studies on humanitarian relief is more limited. Some interesting research has been done on the intersection between IS and crisis management (see for example work by Nunamaker et al. 1989; Turoff et al. 2004), but a recent special issue of the Communications of the ACM highlights the need for more research on the design of IS for crisis management (Van de Walle & Turoff 2007). Interesting and substantial research is present on Sensemaking and crises (e.g. Weick 1988; Nathan 2004), but relatively few studies use Sensemaking as an analytical lens for the design of information technology (e.g. Weick & Meader 1993) and even fewer apply these constructs in the field of crisis management (See Landgren 2005 for a notable exception). Therefore, to the best of our knowledge, it is the first time there is a triangulation on the level of theory between Sensemaking, IS design and the management of protracted crises.

With this study we wanted to make an attempt at advancing the knowledge of the research topic. We believe that – at least in part – this paper has the merit of introducing interpretative analysis using Sensemaking as an approach which can have an important and useful role within the ISCRAM research domain. We also wished to contribute to the emergence of IS research as a reference discipline (Baskerville & Myers 2002) by turning things upside down. We believe to have demonstrated that Sensemaking as a socio-psycho-organizational discipline can benefit from a research approach like the one presented in this paper. Sensemaking basically is about information processing but as long as it is treated as an intra-human issue, the discipline has difficulty in making its insights tangible. In confrontation with the mirror of IS design, this tangibility becomes more within reach. Especially in combination with research on protracted crisis situations there is a possibility to test Sensemaking constructs to the extreme.

CONCLUSIONS

The elaboration of IS design guidelines themselves was not the object of this paper. We will reserve this for future work. Here we wanted to conduct base line research by conceptually determining what should underlie such design. The next step in this research will be to link the various Sensemaking constructs to IS design requirements.

For now, what we have learned from this research is that Sensemaking can give us insight in the black box of information processing, and can serve as a lens to understand how actors deal with ‘gappiness’. In this respect we have shown that its methodological approach aligns nicely with the interpretative research methodology we have used. Finally, we have revealed Sensemaking episodes of how actors deal with discontinuities in an ongoing crisis context like the one in the DRC.

The results of this case study are generalizable in the sense that formal generalization is often overvalued as a source of scientific development, whereas “the force of example” is underestimated” (Flyvbjerg, 2006). The extremity of the DRC as a research setting, allows for generalizing its findings to settings that are maybe less extreme but that a priori see themselves confronted with the same issues.

Our conclusions are important because often IS are not designed to take into account the Sensemaking needs of actors in crisis situations. If IS are not capable of supporting Sensemaking, the *making of sense* runs the risk of being disrupted. And then the situation collapses, unravels or disintegrates: the metaphorical bridge falls down.

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