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# Sensemaking in sensory deprived settings: The role of non-verbal auditory cues for emergency assessment

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ABSTRACT

Emergency calls are high-stake situations characterized by volatile and time-critical conditions. The use of the telephone restricts sensory perception to a single modality—hearing—which makes both sensemaking and embodied sensemaking more difficult. Using observations, interviews, and organizational documents, we unveil how attention to the non-verbal cues of callers and their surroundings assists emergency operators to make sense of incoming calls for help. We find that operators use two practices to prioritize the calls: a frame-confirming practice and a frame-modifying practice. The practices are underpinned by configurations of verbal and non-verbal cues, wherein caller's emotional expressions and environmental sounds are both considered as distinct input. The non-verbal focus in this study extends our understanding of first-order sensemaking within the emergency domain but also in other sensory deprived settings in high-consequence industries. The contributions of this analysis to sensemaking research reside in the revelation that non-verbal cues contextualize and consequently frame the discursive elements of sensemaking. More specifically, this research offers the insight that embodies sensemaking benefits from attention being given to callers' non-verbal cues, rather than valuing only one's own bodily experiences and mere verbal descriptions about events.



## 1. Introduction

Operator: Where have you been shot?

16-year-old: In the head and neck and in the hand and in the shoulder.

Operator: By what then?

16-year-old: By a gun. What the hell! Come! Please!

Operator: Are there any gunmen left on the scene?

16-year-old: No, they left five minutes ago. I am about to bleed to death.

Operator: But where in the head? How can it be that you are able to call when you, if you ….

16-year-old: None of your business, you need to get here! [1]

The transcript addresses a case debated in Swedish media in which the operator challenged a victim's ability to call after being shot in the head. The situation provides an example of one of the main challenges for operators: how to discriminate between cues that signify an authentic emergency from cues that signify an uncritical condition or even a hoax. The operator's understanding may be a matter of life and death for the caller. Considering the number of calls worldwide, how emergency operators make sense of not only spoken words but also non-verbal cues may save lives. The research thus has an empirical relevance.

A complicating factor for understanding emergency calls is that operators are deprived of sight, touch, smell, and taste—all cues that are important for embodied sensemaking (Cornelissen, Mantere, & Vaara, 2014; Whiteman & Cooper, 2011). It is difficult to identify vital information and difficult to assemble such information into a coherent understanding of the case. This raises

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[1] The emergency call became a high profile media case and the actual emergency call can be accessed on http://www.dn.se/nyheter/skjuten-i-huvudet-misstrodd-av-sos-alarm/.

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questions of how sensemaking is achieved in sensory deprived environments, as well as how emergency operators use audio-based non-verbal cues to make sense of emergency calls.

The discursive focus of sensemaking (Weick, 1995, p. 4) has marginalized its non-verbal aspects (Sandberg & Tsoukas, 2015), such as emotions (Maitlis, Vogus, & Lawrence, 2013, p. 2) and materiality (Balogun, Jacobs, Jarzabkowski, Mantere, & Vaara, 2014). Overall, few studies have focused on environmental conditions (Whiteman & Cooper, 2011) or how to make sense of the "bodily sensations, felt experiences, emotions and sensory knowing" that are an integral part of our lives (Cunliffe & Coupland, 2012, p. 64).

Disregarding emotional and material cues might have dire consequences. Cornelissen et al. (2014) examined how a group of police officers made sense of the material conditions, as well as their own and others' felt and expressed emotions, while chasing and killing a suspected terrorist. The alleged terrorist was in fact innocent. Such miscarriages of justice pose even greater problems than the controversy aroused by this case. Complementing the literature, we suggest that operators refine their sensemaking of calls by interpreting the non-verbal cues juxtaposed with callers' verbal accounts. Cues such as background noise and emotional expressions provide information that operators can use to establish an account of events. More specifically, the purpose of this article is to advance the understanding of sensemaking by nuancing embodied sensemaking. We do so by asking the following: How do emergency operators make sense of emergency calls in a sensory deprived environment?

Drawing upon the literature on embodied sensemaking, we extend it by focusing on how listeners make sense of others' vocal emotions, rather than attending to their own emotions, and audio-based material conditions. This approach contributes to the discursive nature of sensemaking (Weick, 1995) by adding that attending to non-verbal conditions provides a more exhaustive understanding of a less explored area (Brown, Colville, & Pye, 2015, p. 272; Sandberg & Tsoukas, 2015).

## 2. Theoretical background

### 2.1. Sensemaking in emergency call taking

Research on emergency call taking tends to focus on the conversational sequence between callers and operators. In those studies, utterances such as greetings and recognitions are typically omitted (Zimmerman, 1992) and verbal offences, such as rudeness and direct attacks, either hindered communication or caused it to break down (cf. Imbens-Bailey & McCabe, 2000; Tracy & Tracy, 1998; Whalen, Zimmerman, & Whalen, 1988). Thus, while previous research focused on the interactional structure of emergency calls, few studies challenge the influence of non-verbal information on the operators' sensemaking process.

Focus on non-verbal cues has typically been restricted to a narrow set of mainly interruptive displays. For instance, Whalen and Zimmerman (1998) described how callers' "hysteria" was a consequence of the caller's affective stance and the operators' conformance to rules. At the same time, emergency calls did not reveal the prevalence and importance of emotional expression (hysterical callers) anticipated by the public (Clawson & Sinclair, 2001). Other studies emphasize the role of non-verbal and tacit aspects in work tasks and technology use. Greatbatch et al. (2005) claimed that the implementation of an electronic expert system partially captured what experts do and thus was downplayed by the operator's practice in ways that privileged their own expertise and personalized services. On a similar note, Fele (2012) showed that emergency operators make use of cues related to the ecology of the workplace, such as eavesdropping and aligning emotional displays, to confirm understanding. This research thus indicates that emotional and material cues are central to how emergency operators make sense of the situation and decide on their response.

### 2.2. Sensemaking

Sensemaking is defined as "a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment. It creates intersubjective meaning through cycles of interpretation and action, thereby enacting a more ordered environment from which further cues can be drawn" (Maitlis & Christianson, 2014, p. 67). In other words, sensemaking is a two-way process where cues are mentally framed and wrapped around data. The interaction is interdependent as cues evoke the frame and the frame facilitates recognition and selection of cues (Klein, Moon, & Hoffman, 2006), but little research has addressed the role of different kinds of cues and the sequentiality of such information.

Sensemaking has primarily been investigated through discourse and how intersubjective meanings are created (Weick, Sutcliffe, & Obstfeld, 2005), the role of action, and how sensemaking enables processes such as learning and organizational change (Maitlis & Christianson, 2014, p. 57). These bodies of research have investigated sensemaking in an unfolding crisis or in retrospect (Maitlis & Sonenshein, 2010, p. 554) using individual, group, or organizational perspectives. Thus, sensemaking has come to be essential in understanding organizational phenomena. Sandberg and Tsoukas (2015) recent review further identifies gaps in the stages of the sensemaking processes. It concludes that there are few studies that address sensemaking areas such as triggers of sensemaking (spanning a range from minor and major planned and unplanned events to hybrid ones), the processes that underpin sensemaking (creation, interpretation, and enactment), the outcomes of sensemaking (restored sense and action as well as non-sense and non-restored action); and factors influencing sensemaking (context, language, identity, cognitive frames, emotions, politics, and technology).

### 2.3. Emotional expressions in sensemaking

Embodied sensemaking includes both materiality and emotions and has attracted interest in academia (Maitlis & Christianson, 2014). Although it is receiving attention, the theory is underdeveloped (Brown et al., 2015, p. 272). The role of emotions in embodied sensemaking is focused on how we attend to self-experienced emotions such as a subject's fear, desperation, anxiety, panic, and other crisis-related emotions (cf. Dougherty & Drumheller, 2006). However, since emotion is a "transient feeling state with an identified cause or target that can be expressed verbally or non-verbally" (Maitlis et al., 2013, p. 223), to which the more we attend, the more vivid it is (Fox, 2012), experienced emotions may in turn be communicated to observers and are therefore an important input to the sensemaking process (cf. Hindmarsh & Pilnick, 2007). While typical crisis situations are associated with displays of intense negative emotions such as fear, panic, and desperation (Kayes, 2004), there may also be displays of less intense emotions such as sadness, gloom, or guilt (Bovey & Hede, 2001). Moreover, emotional expressions are relational as well as context-bound, and individuals use others' expressions in ambiguous or uncertain situations (Van Kleef, 2014; Van Kleef, De Dreu, & Manstead, 2010). Attending to vocal cues is crucial to interpret the intentions of others (Van Kleef, 2014). For instance, recent studies show that anger expressed in a cooperative setting reduces intentions to cooperate, but when anger is expressed in a

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