



The Interplay of Sensemaking and Material Artefacts during Interventions: A Case Study¹

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ABSTRACT

This study focuses on the interplay of different aspects of organization during work environment interventions. Specifically how the interplay of collective sensemaking, and material artefacts influence an intervention. We analyze an organization-level psychosocial work environment intervention conducted in two postal areas in the Danish Postal service. It provides a case study of the dynamics of a work environment intervention by focusing on how the intervention affects the organization, how sensemaking and materiality in the organization interact during the intervention is implemented, and how the intervention in turn is affected by the materiality and sensemaking of the organization. The present study adds to the current literature by demonstrating the role of sensemaking and materiality in interventions. The paper ends with a discussion of the links between sensemaking and sociomaterial artifacts and what role they play during work environment interventions, suggesting that interventions needs to align with both to be successful.

KEYWORDS

Actor-network theory / context / intervention / materiality / process / sensemaking / sociomaterial / work environment

Introduction

Organization-level work environment interventions (WEI) are generally recommended as a means to improve the psychosocial working conditions (ETUC, 2004; Nielsen, 2013; Nielsen et al., 2010; Semmer, 2011). They can be defined as ‘planned, behavioural, theory-based actions that aim to improve employee health and well-being through changing the way work is designed, organized and managed’ (Nielsen, 2013, p. 1030). In recent years, the focus of WEI evaluation has moved beyond whether an intervention works or not, to evaluating what works for whom in which circumstances (Nielsen and Abildgaard, 2013, Nielsen and Miraglia, 2017).

Several contemporary evaluation frameworks recommend considering the context and process of WEIs (Nielsen and Abildgaard, 2013; von Thiele Schwarz et al., 2016), and arguments have been made that research on WEIs needs to focus much more on the dynamic interactions between the context and the intervention (Biron et al., 2012; Greasley and Edwards, 2015; Nielsen and Miraglia, 2017). Specifically Nielsen (2013)

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has called for the application of more sophisticated theoretical frameworks to understand how a WEI develops over time. The present paper addresses this call and presents an in-depth qualitative case-study to show the complexities of how sensemaking and materiality continuously influence an intervention. We draw inspiration from WEIs being described as having distinct phases with specific goals (Nielsen et al., 2010; Nielsen and Abildgaard, 2013), for analytical purposes we structure the analysis into distinct phases; ‘initiation and screening’, ‘prioritization’, ‘action planning’, ‘implementation’ and ‘evaluation’. We evaluate an organization-level psychosocial WEI in the Danish postal service from its early stages to evaluation. In the present paper, we make a significant contribution to the existing research on how to evaluate WEIs by examining how the intervention worked, or not, in two participating mail delivery areas. We apply sensemaking theory (Weick, 1995) and draw inspiration from ‘the material turn’ in the social sciences (Law, 2009) and explore how sensemaking and materiality interact to produce a dynamic process throughout the duration of the intervention and influence the participants’ ability to successfully implement the intervention.

Sensemaking and work environment interventions

We use the concept of sensemaking (Maitlis, 2005; Weick, 1995) to theorize the collective processes of commitment of employees and managers in WEIs. As WEIs aim to change processes in the organization through discussions, workshops, and meetings, sensemaking is an ideal framework in that it focuses on the juxtaposition of perception and action in such situations (Weick et al., 2005). Sensemaking has been suggested as a process linking institutional frames and professional self-identities (Buch and Andersen, 2013); hence, a core aspect of sensemaking is essentially “[...]figuring out what to do and who we are” (Cunliffe and Coupland, 2012, p. 81), where we, in this study of a WEI, particularly emphasize the interrelation between the ‘what to do’ aspect of sensemaking in WEI processes and how it interacts with the postal service employees’ contextual sensemaking of ‘who they are.’ This duality inherent in sensemaking accentuates the fact that employees are not passive recipients; rather, they actively interpret, articulate, and enact the WEI (Nielsen, 2013).

Materiality and work environment interventions

WEIs are conventionally described as consisting of meetings, workshops, advisory groups and steering committees (Nielsen et al., 2010). Although these undeniably play a central role in achieving changes, they are near impossible to conduct or mobilize without the support, and continuous production, of material artifacts (Sergi, 2013). Du Gay and Vikkelsø (2012) argue that the understudied material dimension of workplaces has led to a skewed image of organizations as immaterial phenomena (notably, the materiality of postal context has been described by Mogensen, 2012). Seeing material artifacts as a central aspect of social organization, as so-called sociomaterial phenomena (Orlikowski and Scott, 2008), presents novel perspectives on WEIs ultimately helping to illuminate how sensemaking and materiality interact. In recent years, organizational research has paid more attention to materiality (Carlile et al., 2013; Orlikowski, 2010).

In the present paper, we draw inspiration from actor-network theory (Latour, 2005; Law, 2009), which posits that materiality and human actors are embedded in networks of organization (Czarniawska, 2014).

Actor-network theory presents a novel perspective in studying how, for instance, the talk at meeting needs to be materialized and transported in physical form, on paper, to other venues in order to have effects on the organization (Latour, 1987; Law, 1986). From an actor-network theory perspective, unfolding the role of material artifacts (Law, 2010, 2009) in reports, graphs and action plans helps us better understand WEI processes. In this sense, materializing linguistic phenomena is even argued to be the primary driver of the incremental development of modern society (Latour, 1996). In relation to WEIs specifically, Latour's famous statement that 'technology is society made durable', (1991) is more relevantly paraphrased to be that 'material artefacts are WEIs made durable'. Though actor-network theory focuses on materiality and emphasizes the importance of material artefacts in social processes, it does not mean that processes, such as the WEI in the present study, are seen as void of social phenomena such as sensemaking (Hernes, 2010). A central, necessary precondition for the participation of employees and managers in a WEI is that the participation makes sense, and that being a part of a network of people and material artefacts in an WEI mobilizes further interest and commitment to the process (Hernes, 2010). These linkages of material artefacts and humans into larger networks have been described as sociomaterial assemblages (Abildgaard & Nickelsen, 2013; Introna, 2013; Orlikowski, 2007). Though materiality can be addressed as distinct artefacts it also refers to the generalized mass of things that make up the material context. We hence see the material aspect of WEIs as both the general material context, the sociomaterial assemblages of the postal world of buildings, bikes, sorting shelves, and the discrete artefacts such as action plans, production statistics and meeting minutes that are produced by, or affect the WEI. Likewise materiality can both play a role in stabilizing the social life in organizations (for instance through the organization of the workplace) (Latour, 1996) as well as appearing as distinct novel artefacts (such as action plans and reports) with obvious impact on the trajectory of projects and events.

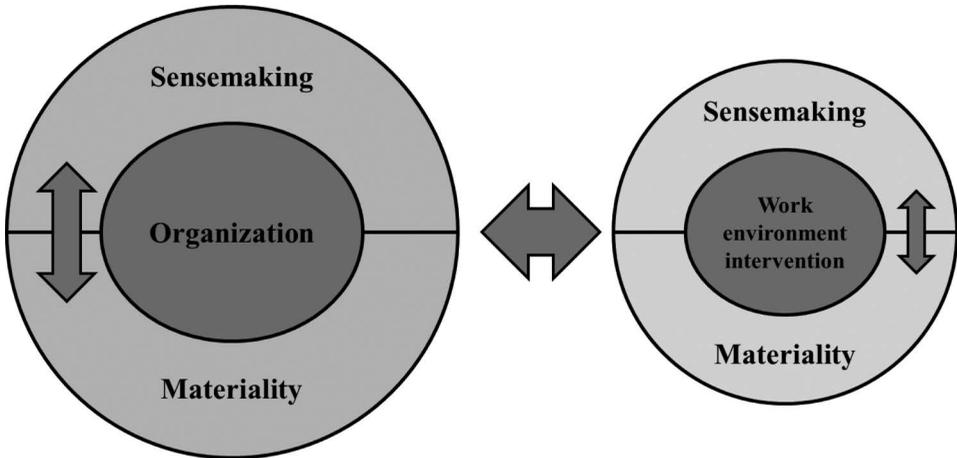
Interaction between work environment intervention, sensemaking and materiality

Sensemaking of WEIs is affected by the wider sensemaking revolving around organizational goals and aims (Ala-Laurinaho et al., 2017), and changes in sensemaking in the WEI can likewise affect the sensemaking processes in the participating organization (Ala-Laurinaho et al., 2017). Sensemaking and materiality interact in WEIs. Vikkelsø (2007) demonstrated how documents are physical objects that are circulated and need to be read and discussed to shape the sensemaking of employees and managers. The activities in the different phases of a WEI often produce an array of material artifacts (screening reports, action plans, evaluations reports, status reports) that need to be circulated in the organization to achieve change (Sergi, 2013). This suggests that the materiality and sensemaking influence each other continuously.

It is therefore necessary to focus on both sensemaking and material elements in WEI, as they both play an important role in organizational life in general (Latour, 1996; Weick, 1995) and have an obvious impact on the trajectory of WEIs. We thus argue for

a theoretical framework where sensemaking and materiality interact, both in the organization and between the organization and WEI. A visualization of the theoretical model of the current paper would therefore be as follows:

Figure 1 Theoretical model



The theoretical model illustrates how sensemaking and materiality in the organization interact, and that these interact with the sensemaking and materiality related to the WEI. In this paper, we explore the links proposed in the theoretical model by examining the developments and roles of sensemaking and materiality in a WEI. We study a WEI chronologically and examine how sensemaking and materiality interact over time, influence and are influenced by, the activities of the WEI. The theoretical model leads us to formulate the following research questions:

How does the sensemaking and materiality in the participating organization affect the WEI?

How do sensemaking and materiality mutually influence each other?

How does the WEI affect the sensemaking and materiality in the participating organization?

By addressing these research questions, the present study makes a contribution to the literature on how different aspects of the organizational context influence WEI processes.

Methods

The context of the present case

The WEI was conducted in a national postal service, which is in some ways a unique setting. As the present study is focused on the interaction between the intervention and its organizational context, there are contextual aspects that are important to consider. The

company had been working on implementing LEAN management for ten years, and all teams were accustomed to working with continuous improvement tools, such as Kaizen Boards (Imai, 1986). The postal service, as a company with a long history, had retained many traditions and cultural norms from a time when it held a more central role in society. The postal service currently faces challenges due to the digitalization of society and the resulting decline of mail. The reduction of mail has led to more frequent replanning of routes, mergers of postal teams, and longer postal routes with fewer deliveries per household. The organizational history is likewise one characterized by changes in recent years. An old public institution in Denmark, the postal service was in 1995 privatized as Post Danmark A/S with the Danish government as the sole owner. Later, in 2009, a merger was made with the Swedish postal service and the postal service was renamed PostNord. At the time of our study, PostNord had 44,060 employees; of these, 11,000 were mail carriers in Denmark.

Furthermore, the mail delivery and its related subtasks are perceived by employees and managers to be highly important for society at large, creating a need to ensure the timely delivery of mail. To articulate plans and obstacles regarding the mail delivery the postal workers often refer to the general operations of the postal system as 'Driften' (in Danish), which can roughly be translated as 'The Production.' The term is used by employees and managers alike in a distinct context-specific way: It is used to talk about a collective of materiality in the postal service and the wider range of tasks necessary to conduct delivery: mechanical sorting, manual sorting, planning of routes and manning, keeping within budgets, delivering good service, having low error rates, and avoid undue strain on the employees. All these aspects are necessary for The Production to run smoothly.

In this sense, The Production is a sociomaterial coupling of the materiality of postal delivery and the sensemaking needed to achieve smooth delivery. The Production could potentially be viewed as similar to sociotechnical term Primary Task (Miller and Rice 1967), but although there are similarities, we argue that The Production is a different phenomenon. First, The Production is not only the sum of the tasks that need to be completed for the postal service to function, it is also a term used to signify the production system in itself as machinery to achieve delivery of the mail. With its extension into daily meetings in the form of delivery performance graphs, The Production is mentioned by employees and managers alike as an almost personified non-human with needs and wants. The contextual importance of The Production in projects such as the WEI is considerable, as it is a materially robust phenomenon with tight linkage to the sensemaking of the relative importance of tasks and assignments.

The organization of the work environment intervention

The WEI took place over 24 months from early 2010 to early 2012. The postal service selected two postal districts (areas A and B) as the participants. The WEI activities were managed by an experienced occupational health consultant from the postal service. A steering committee of employee and managerial representatives was established to monitor the project and make decisions about how the different phases should be designed. Area A, which consisted of 150 employees at a postal compound in the largest city in the area, and two satellite teams in nearby towns. The steering committee decided to develop solutions targeting the entire postal area A. The two teams in area B, each of

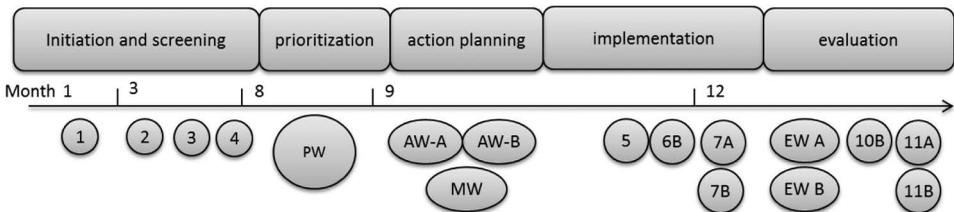


which consisted of 20 employees, covered two small rural towns. A steering committee for the WEI was initially established and consisted of the area manager, a line manager, a safety representative, a union representative and a wellbeing coordinator from each area. The consultant from the postal service implementing the intervention ran the steering committee meetings as well as the WEI workshops. The WEI was participatory and used tailored questionnaires to conduct a psychosocial risk assessment survey (Nielsen et al., 2014). For an extensive description of the entire WEI program, see (Nielsen et al., 2013a, 2013b).

Planned meetings and workshops in the work environment intervention

The WEI was developed and processes planned during a series of steering committee meetings. The steering committee would meet 4–6 times per year and discuss the progress and challenges of the WEI. The steering committee also had the responsibility of ensuring that the tasks in each phase were completed. I.e. core decisions regarding the WEI were made at the steering committee meetings and all the steering committee meetings contained discussions of progress and decision making concerning the specific phases of the WEI (e.g., screening design, decisions on prioritization). Until the action-planning phase, the meetings were shared by areas A and B and held at area A; however, subsequent meetings were held separately for areas A and B. The meetings generally lasted between two and three hours. A prioritization workshop for the steering committee members and an action-planning workshop with managerial, union, and employee representatives were scheduled after the survey results were processed; in the process of the WEI, however, areas A and B chose to conduct action-planning workshops separately. The prioritization workshop was a four-hour meeting. The action-planning workshops were planned to last six hours and resulted in action plans to address the prioritized problems. After the implementation of the action plans, the two areas each conducted an evaluation workshop with the steering committee members lasting four hours. An overview over the activities in the WEI is shown in figure 2.

Figure 2 Workshops and meetings in the WEI



Notes: steering committee meetings are numbered chronologically (1,2,3...),
 PW= Prioritization workshop, AW= Action planning workshop , MW= Manager workshop,
 EW = Evaluation workshop.
 A= Area A only, B= Area B only, Meetings 1,2,3,4,5,6, M is both areas A and B.



Data collection

The analyses in the present paper are based on data collected using semi-structured interviews with managers and employees, observations of workshops and steering committee meetings together with relevant organizational material, including material used at meetings and workshops. The data used in this study were collected by the two authors, who are both trained psychologists, assisted by a research assistant. The data management and coding was conducted in NVIVO 10.

Interviews

The interviews employed a longitudinal, qualitative design. We interviewed the same interviewees annually throughout the three years of the project. Overall, 10% of the employee population was interviewed, including at least two employees from each team, as were all managers in the participating postal areas. We randomly selected interviewees from personnel lists for the first interview round (R1). Two employee interviewees and five managerial interviewees were part of the WEI steering committee and workshops. In round two (R2) and round three (R3), the same interviewees were invited to participate again. No one refused, but in cases in which these changed jobs, were on sick leave or holiday, the next person on the personnel list would be selected instead. The first round of interviews focused on the perceptions of working conditions and expectations of the project. The two subsequent rounds (R2 during, and R3 after, the WEI) focused on the interviewee's perceptions of the project, its components, and on concurrent changes and events. As the managerial interviewees had been more intricately involved in the WEI, their interviews are more present in the analysis.

Observation data

A member of the research group observed all project meetings and workshops s/he wrote down ad-verbatim statements and comments as accurately as possible. The observer took photos of all writing produced on whiteboards, and other similar material produced by the participants during meetings and workshops. This included photos depicting thematization of work environment issues and development of action plans. The observer would also provide meeting minutes which would be distributed to the steering committee after each meeting, but not workshops. The research team furthermore collected the action plans once they had been developed. Observing the meetings and workshops provides contextually accurate information (Hartley, 2004), and in the present study helped identify material artifacts related to the intervention process and how sensemaking developed and changed over time. An overview of the data sources can be found in table 1.

Analysis strategy

We use the phases of the WEI ('initiation and screening', 'prioritization', 'action planning', 'implementation' and 'evaluation') as an analytic structure. We draw on both the



Table 1 Overview of data sources

Data sources	Interviews		Observations
	Manager	Employee	
N=	R1:6 R2:8 R3:6	R1:26 R2:24 R3:18	12 steering committee meetings 1 prioritization workshop 2 action planning workshops 1 manager workshop 2 evaluation workshops
Data material	Recordings and transcription of recordings.	Recordings and transcription of recordings.	Documents (such as minutes and action plans), photos of writing on flipcharts and whiteboards produced during the meeting, and notes taken by the observer (on average 2200 words of notes per meeting).
Theme/focus of data collection	R1: State of the organization, R2: Progress of the work environment intervention and contextual events R3: Outcome of the work environment intervention and contextual events		Transcription of discussions during meetings and general observations.
Length	18–122 minutes (on average 71 minutes)	28–128 minutes (on average 61 minutes)	1–6 hours (on average 2½ hours)
Conducted by	Research group	Research group	Research group

R1=Round 1 (before the WEI), R2= Round 2, (during the WEI, month 12), R3=Round 3 (after the WEI, month 24)

reflections and everyday experiences presented in the interviews as well as accounts from the specific activities and discussions observed at the meetings to build a theoretically driven case study (Hartley, 2004; Yin, 2014) of the WEI focusing specifically on the research questions, that is, the interaction between WEI, sensemaking and materiality.

This formed the foundation for the analytical coding of the data. First, we used a structural coding strategy (Namey et al., 2008) to identify all elements of data, both observations as well as interview quotes relating to each phase of the WEI. Second, a thematic analysis strategy (Boyatzis, 1998; Guest et al., 2011) was used where we read, and reread, the material from each phase of the WEI to identify key elements in which sensemaking and materiality played a central role and focused on how these two concepts interacted during the course of the WEI activities. The thematic elements identified were used to write up the case study of each phase. As the research questions focus on particular aspects of the WEI namely materiality and sensemaking, the thematic analysis particularly focuses on the core intervention activities where these play a dominant role. The analysis is therefore in particular built on data on events taking place at the prioritization workshop, the area A and B action planning workshops, steering committee meeting 5 (where the process of implementing the action was set in motion), and the A and B evaluation workshops, as well as interviews in which these activities are reflected upon.



Findings

To demonstrate how the WEI interacts with the organization we present the case study following the process from the initial screening of working conditions to the final evaluation of the project. The chronological presentation focuses explicitly on the themes in the research questions; how materiality and sensemaking affect the WEI, how sensemaking and materiality influence each other and how the WEI affects the sensemaking and materiality in the organization.

Initiation and Screening

After establishing the steering committee at meeting 1, at meeting 2 the consultant presented the steering committee with a plan to use a visual interview method to develop a specific questionnaire for the work environment of the postal service mail deliverers. During the interviews (which were held as part of the round 1 interviews) perceptions about working conditions were written on post-it notes to form maps of each interviewee's perceived work situation.

The maps of working conditions were used to develop the questionnaire (for more details on this procedure see Nielsen et al., 2014). This questionnaire contained contextually specific items, such as 'my manager's openness to suggestions from employees regarding postal route replanning'. The pre-existing practice of the postal service was to use the same questionnaire for the entire organization. Therefore, for employees to receive a lengthy printed questionnaire (31 pages), which addressed their concrete working conditions provided a materially tangible foundation for the project.

The outcome of this process was not only the results of the questionnaire survey, but also a developing sensemaking of the potential relevance of the WEI. During meeting 3, the steering committee participants discussed how employees experienced the procedure of conducting interviews and then basing the survey on interview data as a motivational factor. A manager stated 'the interviews have sold the questionnaires, it made the employees interested' (Manager at meeting 3). A similar motivational statement was heard at the end of meeting 4, where a discussion about time allocation for the upcoming meetings and workshops was concluded with the statement that; '[the project] is an easy sell as it is about their own working-life' (Manager at meeting 4).

The outcome of these early processes of producing a material artefact (the questionnaire) was not only a developing sensemaking but also more importantly, lasting material objects, (i.e., the questionnaire and a report of its results) carried forward in the WEI

Prioritization

At the prioritization workshop the results of the survey were presented and the steering committee subsequently discussed which of the results were most important to prioritize and put forth for action planning. Employees and managers jointly agreed on prioritizing addressing the impact of organizational changes.

This decision led to a change from the initial meetings (meetings 1–4) in which the attitude toward the WEI had been characterized by a hesitant avoidance of committing



too much time and energy to the WEI, a potentially insignificant project, to a situation in which sensemaking emerged. The area manager of area A changed his seat at the meeting after the prioritization workshop (meeting 5) so that, instead of sitting in the back of the room, he was now sitting at the front of the table next to the consultant. A further tangible example of sensemaking linking the WEI to the challenges of the postal service was seen in how he urged the other participants to acknowledge the real nature of the problems addressed by the WEI, in bold statements, such as the following:

I think a lot of changes are going to happen, I think we are going to have to replan the routes twice annually. The employees need to be made aware of this. Perhaps a mail deliverer won't be packing his own mail in the future [due to mechanical sorting] and will instead have 500 houses on his route. In a few years, it has changed a lot. Young people don't mail letters anymore.
(Area manager of area A at meeting 5)

He subsequently spoke in support of the WEI as a worthwhile endeavor. Illustrating how sensemaking could function as a vehicle for organizational improvement, he emphasized that everyone, especially management, had to contribute in order for change to happen.

It is our [the managements] responsibility to ask the teams how they are doing and if management has lived up to what is planned in the action plans. The plans where management and HR are responsible need to be discussed with employees to ensure they feel change is happening.
(Area manager of area A at meeting 5)

The acknowledgment of the situation and allocation of responsibility for action plans was supported by the other participants. The developments at meeting 5 illustrate how sensemaking processes about the future of the organization, interact with sensemaking of the WEI. Although the process of prioritization led to a development of sensemaking, it was sensemaking without material support. The only solid artifacts from the process were the meeting minutes for the participants of the steering committee, containing the stated priorities of the WEI. As these minutes were not widely distributed and only accessible to steering committee members, the WEI relied on the sensemaking to last until further actions were taken. Sensemaking is not necessarily substantially materially mediated, but can, as has been shown numerous times in the literature, arise from social interaction (Maitlis, 2005; Weick, 1995; Weick et al., 2005). However, as the later phases demonstrate, sensemaking is fragile and the context can substantially affect a WEI.

Action planning

At the action planning workshops, the results from the survey of the working conditions were written on cards that were organized according to themes on a large visual survey feedback board, which would form the core link between prioritization and action planning. Although the work in both postal areas was based on the same prioritization, the organization around the board with cards differed substantially.

Action plan development in area A. Being a large site, area A chose employees already appointed as team wellbeing coordinators to represent their teams in developing

action plans. Only one line manager participated in the action-planning workshop; he expressed uncertainty at the beginning of the workshop about what the survey had shown and was helped by the consultant to present the details on the outcome of the prioritization meeting. The other participants were likewise continuously assisted by the consultant in the process of producing action plans. This beginning of action planning suggests that the WEI now faced a shift in context where sensemaking established in the prioritization workshop had diminished.

Through discussing the survey results and how to address them, an action plan was developed. The action plan focused on: procedures for communication when implementing organizational change; workers covering shifts in other teams; including discussions of the future postal service workers in performance appraisals and making sure appraisals were conducted. An employee commented at the end of the workshop, 'If we are to get to the bottom of all the issues, then we would need a whole extra day.' This statement on the one hand suggests a lack of understanding of the situation, but on the other hand could also suggest that the worker now understands how complex the WEI process is. Although the participating manager initially stated that he was unaware that ongoing changes posed substantial problems for employee wellbeing, after the workshop, he believed that the action plans were not sufficiently substantial to have an impact on these same problems. He elaborated on this point during the follow-up interviews six months later:

The consultant has made it legitimate to discuss [organizational changes as a work environment issue]. I think the action plans are too narrow compared to the problems they aim to address, but it's a starting point. Next time, we can address something more pressing. (Interview with the line manager of area A, R2).

It is possible that the WEI caused a shift in sensemaking. The above quote illustrates that the manager, with long tenure in the postal service, knew the challenges currently faced by the postal service were substantial and at the same time The Production was the number one priority. As sensemaking shifts and the WEI activities become relevant for daily operations, the WEI action plans now move outside of the benign domain of implementing HR and wellbeing initiatives and have to align with the powerful materiality and sensemaking of The Production. The consultant also commented to the researchers after the workshop that, at the beginning of the workshop, the employees seemed unsure how to address managing changes and were reluctant to participate. Her impression was that through working with the survey feedback board and developing solutions to specific issues, a deeper shared understanding—in other words, sensemaking—of changes as a work environment problem was emerging between the participants.

Action plan development in area B. The area B setup differed from the area A, as the two teams of area B were much more densely represented by each a safety representative, a union representative, a route planner, a wellbeing coordinator, and a number of postal employees. The discussions focused on what each team saw as their specific problems and what local solutions were appropriate. As one team did not perceive any major problems, their action plans focused on the further development of a participatory approach to route replanning they had started a year earlier. The method involved installing a large board in the communal room on which employees could suggest improvements to the initial computer-generated delivery route layout. In addition



to installing the route replanning board the action plan developers would ask non-participating co-workers to participate in the process of generating a new satisfactory route layout. The action plan states the following:

Problem: [colleagues are] bickering [about route layout replanning] no matter what.
Goal: Everybody agree [on route layouts] and really mean it. *Activities on group level:* Make the action plan visible with large board and post-it notes. Ask for opinions when co-workers pass the board. Record the time it takes to deliver mail on all roads and routes. (Action plan except area B).

Although it may seem bureaucratic that a workshop focusing on one board with priorities (the survey feedback board) has the output of improving another board (the route replanning board), the team succeeded in developing an action plan that directly targeted the practice of changing delivery routes—something that could, potentially, have a substantial impact on working conditions as well as benefit The Production, and hence provided the optimal basis for sensemaking to develop. In this sense, the action planning setup, as well as how the action plan in area B changed sensemaking the materiality of replanning, formed a platform to facilitate change.

In summary, the different approaches to action planning in areas A and B produced two very different outcomes. In area B, the prioritized area of managing changes was translated into plans addressing local issues in a tangible format. Furthermore, the replanning board from area B plan was placed in the communal room, hence changing the materiality of the workplace in general and the organizing of route replanning in particular. In area A, the plans were agreements on future situations; and were not materially present or concrete. The material presence, production-wise relevance and concreteness of the action plan in area B provided a more robust vantage point for engaging in sensemaking regarding the plans and the need for their implementation. The two approaches to developing action plans led to different forms of sensemaking, with the action plan in area B influencing the material context and providing a more solid platform for sensemaking to further grow in the subsequent phases of the WEI.

Implementation

The implementation of action plans began in month 10 with meeting 5. To monitor the implementation, area A decided to dedicate time at existing bi-weekly meetings between union representatives and management. In area B, follow-up on action plans were anchored in weekly team meetings (short meetings) and in quarterly meetings (long meetings).

It began to snow heavily in month 11 of the WEI and continued through the most workload-intensive part of the postal year; the Christmas season, making timely delivery both more crucial and complex. Nationally over 600 postal workers reported accidents due to snow and ice, a substantial increase¹ and national newspapers ran stories about the snow—for instance, one postal worker explained in a newspaper article, ‘It has been total chaos this year. I have been a mail carrier for 16 years, but I have never experienced anything this bad.’² Under such pressure, the postal districts participating in the WEI deemed it a poor judgement to prioritize time on meetings as both management and employees

saw The Production as being under threat (i.e., several WEI meetings were cancelled). The material context of extraordinary snow had, in relation to other material and organizational elements comprising The Production (Christmas delivery, packages, schedules, delivery statistics, normed delivery times etc.), forced the employees in areas A and B to divert resources to mail delivery from auxiliary activities such as the WEI. Around the same time that the problem of snow was lessening (month 14), the postal service announced that it would, for the first time in its history, lay off staff. Rumors circulated in business newspapers that 5,000 of the postal mail carriers in Denmark would be laid off over a period of five years were discussed at meeting 7A. This was especially stressful, as the company has a long history of providing secure employment. According to one manager:

There have not been any layoffs in the 375 years of this company's existence [...]. It affects the job security that we used to have in the postal service. As a postal worker, you had a job for life. (Interview with the line manager of area A, R3).

As the news about the layoffs caused substantial insecurity among employees, and uncertainty about The Production, sensemaking shifted and it was perceived by management as impossible and inappropriate to focus attention on the WEI activities until the layoffs had been completed. Sensemaking in the WEI had decayed, and instead the postal workers' sensemaking was focused on The Production. This series of events, snow combined with Christmas delivery and layoffs, made implementation of action plans a challenge. When employees were interviewed toward the end of the planned implementation period (month 15), it became clear that action plans had not been implemented, and sensemaking of the WEI as an important task that needed to be done, had entirely collapsed, as one particularly disillusioned postal worker explains:

It is a waste of resources, as NOTHING has happened [...]. You ask yourself, where did it go wrong? Was it just a slip up or would it have been easier if you didn't try at all? (Interview with an employee of area A, R2)

The disappointing outcomes of WEI implementation were a testament to the power and influence of The Production. As both employees and managers have high tenure and have been acculturated through decades to making The Production run smoothly the layoffs and snowfall was seen an immanent risk to The Production both in the short and long term. To compensate, The Production displays an uncanny ability to divert attention away from non-Production related activities, as seen in the present case, and refocus sensemaking on activities directly necessary to uphold The Production. This demonstrates clearly how materiality and sensemaking in the context interact and change the conditions under which the WEI operates. A manager from area A explains the conscious, but inescapable reason for abandoning the WEI to focus on The Production as follows:

Interviewer: Which barriers has the WEI faced?

Manager: It's The Production. When you are about to have a meeting [about the WEI] and three people call in sick, what do you do? Well, you cancel the meeting. That's how it is. We are a Production company; the first priority is that you make The Production run. It is like that all the time. The Production is always a barrier.



Interviewer: Can we do anything to deal with The Production?

Manager No ... it's difficult because we wouldn't get credit for it. If we have undelivered mail because I conducted a meeting [regarding the WEI], I would get reprimanded. So, no—I think we would need a contingency plan, a better, bulletproof, contingency plan.

(Interview with the line manager of area A, R3).

The area manager of area A had a similar understanding and summarized the following:

It has been a process where we have been very focused on The Production the last months because of the weather and such. We have not been able to work as intensely on [the WEI], it has just been “Production, Production, Production” [...]

(Interview with the area manager of area A, R2).

Although this sounds like the WEI has failed and area B was suffering from the same difficulties in The Production as area A, the content and material nature of their action plans caused the implementation to unfold differently. The plans presented a change in the materiality of the context of the workplace and were more easily implemented than those developed in area A. These specific action plans may be the explanation behind the more successful implementation of action plans in area B; specifically, the action plan of conducting replanning on the big board was used in an episode of route replanning. The sensemaking of the WEI in area B appears to be in better shape than in area A. This is exemplified at meeting 7B where an employee comments, and the other steering committee members agree, that ‘the last replanning has been very positive, in that the employees have been co-deciders on the new route layout.’ The specificity of the route replanning board plan with regards to being materially concrete and directly addressing the pre-existing sensemaking about the problems of the team facilitated implementation, both in the sense of being visibly present and facilitating replanning:

Employee (Wellbeing coordinator): [regarding the big board] Everybody pays attention; we write down what they all are saying. The last replanning went well. Previously, it has been difficult for people to see what happened. Here we have everything on a big board: the deadlines and what routes are to be changed.

Employee (Safety representative): It's hard to complain if your opinion has been heard, and it's hard to pass by a big board every day and claim that you haven't had any influence.

Employee (Wellbeing Coordinator): There is soon more replanning happening, but we don't make a fuss about it. There used to be some coworkers who were frustrated, but we [i.e., the entire team] are starting to have confidence that the lines [i.e., division of streets] are placed properly. (Discussion in meeting 7B)

The action plan was made a part of the sociomaterial assemblage of The Production in two ways: first, via the board's similar appearance to Kaizen boards used to drive The Production's continuous improvements; second, by replanning the routes seamlessly and effectively. In this way, the sensemaking of the WEI and The Production became aligned. When interviewed about the action plan on the replanning board, the area manager of Area B explains the following in implementing the action plan:

Some employees were taken off their routes for the replanning to have time to better adjust their work-hour planning, so they were very involved in that part. And it wasn't only the usual suspects; we chose to have some of the other employees as well. They were actually positive about it because there was care taken toward those who had overtime. They got stuff done [on the replanning] that day, and I think they felt it was worth the effort. (Interview with the area manager of area B, round two).

For these reasons, the route replanning board action plan was more resistant to the focus on The Production following the snow and layoffs than the area A action plans.

In summary, the implementation was much longer and more diffuse than planned (especially in area A). The move from action plans to implementation and changes in workplace materiality proved difficult. Sensemaking had clearly not been established in how the WEI was supportive, and not competitive, to The Production. This prioritization of The Production at the expense of the WEI, is evident when the area manager explained the difficulties with implementing the WEI:

[the problem has been] Planning. Planning, in how people need to be taken out of the delivery work for this and that. It's not like any other company where you can take employees out, especially with the Production. What if it topples? That is the hardest part... If I'm faced with five employees calling in sick, then what? Should we let the mail be delivered, or do we let them go to the meeting? We have cancelled activities with the Consultant, mainly due to snow. The Production is *the* priority, and it can put other things on standby. (Interview with the area manager of area A, R2)

Evaluation

Although the implementation of the WEI, particularly in area A was characterized by a collapse of sensemaking and no solid material change, the project was continued. The research team presented the results of R2 interviews for both areas A and B at the evaluation workshop summarizing how employees had felt the WEI had been implemented. The key messages from the interviews, as presented in bullet points on the meeting, are shown in Figure 3 below.

The steering committee knew that the implementation was not optimal, but the negative comments on the PowerPoint made them listen and slowly sensemaking shifted. The employees' negative perceptions of the WEI, depicted in the PowerPoint, along with the expressed desire for the activities to be implemented, fostered a renewed sensemaking of the WEI and forced management to consider refocusing time and resources to the project. The working conditions prioritized in the WEI were also increasingly relevant, as changes were becoming more frequent. Now that the The Production was running smoothly the WEI seemed like a useful project to help the postal service overcome future challenges. New activities reinforcing the WEI were set in motion during the evaluation workshop, and renewed interest was seen in the discussions and is exemplified in the following exchange from the evaluation workshop:



Figure 3 Translated slide from PowerPoint presentation

- The prioritized areas are appropriate
- The action plans address the problems
- There is a general lack of knowledge about the project and the action plans
 - Employees do not see a connection between improvements and the project
 - Managers communicate more homogeneously
 - Performance appraisals are conducted
- Managers are nice but fail to follow through on the project
 - Snow and replanning are used as excuses
- Lack of feedback to participating employees
- Need for area manager to set the agenda
- Opportunities to get involved
- ‘...because we have conducted several projects like this one, where a lot was written down on paper and every time it is a dud’

Area Manager of Area A: I think it is important that communication regarding the project is improved.

Line Manager: And the employees need to be more involved. The activities need to be made more tangible.

Area Manager of Area A: I also think we need to re-evaluate the action plans.

Line Manager: We need to sit down with the managerial group and find out how we communicate all this to the employees.

Area Manager of Area A: We need to set up a meeting as soon as possible [they then schedule a meeting the next week]
(Discussion during evaluation workshop A).

As an outcome of these feedback procedures and discussions of the results, sensemaking re-emerged, and interest in the project was renewed. The precursors to this renewal can be seen in how the area manager of area A, in his own R2 interview, reflects on the implementation, what should have been done, and how they ought to proceed with similar activities:

We should have talked more about the action plans and expanded them to other areas. I want these activities to sink in among the employees. We need to get better at that [...]. I will keep talking about it, but we keep forgetting, and the employees keep forgetting. The daily meetings happen quickly, and then they are off, so not everybody is paying attention.
(Interview with the area manager of area A, R2)

To summarize the findings; during the WEI: In some phases we saw a simple process where the WEI activities influenced the sensemaking in the participating areas (initiation

and screening, prioritization and evaluation), whereas in the action planning phase the sensemaking of the task at hand was affected by, and affected the WEI. In the implementation phase, the WEI did not substantially affect the organizational context but was instead affected by interactions of materiality and sensemaking related to The Production. At the same time the materially robust action plans in area B proved better at affecting sensemaking and once The Production had normalized sensemaking of the WEI reemerged.

Discussion

In the present paper we investigated how sensemaking and materiality affect a WEI, how they interacted during a WEI and how the WEI in turn affected sensemaking and materiality in the organization. The findings illustrate how sensemaking and materiality of the organization and WEI continuously interact. Notably in the case The Production was closely connected to the sensemaking regarding relative importance of tasks and assignments of the WEI. Although the WEI influenced, especially, sensemaking, this study shows that the WEI is at constant risk of conflicting with core organizational elements such as The Production.

Theoretical implications

A key aspect of the interactions between context and WEI and between different aspects of the context is how sensemaking was affected by both the materiality of the WEI and the workplace. As the postal service is not a completely computerized organization, information material needs to be materialized; the digital distribution of PowerPoints and electronic reports would only reach managerial staff and thus do not receive the same attention a print copy does. This is not only an example of how descriptions and reports can function as interventions and are reliant upon supportive material dissemination (Vikkelsø, 2007), but also of how WEIs derive sensemaking from working with materializations, such as documents (Sergi, 2013). The transformation of decisions into material objects, as the implementation of the visual route replanning board in area B, proved to be more robust than the immaterial plans of area A. The social interactions and sensemaking are thus solidified by being built into the board; the board in turn makes it possible to structure and stabilize the future sensemaking regarding replanning (as argued by Latour, 1996).

Materiality is not per definition a positive factor. As demonstrated in the analysis of the interplay between implementation and the snow-hindered mail delivery, the materiality of the context, such as The Production, can severely hinder the progress of the WEI. Even though sensemaking can be studied as a narrative linguistic phenomenon (as shown by Currie and Brown, 2003), this study emphasizes the need to include materiality and contextually relevant factors into the analyses of WEI processes.

There is also an interesting exchange: materiality in the organization affects WEIs and WEIs produce material artifacts that affect the organization. Although the materiality of workplaces has received some interest in Nordic work environment research (Abildgaard and Nickelsen, 2013; Engeström, 1987; Mogensen, 2012), such an



interaction of materiality between WEIs and host organizations remains understudied in spite of several researchers have argued that more studies are needed of how materiality and organizational change interact (du Gay and Vikkelsø, 2012; Leonardi, 2013; Orlikowski and Scott, 2008).

Another key finding related to WEI processes is that there was substantial variation between the phases of the WEI and that these were influenced by contextual events, the state of The Production, and the sensemaking of participants. Several factors help explain this variation. First, sensemaking (Weick, 1995) plays a crucial role in the WEI, especially sensemaking revolving around the opportunity to change practice and participate in WEI activities. Specifically, the early phases demonstrated that once the WEI was aligned with contextual sensemaking (after the prioritization was complete) it facilitated the transition toward action planning. Likewise, sensemaking regarding the WEI diminished when The Production was threatened, thereby showing how sensemaking, or the lack thereof, can play a substantial role in hindering the progress of the WEI. Based on these results, it is reasonable to consider sensemaking a pre-requisite a product and a goal of the progress of the WEI.

These results on the one hand confirm what Weick (1995) noted—that sensemaking is developed by collective action—but on the other hand also indicate that the opposite holds true; a lack of collective action will erode sensemaking. The actions taken by managers and employees in relation to The Production (primarily cancelling meetings and WEI activities) caused the sensemaking of the WEI to collapse. As noted by Barton and Sutcliffe (2009), such prioritization is not necessarily a rational decision, as both managers and employees see the WEI activities as positive and relevant. Rather, it is a consequence of living and acting in a complex and changing context that caused the focus to be on The Production of mail delivery instead of ‘managing change’ via the WEI. The examples in the case of collapses of sensemaking are hence exemplar of Weick’s (1995) adaptation of Follett’s (1924) suggestion that the term *resistance to change* is limiting and we should instead see sensemaking and reactions to change as actors *confronting the activity of the environment*. Likewise, the postal employees and managers adjust their priorities in accordance with their sensemaking, which is anchored in the materially and discursively present Production, and hence their behavior should be seen as adaptive in light of their circumstances. As in Weick’s statement, resistance is a prioritization of resources, and here the WEI, at times, is surpassed. This suggests that a constant alignment of the WEI and the organizational context is thus a key factor to achieve the progression and success of WEIs.

A contribution to sensemaking research is the illustration of long-term fluctuations in sensemaking. Sensemaking changes over time as the needs of The Production change. Our analysis indicates that sensemaking during the WEI was a demanding and complex endeavor, thus confirming that sensemaking changes both over time and between groups as a collective process, as shown by Stensaker and Falkenberg (2007). This suggests that evaluations of WEIs and similar organizational interventions could benefit from including in-depth temporal analysis to assess the ongoing flux of sensemaking.

Implications for practice

Several studies in the Nordic countries have focused on the postal sector and change. Pihlaja (2005) followed a large-scale initiative adhering to an activity theory frame of

reference (Engeström, 1987). Although the theoretical foundations for the present study and Pihlaja's study differ, similar elements are discussed related to attempts at enabling change in a national postal service. First and foremost, change is difficult to achieve and although improvements—whether expansive learning or sensemaking—happen, the daily operations or *The Production* makes long-term commitments to auxiliary projects difficult. A similar result was found in a WEI study in the Norwegian postal service by Mikkelsen and Saksvik (1999), who explicitly mention organizational change and restructuring as likely causes as to why their WEI did not have the intended effects. Although all these studies indicate that WEIs can achieve positive effects in a postal context, it is not an easy task in complex, large, and changing organizations, such as national postal services.

In this regard, we have several recommendations for practitioners and other change agents. First, they need to ensure that WEI programs mobilize the sensemaking of participants. They need to accept that sensemaking fluctuates and must be prepared to exert additional efforts to re-establish sensemaking as, and when, necessary. Second, researchers and practitioners need to take stock of the sensemaking to identify collapses. Third, and perhaps most importantly, it is necessary for change agents to take *The Production* into account when planning WEI processes. If a divide is to appear, the WEI will almost certainly fail to achieve its goals.

The analysis showed that, in line with existing WEI recommendations (Nielsen, 2013; Nielsen and Miraglia, 2017), a committed group of employees and managers is crucial to mobilize initial interest and to secure collective agreement and progress to ensure action plans are implemented. Although interest and participation are both important, this study shows that participants can lose focus of the WEI and sensemaking can shift to other priorities. This leads us to emphasize the importance of action plans and other key elements of WEIs having links to the specific material context and having a material presence in the workplace. Furthermore, the primary goal of the organization, *The Production*, is an important factor to consider when conducting WEI activities. This study is an example of how being torn between two tasks (the WEI and completing mail delivery) makes the defensive organization focus on their well-known core task, *The Production*.

Conclusions

As the present study is a single-case case-study generalizability is limited. Hence additional research, for instance across several intervention studies, into the dynamics of sensemaking and materiality during WEIs are needed. In spite of this limitation, the findings of the present study led us to draw several conclusions. We demonstrated the usefulness of materiality and sensemaking theory to understand the context and progress of a WEI, and how it happens in a non-linear fashion, constantly dependent on the material artifacts, the sensemaking, and the broader context. We shed light on how material artifacts of the WEI and the materiality of the workplace were key factors in how the WEI affected sensemaking. Although the first phases progressed steadily (initiation, screening, prioritizing and action planning), the later phases (implementation in particular) were substantially influenced by the interactions of contextual materiality and sensemaking, especially in the form of *The Production*. This underlines the importance of utilizing



materiality and maintaining sensemaking, as well as keeping WEI projects in line with the dynamics of the organizational context. The study ultimately also demonstrates the interaction between sensemaking and material artifacts in organizational life.

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Notes

- 1 (Politiken, January 4th 2011)
- 2 (Politiken, January 4th 2011)