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A study of the content and organizational intervention processes of psychosocial work environments

Doctoral thesis

NTNU
Norwegian University of Science and Technology
Thesis for the Degree of
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Eyvind Helland

Trondheim, December 2021

Summary

For employees, the psychosocial work environment brings health risks and opportunities for health promotion and well-being. In general, there is a movement towards more demands and fewer resources, such as job autonomy, among knowledge workers, with consequences for employees' health, well-being, and the quality of knowledge-generation and application. Understanding how to counteract this while simultaneously developing healthy workplaces has significant implications for knowledge workers, organizations, and the public.

Using the World Health Organization's Healthy Workplace model (Burton, 2010) as an overarching framework, this thesis applies a multi-method approach to study the development of healthy workplaces among knowledge workers by investigating the content and processes of psychosocial work environments. First, it uses structural equation modeling (SEM) to examine knowledge workers' relationship between empowering leadership, pertinent work characteristics, and work engagement (content, paper I). Then, using thematic analysis, it studies the roles of line managers and safety representatives in an organizational intervention adopted to knowledge-intensive organizations (process, papers II and III).

Based on the findings of papers I-III, this thesis proposes three critical factors for creating healthy workplaces among knowledge workers through the psychosocial work environment: 1) The role of the line manager is crucial in terms of empowering leadership and their proactive work behaviors in organizational interventions; 2) all levels of an organization need to contribute in daily work and organizational interventions; and 3) employee involvement (i.e., the Nordic model for working life and safety representatives' job crafting) is decisive for intervention implementation. The thesis also discusses theoretical and practical implications as well as limitations and future research.

List of papers

This thesis is founded on three papers, denoted by Roman numerals in the thesis.

I. Helland, E., Innstrand, S. T., & Christensen, M. (2020). The Relationship between Empowering Leadership, Work Characteristics, and Work Engagement among Academics: A SEM Mediation Analysis. *Scandinavian Journal of Work and Organizational Psychology, 5*(1), 1-13. https://doi.org/10.16993/sjwop.84

II. Helland, E., Christensen, M., Innstrand, S. T., & Nielsen, K. (2021). Line Managers' Middle-levelness and Driving Proactive Behaviors in Organizational Interventions. *International Journal of Workplace Health Management, ahead-of-print*(ahead-of-print). https://doi.org/10.1108/IJWHM-08-2020-0136

III. Helland, E., Christensen, M., Innstrand, S. T., Iversen, A., & Nielsen, K. (2021). Safety Representatives' Job Crafting in Organizational Interventions: Driver, Counselor, Watchdog, or Abstainer. *Scandinavian Journal of Work and Organizational Psychology, 6*(1), 1-13. https://doi.org/10.16993/sjwop.137

Introduction

Workplaces can pose risks to employees' health (Chirico et al., 2019) and be a resource for promoting employees' health and well-being (Proper & van Oostrom, 2019). On a global scale, the World Health Organization (WHO) has estimated that occupational risks cause 8% of depression (Prüss-Ustün & Corvalán, 2006). In the EU, the European Agency for Safety and Health at Work (EU-OSHA) has reported that 75% of employees believe jobs cause ill health (EU-OSHA, 2009), 32% think health and safety conditions at work are getting worse (EU-OSHA, 2009), and 41% believe work-related stress is handled poorly at their workplace (EU-OSHA, 2013). Moreover, Eurostat has reported that 8% of employees in the European Union have had work-associated health problems in the prior year, of which 55% were away from work because of their work-related problems (Eurostat, 2017).

Scholars have demonstrated that psychosocial work environment factors can negatively impact the health of employees (e.g., Aronsson et al., 2017; Jood et al., 2017). A literature review found that poor social support from colleagues and low job autonomy predict stress-related disorders, such as burnout and adjustment disorders (Nieuwenhuijsen et al., 2010). A meta-analytic review showed that low job autonomy, poor social support, and high job insecurity predict common mental disorders, such as anxiety and depression (Stansfeld & Candy, 2006). A case-control study identified that job strain and conflict at work increase the risk for stroke (Jood et al., 2017). Finally, systematic reviews have established that job strain, low job autonomy, and bullying affect the advance of depressive symptoms (Theorell et al., 2015) and that job autonomy and low workplace support are associated with emotional exhaustion (Aronsson et al., 2017).

Researchers have also demonstrated that the workplace can be a source of health promotion and well-being by providing psychosocial resources (e.g., Caesens et al., 2014;

Clausen & Borg, 2011). A review found that task variety, task significance, and transformational leadership predict work engagement (Christian et al., 2011). A meta-analysis showed that job resources such as social support and job autonomy are positively associated with work engagement and that work engagement, in turn, is positively related to employees' health (Halbesleben, 2010). Researchers have established that work engagement mediates the relationship between perceived supervisor and organizational support and job satisfaction (Caesens et al., 2014). Finally, a longitudinal study found positive links between psychosocial job resources, such as high-quality leadership and a good team climate, and employees' experience of meaning at work (Clausen & Borg, 2011). Thus, it is essential to focus research on the psychosocial work environment to overcome work-related challenges to employee health and fulfill the potential of work for health promotion and well-being.

In knowledge-intensive organizations such as universities, employees are the primary source of knowledge (Ipsen & Jensen, 2012). Here, knowledge is revealed, preserved, conveyed, and used by relatively autonomous professionals (Welle-Strand, 2000). High-quality knowledge in part depends on psychosocial work environments wherein employees have the autonomy to experiment and make complex discernments (Mintzberg, 1998). Therefore, it is essential to focus on health promotion and health risk prevention concerning the psychosocial work environment of knowledge workers, to enable quality knowledge and manage employees' health and well-being. Accordingly, the overall aim of this thesis is to examine how to develop healthy workplaces among knowledge workers through the psychosocial work environment.

To achieve this aim, this thesis studies the ARK (a Norwegian acronym for "Working environment and working climate surveys") Intervention Program, an organizational intervention adapted to knowledge-intensive organizations for developing healthy workplaces among knowledge workers (Innstrand & Christensen, 2020). Universities and university

colleges implemented the ARK Intervention Program based on an initiative from senior management. The intervention goals were to develop the health and well-being of employees (Innstrand & Christensen, 2020) and to meet regulatory standards for managing psychosocial risks (Working Environment Act, 2005).

Background and trends of knowledge workers' working life

The situation of knowledge workers has changed considerably in recent decades. One change is increased demands, wherein organizations increasingly control the conduct and performance of knowledge workers, with ramifications for resources such as the professional autonomy to exert expert knowledge (Mintzberg, 1998). In universities, managerial-style leadership (Bakker et al., 2010) and amplified control over academics' tasks (Musselin, 2007) threaten professional autonomy. In schools, reform and restructuring have reduced teacher autonomy and allocated power to rectors, students, and governments (Lundström, 2015). In nursing, changes to management practices and performance evaluations of nurses have decreased their sense of autonomy (Brunetto & Farr-Wharton, 2004; Kowalczyk, 2002). The same pattern of decreased professional independence is present among doctors and labor experts (Tummers et al., 2009). Succinctly put, the trend of decreased professional autonomy applies to many types of knowledge workers.

While organizations increasingly control knowledge workers, they are also more and more demanded to bring expert knowledge into executing their tasks (Mintzberg, 1998). Meanwhile, employees with specialist knowledge expect professional autonomy because it enables them to freely decide how best to apply their expertise in their unique contexts (Empson & Langley, 2015). An increased expectation of professional autonomy links with contingent managerial authority (Greenwood et al., 1990), which means that the power of leaders does not rest so much in their hierarchical position. Instead, their power rests in the sense of employees that leaders effectively serve their ability to execute their tasks well

(Mintzberg, 1989). Thus, knowledge workers flourish less with managerial supervision, direction, and control and more with protection and support (Mintzberg, 1998). To summarize, there is currently a paradoxical trend in which organizations increasingly demand that knowledge workers offer expert knowledge to their jobs, which requires and brings an expectation of professional autonomy. At the same time, they face structures and control regimes that undermine their professional independence.

In terms of the psychosocial work environment of knowledge workers, this paradox has consequences for resources such as job autonomy, and therefore the health and well-being of employees (e.g., Halbesleben, 2010). Knowledge workers have their job autonomy undermined, while they at the same time must convey expert knowledge that necessitates job autonomy and change their leadership needs from being based less on orders and more on being enabled to excel. This situation implies it is vital to facilitate psychosocial work environments with job resources such as job autonomy and manager-employee interactions that respect their expertise to develop healthy workplaces among knowledge workers.

The Nordic research tradition and the Nordic model of working life emphasize constructive cooperation between active employees with autonomy and receptive employers who invite and welcome employee involvement (Sørensen et al., 2012). National legislation concerning workplace health in Canada, Australia, and several European countries enshrines employee involvement (Chirico et al., 2019). Employee involvement is also legislated in Norway to ensure cooperation between employees and management in relevant matters for the work environment (Working Environment Act, 2005). Thus, it is beneficial to consider employee involvement to develop healthy workplaces through the psychosocial work environment among knowledge workers.

The Healthy Workplace Model and its application

To recognize the importance of improving and promoting employees' health, the WHO created the Healthy Workplace (HW) model (see figure 1), which is a scientific framework for developing healthy workplaces (Burton, 2010). The HW model results from systematic reviews of the literature on enhancing health in the workplace by 56 subject-matter experts from 22 countries and representatives of employers and employees, WHO affiliates, two international non-governmental organizations, and the International Labour Organization. The model intends to be flexible and usable in different workplaces, nations, and cultures, reflecting international collaboration. The HW model includes the perspective of employee involvement by defining healthy workplaces as consisting of managers and employees collaborating in a continual process to protect and promote employee well-being, safety, and health (Burton, 2010).

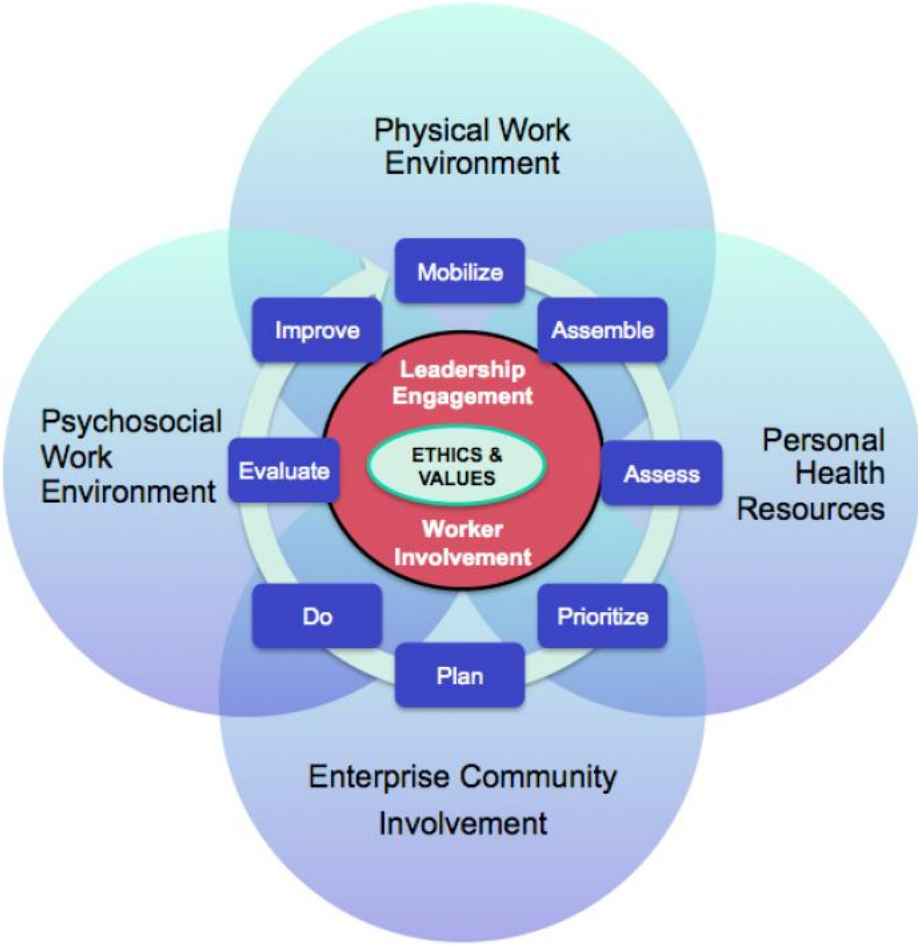

Figure 1. The Healthy Workplace model (Burton, 2010).

The HW model also conveys the content of healthy workplaces and processes that develop healthy workplaces (Burton, 2010). The content of the HW model refers to overlapping avenues of influence for attaining healthy workplaces:

- The physical work environment
- Personal health resources
- Enterprise community involvement
- The psychosocial work environment

Avenues of influence are not enough for developing healthy workplaces. Thus, the HW model refers to a cyclical process for how to use these avenues to build healthy workplaces and consists of eight iterative steps: 1) mobilize, 2) assemble, 3) assess, 4) prioritize, 5) plan, 6) do, 7) evaluate, and 8) improve. These eight steps conform with the cyclical Plan, Do, Check, Act (PDCA) model wherein plans are made, implemented, evaluated, and improved. Most continual improvement process models adhere to the PDCA model because it is founded upon the scientific principle that investigations and initiatives striving for truth and improvement are rarely ideal in their formulations from the outset, requiring continual hypothesizing, experimentation, and evaluation (Burton, 2010).

Moreover, the HW model's process refers to five core principles for developing healthy workplaces (Burton, 2010):

1. Leadership engagement based on core values and ethics to ensure the commitment of organizational actors.
2. Gap analysis between present and ideal future.
3. Learning from others (e.g., researchers and health and safety experts).
4. Sustainability as in integrating the health intervention into the long-term organizational strategy, evaluating the intervention, and recurrently improving upon it for the next intervention cycle.
5. The involvement of employees and their representatives.

Employee involvement denotes the active involvement of employees and employee representatives (e.g., safety representatives) in every phase of processes seeking to develop healthy workplaces. With employee involvement, the views and thoughts of employees are actively sought out, processed, and put into practice. Moving responsibility for workplace health away from complete outside governmental dependence to all workplace participants

(employees and leaders alike) through employee involvement is crucial in successfully improving employee health. Finally, employee involvement ensures local considerations are integrated into processes to improve employee healthy (Burton, 2010). The organizational intervention implementation model (Nielsen et al., 2010), on which the ARK Intervention Program is based, aligns with the HW model process, as they share the PDCA model framework and have employee involvement as a core principle.

Thus, this thesis builds upon the framework of the HW model in its investigation of both the content of healthy psychosocial work environments and processes that develop healthy workplaces through psychosocial work environment factors. This thesis uses the ARK Intervention Program's screening survey to study the content by investigating whether and how empowering leadership (Amundsen & Martinsen, 2014; Conger & Kanungo, 1988; Vecchio et al., 2010) is an essential component of healthy workplaces (paper I). This thesis investigates the ARK Intervention Program's implementation process to study processes that develop healthy workplaces. More specifically, this thesis examines the role of the line manager (paper II) by researching their proactive work behaviors (Parker et al., 2010; Parker & Bindl, 2016) and the role of the safety representative (paper III) by examining their job crafting (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001). See figure 2 for a visualization of the theoretical building blocks of this thesis.

Figure 2: The theoretical building blocks of this thesis.

In the following, I first present the theoretical and empirical background of the content of psychosocial work environments. Then, I present the theoretical and empirical background of the implementation process of organizational interventions.

Content of psychosocial work environments

Theoretical and empirical background

Supposedly, the term "psychosocial" was utilized first by Swedish psychoanalyst Erik Erikson in 1959 (Abrahamsson & Johansson, 2013). Erikson was part of a Nordic tradition wherein psychological aspects of work are given considerable attention, exemplified by the psychological criteria for efficient work by Thorsrud and Emery in 1969 (Abrahamsson & Johansson, 2013). Today, the psychosocial work environment can broadly be defined as "the psychological and social conditions people experience in the workplace" (Hammer et al., 2004, p. 83). Due to the broadness of the definition, various researchers have conceptualized the psychosocial work environment differently.

For instance, the psychosocial work environment is often operationalized as the working conditions experienced by individual employees (Karasek & Theorell, 1990). Work conditions are here understood as the concrete task-oriented situation in which employees are. The focus may be on the control employees have over the execution of their tasks and the demands the jobs require of them (i.e., the Job-Demand-Control-Support Model; JDCS model; Karasek & Theorell, 1990). Another task-oriented way to conceptualize the psychosocial work environment is to focus on the efforts and rewards of executing the tasks in which employees engage (i.e., the Effort-Reward Imbalance Model; ERI model; Siegrist, 2016). Researchers have also argued and found empirical evidence that the psychosocial work environment is more than the task-oriented circumstances of individual employees. It also encompasses the work-home interactions of employees and the organizational norms that influence their social interactions and job performance (Hammer et al., 2004).

Moreover, with the ascent of positive psychology, the psychosocial work environment has, with the influence of the Job Demands-Resources Model (JD-R model), increasingly been construed as a balance between job resources and job demands (Bakker & Demerouti, 2007). In this conceptualization of the psychosocial work environment, job resources are "those physical, psychological, social, or organizational aspects of the job that are either/or functional in achieving work goals, reduce job demands and the associated physiological and psychological costs, and stimulate personal growth, learning, and development" (Bakker & Demerouti, 2007, p. 312). Job demands, on the other hand, "refer to those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs" (Bakker & Demerouti, 2007, p. 312). These definitions underline that the psychosocial work environment can produce negative

stress and offer opportunities for personal growth, fulfillment, and work engagement (Bakker & Demerouti, 2007).

The JDCS, ERI, and JD-R models are described to situate the thesis in a broader theoretical context and are not the focus of this thesis. In this thesis, the psychosocial work environment is defined as the daily manifestations of practices, views, attitudes, and ethics in an organization that are avenues for influencing the physical and psychological well-being of employees (Burton, 2010). This definition lines up with the aim of this thesis, which is to study the development of healthy workplaces among knowledge workers. One of the pillars is to examine the content (i.e., avenues of influence) of the psychosocial work environment of knowledge workers by studying empowering leadership and its relationship with pertinent work characteristics (i.e., unreasonable tasks, job autonomy, the social community at work, and recognition) and work engagement (paper I).

Empowering leadership

Empowering leadership is a participative type of leadership (Somech, 2005), defined as leader actions that share and transfer power to their employees (Amundsen & Martinsen, 2014; Conger & Kanungo, 1988; Vecchio et al., 2010). The constructiveness of empowering leadership in managing employee influence separates it from laissez-faire, charismatic, and transformational leadership. Laissez-faire leadership is the uncritical and unconstructive neglect of duties and prerogatives (Skogstad et al., 2007). Charismatic and transformational leadership is about leading and inspiring employees to focus on what the leader thinks is essential for them to focus on (Bass & Riggio, 2006), whereas empowering leadership encourages employees to voice their opinion on what they consider vital (Dallner et al., 2000).

Scholars have found that empowering leadership is linked with positive outcomes (e.g., Amundsen & Martinsen, 2014; Tuckey et al., 2012). Empowering leadership is positively associated with team efficacy, performance, knowledge sharing (Srivastava et al., 2006), and job satisfaction (Dallner et al., 2000). Empowering leadership has also been found to be positively linked to affective commitment (Albrect & Andreetta, 2011), creativity (Zhang & Bartol, 2010), psychological empowerment (Amundsen & Martinsen, 2014), and work engagement (Tuckey et al., 2012). Work engagement is a long-lasting cognitive-affective, fulfilling, and positive work-related mindset that does not pertain to concrete actions, individuals, or happenings; it consists of dedication, vigor, and absorption (Schaufeli et al., 2002).

Researchers have found that work engagement is associated with improved commitment to the organization (Hakanen et al., 2006; Halbesleben, 2010), better work performance (Bakker & Bal, 2010; Halbesleben, 2010), and proactive behavior (Salanova & Schaufeli, 2008). Moreover, scholars have identified work engagement to be linked with decreased intention to change jobs (Halbesleben, 2010), fewer psychosomatic complaints (Schaufeli & Bakker, 2004), and improved psychological health (Xanthopoulou et al., 2009). Therefore, work engagement can be considered an important metric in terms of the well-being and health of employees. While little is known about how empowering leadership relates to employee motivation (Gilbert & Kelloway, 2014), researchers have suggested that empowering leadership and work engagement are linked because empowering leadership shapes crucial work characteristics in the psychosocial work environment (Tuckey et al., 2012).

Empowering leadership and work characteristics

The literature indicates that empowering leadership positively affects several specific work characteristics. A vital feature of empowering leadership is socio-structural, meaning a

delegation of responsibility and authority to employees (Amundsen & Martinsen, 2014). This socio-structural property of empowering leadership intersects with job autonomy, a work characteristic defined as the appraisal by employees regarding their freedom to structure and arrange how and when they conduct their work tasks (Hackman & Oldham, 1975). Positive leadership actions (e.g., empowering leadership) set into motion prosocial interaction loops that generate good social communities at work, wherein colleagues are cooperative, employees feel they belong, and the atmosphere is positive (Francioli et al., 2018). Moreover, empowering leaders are likely to make employees perceive recognition (Srivastava et al., 2006), defined as the management practice of treating employees justly and with respect (Pejtersen et al., 2010) by creating more arenas for employees to share their contributions and ideas, and be recognized for them.

Empowering leadership also decreases the bureaucratic hindrances employees face at work (Bass & Riggio, 2006) and reduces their sense of powerlessness (Conger & Kanungo, 1988). These proposals suggest that empowering leadership diminishes the employees' sense of having unreasonable tasks, a subset of illegitimate tasks defined as the functions employees feel are inappropriate in light of their status or occupation (Semmer et al., 2010). Employees with empowering leaders may feel safe and motivated to speak up about having unreasonable tasks. The leader can then assign that task to someone more appropriate and be more likely to fit tasks with employees in the future successfully.

Feeling safe and motivated to speak up about unreasonable tasks, and being listened to, may boost the perception of employees that they can influence their working conditions. In other words, they feel increased job autonomy, which is empirically supported by research showing a negative association between unreasonable tasks and job autonomy (Apostel et al., 2018). Empowering leadership is also likely to improve the social community from reduced unreasonable tasks because it transmits a social signal that the employees and their thoughts

are valuable (Semmer et al., 2015). In turn, employees spark prosocial interaction loops that build a healthy social community in the workplace (Francioli et al., 2018). Reducing unreasonable tasks may also positively affect the employees' sense of recognition. The social signal that they are cared for by reducing unreasonable tasks is likely to boost feelings of being acknowledged and respected. To summarize, the literature indicates that empowering leadership is positively associated with job autonomy, the social community at work, and recognition, both directly and through reducing unreasonable tasks. However, a fitting theoretical framework is needed to understand better the relationship between empowering leadership, work characteristics, and work engagement.

Social exchange theory

There exist several theories seeking to explain how employee motivation occurs. For instance, self-determination theory proposes that employee motivation occurs when the basic psychological needs of recognition, community, and autonomy are met (Ryan & Deci, 2017). Another example is the conservation of resources theory, which argues that employee motivation is a product of satisfying the tendency of people to attain, keep, and guard what they perceive as valuable, i.e., resources (Hobfoll, 2001). Nevertheless, this thesis argues that social exchange theory (Blau, 1964; Cropanzano & Mitchell, 2005; Settoon et al., 1996) may explain the relationship between empowering leadership and work engagement. In social exchange theory, the principle of reciprocity is foundational; prosocial actions are reciprocated with prosocial actions (Blau, 1964). The "social" in social exchange theory underlines that reciprocity to benevolence should be understood as something that transcends the material to include the social dynamics of life. In the workplace, social exchange theory suggests that leaders who improve employee working conditions generate an obligation in employees to reciprocate with work engagement (Cropanzano & Mitchell, 2005; Settoon et al., 1996).

Paper I

This thesis proposes that empowering leadership advances several important work characteristics in the psychosocial work environment of knowledge workers (i.e., job autonomy, the social community at work, recognition, and unreasonable tasks), which employees reciprocate with work engagement. A meta-analysis has demonstrated a positive association between job autonomy and work engagement and between work engagement and social support (Halbesleben, 2010), a concept similar to the social community at work. Both tap into social and communal aspects of the psychosocial work environment. Moreover, appreciation, a construct comparable to recognition, has been positively related to work engagement (Bakker et al., 2007). Finally, a reduction in unreasonable tasks has been established as associated with increased work engagement (Schmitt et al., 2015). Thus, the literature shows it is likely that empowering leadership is positively associated with work engagement because reducing unreasonable tasks increases employees' job autonomy, the social community at work, and recognition. Paper I of this thesis aims to test this proposal with a comprehensive statistical model that moves beyond the individual associations found in the literature. If supported, empowering leadership may be solidified as an essential part of the psychosocial work environment of knowledge workers and an avenue for developing healthy workplaces among knowledge workers.

Processes for implementing organizational interventions

Theoretical and empirical background

Processes for organizational change may broadly and figuratively be viewed as a tree with three branches. The first branch of organizational change was created by Frederick Taylor in 1911, who introduced engineering and industrial management as a field of research (Al-Haddad & Kotnour, 2015). The engineering and industrial management literature focuses on how to improve productivity. It studies the processes and integrated systems wherein

change occurs, the principles and expertise required for change, and thorough procedures for change. The second branch of organizational change has its roots in Henri Fayol, who conceptualized management and leadership as contributing to general administration (Al-Haddad & Kotnour, 2015). The management and leadership literature studies how leadership philosophies and conduct aid in achieving change aims and how change is influenced by strategizing, organizing, and directing resources and people. The third branch of organizational change stems from Kurt Lewin's study of organizational development (Lewin, 1946). With its focus on how and why individuals and groups change and open-systems understanding of organizations, this literature emphasizes the psychosocial (Al-Haddad & Kotnour, 2015). This thesis is positioned in Lewin's (1946) organizational development tradition, as organizational interventions, such as the studied ARK Intervention Program, emphasize the importance of psychosocial factors in the work environment, mental models, and employees' readiness for change (Nielsen & Noblet, 2018).

Organizational interventions are "planned, behavioral, theory-based actions to change the way work is organized, designed and managed to improve the health and well-being of participants" (Nielsen & Noblet, 2018, p. 1). An organizational intervention is a workplace well-being and health intervention, which refers to activities grounded in science and planned, informal or formal, and psychological or behavioral actions (Nielsen & Noblet, 2018). Moreover, workplace well-being and health interventions facilitate employee well-being and health by promoting resources of coping and resilience for individual employees or altering or eliminating sources of job stress (Nielsen & Noblet, 2018). The organizational intervention implementation model upon which the ARK Intervention Program is founded (Innstrand & Christensen, 2020) contains five cyclical phases: preparation, screening, action planning, implementation, and evaluation (Nielsen et al., 2010).

The preparation phase revolves around creating readiness for change in all actors, including the employees (Nielsen et al., 2010). A communication plan, senior management support, and a steering group composed of employer and employee representatives are established to facilitate readiness for change. Senior management and HR should inform employees and line managers about the organizational intervention and drivers of change designated (e.g., line managers). The screening phase entails assessing the psychosocial work environment using a standardized survey, and the results of that assessment are fed back to the employees. The action planning phase involves the employee-participatory generation of action plans that develop the psychosocial work environment. Employees and line managers collaborate and agree upon which action plans to implement. The implementation phase involves implementing the action plans the employees created in the action planning phase and monitoring their implementation. The evaluation phase concerns itself with evaluating the performance of action plans and the intervention process in general. Employee involvement is heavily emphasized throughout all five stages (Nielsen et al., 2010).

Scholars have borrowed from the terminology of public health experts when they classify organizational interventions as being either primary, secondary, or tertiary (Hurrell, 2005; Hurrell & Murphy, 1996; Kelloway et al., 2008). Primary interventions intend to directly eliminate or modify sources of ill health in the work environment (Hurrell, 2005; Quick et al., 1997). An example of a primary intervention is reducing role uncertainty and confusion by clarifying who is responsible for the various tasks of an organization. Secondary interventions focus on altering the reactions and perceptions of employees regarding sources of job stress that cause ill health. For example, interventions wherein employees engage in cognitive job crafting that redefines how they think about work tasks and relationships to modify the impact of a stressor (Wrzesniewski & Dutton, 2001). The purpose of tertiary interventions is to treat individual employees who have suffered from an adverse stress

reaction, thus decreasing the impact of stressors on those employees (Quick et al., 1997). Therefore, tertiary interventions emphasize easing the results of stress processes for some employees. An example of a tertiary intervention is offering therapy or counsel to suffering individual employees.

Primary, secondary, and tertiary organizational interventions all solve already identified problems in the workplace and are therefore preventive (Kelloway et al., 2008). In recent decades, a fourth type of organizational intervention has been launched: countervailing organizational interventions. Countervailing organizational interventions aim to enhance positive work experiences of work instead of reducing negative ones (Kelloway et al., 2008). There are three reasons why countervailing organizational interventions are crucial. First, increasing positive experiences at work is aligned with findings whereby health and well-being can be developed by positive factors in the work environment, such as work engagement (Luthans, 2002). Improving positive elements in the work environment may therefore counteract the adverse effects of job stress. Second, the proportion of negative and positive experiences determine mental health (Fredrickson & Losada, 2005). Thus, organizational interventions that increase positive experiences at work for employees will further mental health. The third reason is that positive experiences at work, e.g., positive leadership styles (Arnold et al., 2007) such as empowering leadership, predict health and well-being (Harvey et al., 2003). The ARK Intervention Program focuses on developing action plans that eliminate or ameliorate the sources of job stress and developing action plans that increase or maintain what creates positive experiences at the workplace (Innstrand & Christensen, 2020). Therefore, the ARK Intervention Program can be considered a mixture of a primary organizational intervention to remove or moderate stressors and a countervailing organizational intervention that intends to increase or maintain positive experiences at the workplace.

Research indicates that organizational interventions are challenging to implement, as reviews of their effectiveness display inconsistent results (e.g., Montano et al., 2014; Richardson & Rothstein, 2008). Therefore, it is vital to understand how organizational interventions may develop the health of employees (Nielsen & Miraglia, 2017). Some scholars have turned away from the randomized controlled trial approach for evaluating organizational interventions to favor a realistic approach where the question is "what works for whom in which circumstances" (Nielsen & Miraglia, 2017, p. 41). The realistic course aims to understand the context and influence of intervention processes on the outcomes of organizational interventions. Thus, context-mechanism-outcome (CMO) configurations are emphasized (Pawson & Tilley, 1997) wherein researchers ask what makes an organizational intervention work (i.e., the intervention mechanisms), what conditions of interventions are adequate (i.e., the context that triggers the intervention mechanisms), and what improvements to the work environment and the health of employees can be detected (i.e., how the intervention mechanisms create outcomes; Nielsen & Miraglia, 2017). By studying processes that may bring about healthy knowledge-intensive workplaces through the psychosocial work environment, this thesis is situated in the realistic approach to organizational interventions.

Three interacting process factors influence the outcomes of organizational interventions: 1) the intervention design and implementation; 2) the context within which the intervention is nested; and 3) the mental models participants have of the intervention design and the broader context (Nielsen & Randall, 2013). The intervention design and implementation of organizational interventions are about the initiation (i.e., what is the genesis of the organizational intervention and what is the goal?), the development and implementation of intervention activities (i.e., do the intervention activities target problems in the workplace and make a difference for the intended group?), and the implementation

strategy (i.e., who are the drivers of change and what is the information and communication approach?; Nielsen & Randall, 2013).

The context of organizational interventions is opportunities and limitations on behaviors external to the individual and can be divided into the omnibus and the discrete contextual factors (Johns, 2006). The omnibus context refers to the narrative of the organizational intervention and considers the fit between the intervention and the conditions and culture of the intervention group (Nielsen & Randall, 2013). The discrete context points towards specific events that impact the effect of the intervention and refer to the events that occurred during the span of the organizational intervention (Nielsen & Randall, 2013). One may fruitfully view the context of organizational interventions regarding the different hierarchical levels of organizations (Day & Nielsen, 2017). That is, the individual employee-level, group-level (i.e., groups of knowledge workers and safety representatives), leader-level (i.e., line managers and senior management), and organizational-level (i.e., HR, support functions, programs such as the ARK Intervention Program, policies, and practices; the IGLO model), as all levels of an organization should be targeted when implementing organizational interventions (Christensen et al., 2019; Nielsen & Christensen, 2021). The contribution and targeting of all levels when implementing organization intervention is advisable because it helps prevent a focus which implies that problems are solely the fault of one of the levels, for instance, the leader-level. A holistic and balanced view of how the entire organization determines the psychosocial work environment is needed to develop healthy workplaces (Day & Nielsen, 2017).

Mental models are what people use to make sense of their situation, and sensemaking efforts occur when they perceive their position to be distinct from what they expected (Weick et al., 2005). In organizational interventions, participants' mental models of the intervention

and their work context decide their reactions to the intervention, such as generating readiness for change in line managers and safety representatives (Nielsen & Randall, 2013).

In place of understanding that the intervention process is crucial for outcomes, researchers have established several principles for implementing, designing, and evaluating organizational interventions that optimize the likelihood of developing healthy workplaces (von Thiele Schwarz et al., 2021). At the outset, participants and stakeholders should have a shared understanding of the situation and the goals of the intervention. The design and implementation of the intervention should synergize with the existing aims of the organization. The logic of how intervention activities are supposed to create specific outcomes should be made explicit. Intervention activities in which the effort is expected to be worth the result should be prioritized over intervention activities in which the measure exceeds the value of the outcome. The intervention should fit and build upon the overall perspectives, practices, and procedures of the organization. Observations, reflections, and adaptations should frequently occur to counteract the complexity of organizational interventions. Learning capabilities in the organization should be developed to extend benefits beyond the particular intervention to other areas of the organization in the future. The interplay between the context, the process, and mental models should be evaluated. The knowledge garnered from interventions should be added to an accumulated body of specificity regarding what is effective for which organizations at what time. Finally, key stakeholders should engage and actively participate in the intervention: employees and safety representatives (i.e., employee involvement) and line managers (von Thiele Schwarz et al., 2021).

Line managers in organizational interventions

In organizational interventions that are bottom-up, the significance of line managers cannot be overstated. Throughout all phases of organizational interventions, the line manager

has a central role in conducting intervention activities (Nielsen, 2013). Researchers have shown that line managers may engage in different constructive behaviors to implement organizational interventions. Line managers may project readiness for change towards their employees and thereby be role models (Nielsen & Randall, 2011), maintain the awareness of employees by continually informing them about the intervention (Sørensen & Holman, 2014), discuss with senior management how to define and implement the intervention (Currie, 2000; Floyd & Wooldridge, 1997), act congruently in terms of their communication about the intervention (Yulita et al., 2017), support their employees, and participate in discussions with them (Coyle-Shapiro, 1999). Line managers may also discuss with other line managers how to make sense of and implement the intervention (Balogun & Johnson, 2004).

However, line managers may also engage in behaviors that obstruct the intervention implementation. They may render themselves inaccessible to their employees during the intervention (Mellor et al., 2011), stop information from going between the employees and senior management (Biron et al., 2010; Weyman & Boocock, 2015), and hinder their employees from contributing towards the intervention (Dahl-Jørgensen & Saksvik, 2005).

A challenge for line managers, which has not been researched in terms of organizational interventions, is their contextual "middle-levelness," their hierarchical placement between senior management and employees (Gjerde & Alvesson, 2020). Due to their middle-levelness, line managers must persuade senior management and employees of the value of their contributions, leading to a tendency to use different arguments directed towards senior management and employees that risk appearing contradictory and undermined both from below and above (Sims, 2003). In addition, to keep their jobs, line managers require support from both senior management and employees (Empson, 2007), and employees today increasingly want support and protection instead of direction and

supervision (Mintzberg, 1998). To put it briefly: The situation in which line managers find themselves is complicated.

To manage their middle-levelness, line managers can choose to align with the goals and methods of an organizational intervention or not (Gjerde & Alvesson, 2020). Line managers who are motivated to protect their employees from senior management plans are likely to not align with the goals and methods of intervention. These line managers will probably engage in behaviors that do not implement the intervention. Line managers motivated to accomplish results in terms of how senior management defines results are likely to align with their designed role in senior management plans (Gjerde & Alvesson, 2020). These line managers will probably engage in behaviors that implement the intervention as intended by senior management.

This thesis proposes to use the motivational model of individual-level proactive work behaviors (Parker & Bindl, 2016) to research how line managers contribute towards organizational interventions in light of their middle-levelness. Organizational interventions and proactive work behaviors overlap in their intention to develop the internal situation of a workplace. Moreover, individually and organizationally, performance is positively related to proactive work behaviors (e.g., Grant et al., 2011; Parker & Collins, 2010), which is also likely applicable for line managers in organizational interventions. Finally, bottom-up organizational interventions (Nielsen & Noblet, 2018) may provide line managers with space to conduct different proactive work behaviors in organizational interventions, depending on how they manage their middle-levelness.

The motivational model of individual-level proactive work behaviors

Proactive work behaviors are defined as self-generated actions that aim to develop the internal situation of an organization by leading or averting problems (Parker & Bindl, 2016;

Parker & Collins, 2010; Tornau & Frese, 2013). Proactive work behaviors may be crucial for line managers in organizational interventions because senior management frequently gives line managers the task of being a key driver of change that transforms the intervention strategy into concrete action plans (Nielsen, 2017). The motivational model of individual-level proactive work behaviors proposes that individual variation, motivational state, and context are precursors to proactive work behaviors (Parker et al., 2010; Parker & Bindl, 2016). Moreover, there are distal and proximal precursors to proactive work behaviors (Parker & Bindl, 2016).

The proximal precursors to proactive work behaviors are the "energized-to," "can-do," and "reason-to" motivational states (Parker & Bindl, 2016). The energized-to motivational state refers to an affective state, activated enough to chase the goal of the proactive work behaviors goals (for example, "Do I/we have the vigor and resources to implement this intervention activity?"). The can-do motivational state is about believing the goal can be achieved (for example, "Can I/we implement this intervention activity?"). The reason-to motivational state refers to whether the motive of the proactive work behaviors is worth it (for example, "Is the motivation for implementing this intervention activity good enough to warrant it?"; Parker & Bindl, 2016).

Individual variation and context are distal precursors to proactive work behaviors (Parker & Bindl, 2016). The middle-levelness of line managers is most appropriately considered a distal and contextual precursor to proactive work behaviors. According to the motivational model of individual-level proactive work behaviors, context 1) directly affects the motivational states, which then influence the proactive work behaviors; 2) interacts with the motivational states in disabling or enabling the proactive work behaviors; and 3) interacts with individual variation in determining the motivational states that precede proactive work behaviors (Parker & Bindl, 2016).

Context affects the manifestation of proactive work behaviors (Christensen et al., 2019; Ohly & Scmitt, 2016). The proactive work behaviors of line managers may be affected by three contextual aspects: 1) downsizings and fusions that line managers might view as threatening layoffs among the employees, which takes attention away from intervention implementation (Nielsen et al., 2010); 2) job autonomy (Ohly & Scmitt, 2016) that makes room for line managers to engage in proactive work behaviors; and 3) leadership (Den Hartog & Belschak, 2016), which for the line managers is senior management. This aligns with scholars showcasing the difficulty of line managers with implementing interventions when they lack senior management support (Nielsen et al., 2017).

Besides context, another distal antecedent to proactive work behaviors is individual variations in personality, demography, skills, knowledge, values, and career and life stage (Parker & Bindl, 2016). Individual variations in these factors influence proactive work behaviors by affecting the motivational states of employees, either directly or in interaction with context. How line managers manage their middle-levelness by aligning with an organizational intervention is best framed as an individual variation.

Paper II

There is a lack of research on how line managers manage their middle-levelness when conducting organizational interventions. Examining the behaviors of line managers and their reasons is warranted because it may further our understanding of the influence of line managers on intervention processes (Nielsen, 2017). Paper II thus attends to how the proactive work behaviors of line managers are a product of their context of middle-levelness combined with individual variations in how they manage it. Paper II aims to add knowledge about how the middle-levelness context of line managers and their management of it affects organizational intervention processes. Studying the proactive work behaviors of line managers in organizational interventions extends our understanding of how line managers

develop healthy knowledge workplaces among knowledge workers. However, to ensure organizational interventions are bottom-up, it is essential to consider how other actors besides line managers, for instance, employees and safety representatives contribute towards processes of organizational interventions.

Safety representatives in organizational interventions

Employee involvement is pivotal in bottom-up organizational interventions (Nielsen, 2013; Tvedt et al., 2009). Employee mental models of their context and the intervention are vital knowledge to successfully implement intervention processes with participating and contributing employees. Still, they have rarely been the subject of scientific research (Nielsen & Randall, 2013). In the Nordic work model, intervention processes are intended to be a cooperative endeavor between employees and leaders (Working Environment Act, 2005). Research has shown that cooperation between employees and leaders brings positive outcomes for commitment, motivation (Bakan et al., 2004), and employee health (Egan et al., 2004).

Researchers also view this cooperation as an essential ingredient of successful intervention processes (e.g., Nielsen et al., 2010). Having an employee representative engage leaders with a cooperative spirit can be a decisive factor in creating constructive cooperation between employees and leaders in organizational interventions. To represent employees with a mandate and formal responsibility, colleagues elect safety representatives (Working Environment Act, 2005). The primary function of safety representatives is to connect the daily lived experience of employees with work environment initiatives (Karlsen et al., 2019) through voicing and interpreting how employees experience their work and thereby being a vital actor in molding the work environment (Nielsen & Hohnen, 2014).

Through representative participation, the involvement of safety representatives creates indirect employee participation in intervention implementation (Abildgaard et al., 2018). Concretely, safety representatives are supposed to safeguard the work environment interests of the employees and serve as counsel to leaders when organizational changes with pertinence for the work environment are planned and implemented (Working Environment Act, 2005). In contrast, regular employees are obligated to cooperate in designing and implementing organizational interventions and participate in them (Working Environment Act, 2005). Leaders have a managerial prerogative, which means that within boundaries of the law, they have the right to distribute, organize, lead, and control work (Norwegian Bar Association, 2000). Leaders can accordingly decide how to implement organizational interventions, but they still must consult safety representatives during planning and execution (Working Environment Act, 2005).

The mandate and responsibilities of safety representatives are clear on paper. How they concretely craft their roles in organizational interventions is not so clear. Researchers have found a gap in the understanding of the role of the safety representative between safety representatives and leaders (Hovden et al., 2008), which points to the importance of shared knowledge between actors in a workplace to develop healthy workplaces through organizational interventions (Nielsen, 2017). Researchers have also shown that the safety representative being a part-time role can create problems for establishing joint responsibility between safety representatives and leaders in organizational development (Hasle & Jensen, 2006). Other scholars have identified that safety representatives can find themselves "between a rock and a hard place" concerning their legislated mandate on the one hand and the conflicting expectations of employees, management, and company policies on the other (Rasmussen et al., 2014). A problem that may result in various ways and degrees to which safety representatives are involved in measures to develop healthy workplaces. There has

been no investigation into how safety representatives craft their roles throughout organizational interventions. Researching this gap in the literature will add understanding regarding what occurs in intervention processes and thereby help generate healthy workplaces among knowledge workers (Nielsen & Miraglia, 2017).

The mental models of intervention participants, which determine the understanding and practice of formal roles in organizational interventions (Nielsen & Randall, 2013), have been somewhat addressed in literature. For instance, scholars have investigated the experiences employees have with work environment surveys that are part of organizational interventions (Nielsen et al., 2014) and the interaction between material artifacts and sensemaking for both line managers and employees (Abildgaard & Nielsen, 2018). However, knowledge about safety representatives' mental models of intervention design and context is lacking. Investigations into how safety representatives comprehend and concretize their roles in organizational interventions would extend this understanding. Such knowledge would deepen our understanding of what happens in organizational intervention processes and bring about knowledge for developing healthy workplaces among knowledge workers through the psychosocial work environment. This thesis uses job crafting as a theoretical foundation (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001), as this theory is pertinent for processes of organizational interventions (Nielsen, 2013).

Job crafting theory

Job crafting is defined as "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (Wrzesniewski & Dutton, 2001, p. 179). It highlights how employees, for instance, safety representatives, are active subjects who mold their work tasks and social interactions when they choose which tasks and relationships to prioritize or deprioritize. Job crafting theory accordingly puts weight on how employees construct their lived experience from building blocks in their social world and is, therefore, a

social constructivist perspective. Roles in the workplace, for instance that of a safety representative, are not rigidly and entirely determined by formal mandates and responsibilities. To greater or lesser degrees, workplace actors have leeway to shape their roles depending on perceived contextual boundaries. When shaping their roles, employees engage in job crafting and thereby position themselves to modify the borders of their relationships and work tasks. Employees can alter the edges of work tasks by changing how tasks are handled and by reframing, in a cognitive sense, how the jobs are grasped. Employees can modify relational borders by changing with whom they interact while conducting the work. By engaging in these border-altering behaviors, employees (e.g., safety representatives), affect the work environment and the job design (Wrzesniewski & Dutton, 2001).

The leeway employees possess to engage in job crafting is not without limit. The context of employees is vital for regulating the potential for job crafting, particularly employee job autonomy, as it sets the borders of how much employees can engage in job crafting (Wrzesniewski & Dutton, 2001). In the same vein, the location of employees in the organizational hierarchy, with its consequences for role constraints, possibilities, and power to influence, has been found to determine the limits within which employees can engage in job crafting (Berg et al., 2010). Nevertheless, leaders can affect employee job crafting (Wang et al., 2017a), for instance, by encouraging employees to engage in it (Wang et al., 2017b). Thus, contextual factors, such as role constraints and possibilities, power to influence, behaviors of leaders, and job autonomy, are crucial in determining the enthusiasm, capability, and form of job crafting in which employees can engage.

According to job crafting theory, then, safety representatives engage in job crafting and shape the content of their role via changing the borders of their tasks and relationships through deprioritizing some jobs and relationships while prioritizing others. These changes

happen in a context. That is, how safety representatives perceive their role and shape it occurs within parameters set by contextual aspects, such as role constraints and possibilities, power to influence, the behaviors of leaders, and job autonomy. Organizational interventions introduce alterations to how work is organized, with new priorities, modified roles, and relationship negotiations, for example, between safety representatives and line managers (Seo et al., 2004). Thus, safety representatives engage in job crafting in organizational interventions to generate and practice their roles, positioning and recasting themselves differently according to their image of the role but confined by context.

Paper III

How safety representatives engage in job crafting will, in turn, influence the intervention process. Information about job crafting by safety representatives in organizational interventions may provide intervention practitioners and participants with the knowledge needed to implement organizational intervention processes with employee involvement and cooperation between line managers and safety representatives. Research that focuses on garnering such knowledge may help implement organizational interventions that create healthy workplaces among knowledge workers. Such research is, however, lacking. Therefore, paper III of this thesis aims to research the role of safety representatives in organizational interventions by investigating the roles safety representatives craft for themselves, the mental models that affect the roles they craft, and the possible consequences their crafted roles have for intervention implementation.

Aim and research questions

With the HW model as the overarching framework (Burton, 2010), the overall aim of this thesis is to study how to develop healthy workplaces among knowledge workers through the psychosocial work environment by identifying the content of psychosocially healthy workplaces with an emphasis on empowering leadership (paper I) and by investigating processes of organizational interventions through the perspectives of line managers (paper II) and safety representatives (paper III). The research questions are as follows:

1. How does empowering leadership, mediated by work characteristics, associate with work engagement? (Paper I)
2. What proactive work behaviors do line managers engage in during organizational interventions? (Paper II)
3. How does line managers' management of their middle-levelness affect their proactive work behaviors in organizational interventions? (Paper II)
4. What roles do safety representatives craft for themselves in organizational interventions? (Paper III)
5. What mental models of context and intervention impact the roles safety representatives craft? (Paper III)
6. What possible consequences do the roles safety representatives craft have for intervention implementation? (Paper III)

Methods

The Studied Organizational Intervention: The ARK Intervention Program

All three papers of this thesis used the ARK Intervention Program (Innstrand & Christensen, 2020) to study the development of healthy workplaces among knowledge workers. Paper I quantitatively analyzed the screening tool of the intervention, the Knowledge-Intensive Work Environment Survey Target (KIWEST; Innstrand et al., 2015), to examine the content of knowledge workers' psychosocial work environment. Papers II and III studied the implementation process of the ARK Intervention Program at a larger university in Norway.

The ARK Intervention Program is a program for knowledge-intensive organizations to implement work environment interventions. The intervention maintains a steering group to survey the intervention implementation and support the organizations. The ARK Intervention Program is executed at most universities and colleges in Norway every two or three years at the departmental level and is designed to be bottom-up. Thus, the intervention is implemented with employee involvement as a core principle (Nielsen & Noblet, 2018), making employee involvement central in every phase, for instance, by having employees generate action plans. Senior management of Norwegian universities and colleges introduced the ARK Intervention Program as a tool for line managers (i.e., heads of departments) to:

1) Develop the health and well-being of employees by highlighting the importance of a balance between job resources and job demands (JD-R model; Bakker & Demerouti, 2007)
2) Fulfill regulatory requests for managing psychosocial risks as part of their systematic health, safety, and environmental work (Working Environment Act, 2005)

3) Create detailed action plans with employee involvement, grounded in the Nordic tripartite model between employees, employers, and the government (Working Environment Act, 2005) to improve the psychosocial work environment.

The design of the ARK Intervention Program is founded upon the organizational intervention implementation model (Nielsen et al., 2010), which contains a preparation phase, a screening phase, an action planning phase, an implementation phase, and an evaluation phase.

The preparation phase

In the preparation phase of the university studied in papers II and III, senior management (i.e., the faculties) and HR, at a compulsory meeting, gave line managers recommendations and instructions on how to implement the intervention. At this meeting, line managers were instructed to follow the organizational intervention model (Nielsen et al., 2010). Moreover, line managers were advised to invite their employees for meetings in the preparation phase to:

- Inform them about the organizational intervention.
- Present PowerPoint slides about the intervention's theoretical basis.
- Signal the importance of the Intervention.
- Encourage and highlight the importance of employee participation in the activities of the intervention.
- Transparently discuss the forthcoming screening survey and underline its anonymity to enable a high survey response rate.

Senior management and HR suggested that line managers and safety representatives deliberate whether safety representatives should motivate the employees to complete the questionnaire. Some faculties organized a competition for the highest survey response rate in

which the line managers could opt to enroll their department. HR support was available for the line managers during the intervention. In the preparation phase, line managers and safety representatives also had to cooperate to complete a report (i.e., Factsheet I) to senior management and HR regarding general organizational facts about their department pertinent to the work environment. If the department had more than one safety representative, the primary safety representative, or one safety representative selected by the primary safety representative, cooperated with the line manager to complete the report. Factsheet I contained questions about, for instance, the number of staff on short contracts and tenured staff and an evaluative question about the action plans of the last intervention cycle.

The screening phase

In the screening phase, senior management invited employees to finish the survey, offered in Norwegian and English, on their experiences of the psychosocial work environment. Senior management also recommended that the line managers invite and remind employees to complete the survey. The survey used was the validated survey KIWEST (Innstrand, 2015), which targets well-being and psychosocial risk factors in knowledge intensive organizations. HR aggregated the results of the survey and provided them to the departments. Paper I utilized the KIWEST survey to study the content of the psychosocial work environment of knowledge workers.

The action planning phase

In the action planning phase, safety representatives and line managers planned an action planning meeting with a preparation list provided by HR. This list steered them to talk about the survey results and decide how to develop action plans and implement them. At the action planning meeting, line managers conveyed the survey results to the employees and enabled employee-centered development of action plans. Line managers were provided template slides for presenting and organizing the meeting. The template slides informed the employees about the theoretical framework behind the organizational intervention and

compared the survey results of the department with those of the average department. Finally, employees were prompted to talk in groups about the positive and negative things they noticed in the survey results and negotiate three things to improve and three things to maintain with the other group members. After the meeting, line managers and safety representatives made an action plan containing the developed action plans, decided who would be responsible for implementing them, and created a timeline for implementing them. However, it is essential to consider that these descriptions of phases, such as the action planning phase, are idealized versions that all line managers had the information and materials to conduct, but that not every interviewed line manager followed in practice.

The implementation phase

In the implementation phase, senior management and HR gave line managers the primary responsibility to ensure the implementation of the action plans. Senior management and HR recommended that the line managers join the action plans with the goals of the department and continually inform the employees about the progress of the action plans. Senior management and HR also encouraged safety representatives to follow up and monitor the implementation of the line managers.

The evaluation phase

In the evaluation phase, line managers and safety representatives collaborated to complete a general evaluation of the intervention process and the implemented action plans (i.e., Factsheet II) for HR and senior management.

Quantitative analysis

Sample

Paper I investigated how empowering leadership, through work characteristics, affects work engagement among academic knowledge workers (N = 3759). The academics, who worked at three large universities in Norway, were sampled from 2013 to 2015. The data gathered was from KIWEST (Innstrand et al., 2015), which the academics completed regarding their experiences of their psychosocial work environment. KIWEST was the screening tool in the ARK Intervention Program from which employees developed action plans. To review the questions of KIWEST, see appendix I.

The sample consisted of about 31% doctoral research fellows and 69% tenured professors and associate professors. According to official statistics (i.e., The Norwegian Centre for Research Data), approximately 37% doctoral research fellows and 63% professors and associate professors were in the targeted population in 2015, counting by full-time equivalents. The sample consisted of 57% men and 43% women, whereas the population (in full-time equivalents) was about 62% men and 38% women. Age-wise, the sample comprised about 14% individuals of 60 years or more, 17% were 50-59 years, 24% were 40-49 years, 28% were 30-39 years, and 17% were below 30 years.

Procedure

E-mail and Select Survey were utilized to collect the data. The ARK Intervention Program distributed a link to KIWEST via e-mail to 5696 academics, of which 3759 finished it, giving a response rate of 66%. In addition to the link, the e-mail also provided the respondents with information about how participation was confidential, voluntary, that researchers could use their answers in research, and that this usage of their responses had been reported to the Data Protection Official for Research, Norwegian Social Science Data Services A/S and approved by the Norwegian Data Protection Authority. The respondents

were given information on how to provide and deny consent on the first page of the survey. Thus, the ethical standards for the research of paper I was followed and met.

Measures

Empowering leadership

The General Nordic Questionnaire has validated the three items used to measure empowering leadership (Dallner et al., 2000). The items consisted of a five-point Likert scale, from "strongly agree" (5) to "strongly disagree" (1). In addition, the respondents could check "not applicable." One of the items was, "My immediate superior encourages me to speak up when I have a different opinion."

Unreasonable tasks

Unreasonable tasks were assessed by four validated items of the Bern Illegitimate Tasks Scale (Semmer et al., 2010). The respondents answered on a five-point Likert scale, from "strongly agree" (5) to "strongly disagree" (1). One of the items was, "I must carry out work which I think should be done by someone else."

Job autonomy

Job autonomy was assessed with four validated items (Näswall et al., 2010). Each of the four items could be responded to on a five-point Likert scale, from "strongly agree" (5) to "strongly disagree" (1). An item was, "I have a sufficient degree of influence in my work."

Social community at work

The social community at work was measured using three items validated in the Copenhagen Psychosocial Questionnaire II (COPSOQII; Pejtersen et al., 2010). However, one of the original items, "Is there good cooperation between the colleagues at work?" was replaced with "There is a good sense of fellowship among the colleagues in my unit" because inquiries by the ARK Intervention Program found that academics did not view a solid social

community at work to be preclusive of a competitive spirit. Accordingly, the ARK Intervention Program adjusted the measurement of the social community at work to one more fitting of a university setting. The items could be answered on a five-point Likert scale, from "strongly agree" (5) to "strongly disagree" (1).

Recognition

Recognition was assessed with three COPSOQII-validated items (Pejtersen et al., 2010). The respondents could respond to the items on a five-point Likert scale, from "strongly agree" (5) to "strongly disagree" (1). One of the items was, "My work is recognized and appreciated by my unit management."

Work engagement

Work engagement was measured with nine validated items from the Norwegian Utrecht Work Engagement Scale-9 (UWES-9; Nerstad et al., 2010; Schaufeli et al., 2006). The respondents could answer on a seven-point Likert scale, from "every day" (7) to "never" (1). Vigor, absorption, and dedication were measured with three items each. One of the items measuring vigor was, "At my work, I feel bursting with energy." For absorption, one of the items was, "I feel happy when I am working intensely," and for dedication, an item was, "I am enthusiastic about my job."

Control variables

The endogenous variables were controlled for by age and gender. Men were categorized as two and women as one. Due to concerns about anonymity, age was classified into "60 years or more" (5), "50–59 years" (4), "40–49 years" (3), "30–39 years" (2), and "below 30 years" (1).

Statistical analysis

Stata (v14) was used to determine how empowering leadership influences work engagement by optimizing psychosocial work characteristics (paper I). More specifically, Stata was applied to screen the data, calculate descriptive statistics, and perform structural equation modeling (SEM) to test mediation. The recommendations of Mehmetoglu and Jakobsen (2016) were utilized to achieve a maximum likelihood (ML) latent path analysis (i.e., ML complete SEM analysis). Latent path analysis comprises a measurement model that examines factor structure and a structural model that tests the hypotheses. Listwise deletion was used to treat missing data.

The fit of both the measurement model and the structural model was calculated and found acceptable. The root means square error of approximation (RMSEA) was ≤ 0.10, the comparative fit index (CFI) was ≥ 0.90, the Tucker-Lewis index (TLI) was ≥ 0.90, and the standardized root mean squared residual (SRMR) was ≤ 0.10 (Mehmetoglu & Jakobsen, 2016). The chi-squared test was significant, but this test's susceptibility for large samples makes the fit mentioned above indices more appropriate for assessing model fit (Mehmetoglu & Jakobsen, 2016).

The latent variables and indicators were tested for and suggested both validity and reliability. Raykov's reliability coefficients (RRC) were ≥ 0.70, indicating reliable latent variables (Mehmetoglu & Jakobsen, 2016). The average variance extracted (AVE) was ≥ 0.50, suggesting the latent variables had convergent validity. The AVEs were greater than their squared correlations, indicating the latent variables had discriminant validity. Finally, the standardized factor loadings (SFL) of all indicators were ≥ 0.40, suggesting indicator reliability (Mehmetoglu & Jakobsen, 2016).

The mediation hypotheses were tested using prescribed methods (Zhao et al., 2010), wherein mediation is investigated by calculating and examining the statistical significance of the indirect effects between the latent variables. Thus, the individual indirect effects of empowering leadership on work engagement through unreasonable tasks, job autonomy, the social community at work, and recognition were calculated using the delta method for nonlinear combinations of parameters, enabling individual testing effects with several mediators. Moreover, the total indirect effect of work engagement on work engagement through all four mediators (i.e., unreasonable tasks, job autonomy, the social community at work, and recognition) was calculated with Stata's built-in function for SEM analysis.

Qualitative analysis

Design

Papers II and III used qualitative analysis to examine the implementation process of the ARK Intervention Program at a large university. To investigate the proactive work behaviors of line managers (paper II) and job crafting of safety representatives in organizational interventions (paper III), case study designs were used because it enables methodical and wholesome investigations into activities of complex situations, such as organizational interventions, from the viewpoint of the interviewees (Tellis, 1997). Thus, papers II and III were performed according to four recommended phases for case studies (Tellis, 1997), encompassing design, conduct, analysis, and generation of conclusions. Hence, the investigations were conducted by interviews with line managers accountable for implementing the ARK Intervention Program at their corresponding departments (paper II) and safety representatives who took part in it (paper III).

For paper II, 53 line managers charged with implementing an organizational intervention in their departments were invited to be interviewed, via e-mail and phone. Twenty heads of different departments (i.e., line managers) at a large university in Norway, responsible for implementing the ARK Intervention Program at their respective departments, were interviewed about their perceptions and contributions regarding the organizational intervention. Five of the interviewed line managers were women while 15 were men. The interviews revolved around a second intervention cycle two years after a first cycle of the same organizational intervention had been conducted. The line managers were given pseudonyms to protect their anonymity.

For paper III, 150 safety representatives of different university departments were e-mailed to inform them of the research for paper III. The e-mail stated they might be phoned and invited to partake in research about their thoughts and contributions as safety

representatives in the ARK Intervention Program. 35 safety representatives were phoned, of which 15 agreed to be interviewed. The 15 safety representatives, seven women and eight men, belonged to 15 different departments and were asked about their contributions and experiences with the ARK Intervention Program. Like the line managers, these safety representatives were asked to comment on the intervention cycle closest in time to the interview, as they had conducted two intervention cycles before the interviews. The safety representatives were also given pseudonyms to safeguard their anonymity.

The sample sizes of paper II and III agree with the recommended 15-20 interviews for thematic analysis (Clarke et al., 2015). In addition, it was evaluated that more interviews would not yield significant new insights and that saturation was reached (Charmaz, 2006). The line manager interviews for paper II lasted from 30 to 90 minutes, and on average, each interview was 55 minutes. The safety representative interviews for paper III lasted from 24 to 64 minutes, with an average of 45 minutes. The interviews of the line managers and the safety representatives were based on a process evaluation checklist (Nielsen & Randall, 2013). See appendix II for the interview guide of paper II and appendix III for the interview guide of paper III. Both qualitative papers were greenlit by the Norwegian Centre for Research Data and followed their ethical guidelines.

Analyses

The epistemological and ontological positioning of the qualitative papers II and III is phenomenological. A phenomenological positioning entails emphasizing the experiences of the interviewees and the meaning they construe from their lived experience (Ashworth, 2015). Thus, the interviewees are treated as aware actors with a lifeworld of interwoven meanings. With interviews, researchers can access and research these lifeworlds. A phenomenological method entails an in-depth reading of the transcribed interviews while

attending to assumptions that one must assume to make sense of their accounts, thereby going beyond what is said explicitly (Ashworth, 2015).

For papers II and III, verbatim transcriptions of the semi-structured interviews were analyzed with deductive thematic analysis that engenders themes through theoretical prisms (Clarke et al., 2015). The theoretical prisms conformed with the research questions of the papers. The thematic analysis of paper II used the idea of the middle-levelness of line managers (Gjerde & Alvesson, 2020) and the motivational model of individual-level proactive work behaviors (Parker et al., 2010; Parker & Bindl, 2016), whereas paper III used job crafting theory (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001). The thematic analysis contains six phases (Clarke et al., 2015): 1) data familiarization, 2) code generation, 3) theme searching, 4) theme reviewing, 5) theme naming and defining, and 6) writing the paper.

In papers II and III, the primary author read the interview transcripts twice for familiarization purposes (Clarke et al., 2015). To ensure the analyses were based on the interviews, a co-author also read the transcripts. Then, codes of data extract deemed meaningful concerning the research questions were created, given names, and categorized using NVivo and Microsoft Word. The categorizations were conducted using a preliminary coding structure founded on the research questions and the interview guide. Data citations pertinent for proactive work behaviors (paper II) and job crafting (paper III) were named and assigned to the phase (e.g., the screening phase) in which the proactive work behaviors and the job crafting happened. These codes were then the basis of searches for reasonable and preliminary theme patterns using Microsoft Word and NVivo. The initial themes were the foundation for the generation, reviews, and revisions of themes, considering their pertinence and reliability to the research questions and whether they suited the data and the codes and had essential unifying principles. Finally, themes were given names and demarcated while we

wrote the papers. The terms and definitions of the themes mirrored their fundamental structuring idea, and citations validated them (Clarke et al., 2015).

Summary of papers

Paper I

Title: The Relationship between Empowering Leadership, Work Characteristics, and Work Engagement among Academics: A SEM Mediation Analysis.

Published in *Scandinavian Journal of Work and Organizational Psychology, 2020,* 5 (1), 1-13.

Background: Research is lacking on the relationship of empowering leadership with employee motivation among knowledge workers and would expand our knowledge about the content of the psychosocial work environment of knowledge worker. This paper aimed to investigate whether and how empowering leadership is associated with work engagement due to its effect on the work characteristics of unreasonable tasks, job autonomy, the social community at work, and recognition.

Methods: Structural equation modeling, maximum likelihood latent variable analysis, was used to investigate the mediations of work characteristics between empowering leadership and work engagement. We investigated by using Stata (N = 3759).

Results: The indirect effects demonstrated that empowering leadership is associated with work engagement, mediated by unreasonable tasks, job autonomy, and social community at work. However, we did not find recognition to mediate between empowering leadership and work engagement.

Conclusion: The results suggest that empowering leadership is an integral part of the psychosocial work environment of knowledge workers and, therefore, an avenue for developing their healthy workplaces.

Paper II

Title: Line Managers' Middle-Levelness and Driving Proactive Behaviors in Organizational Interventions

Published in the *International Journal of Workplace Health Management* (ahead-of-print).

Background: Line managers are often drivers of organizational interventions, but there is a lack of research that considers how their middle-levelness between senior management and employees impacts their contributions towards intervention implementation. This paper aimed to investigate the proactive work behaviors of line managers in organizational interventions and how the management of their context of middle-levelness affects their proactive work behaviors.

Methods: Thematic analysis of 20 interviews with department heads in academia (i.e., line managers) responsible for implementing organizational interventions was conducted to investigate the research question.

Results: The thematic analysis showed that line managers tended to engage in proactive work behaviors that drive intervention implementation when aligned with the organizational intervention. When line managers were not convinced of the validity of the intervention, they tended to not engage in driving proactive behaviors.

Conclusion: The findings show that the proactive work behaviors of line managers are crucial for intervention implementation and employee involvement. The results suggest it is vital to consider the middle-levelness and proactive work behaviors of line managers to develop healthy workplaces through the psychosocial work environment among knowledge workers.

Paper III

Title: Safety Representatives' Job Crafting in Organizational Interventions:

Driver, Counselor, Watchdog, or Abstainer

Published in *Scandinavian Journal of Work and Organizational Psychology, 2021*, 6 (1), 1-13

Background: Employee participation is crucial for healthy and constructive intervention processes, but research lacks the role of safety representatives in organizational interventions. Therefore, this paper aimed to explore the job crafting of safety representatives in organizational interventions.

Methods: Thematic analysis of 15 interviews with safety representatives from 15 departments that had participated in an organizational intervention was performed to investigate the research aim.

Results: The thematic analysis displayed how safety representatives made sense of their contributions in organizational interventions as "watchdog of the work environment," "watchdog of the intervention," "counselor," "driver," and "abstainer." Their mental models of context and intervention appeared to influence what roles the safety representatives crafted. These roles seemed to affect the intervention process by ensuring employee involvement and implementation.

Conclusion: Inviting safety representatives to support the line manager in all phases of organizational interventions will likely help develop healthy workplaces among knowledge workers.

General discussion

Psychosocial work environments can be a risk for employee health (Chirico et al., 2019) and promote their health (Proper & van Oostrom, 2019). Moreover, healthy psychosocial work environments provide knowledge workers with the resources to contribute quality knowledge to organizations and society (Mintzberg, 1998). Thus, the development of healthy workplaces through the psychosocial work environment is essential for promoting the health and well-being of knowledge workers and the quality of knowledge they can provide—the WHO suggests focusing on both content and processes to develop healthy workplaces (Burton, 2010). Knowledge workers are uniquely characterized by somewhat autonomous management and the development of explicit knowledge (Ipsen & Jensen, 2012; Welle-Strand, 2000). To learn more about developing healthy workplaces among knowledge workers through the psychosocial work environment, research on the content and processes of the psychosocial work environment of knowledge workers is warranted.

With the HW model of the World Health Organization as a framework (Burton, 2010), this thesis investigates the content of the psychosocial work environments of knowledge workers by studying the relationship between empowering leadership, work characteristics, and work engagement (paper I). It also examines processes that develop healthy workplaces among knowledge workers through researching the role of line managers (paper II) and safety representatives (paper III) in organizational intervention processes. In the included papers, there are detailed discussions of the research questions of each of the three articles. Based on the findings from papers I-III, I will now discuss the overall aim of this thesis: how to develop healthy workplaces among knowledge workers through the psychosocial work environment. The discussion will be divided into three themes to answer this question: the role of the line manager in creating healthy workplaces, the need for all

organizational levels to contribute to developing healthy workplaces, and, finally, the influence of participation and the Nordic model in creating healthy workplaces.

The role of the line manager

All three papers highlight the importance of the line manager in developing healthy workplaces among knowledge workers. Paper I suggests that empowering leadership is part of healthy psychosocial work environments among knowledge workers and essential for developing their well-being. It provides evidence for empowering leadership being positively associated with work engagement through critical work characteristics among knowledge workers (i.e., job autonomy, the social community at work, and unreasonable tasks). Thus, paper I suggests that empowering leadership is vital for generating work engagement. Work engagement, in turn, is found to be predictive of health and well-being-promoting outcomes: organizational commitment (e.g., Hakanen et al., 2006), work performance (Bakker & Bal, 2010), proactive behaviors (Salanova & Schaufeli, 2008), fewer turnover intentions (Halbesleben, 2010), less psychosomatic complaints (Schaufeli & Bakker, 2004), and improved psychological health (Xanthopoulou et al., 2009).

Moreover, paper I suggests that empowering leadership increases knowledge workers' resources of job autonomy, the social community at work, and recognition and reduces their demands regarding unreasonable tasks. The positive relationship of empowering leadership with job autonomy may be crucial for the psychosocial work environments of knowledge workers. Job autonomy is a precondition for generating quality knowledge (Mintzberg, 1998) and might be a counteracting force against a trend of more demands and fewer resources, such as autonomy (e.g., Bakker et al., 2010; Lundström, 2015).

The definition of the psychosocial work environment with which this thesis operates is of the HW model: the everyday occurrences of beliefs, values, habits, and attitudes that are

pathways to affect the mental and physical health and well-being of employees (Burton, 2010). Therefore, the findings of paper I indicate that line managers may create healthy knowledge-intensive workplaces through the psychosocial work environment when line managers facilitate the development of employees' skills and encourage them to participate and express their opinions in decision-making processes (Dallner et al., 2000) frequently, ethically, practically, attitudinally, and belief-wise. According to this definition of the psychosocial work environment, the degree to which line managers must engage in empowering leadership to create healthy knowledge-intensive workplaces may seem overwhelming. To line managers who sometimes need to make snap decisions and employees who might want to focus on their core tasks instead of on, perhaps strained and reluctantly, influencing all possible choices. However, empowering leadership is still worthwhile for line managers, as the benefits regarding well-being and work performance via increased work engagement appear great (e.g., Bakker & Bal, 2010).

With their ever-changing contexts, incentives, culture, norms, hierarchical pressures, personnel composition, strategies, policies, sensemaking, and individual quirks and preferences, organizations and their inner life are complex beyond what can be fully described (Nielsen & Miraglia, 2017). Therefore, it is impossible to create a manual with prescriptions for empowering leadership as a pathway to develop healthy knowledge-intensive workplaces that cover all situations. Empowering leadership is an integral part of healthy workplaces among knowledge workers, but it should be engaged wisely. Line managers should engage in empowering leadership frequently and concretely, but with careful consideration of whether empowering leadership will reap its benefits in whatever concrete situation in which the leader, employees, and organization are. Thus, a general approach may be for line managers to, with situational awareness, consider how to contribute systematically and wisely to developing the skills of their employees and create decision-

making processes in which employees are invited and encouraged to participate and speak up if they have a differing opinion on the best course of action, without sanctioning those with diverging views (Dallner et al., 2000).

Identifying empowering leadership as a pathway for line managers to develop healthy workplaces in their everyday work is not enough to create healthy workplaces; a spotlight on processes that produce healthy workplaces is also warranted (Burton, 2010). In the organizational intervention implementation model, employee involvement is central in all five phases (Nielsen et al., 2010). Papers II and III maintain that line managers who facilitate employee involvement in organizational intervention processes are essential to developing healthy workplaces. Paper II suggests that line managers who engage in proactive work behaviors enhance direct employee involvement (Abildgaard et al., 2018) and seem more likely to implement fruitful organizational intervention processes. Moreover, it appears that the proactive work behaviors of line managers may constructively enhance the designed employee involvement of organizational interventions. For example, they may arrange meetings with employees to explain the intervention's screening survey, methods, and goals or negotiate constructively with employees about implementing action plans. Line managers can probably engage in other proactive work behaviors besides those identified in paper II, tailored for their unique contexts and intervention designs.

Paper II also showed that line managers who managed their context of middle-levelness (Gjerde & Alvesson, 2020) by aligning with the methods and goals of the intervention tended to engage in proactive work behaviors, whereas those who did not align tended not to engage in proactive work behaviors. Therefore, paper II suggests it is essential for line managers to align with the design of the intervention to engage in proactive work behaviors that involve employees and successfully implement organizational interventions. Nevertheless, paper II also shows that line managers who do not align with the intervention

design have unresolved criticisms. It seems crucial these criticisms of the intervention are addressed early in the preparation phase before the employees get involved. Either by rationalizing the intervention design to answer the concrete criticism directly or by integrating the complaint into the design to satisfy the line manager. If this is not done, there is a heightened risk of an unsuccessful organizational intervention, less employee involvement, and line managers who do just enough to show senior management, on paper, that the intervention has been implemented.

Paper III indicated that the mental model (Nielsen & Randall, 2013) of safety representatives regarding their line manager is decisive for the roles they craft (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001) for themselves and, in turn, employee involvement and intervention implementation. Safety representatives who crafted roles as counselors to the leader or watchdogs of the intervention reported having line managers who invited their contributions. Safety representatives who did not craft such roles reported having line managers who did not ask them to contribute or even abdicated their responsibility to drive the intervention. The safety representatives whose line managers invited them to contribute appeared to ensure indirect employee involvement (Abildgaard et al., 2018) through the safety representative and successful intervention implementation. Thus, paper III suggests that for developing healthy workplaces among knowledge workers, line managers must act in a way that makes safety representatives perceive them as inviting and welcoming of their contributions throughout the organizational intervention process.

In sum, the findings of this thesis support the decisive role of line managers in developing healthy workplaces through the psychosocial work environment (Burton, 2010) among knowledge workers. First, empowering leadership is a promising pathway for developing healthy workplaces (paper I). Second, line managers' proactive work behaviors and management of their middle-levelness are pivotal for implementing constructive

organizational intervention processes with direct employee involvement (paper II). Third, the perceptions of safety representatives of their line manager as welcoming of their contributions generate indirect employee involvement and ensure intervention implementation (paper III). However, the line manager constitutes only one level of the organizational hierarchy.

The need for all organizational levels to contribute

The papers of this thesis also underline the importance of considering the context of organizations when developing healthy workplaces among knowledge workers through the psychosocial work environment. All levels of an organization should be targeted and contribute, as all levels interact in deciding the health and well-being of employees (Christensen et al., 2019; Nielsen & Christensen, 2021). In the IGLO model, organizational levels are discerned into the individual level (i.e., individual knowledge workers), the group level (i.e., units and groups of knowledge workers), the leader level (i.e., line managers and senior management), and the organizational level (i.e., HR, support functions, programs such as the ARK Intervention Program, policies, and practices; Christensen et al., 2019; Day & Nielsen, 2017). The papers of this thesis shed light on how all these four levels must be targeted and contribute to developing healthy workplaces among knowledge workers. I discussed the leader level in terms of the line manager extensively in the previous section.

Regarding the individual and group levels, paper I suggests that individual knowledge workers and groups of knowledge workers are justified in clearly communicating a need for empowering leadership in their daily work. Knowledge workers should embrace empowering leadership when it is offered by developing their skills and constructively partaking in decision-making processes. They should wisely voice their opinions on the best way forward and accept that other knowledge workers and organizational actors may have diverging views (Dallner et al., 2000). Paper II indicates that individuals and groups of knowledge workers

may consider how their protests and criticisms of the goals and methods of an organizational intervention may amplify the cross-pressure that line managers experience from below and above. A pressure from above to implement the organizational intervention and a potential pressure from below to not bother employees with yet another senior management initiative (Gjerde & Alvesson, 2020). That is not to say that criticisms of organizational interventions are not advisable. However, they may risk causing line managers to refrain from engaging in proactive work behaviors that bring employee involvement and fruitful intervention processes, thereby potentially hampering the development of a healthy workplace.

Paper III suggests that the safety representative, a representative of the group level, is crucial for developing healthy workplaces. Paper III showed that safety representatives crafting roles as "watchdogs of the intervention" and "counselors" appeared particularly conducive to ensuring constructive organizational intervention processes. "Watchdogs of the intervention" seemed to provide follow-up on the line manager's intervention implementation, whereas the "counselors" appeared to ensure line manager support and cooperation, and an intervention implementation molded by the safety representative and therefore employee involvement through indirect participation (Abildgaard et al., 2018). Moreover, safety representatives' mental models of the support of colleagues seemed to enable them to craft roles wherein they counsel the line manager and ensure the line manager implements the intervention. This suggests that individual knowledge workers and groups of knowledge workers might consider how their support of the safety representative, or lack thereof, can affect the intervention process and the development of a healthy workplace.

Regarding the leader level, in terms of senior management, and the organizational level, paper I suggests that senior management, HR, support functions, programs, policies, and practices should consider how processes for decisions impact the opportunity for empowering leadership. The number of initiatives line managers are asked to follow up on

should not be so excessive that line managers do not have time to implement initiatives with empowering leadership. Moreover, deadlines should not be so short that it precludes empowering leadership from being an option. Empowering leadership requires having the time to ask for and process feedback from their knowledge workers and ultimately deciding the best course of action based on that feedback.

Paper II indicates that senior management, on the leader level and organizational-level components (e.g., HR and programs) should be aware that line managers' assessment of the validity of intervention impacts whether they align with the intervention and subsequently engage in proactive work behaviors that drive intervention implementation and create employee involvement. Relatedly, paper III showed that safety representatives' mental model of the intervention appeared crucial for the roles they crafted. Safety representatives cited a lack of training as a reason they crafted roles in which they abstained from cooperating with the line manager and contributed to the intervention process. Thus, papers II and III suggest that senior management, HR, and programs may profitably invest both time and quality in training and generating a shared understanding (Nielsen 2017; von Thiele Schwarz et al., 2021) with line managers and safety representatives at the outset of processes that aim to develop healthy workplaces among knowledge workers. This training and generation of a shared understanding may fruitfully revolve around the validity of the intervention and what roles the line managers and safety representatives should have. Senior management, HR, and programs should be open to adjusting the intervention design based on the line managers' criticisms of the intervention or explain why they cannot accommodate the objection, and be clear about the mandates and expected roles of the line managers and safety representatives.

In Norway, line managers have the managerial prerogative (Norwegian Bar Association, 2000) that gives them the right to decide how to implement processes aiming to develop healthy workplaces. Still, they must consult safety representatives when planning

and implementing them (Working Environment Act, 2005). On the other hand, safety representatives have the mandate to represent the work environment interests of employees and counsel line managers whenever processes for developing healthy workplaces are implemented (Working Environment Act, 2005). Such training may also consist of examples from paper II and III about of how line managers and safety representatives can cooperate constructively during health initiatives.

Put together, the results of this thesis support the need for the contribution and targeting of all levels of an organization to develop healthy workplaces among knowledge workers through the psychosocial work environment. That is, empowering leadership in the psychosocial work environment can be facilitated by individual knowledge workers on the individual level, groups of knowledge workers on the group level, line managers and senior management on the leader level, and HR, support functions, programs, policies, and practices on the organizational level (paper I). In addition, the individual level (i.e., individual knowledge workers), group level (i.e., safety representatives and groups of knowledge workers), leader level (i.e., line managers and senior management), and organizational level (e.g., HR and programs) are all crucial for creating organizational intervention processes that successfully implement employee-participatory interventions (papers II and III).

Employee involvement and the Nordic model for working life

The Nordic model for working life emphasizes employee involvement in developing healthy workplaces (e.g., Working Environment Act, 2005). Although the papers of this thesis are conducted in a Nordic setting, they are arguably relevant for developing healthy workplaces among knowledge workers in other countries. The experiences and knowledge from Nordic countries show positive results regarding the effect of participation on intervention processes (e.g., von Thiele Schwarz et al., 2020) and resistance towards change (e.g., Nielsen & Randall, 2013). The findings of this thesis reinforce this knowledge. Papers

II and III support that employee involvement determines whether organizational interventions are successfully implemented. As discussed above, paper II displays how line managers' proactive work behaviors that engender employee involvement influence the degree to which organizational interventions are implemented. Paper III indicates that the contributions of safety representatives towards the organizational intervention process ensure intervention implementation.

Some might argue that the findings of this thesis is not applicable to other types of knowledge workers besides academics working at universities in Nordic countries, as the studied university sector is unique with its heads of departments who, compared to other organizational types, rarely take the position to get promoted in the managerial hierarchy (Sims, 2003). Moreover, academics are a special kind of knowledge workers, as they have tenure and academic freedom to investigate self-chosen subjects. In contrast, employees of other knowledge-intensive organizations do not have tenure and more often study and apply the knowledge that others have prioritized or that their positions define. Finally, the Nordic countries are unique in that they have a culture (von Thiele Schwarz et al., 2020) and legislation (e.g., Working Environment Act, 2005) that greatly emphasize the importance of employee involvement.

However, the dynamics of the topics and subject matter studied in this thesis are arguably the same for other types of organizations with knowledge workers in other countries. First, the WHO proclaims the HW model has global applicability (Burton, 2010), and the HW model, which this thesis builds upon, states that employee involvement is a core principle for developing healthy workplaces in general, which suggests that the findings of this thesis are relevant for countries other than Nordic ones. Second, participatory organizational interventions have been demonstrated to be vital in types of work other than academia, for example, among blue-collar professions (Nielsen et al., 2014). Third, the

context of middle-levelness for line managers is not an academic phenomenon; it is a defining characteristic of what it means to be a line manager (Gjerde & Alvesson, 2020). Fourth, safety representatives are not mandated in every country. However, paper III nonetheless suggests that legislating a safety representative, or including one regardless, in the manner of the Nordic model, is beneficial for countries that wish to develop healthy workplaces.

The findings of papers II and III also suggest that although organizations in Nordic countries are mandated to ensure employee involvement in matters relevant to the work environment (e.g., Working Environment Act, 2005), the degree to which employee involvement is practiced in organizational interventions varies greatly from workplace to workplace. Paper II shows how different line managers engage in proactive work behaviors that promote employee involvement to varying degrees. Paper III found that some safety representatives crafted roles for themselves that ensured employee involvement, whereas others did not. This demonstrates that mere legislation is not enough to ensure employee involvement and suggests that employee involvement must be prioritized concretely and in practice to develop healthy workplaces.

The papers indicated that the most significant obstacles to employee involvement in practice were whether the intervention design was perceived as valid by the line manager (paper II) and whether the safety representatives were clear about their mandate in relation to the line manager (paper III). Thus, organizations and countries that wish to develop healthy workplaces should know that legislating employee involvement is only a first step towards ensuring it. One must follow it up in practice with routines and training that bring HR, senior management, line managers, safety representatives, and employees to the same page (Nielsen, 2017) about the validity of the intervention. Moreover, the hierarchical relations and duties must be made clear to everybody involved. Management has the managerial

prerogative to drive and decide how to implement organizational interventions (e.g., Norwegian Bar Association, 2000) and a duty to consult the safety representative on the best course of action (e.g., Working Environment Act, 2005). Safety representatives have a responsibility to consult management but also to ensure that management implements organizational interventions.

In total, this thesis supports that the Nordic model's emphasis on employee involvement contributes to creating healthy workplaces among knowledge workers through the psychosocial work environment. It suggests that countries besides the Nordic ones may benefit from focusing on and legislating employee involvement and safety representatives to develop healthy workplaces. In addition, employee involvement must be followed in practice with routines and training to help build healthy workplaces.

Theoretical and practical implications

The theoretical and practical implications of this thesis are an elaboration of the WHO's HW model, which states that researchers and practitioners should address both the content (i.e., avenues of influence) and processes of psychosocial work environments for developing healthy workplaces (Burton, 2010). This thesis adds to the HW model that, among knowledge workers, empowering leadership can be a potent avenue for creating healthy workplaces (paper I). It also adds a more detailed understanding of processes for developing healthy workplaces by studying triggering mechanisms and the roles organizational actors occupy, and how they may affect the outcome. This is accomplished by garnering knowledge about the roles of line managers (paper II) and safety representatives (paper III) in conducting processes that develop healthy workplaces.

To summarize, this thesis proposes three critical factors for creating healthy workplaces through the psychosocial work environment: the role of the line manager, all

levels of an organization should contribute, and employee involvement, as envisioned in the Nordic model for working life. It is essential to consider how these implications pertain to aspects of the complexity of psychosocial work environments. Further, they do not speak to how the physical work environment, enterprise community involvement, and personal health resources may create healthy workplaces (Burton, 2010). For a visualization of the theoretical and practical implications of this thesis, see figure 3.

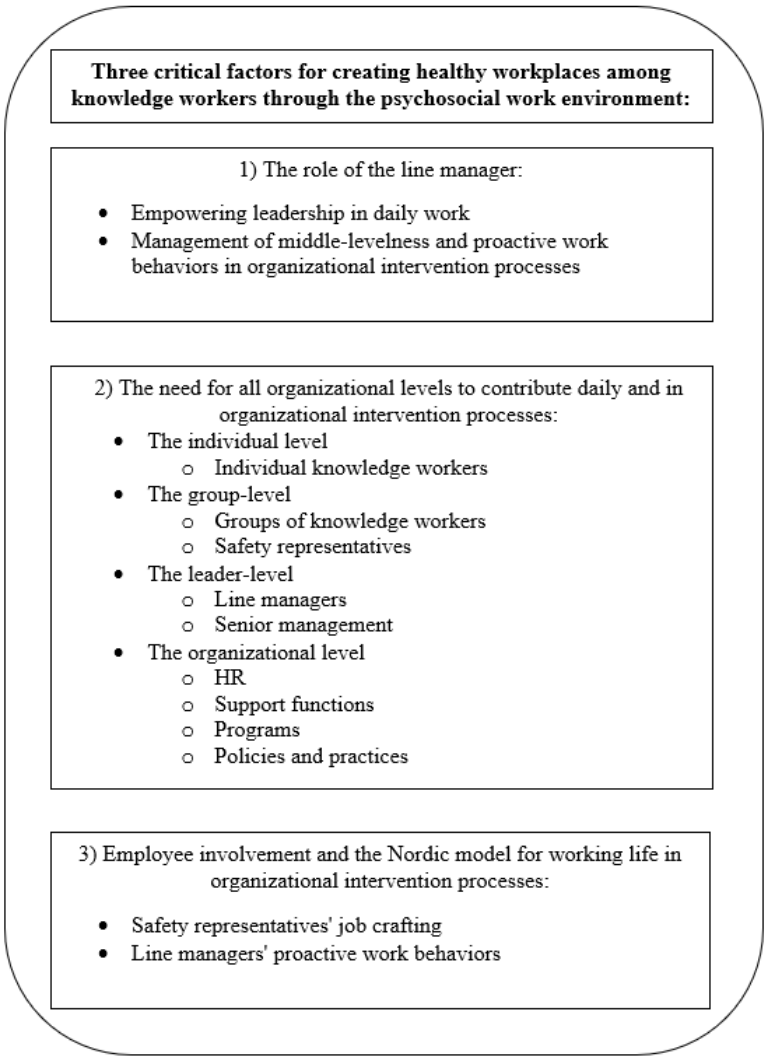

Figure 3. Theoretical and practical implications of this thesis.

Limitations and future research

The strengths of this thesis are that the development of healthy workplaces among knowledge workers was studied both quantitatively (paper I) and qualitatively (papers II and III) and that it investigated both content and process. Investigations conducted in an extensive program, the ARK Intervention Program, gave access to data with significant sample sizes and the study of organizational intervention processes of many and diverse departments. Although the use of both quantitative and qualitative designs is a strength of this thesis, the methods of the individual papers have limitations. The quantitative and statistical design of paper I is cross-sectional, which is problematic for inferring causality. The causality may be opposite of what the model purports; work engagement may cause empowering leadership through altering work characteristics. The results of paper I should be regarded as supporting the interpretations of this thesis instead of definite.

Moreover, paper I controlled for gender and age; there may be alternate explanations (Becker, 2005) for the link between empowering leadership, work characteristics, and work engagement. For instance, a review found that work engagement is predicted by personality constructs such as extraversion, conscientiousness, and neuroticism (Mäkikangas et al., 2013), and personality might arguably affect the favorability with which individuals perceive their work environment (Brunborg, 2008). Furthermore, paper I was not a multi-level analysis, as the data did not permit it. Paper I could therefore not control for shared environments (Mehmetoglu & Jakobsen, 2016). The strengths of paper I were nonetheless that the sample size was large, it used an advanced and powerful analysis tool (SEM), it had a valid and reliable measurement model, a high response rate, and the models had an acceptable approximate fit.

The qualitative design of papers II and III is limited because it cannot provide statistical generalizability; some researchers have argued that qualitative research is impossible to

generalize (Guba & Lincoln, 1989). However, statistical generalizability is not the aim of qualitative research; instead, it offers insights into other contexts that share similarities (Yardley, 2015). Moreover, the qualitative papers may have been biased because not all who was asked to participate agreed to be interviewed, which may cause a lack of perspectives and therefore contest rigor and commitment (Yardley, 2015). Also, the research process had authors who were active in generating the axioms and the themes of the papers, which could be a limitation for intersubjective reliability (Clarke et al., 2015).

The strengths of papers II and III were that the interviewees, both safety representatives, and line managers, hailed from a variety of departments: the humanities, the natural sciences, the social sciences, and administration, which ensures a variety of perspectives and buttress commitment and rigor (Yardley, 2015). Additionally, the sample sizes were large enough for thematic analysis, 15 safety representatives and 20 line managers, reaching the threshold of 15 interviewees (Clarke et al., 2015). Moreover, the research arguably achieved saturation, as emerging themes were alike across distinct interviews (Charmaz, 2006). Papers II and III also showed sensitivity to context by addressing new research questions that were based on existing theory and research (Yardley, 2015). The qualitative papers likewise achieved coherence by matching the methods used, the theoretical procedure, the interpretations of the data, and the research questions. We attained transparency by detailing how, based on the data, the codes and themes were created (Yardley, 2015). We approached intersubjective reliability by developing an interview guide founded on prior research on interventions (Nielsen & Randall, 2013), by having individuals other than the authors performing some of the interviews, and by having the research questions organize analysis.

Another limitation of this thesis is what it did not investigate. It did not examine the content of psychosocial work environments besides empowering leadership, work characteristics and work engagement. It did not specifically study the roles of regular

employees, HR, and senior management in organizational intervention processes. Only the perspectives of either the line managers or safety representatives were analyzed regarding the intervention process of different departments. It did not investigate the intervention process as it unfolded; the investigations were retrospective, as line managers and safety representatives were asked about the intervention process after it occurred. Finally, it did not study other types of knowledge workers besides those at universities. However, this thesis represents the start of a critical broader focus on how to develop healthy workplaces. A focus that aims to understand "what works for whom in which circumstances" (Nielsen & Miraglia, 2017, p. 41), wherein the roles of the different organizational actors are studied further in terms of how roles are affected by context and, based on the different roles and how they interact, what mechanisms influence the outcomes of processes that develop healthy workplaces.

Thus, based on the results, implications, and limitations of this thesis, future researchers may confirm, nuance, or disconfirm the results and analyses of this thesis by employing research designs in which:

- The association between empowering leadership, work characteristics, and work engagement is studied longitudinally, experimentally, or qualitatively
- Third variables such as personal resources are included, and multi-level statistical methods are applied.
- Empowering leadership is studied concerning other potential avenues of influence in the psychosocial work environment (e.g., job strain and effort/reward).
- Other countries and other types of organizations are researched with similar research questions as those in this thesis.

- Regular employees, HR, and senior management are also asked about their perceptions and roles in organizational intervention processes, preferably in a way that allows for all perspectives of the same workplaces to be analyzed.
- An action research perspective is central, wherein the intervention process is studied to understand its mechanisms more precisely.
- The question of how to attain learning organizations is asked.
- The psychosocial work environment is investigated in relation to the physical work environment, enterprise community involvement, and personal health resources.
- More is found out about the roles of line managers in organizational intervention processes, for instance, by examining how to identify and establish support systems that enable line managers to manage their roles successfully.

Conclusions

This thesis studies the development of healthy workplaces among knowledge workers through the psychosocial work environment, both in terms of content and process. Based on the results of three papers, this thesis proposes and discusses three critical factors for creating healthy workplaces among knowledge workers. The first is the role of the line manager, as the results suggest that empowering leadership in the psychosocial work environment is an avenue of influence for a healthy workplace and that line managers' management of their middle-levelness and proactive work behaviors ensure constructive organizational intervention processes. The second is the need for all levels of an organization to contribute towards creating a healthy workplace, both in the day-to-day work through facilitating empowering leadership and throughout organizational intervention processes. The third is how employee involvement, as envisioned in the Nordic model for working life, and how the job crafting of safety representatives ensures employee involvement is pivotal for

intervention implementation. Giving proper attention to these three factors may ameliorate risks workplaces pose to health, promote well-being and health, counteract a trend of decreased resources and increased demands, and thus create healthy workplaces among knowledge workers.

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Paper I

SCANDINAVIAN JOURNAL OF WORK AND ORGANIZATIONAL PSYCHOLOGY

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ORIGINAL ARTICLE

The Relationship between Empowering Leadership, Work Characteristics, and Work Engagement among Academics: A SEM Mediation Analysis

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Using theories of empowering leadership, empowerment and social exchange, this paper aims to add to the literature on leadership in higher education by exploring how and why empowering leadership is linked to academics' work engagement through mediation of work characteristics that are crucial to academics: job autonomy, social community at work, recognition, and unreasonable tasks. To investigate this, data from a cross-sectional survey of $N = 3759$ ($n = 3059$) academics and doctoral research fellows from three major Norwegian universities were analyzed using structural equation modeling. The results show that empowering leadership is related to academics' work engagement through the following work characteristics: job autonomy, social community at work, and unreasonable tasks. Empowering leadership was also related to academics' recognition, but recognition was not, in turn, associated with work engagement. Future researchers may consider prospective, experimental, and qualitative designs to extend the results of this study.

Keywords: Academia; higher education; empowering leadership; autonomy; motivation; work engagement

Introduction

Leaders in academia must navigate a situation in which academic autonomy is a fundamental value and therefore, has been argued, should be protected and encouraged by university management (Boyd et al., 2011), while academic activities are becoming increasingly diverse (Musselin, 2007). In the past, the core activities of research and teaching were emphasized more strongly, while academics nowadays engage more in diverse activities, such as proposal writing, maneuvering e-learning programs, and various bureaucratic obligations. Due to this diversification, academics may increasingly perceive many of their work tasks as unreasonable, which risks lowering both their job autonomy (Apostel et al., 2018) and motivation (Schmitt et al., 2015). Lower motivation among academics is, in turn, associated with lower academic productivity (Christensen et al., 2018). A potential remedy for alleviating these risks is effective academic leadership, characterized by the facilitation of participation in vital decisions, the encouragement of open dialogue, the generation of a collegial sense of community, and the provision of recognition (Bryman, 2007). Moreover, academics are professionals, which means they are likely to thrive better under subtler types of leadership behavior, comprised of protection and support, rather than direction and control (Mintzberg, 1998).

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In these regards, empowering leadership, defined as leader behaviors that share power with employees and encourage their use of power (Amundsen & Martinsen, 2014; Conger & Kanungo, 1988; Vecchio et al., 2010) shows promise. Empirical research has shown that empowering leadership is positively associated with valued outcomes, such as job satisfaction (Dallner et al., 2000), affective commitment (Albrecht & Andreetta, 2011), psychological empowerment (Amundsen & Martinsen, 2014), creativity (Zhang & Bartol, 2010), knowledge sharing, team efficacy, and performance (Srivastava et al., 2006). Empowering leadership has also been found to be positively related to motivation in the form of work engagement (Tuckey et al., 2012).

Relatively little empirical attention has been paid to how and why empowering leadership is associated with motivation (Gilbert & Kelloway, 2014), but researchers have suggested that empowering leadership is related to work engagement because it shapes work characteristics (Tuckey et al., 2012). Based on empowerment and empowering leadership theories (Amundsen & Martinsen, 2014; Bass & Riggio, 2006; Conger & Kanungo, 1988; Dallner et al., 2000; Srivastava et al., 2006; Thomas & Velthouse, 1990; Vecchio et al., 2010), we propose that empowering leadership modifies the perception of work characteristics that are important to academics (i.e., unreasonable tasks, job autonomy, social community at work, and recognition). We further propose that in response to empowering leadership creating favorable working conditions, academics reciprocate with motivation, as outlined by social exchange theory (Settoon et al., 1996;

Cropanzano & Mitchell, 2005). Thus, the aim of this paper is to empirically investigate how and why empowering leadership is associated with work engagement by changing work characteristics that are salient for academics.

Theoretical framework

This study suggests that social exchange theory (Blau, 1964; Settoon et al., 1996; Cropanzano & Mitchell, 2005) can explain how and why empowering leadership associates with academics' work engagement. At its core, social exchange theory proposes that benevolence is reciprocated (Blau, 1964). According to this theory, benevolence and reciprocation should be understood in social terms, above and beyond economic incentives and responses: Employees that are treated well by their leaders, for instance by facilitating important working conditions, are likely to feel obligated to reciprocate with commitment and motivation for their work (Settoon et al., 1996; Cropanzano & Mitchell, 2005). The logic of social exchange theory therefore predicts that facilitating academics' important work characteristics, by means of empowering leadership, will be reciprocated with work engagement.

Empowering leadership is a more participative than a directive form of leadership (Somech, 2005), and it is the constructive transfer from and encouragement of use of power by leaders to employees that separates empowering leadership from other forms of leadership (Amundsen & Martinsen, 2014; Conger & Kanungo, 1988; Vecchio et al., 2010). Transformational and charismatic leadership emphasize leading and inspiring employees (Bass & Riggio, 2006), whereas laissez-faire leadership is a destructive abandonment of obligations and responsibilities (Skogstad et al., 2007). Empowerment and empowering leadership theories propose that sharing and transferring power from leaders to employees lessens bureaucratic hindrances (Bass & Riggio, 2006) and feelings of powerlessness (Conger & Kanungo, 1988), delegates authority and responsibility (Amundsen & Martinsen, 2014), recognizes contributions (Srivastava et al., 2006), and creates motivation (Conger & Kanungo, 1988; Thomas & Velthouse, 1990). In this paper, motivation is conceptualized as work engagement.

Work engagement is defined as a positive and satisfying state of mind, characterized by absorption, dedication, and vigor at work (Schaufeli et al., 2002). It denotes a lasting, pervasive cognitive-affective work-related state that is not subject to any specific conduct, person, occurrence, or entity. Absorption is to be completely focused and immersed in the work, wherein time flies by and it is hard to disengage from the work tasks (Bakker et al., 2008). Dedication is about experiencing importance, challenge, pride, inspiration, and an intense involvement in one's work. Vigor is characterized by a will to devote effort to the work, by being energetic and mentally resilient while working, and by persevering in the face of problems (Bakker et al., 2008). Researchers have found that work engagement is linked to positive outcomes for both employees and employers. Reported benefits include fewer psychosomatic complaints (Schaufeli & Bakker, 2004), better psychological health (Xanthopoulou et al., 2009), improved work performance (Bakker & Bal, 2010; Halbesleben, 2010), proactive behavior (Salanova & Schaufeli, 2008), increased organizational commitment (Hakanen et al., 2006; Halbesleben, 2010), lower turnover intention (Halbesleben, 2010), and increased academic productivity (Christensen et al., 2018). Thus, enhancing work engagement by way of empowering leadership may provide a range of positive outcomes for both academics and academia, not least in terms of work characteristics important to academics (i.e., job autonomy, social community at work, recognition, and unreasonable tasks).

Job autonomy

Job autonomy can be considered an essential work characteristic for academics and is defined as the perceived degree to which employees can organize and manage when and how they do their specific tasks (Hackman & Oldham, 1975). Autonomy is a core principle for most academics (Boyd et al., 2011; Fredman & Doughney, 2012) and is found to be positively related to academics' well-being, organizational commitment (Boyd et al., 2011), and research performance (Edgar & Geare, 2013). It is also central for reducing the strain attributed to conflicts between teaching and research goals (Esdar et al., 2016). Empowering leadership overlaps with job autonomy in that a crucial characteristic of empowering leadership is its socio-structural aspect, referring to a delegation of formal authority and responsibility from leaders to employees (Amundsen & Martinsen, 2014). Empowering leadership is therefore likely to increase job autonomy. Following social exchange theory, (Settoon et al., 1996; Cropanzano & Mitchell, 2005), facilitating job autonomy is, in turn, likely to be reciprocated with work engagement. Having job autonomy, a fundamental value for most academics, protected and enhanced by empowering leaders who constructively share with academics the power to exert influence over the parameters of their work tasks is probably appreciated and therefore reciprocated with commitment and motivation. This supposition is supported by researchers that have found a positive relationship between job autonomy and work engagement (Halbesleben, 2010). Thus, empowering leadership is likely to be associated with work engagement because it increases academics' job autonomy.

Social community at work

A good social community at work is arguably an important work characteristic for academics and is defined as the degree to which academics experience themselves as part of a work community, with cooperation between colleagues, and a good atmosphere (Francioli et al., 2018). One review of the literature writes that it is 'striking' how important a positive social community appears to be for academics (Bryman, 2007: 701). This review also found that effective academic management helps generate a collegial and positive sense of community among academics. Moreover, researchers have shown that social community is positively associated with academics' satisfaction and intention to remain (Ambrose et al., 2005). Scholars have found that positive leadership behaviors—such as empowering leadership—enable prosocial reciprocation

among employees and therefore generates a better social community at work (Francioli et al., 2018). It is furthermore consistent with social exchange theory (Settoon et al., 1996; Cropanzano & Mitchell, 2005) that facilitating a social community at work will, in turn, be reciprocated with work engagement. Empowering leaders, that by their positive example help create a social community at work through positive leadership behaviors, is likely to be reciprocated with motivation and commitment among academics. This argument finds support in empirical research showing that a concept similar to social community at work, social support, predicts work engagement (Halbesleben, 2010). Thus, we hypothesize that empowering leadership is associated with work engagement because it relates positively to academics' sense of social community at work.

Recognition

Recognition appears to be an essential work characteristic for academics and is in the present study defined as being recognized, respected, and treated fairly by management (Pejtersen et al., 2010). Academics who perceive themselves as being considered and recognized are more committed to their organization (Winter & Sarros, 2002; Winter et al., 2000) and are more satisfied with their jobs (Fernandez & Vecchio, 1997). One review of the literature shows that recognition is considered part of effective academic management (Bryman, 2007). Recognizing employees'—in this case, academics'—contributions is an important aspect of empowering leadership (Srivastava et al., 2006). Empowering leadership is therefore likely to impact academics' sense of recognition. In line with social exchange theory (Settoon et al., 1996; Cropanzano & Mitchell, 2005), it is likely that academics in turn will reciprocate the increase of recognition with work engagement. The respect, recognition, and fair treatment, of which empowering leaders create a sense of through their constructive transfer and sharing power, is probably acknowledged and reciprocated by academics with commitment and motivation. The related concept of appreciation has been found to predict work engagement (Bakker et al., 2007), while the absence of rewards predicts demotivation (Bakker et al., 2003). We hypothesize that empowering leadership is associated with work engagement because it increases academics' sense of recognition.

Unreasonable tasks

Unreasonable tasks, a facet of illegitimate tasks, are a consequential work characteristic for academics. Unreasonable tasks are defined as those tasks inappropriate to ask of someone considering his or her occupational range, status, or both (Semmer et al., 2010). The activities of academics are increasingly diverse (Musselin, 2007), which may run the risk that academics perceive their work tasks as unreasonable. Researchers have found that the perceived degree of unreasonable tasks are associated with exhaustion (Aronsson et al., 2012), poorer mental health (Madsen et al., 2014), and lesser work engagement (Schmitt et al., 2015). Empowering leadership has been argued to lessen both bureaucratic hindrances (Bass & Riggio, 2006) and feelings of powerlessness among employees (Conger & Kanungo, 1988). It is therefore likely that employees with empowering leaders may feel safer and more inclined to voice their concerns over unreasonable tasks, and therefore the empowering leader is less likely to distribute unreasonable tasks to the employees, thus decreasing the employees' perception of having unreasonable tasks.

Arguably, decreasing academics' sense of unreasonable tasks by way of empowering leadership is, in turn, likely to enhance their sense of job autonomy, social community at work, and recognition. It is likely to enhance academics' job autonomy because feeling safe to voice concerns over unreasonable working conditions may enhance their sense that they can impact their situation, and they will therefore experience increased job autonomy. This proposition is supported by research showing a negative association between unreasonable tasks and job autonomy (Apostel et al., 2018). Decreasing unreasonable tasks due to empowering leadership is likely to increase academics' sense of social community at work because the unburdening of unreasonable tasks sends a social signal that they are cared for (Semmer et al., 2015), which can enable prosocial reciprocations among employees that help create a social community at work (Francioli et al., 2018). Decreasing unreasonable tasks due to empowering leadership is likely to increase academics' recognition because the removal of unreasonable tasks may be perceived as a sign that the employees' contributions are appreciated and recognized (Semmer et al., 2015). In sum, we argue that empowering leadership, in addition to associating with job autonomy, social community at work, and recognition directly, also relates to these work characteristics indirectly via a reduction in the perception of having unreasonable tasks.

Contributions

The overarching contribution of the present paper is to empirically investigate how and why empowering leadership associates with work engagement for academics. Based on empowerment and empowering leadership theories (Amundsen & Martinsen, 2014; Bass & Riggio, 2006; Conger & Kanungo, 1988; Dallner et al., 2000; Srivastava et al., 2006; Thomas & Velthouse, 1990; Vecchio et al., 2010), we propose that empowering leadership relates to work engagement because it impacts critically important work characteristics for academics (i.e., job autonomy, social community at work, recognition, and unreasonable tasks), which, following social exchange theory (Settoon et al., 1996; Cropanzano & Mitchell, 2005), is reciprocated with work engagement. For a visual representation, see **Figure 1**. The following seven hypotheses can be formalized:

> Hypothesis 1: Empowering leadership and work engagement is positively mediated by job autonomy.
> Hypothesis 2: Empowering leadership and work engagement is positively and serially mediated by, first, unreasonable tasks and, then, job autonomy.
> Hypothesis 3: Empowering leadership and work engagement is positively mediated by social community at work.

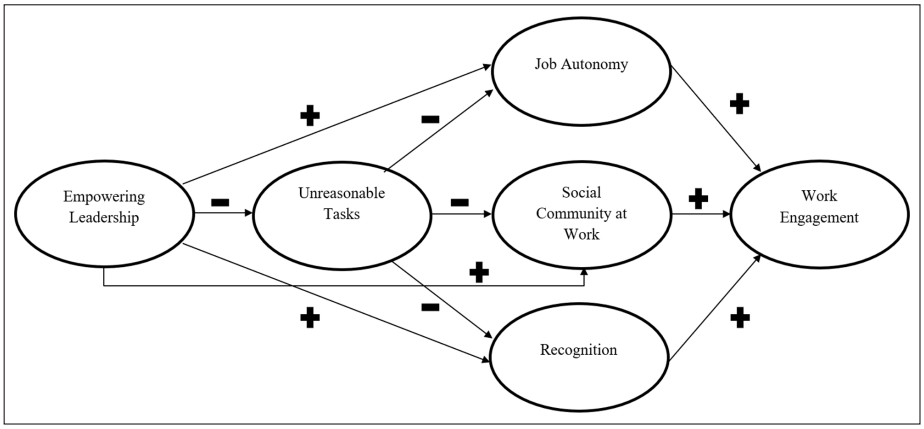

Figure 1: Visual representation of the model.

Hypothesis 4: Empowering leadership and work engagement is positively and serially mediated by, first, unreasonable tasks and, then, social community at work.

Hypothesis 5: Empowering leadership and work engagement is positively mediated by recognition.

Hypothesis 6: Empowering leadership and work engagement is positively and serially mediated by, first, unreasonable tasks and, then, recognition.

Hypothesis 7: As a whole, empowering leadership and work engagement is positively and serially mediated by, first, unreasonable tasks and, then, job autonomy, social community at work, and recognition.

Methods

Participants

The survey data set was comprised of $N = 3759$ academics employed at three major Norwegian universities. Of the sample size of 3759 respondents, 700 were excluded from all analysis, making $n = 3059$. These 700 respondents were excluded because 336 respondents had missing values and were deleted listwise, while 364 respondents were excluded because they reported that one or more of the empowering leadership items were not applicable to their situation. From autumn 2013 to spring 2015, during teaching time, academics from all faculties and departments (e.g., natural sciences, humanities, and social sciences) were invited to answer the survey. Due to concerns for anonymity, the universities did not provide data that identified to which faculties and departments the individual respondents belonged. Approximately 69% of the sample were tenured professors and associate professors, whereas about 31% were 'doctoral research fellows.' Examining official statistics from the Norwegian Centre for Research Data, we found that in the target population (counted in the same year and in full-time equivalents), 63% were professors and associate professors and 37% were doctoral research fellows. Approximately 43% of the sample were women and 57% were men; in the population, 38% full-time equivalents were women. Roughly 17% of the sample were under 30 years, 28% were 30–39 years, 24% were 40–49 years, 17% were 50–59 years, and 14% were 60 years or more.

Procedure

The data were collected using e-mail and the survey data collection software SelectSurvey. The survey data were collected using the mapping tool Knowledge Intensive Working Environment Survey Target ('KIWEST'), which is part of the ARK (Norwegian acronym for 'Working environment and working climate surveys') Intervention Program (Innstrand et al., 2015).

The ARK Intervention Program sent e-mails to 5696 academics containing a link to the KIWEST survey and 3759 completed it. Thus, the response rate was 66%. The e-mail informed participants that their participation was voluntary and would be kept confidential. Participants were also informed that the project was reported to the Data Protection Official for Research, Norwegian Social Science Data Services A/S; that anonymized data could be used for research purposes; and that approval for this use of the data had been obtained from the Norwegian Data Protection Authority. On the first page of the survey, the participants were informed on how to give and withhold consent. Thus, ethical standards were satisfactorily met. Common method bias was partly counteracted by randomizing the order of some of the items (Meade et al., 2007).

Measures

Work engagement

Work engagement was measured using the validated Norwegian short version of the Utrecht Work Engagement Scale-9 (UWES-9; Nerstad et al., 2010; Schaufeli et al, 2006). The short version contains nine items, prefaced with 'how often do you have the following experiences?', that participants rate on a seven-point Likert scale, from *'never'* (one) to *'every day'* (seven). UWES-9 measures three sub-dimensions of work engagement—vigor, dedication, and absorption—with three items pertaining to each. An example item for vigor is 'at my work, I feel bursting

with energy'; for dedication, 'I am enthusiastic about my job'; and for absorption, 'I feel happy when I am working intensely.'

Empowering leadership

Empowering leadership was assessed with three items that were validated in the General Nordic Questionnaire (Dallner et al., 2000). The participants answered on a five-point Likert scale, ranging from *'strongly disagree'* (1) to '*strongly agree*' (5). They could also select '*not applicable.'* The items are 'my immediate superior encourages me to speak up when I have a different opinion', 'my immediate superior contributes to the development of my skills', and 'my immediate superior encourages me to participate in important decisions'. In the preface to these items, immediate superior was defined as the individual with which the participants had or will have employee appraisal interviews.

Job autonomy

Four previously validated items measured job autonomy (Näswall et al., 2010). The participants answered on a five-point Likert scale, ranging from *'strongly disagree'* (1) to '*strongly agree*' (5). An example item is 'I have a sufficient degree of influence in my work.'

Social community at work

Social community at work was assessed with three items that were validated in the second version of the Copenhagen Psychosocial Questionnaire (Pejtersen et al., 2010), with the exception of one item, which was replaced. The former item measured degree of cooperation ('Is there good cooperation between the colleagues at work?'), while the replacement item measured degree of fellowship ('There is a good sense of fellowship among the colleagues in my unit'). This switch was made because ARK had qualitatively investigated academics' conception of cooperation and revealed that a competitive climate was not generally seen as mutually exclusive of a strong sense of social community at work. Thus, the replacement item described a sense of social community in terms that applied to an academic context. The participants answered on a five-point Likert scale ranging from *'strongly disagree'* (1) to *'strongly agree'* (5).

Recognition

ARK measured recognition using three items that were validated in COPSOQ II by Pejtersen et al. (2010). The participants rated the items on a five-point Likert scale, from *'strongly disagree'* (1) to *'strongly agree'* (5). An example item for recognition is 'my work is recognized and appreciated by my unit management.'

Unreasonable tasks

We measured unreasonable tasks with four items from the Bern Illegitimate Task Scale (Semmer et al., 2010). Responses ranged from *'strongly disagree'* (1) to *'strongly agree' (5).* An example item is 'I must carry out work which I think should be done by someone else.'

Control variables

We controlled the mediator variables and the dependent variable by gender and age. We coded women as 1 and men as 2; age was reported into brackets of 'below 30 years' (1), '30–39 years' (2), '40–49 years' (3), '50–59 years' (4), and '60 years or more' (5). Age was reported this way due to concerns for anonymity on part of the ARK Intervention Program. In the analysis, age was treated as an interval scale.

Statistical analysis

We used Stata version 14 to screen data and to provide descriptive statistics and structural equation modeling (SEM). To test the hypotheses, we followed the SEM procedure of Mehmetoglu and Jakobsen (2016). Thus, a maximum likelihood (ML) full SEM analysis was conducted. A full SEM consists of two parts: a measurement part, in which the factor structure is examined, and a structural part, which allows for testing the hypothesized structural relationships between latent variables. The hypothesis testing was done according to the established procedures of Zhao, Lynch, and Chen (2010). Missing data were deleted list-wise.

Model fit

Acceptable fit for the measurement model was calculated. The tested measurement model included indicators that loaded on their theorized and previously validated latent variables (see measures). Work engagement was specified to be a second-order latent variable wherein the first-order latent variables of absorption, dedication, and vitality each were loaded on by their three hypothesized indicators. In turn, absorption, dedication, and vitality loaded on a second order latent variable: work engagement. The latent variables (i.e., empowering leadership, unreasonable tasks, job autonomy, social community at work, recognition, and work engagement) were configured to covary with each other. None of the indicators' error variances were specified to covary. A non-significant chi-squared (χ^2) test suggests acceptable model fit (Mehmetoglu & Jakobsen, 2016); however, it is extremely sensitive to large samples. Thus, the following indices are recommended, with associated values indicating acceptable fit: standardized root mean squared residual (SRMR) $\leq$ 0.10, root mean squared error of approximation (RMSEA) $\leq$ 0.10, comparative fit index (CFI) $\geq$ 0.90, and Tucker-Lewis index (TLI) $\geq$ 0.90 (Mehmetoglu & Jakobsen, 2016).

Validity and reliability

Valid and reliable indicators and latent variables of the measurement model were tested. Standardized factor loadings (SFL) of 0.40 or greater suggest indicator reliability (Mehmetoglu & Jakobsen, 2016), meaning that a latent variable sufficiently explains an indicator's variance (Brown, 2015). With the command 'relicoef' in Stata, Raykov's reliability coefficients (RRC) of the latent variables were tested. Compared to Cronbach's α, RRC does not have the tendency to underestimate reliability and is therefore more accurate (Raykov, 1997). RRC above

0.70 indicate factor reliability (Mehmetoglu & Jakobsen, 2016). The constructs' validities can be affirmed when both discriminant and convergent validity are established (Mehmetoglu & Jakobsen, 2016); to do so, the command 'condisc' in Stata was used. An average variance extracted (AVE) equal to or greater than 0.50 points to convergent validity, which means that the indicators of the factors are adequately correlated (Mehmetoglu & Jakobsen, 2016). An AVE greater than the squared correlations between the latent variables suggests discriminant validity (Fornell & Larcker, 1981) and demonstrates that the factors share a low enough amount of variance to be considered distinct from each other (Mehmetoglu & Jakobsen, 2016).

Hypotheses testing

The hypothesized structural model was created by extending the established measurement model. The covariances between the latent variables were replaced with the hypothesized relationships between the latent variables as seen in **Figure 1**. In addition, relationships were specified from empowering leadership on work engagement, from unreasonable tasks on work engagement, and from the control variables (i.e., gender and age) on all the mediators as well as onto work engagement. Acceptable fit for our hypothesized structural model was established by the same thresholds for acceptable fit as the measurement model (Mehmetoglu & Jakobsen, 2016). To strengthen the empirical support for the hypothesized theoretical model, comparisons to plausible rival models, as informed by Iacobucci, Saldanha, and Deng (2007), were conducted. Thus, we compared the fit of the hypothesized model (M0) to a model (M1) where the ordering of the mediators was reversed (i.e., empowering leadership → job autonomy/social community at work/recognition → unreasonable tasks → work engagement); a model (M2) where the causality of the hypothesized model was reversed (i.e., work engagement → job autonomy/social community at work/recognition → unreasonable tasks → empowering leadership); a model (M3) where the mediators were specified to be exogenous and the exogenous specified to be a mediator (i.e., job autonomy/social community at work/recognition → unreasonable tasks → empowering leadership → work engagement); and a model (M4) where all mediators were specified to be parallel mediators (i.e., empowering leadership → unreasonable tasks/job autonomy/social community at work/recognition → work engagement).

We then tested our hypotheses according to the procedures, logic, and typology for mediation established by Zhao and colleagues (2010). Thus, we tested hypothesis 1, 3, and 5 by examining the indirect effects of the final structural model. Moreover, we tested hypothesis 2, 4, and 6 by investigating the individual indirect effects of empowering leadership on work engagement—first through unreasonable tasks, then through job autonomy, social community at work, and recognition. The indirect effects of hypotheses 2, 4, and 6 were calculated with the delta method for nonlinear combinations of parameters, which allows individual indirect effects to be investigated in cases of several simultaneous mediators. Hypothesis 7 was tested by calculating observing the structural model's total indirect effect of empowering leadership on work engagement through unreasonable tasks and through job autonomy, social community at work, and recognition. The effect sizes of the standardized coefficients were categorized according to the recommendations of Mehmetoglu and Jakobsen (2016). Thus, small effects were equal to or below 0.09, moderate effects were between 0.1 and 0.2, and large effects were equal to or above 0.2.

Results

Descriptive statistics

Table 1 shows correlations between latent variables and control variables, along with their average indicator means and standard deviations.

Measurement model

Model fit

The fit of the measurement model was acceptable (n = 3086, χ^2 (257) = 2942.93, $p < 0.001$; SRMR = 0.05; RMSEA = 0.06; CFI = 0.95; TLI = 0.94). The measurement model did not include age and gender. Therefore, 27 cases were included in the measurement model (n = 3086), which were deleted listwise in the final structural model (n = 3059) due to missing values on age and/or gender.

Table 1: Means (M), standard deviations (SD) and correlations (n = 3059).

Variables	M	SD	1.	2.	3.	4.	5.	6.	7.
1. Work engagement	5.65	1.24	–						
2. Empowering leadership	3.74	1.08	0.31***	–					
3. Job autonomy	3.93	0.80	0.39***	0.55***	–				
4. Social community at work	3.87	0.91	0.42***	0.60***	0.58***	–			
5. Recognition	3.76	0.94	0.37***	0.70***	0.63***	0.69***	–		
6. Unreasonable tasks	2.43	0.98	–0.28***	–0.40***	–0.63***	–0.49***	–0.53***	–	
7. Age	–	–	0.12***	–0.20***	–0.18***	–0.12***	–0.06**	0.13***	–
8. Gender	–	–	–0.01	0.02	0.05**	0.00	0.08***	–0.04*	0.08***

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Validity and reliability

All SFLs were above 0.40 and statistically significant, suggesting indicator reliability. The AVE of unreasonable tasks (0.48) pointed towards problems with convergent validity; thus, we deleted the indicator with the lowest SFL (0.57): 'I must carry out work that puts me in awkward positions.' The new AVE of unreasonable tasks suggested no problems with convergent validity (0.53). After this modification, all constructs had convergent validity with AVEs above 0.50. Because all the AVEs were larger than the squared correlations (see **Table 2**), the constructs also showed discriminant validity, demonstrating that, for instance, recognition and empowering leadership are distinct constructs despite a 0.70 correlation (see **Table 1**). Because both discriminant and convergent validity were established, construct validity can be inferred. The RRCs of all latent variables indicated factor reliability. For details about AVEs, squared correlations, and RRCs, see **Table 2**.

Structural model

Model fit

The fit of the theorized structural model was acceptable (n = 3059, χ^2 (298) = 3590.21, $p < 0.001$; SRMR = 0.05; RMSEA = 0.06; CFI = 0.94; TLI = 0.92) and had better fit than the rival models (see **Table 3**).

Hypotheses

Table 4 shows the standardized direct effects of the resulting structural model, **Table 5** shows the standardized indirect effects, and **Figure 2** shows a visualization of the structural model. The control variable age was associated with work engagement (B = 0.21, $p < 0.001$), job autonomy (B = –0.04, $p < 0.01$), recognition (B = 0.10, $p < 0.001$) and unreasonable tasks (B = –0.06, $p < 0.01$), but not with social community at work (B = 0.02, $p > 0.05$). The other control variable, gender (1 = woman and 2 = man), was associated with work engagement (B = –0.04, $p < 0.01$), recognition (B = 0.04, $p < 0.01$) and unreasonable tasks (B = –0.04, $p < 0.05$), but not with job autonomy (B = 0.02, $p > 0.05$) nor social community at work (B = –0.03, $p > 0.05$).

In hypothesis 1, we predicted that empowering leadership and work engagement would be positively mediated by job autonomy. The results supported the hypothesis: the indirect effect was positive, small, and significant (B = 0.09, $p < 0.001$), which according to the typology of

Table 3: Model comparisons (n = 3059).

Models	χ^2	df	SRMR	RMSEA	CFI	TLI
M0	3590.21	298	0.05	0.06	0.94	0.92
M1	4014.37	298	0.06	0.06	0.93	0.91
M2	4003.49	298	0.06	0.06	0.93	0.91
M3	4138.55	298	0.06	0.07	0.92	0.91
M4	4587.06	301	0.07	0.07	0.92	0.90

Table 4: Standardized direct effects of the structural model.

Exogenous variables	Endogenous variables	Direct effects
Empowering leadership	Work engagement	0.03
Unreasonable tasks		0.03
Job autonomy		0.25***
Social community at work		0.26***
Recognition		0.07
Age		0.21***
Gender		–0.04**
Empowering leadership	Job autonomy	0.35***
Unreasonable tasks		–0.53***
Age		–0.04**
Gender		0.02
Empowering leadership	Social community at work	0.49***
Unreasonable tasks		–0.35***
Age		0.02
Gender		–0.03
Empowering leadership	Recognition	0.60***
Unreasonable tasks		–0.35***
Age		0.10***
Gender		0.04**
Empowering leadership	Unreasonable task	–0.38***
Age		0.06**
Gender		–0.04*

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Table 2: Squared correlations matrix, AVEs, and RRCs (n = 3059).

Variables	1.	2.	3.	4.	5.	6.	AVE	RRC
1. Work engagement	–						0.80	0.93
2. Empowering leadership	0.10	–					0.76	0.80
3. Job autonomy	0.16	0.31	–				0.50	0.84
4. Social community at work	0.18	0.36	0.34	–			0.64	0.89
5. Recognition	0.14	0.49	0.40	0.47	–		0.72	0.76
6. Unreasonable tasks	0.08	0.15	0.40	0.23	0.28	–	0.53	0.90

Table 5: Standardized indirect effects of the structural model.

Exogenous variables	Mediator(s)	Endogenous variables	Indirect effects
Empowering leadership	Unreasonable tasks (Med1) and Job autonomy (Med2)	Work engagement	0.05***
	Unreasonable tasks (Med1) and Social community at work (Med2)		0.03***
	Unreasonable tasks (Med1) and Recognition (Med2)		0.01
	Job autonomy/Social community at work/Recognition/Unreasonable tasks		0.31***
	Job autonomy		0.09***
	Social community at work		0.13***
	Recognition		0.04
	Unreasonable tasks		0.04
Unreasonable tasks	Job autonomy		–0.13***
	Social community at work		–0.09***
	Recognition		–0.02
	Job autonomy/Social community at work/Recognition		–0.29***
Empowering leadership	Unreasonable tasks	Job autonomy	0.14***
		Social community at work	0.10***
		Recognition	0.12***

Notes: M1 = First mediator and M2 = Second mediator, * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

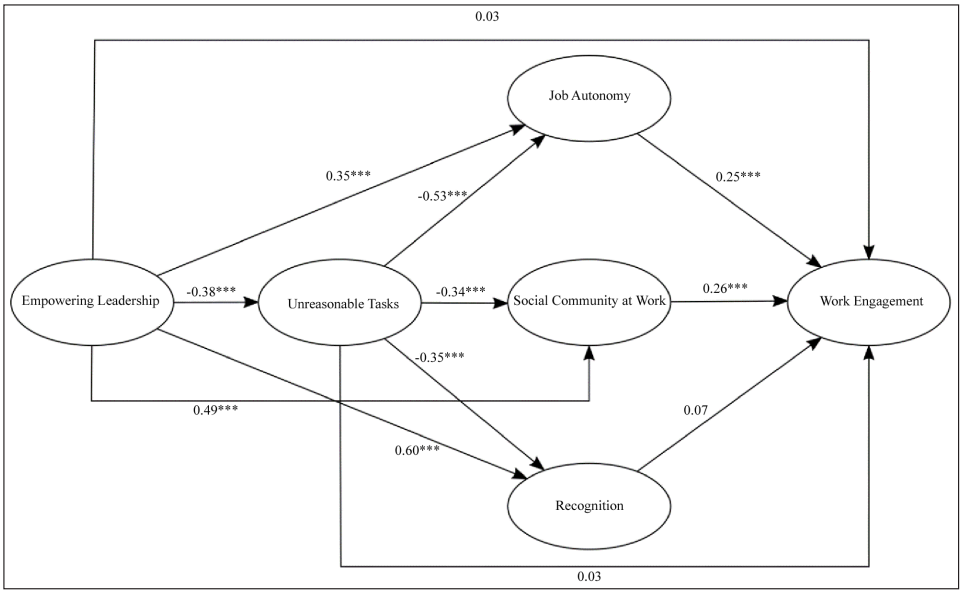

Figure 2: Visualization of structural model with standardized direct effects.
Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Zhao and colleagues (2010) points to a complementary mediation as the multiplication of all paths resulted in a positive product. In hypothesis 2, we predicted that empowering leadership and work engagement would be positively mediated, first by unreasonable tasks, then by job autonomy. The results supported the hypothesis: the indirect effect was positive, small, and significant ($B = 0.05$, $p < 0.001$), which, following the typology of Zhao and colleagues (2010), shows complementary mediation as the product of the paths were positive.

In hypothesis 3, we predicted that empowering leadership and work engagement would be positively mediated by social community at work. The results supported hypothesis 3: the indirect effect was positive, moderate, and significant ($B = 0.13$, $p < 0.001$), which according to the typology of Zhao and colleagues (2010) demonstrates a complementary mediation as the multiplication of all paths resulted in a positive product. In hypothesis 4, we predicted that empowering leadership and work engagement would be mediated first by unreasonable tasks, then by social community at work. The results supported hypothesis 4: the indirect effect was positive, small, and significant ($B = 0.03$, $p < 0.001$), which, following the typology of Zhao and colleagues (2010), shows complementary mediation as the product of the paths were positive.

In hypothesis 5, we predicted that empowering leadership and work engagement would be positively mediated by recognition. The results did not support hypothesis 5 as the indirect effect was statistically insignificant ($B = 0.04$, $p > 0.05$), which demonstrates non-mediation. In hypothesis 6 we predicted that empowering leadership and work engagement would be mediated first by unreasonable tasks, then by recognition. The results did not support this hypothesis as the indirect effect was not significant ($B = 0.01$, $p > 0.05$), which shows non-mediation.

Hypothesis 7 predicted that, as a whole, empowering leadership and work engagement is mediated by unreasonable tasks and by job autonomy, social community at work, and recognition. The results supported the hypothesis: the indirect effect of empowering leadership on work engagement through all the mediators was positive, large, and significant ($B = 0.31$, $p < 0.001$). The non-significant indirect effects of empowering leadership and work engagement through recognition (see hypothesis 5 and 6) indicate that recognition does not contribute to this mediation (Zhao et al., 2010), only unreasonable tasks, job autonomy, and social community at work. Nevertheless, the direct effect between empowering leadership and work engagement was not significant ($B = 0.03$, $p > 0.05$), which, according to the typology of Zhao and colleagues (2010), demonstrates an indirect-only mediation (i.e., full mediation). The structural model explained 25% of the variance in work engagement.

Discussion

The aim of this study was to empirically investigate how empowering leadership may be associated with academics' work engagement by mediation through work characteristics (Tuckey et al., 2012). Based on theories about empowerment and empowering leadership (Amundsen & Martinsen, 2014; Bass & Riggio, 2006; Conger & Kanungo, 1988; Dallner et al., 2000; Srivastava et al., 2006; Thomas & Velthouse, 1990; Vecchio et al., 2010), as well as social exchange theory (Settoon et al., 1996; Cropanzano & Mitchell, 2005), we intended to add to literature by ascertaining how and why empowering leadership is associated with motivation. A contribution that fills a gap pointed out by Gilbert and Kelloway (2014).

Tuckey and colleagues (2012) found a positive relationship between empowering leadership and work engagement and suggested that it is the shaping of work characteristics that mediates this relationship. The results of this study confirmed this general suggestion but add upon it by providing knowledge on which concrete work characteristics mediate between empowering leadership and work engagement for academics. Empowering leadership and work engagement were found to be fully mediated through the following work characteristics that are important to academics: job autonomy, social community at work, and unreasonable tasks. It therefore appears that increasing these work characteristics for academics through empowering leadership is reciprocated with work engagement, as outlined by social exchange theory (Settoon et al., 1996; Cropanzano & Mitchell, 2005). Contrary to expectations, however, increased recognition was not related to an increase in work engagement, and the direct relationship between recognition and work engagement was not significant. Thus, recognition does not appear to be reciprocated with work engagement among academics. A potential explanation for this surprising result can be that academics do not experience that recognition from leaders is something for which to reciprocate with work engagement, feeling that acknowledgement from peers and from publicizing their work are acknowledgement enough. Nevertheless, the results suggest that empowering leadership enhances academics' work engagement by reducing their unreasonable tasks and by elevating their job autonomy and their social community at work. To validate the findings of this cross-sectional study, future researchers may want to employ a longitudinal design.

The results further add to the literature by providing empirical support for empowerment and empowering leadership theories that postulate what consequences sharing and transferring power from leaders to employees have. The positive full mediation between empowering leadership and work engagement reinforces that motivation is an important consequence of empowerment by leaders, as argued by Conger and Kanungo (1988) and Thomas and Velthouse (1990). That empowering leadership was found to be negatively associated with unreasonable tasks suggests that it reduces bureaucratic hindrances, as argued by Bass and Riggio (2006). The negative relationship between empowering leadership and job autonomy indicates that empowering leadership is a form of leadership that delegates authority and responsibility, as outlined by Amundsen and Martinsen (2014). The positive relation between empowering leadership and recognition suggests that empowering leadership behaviors are perceived as a recognition of contributions, as proposed by Srivastava and colleagues (2006). Finally, the positive relationship between empowering leadership and social community at work indicates that empowering leadership enables prosocial reciprocity among employees, which make for an improved social community at work, as argued by Francioli and colleagues (2018). However, to conclude with more confidence given this study's cross-sectional design, there is need for more research that goes more in depth on the specific relationships.

The results further suggest that empowering leadership may be a type of leadership that can be considered effective academic management as it enables participation in vital decisions, encourages open dialogue, generates a collegial sense of community (Bryman, 2007), provides recognition and protects academics' autonomy (Boyd et al., 2011), addresses the increasing task diversification that academics face (Musselin, 2007), and increases motivation that heightens academic productivity (Christensen et al., 2018). Thus, empowering leadership can be one way to handle many of the risks that face today's academia.

Limitations

The strengths of the current study are a large sample size, advanced statistical analysis that fits the hypotheses, a measurement model with both valid and reliable constructs, acceptable approximate fit of both the measurement and structural models, and a high response rate considering the population of interest, indicating external validity.

Due to the cross-sectional design, it is possible that the direction of the relationships between variables are opposite of what was proposed in this study. Namely, that employees with higher work engagement perceive their job autonomy, social community at work, and recognition to be higher and their unreasonable tasks to be lower, which in turn prompts them to think of their leaders as more empowering. Second and relatedly, the study's design is cross-sectional; therefore, the interpretations of the results should be regarded as supportive, not conclusive. Triangulation through prospective, experimental, and qualitative studies may be considered to extend, object to, or provide nuance to the interpretations of this study, including the direction of the relationships. Moreover, several participants shared environments at the departmental level, the faculty level, and the university level. These shared environments violate the independent-participants assumption of ordinary regression models (Mehmetoglu & Jakobsen, 2016). Therefore, it is possible that the effects are at the group level instead of at the individual level, something for which multilevel analysis controls. However, multilevel analysis was not available for this study, because data were not collected for who shared environments with whom. Future researchers may consider examining whether different departments, faculties, and universities are distinct from each other, to the point of biasing analysis, and then consider implementing multi-level analysis.

Conclusion

In this paper we used empowerment and empowering leadership theories, as well as social exchange theory, to empirically investigate how and why empowering leadership is associated with work engagement among academics. We argued that empowering leadership is related to work engagement because empowering leadership facilitates the perception of the following work characteristics that are crucial for academics: job autonomy, social community at work, recognition, and unreasonable tasks. The results showed that empowering leadership is positively related to work engagement because academics' job autonomy, social community at work, and unreasonable tasks mediate this relationship. To confirm or nuance the results and interpretations of this study, future researchers may want to employ longitudinal, experimental or qualitative designs.

Competing Interests

The authors have no competing interests to declare.

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Paper II

Paper III

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Helland, E., et al. (2021). Safety Representatives' Job Crafting in Organizational Interventions: Driver, Counselor, Watchdog, or Abstainer. *Scandinavian Journal of Work and Organizational Psychology*, 6(1): 6, 1–13. DOI: https://doi.org/10.16993/sjwop.137

ORIGINAL ARTICLE

Safety Representatives' Job Crafting in Organizational Interventions: Driver, Counselor, Watchdog, or Abstainer

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The Nordic model and organizational research highlight the benefits of employee participation and collaboration between management and employees. Using job crafting theory, this paper studied the roles safety representatives craft for themselves in organizational interventions, the mental models that impact the roles they craft, and the possible consequences these roles have for intervention implementation. The research used a case study design to interview 15 safety representatives of 15 different departments at a university in Norway regarding their role in an organizational intervention. The thematic analysis identified five roles the safety representatives crafted for themselves: 1) Watchdogs safeguarding the work environment, 2) Watchdogs safeguarding the line managers' implementation, 3) Counsellors to the line manager on how to implement the intervention activities, 4) Drivers who themselves implement the intervention activities, and 5) Abstainers who let the intervention occur without their involvement. The safety representatives' mental models of their line manager, the work environment, their colleagues, and the intervention itself appeared to affect the roles they crafted. Finally, the different roles safety representatives crafted for themselves seemed to influence the intervention implementation.

Keywords: Context; job crafting; mental models; organizational intervention; safety representative; qualitative analysis

Introduction

Researchers have established that the processes of organizational interventions, here defined as theory-driven activities intended to enhance employees' health and well-being (Nielsen & Noblet, 2018), determine their outcomes (e.g., Ipsen et al., 2015; von Thiele Schwarz et al., 2020). Scholars have, for example, found that organizational interventions fail due to poor and partial implementation (Biron et al., 2010). Therefore, it is important to study how organizational interventions in all their complexity can develop employee health and well-being (Nielsen & Miraglia, 2017). Collaboration between line managers and employees is a crucial component of successful organizational intervention processes (Nielsen, 2017). Collaboration between line managers and employees is also internationally relevant, as research suggests it benefits employee health (Egan et al., 2007), organizational commitment, and motivation (Bakan et al., 2004). The Nordic model of working life envisions organizational interventions to be a collaborative effort between line managers and employees, and, in this regard, it casts the safety representative in a central role due to their formal responsibilities concerning safety and health (e.g., the Norwegian Working Environment Act, 2017). There is a lack of knowledge about the role of safety representatives in organizational interventions. To garner further insight into how to implement successful organizational interventions, there is a need to investigate the safety representatives' role in implementation.

Using job crafting theory (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001) we address this need by researching the roles safety representatives craft for themselves in organizational interventions, mental models (Nielsen & Randall, 2013) that affect the roles they craft, and the possible consequences these roles have in the intervention process. Job crafting theory suggests that employees actively shape their roles by prioritizing tasks and relationships while deprioritizing others (Wrzesniewski & Dutton, 2001) and is highly relevant for organizational intervention processes (Nielsen, 2013). To the best of our knowledge, safety representatives' job crafting in organizational interventions has not been studied before and may provide an understanding of their role in organizational interventions.

Safety representatives

Safety representatives are employees elected by other employees to represent them with a mandate and formal responsibility in the organizational hierarchy (Working

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Environment Act, 2017). Their role is to function as a mediator between working environment efforts and the employees' lived experience of their daily work (Karlsen et al., 2019). As mediators who voice and interpret the employees' experience, safety representatives have a key role in shaping the work environment (Nielsen & Hohnen, 2014). Safety representatives manifest a form of indirect employee participation by representative participation (Abildgaard et al., 2018). Their task is to safeguard the employees' work environment and to support their line managers in planning and implementing organizational changes relevant to the work environment, such as organizational interventions (Working Environment Act, 2017).

While regular employees have a duty to cooperate in designing, implementing, and following up on organizational interventions (Working Environment Act, 2017), line managers' managerial prerogative gives them the right to organize, control, lead, and distribute work within the boundaries of laws and regulations (Norwegian Bar Association, 2000). From this prerogative, line managers decide how to conduct organizational interventions, but they also have a duty to consult the safety representative when planning and implementing them. The formal mandate of safety representatives in relation to regular employees and line managers is therefore quite clear.

Researchers have examined the role of the safety representative in general occupational health and safety matters. They found a significant gap in the line managers' and safety representatives' understanding of the safety representative's role (Hovden et al., 2008). This gap is unfortunate because a shared understanding of an existing situation between line managers and employees is central for creating psychologically healthier workplaces through organizational interventions (Nielsen, 2017). Researchers have also identified that the part-time nature of safety representatives can create challenges to developing shared responsibility for organizational change between line manager and safety representatives (Hasle & Jensen, 2006). Moreover, safety representatives face dilemmas between their legislated mandate and various inconsistent expectations from company policies, management, and employees. These dilemmas result in safety representatives contributing to the work environment efforts to varying degrees (Rasmussen et al., 2014). Knowledge about the roles manifested by safety representatives in organizational interventions and their impact on intervention processes is lacking.

Mental models

The processual dimensions that affect the outcomes of organizational interventions can be categorized into (1) the design and implementation of the intervention, (2) the context of the intervention, and (3) the mental models participants have of their work context and the intervention (Nielsen & Randall, 2013). Research has paid considerable attention to the design, implementation, and context of organizational interventions (e.g., Biron et al., 2010; Nielsen & Abildgaard, 2013). Mental models, which have also received some scholarly focus, determine how participants understand and practice their formal roles in relation to their intervention and context (Nielsen & Randall, 2013). For instance, researchers have explored line managers' perceptions of employee readiness for change (Christensen et al., 2019; Ipsen et al., 2015), employees' experiences with work environment surveys (Nielsen et al., 2014), and the interplay between sensemaking and material artefacts of both employees and line managers (Abildgaard & Nielsen, 2018). The safety representatives' mental models about their work context and the intervention are likely to impact the roles they craft in organizational interventions, which will influence the intervention process.

Job crafting theory

Job crafting is defined as "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (Wrzesniewski & Dutton, 2001, p. 179). Job crafting theory emphasizes how employees actively shape the social interactions and tasks of their jobs by prioritizing some work tasks and social relationships and deprioritizing others. It is a social constructivist perspective, as it underlines how employees psychologically build their experience from elements in their social context. According to job crafting, social interactions at work define employees' roles in the workplace. Work roles (such as the role of safety representatives) are not fully decided by formal responsibilities; employees have some freedom to define their roles (Wrzesniewski & Dutton, 2001). By engaging in job crafting, employees position themselves to alter the boundaries of their tasks and relationships at work. It is possible to change task boundaries by adjusting what and how job activities are engaged in and by cognitively reframing how employees understand the tasks. Likewise, it is possible to change relational boundaries by choosing who to interact with while performing the job. The modifications employees make to these boundaries shape the social environment and job design (Wrzesniewski & Dutton, 2001).

Furthermore, the employees' context is essential in framing the limits and possibilities for job crafting (Wrzesniewski & Dutton, 2001). The employees' degree of job autonomy is especially important, as it marks the boundaries within which employees may craft their jobs (Wrzesniewski & Dutton, 2001). Employees' ability to job craft is determined by where they are in the organizational hierarchy, which can create constraints that pertain to the job role itself, and a lack of decisional power compared to the line manager (Berg et al., 2010). Moreover, the behaviors of line managers are closely tied to job crafting (Wang et al., 2017a). For instance, line managers who make it clear that change is welcome encourage employees to engage in job crafting (Wang et al., 2017b). Thus, although job crafting refers to proactive employees who shape their roles, contextual factors, such as job autonomy, role constraints, possession of power, and line managers' actions, all influence the motivation, ability, and type of job crafting in which employees engage.

From job crafting theory, it follows that safety representatives craft the content of their role in organizational interventions by altering the boundaries of their tasks and relationships through prioritizing or deprioritizing tasks and social interactions. These boundary alterations occur in a context, and what that context offers influences their mental models and subsequently the roles they shape for themselves throughout the intervention. Organizational interventions bring changes to the organization of work that involve setting novel priorities, modifying roles, and renegotiating relations between organizational actors, for instance, the relationships between line managers and safety representatives (Seo et al., 2004). Thus, safety representatives use job crafting throughout an organizational intervention to create and practice their roles. Based on their mental models, they position themselves and interpret their roles in different ways; they use job crafting to fit the role of the safety representative to their image of what a safety representative should do within the confines of their context. The diversity of the safety representatives' positioning and interpretation will, in turn, affect the intervention implementation in distinct ways, creating different intervention implementations.

Research questions

The research questions of this paper are

RQ1: What roles do safety representatives craft for themselves in organizational interventions?

RQ2: What mental models of context and intervention impact the roles they craft?

RQ3: What possible consequences do the roles safety representatives craft have for intervention implementation?

To answer these questions, we analyze the tasks and relationships safety representatives prioritize or deprioritize (Wrzesniewski & Dutton, 2001) throughout an organizational intervention.

Methods

Design

We investigate the research questions using a case study design, which offers holistic and detailed first-person information about complex behavior systems (Tellis, 1997), such as organizational interventions. We conducted the research in conformity with four recommended stages for case studies (Tellis, 1997). The first stage consists of designing the study; the second stage is implementing the study. The third stage analyzes the evidence; the fourth and final stage establishes the study's conclusions.

In designing the study, we decided to interview individuals who had been safety representatives in departments of a sizable university in Norway immediately after the implementation of an organizational intervention. This university had a rectorate and departments from multiple faculties of the humanities, social sciences, and natural sciences. The sizes of the departments ranged from 20 to 150 employees. The departments employed department heads; whereas, the employees elected the safety representatives from a pool consisting of administrative staff and scientific staff. To interview the safety representatives, we created a semi-structured interview guide based on a process evaluation checklist (Nielsen & Randall, 2013). The process evaluation checklist provides a structure that conforms with how the organization implemented the intervention (i.e., preparation, screening, action planning, implementation, and evaluation). Moreover, it gives insight into mental models, roles, and prioritizations of safety representatives that answer questions about the roles they crafted for themselves throughout the intervention. The interviews were planned to be transcribed verbatim and analyzed with thematic analysis (Clarke et al., 2015). This research follows ethical requirements, as approved by the Norwegian Centre for Research Data. To protect their anonymity, we used pseudonyms for the safety representatives.

In implementing the study, we first emailed 150 individuals from all of the university's departments who were safety representatives during the organizational intervention, providing information about the research and informing them that they might be invited by phone to participate in the study. Next, we phoned 35 safety representatives, of which 15 agreed to participate in the interviews. Fifteen interviews complies with the number recommended for thematic analysis (Clarke et al., 2015). Moreover, by the fifteenth interview, we deemed it unlikely that additional data collection, by the principle of saturation, would provide novel and crucial information (Charmaz, 2006). The authors of this paper or a student conducted the interviews in the safety representatives' offices. The interviews were recorded and transcribed verbatim. Of the 15 safety representatives, there were 8 men and 7 women, all from different departments. Three safety representatives worked in humanities departments, one in a social sciences department, five in natural sciences departments, and six in administrative departments. We interviewed them about the most recent intervention cycle, as their departments had conducted two cycles of the same organizational intervention before the current one.

Using the semi-structured interview guide, we asked about their experiences, thoughts, and behaviors as safety representatives throughout the intervention process. We asked about their roles, motivations, contextual influences, and the intervention design in (1) the preparation phase (example questions: "Were you motivated to participate in the intervention? Is there something about the process that did not motivate you?"); (2) the screening phase (example question: "Did you do anything to motivate your colleagues for completing the survey?"); (3) the action planning phase (example question: "Was there, in this phase, any cooperation between you and the line manager?"); (4) the implementation phase (example question: "Were you involved in implementing the action plans? How?"); (5) the evaluation phase (example question: "Were you involved in the process evaluation?");

and (6) the intervention at large (example question: "What was your role as a safety representative in the ARK intervention?").

This study's organizational intervention

The intervention, named ARK (Norwegian acronym for "Working environment and working climate surveys") Intervention Program (Innstrand & Christensen, 2020), was a reoccurring (a new cycle every two or three years) organizational intervention tailored for knowledge-intensive work environments. The ARK Intervention Program had undergone two cycles of intervention before the cycle this paper studied. All the departments of a Norwegian university implemented the ARK Intervention Program, and the university established a steering group to guide the university and oversee its implementation. The ARK Intervention Program was a tool for leaders to (1) create action plans for work environment improvement/conservation based on job resources and job demands and (2) meet national legislation to systematically manage psychosocial risks and promote health and well-being (Innstrand et al., 2015). These aims were to be achieved by being anchored in the Nordic tripartite model's principles of employee influence and participation (the Norwegian Working Environment Act, 2017), for instance, through contributions of safety representatives. This bottom-up approach to organizational interventions concurs with recommendations in the literature (Nielsen & Noblet, 2018). The organizational intervention of this study followed five phases of organizational interventions (Nielsen et al., 2010): preparation, screening, action planning, implementation, and evaluation.

The preparation phase

In the preparation phase, the safety representative and the line manager together completed and delivered a report (i.e., "Factsheet I") to HR and senior management. In departments with more than one safety representative, the main safety representative or a safety representative chosen by the main safety representative completed the report in collaboration with the line manager. The report included structural facts about the department, such as number of tenured staff and staff on short-term contracts, and an evaluation of the action plans from the last intervention cycle. Furthermore, senior management and HR recommended that line managers plan the intervention and highlight the intervention's importance and opportunity for employee involvement as well as communicate its purpose and vision. Senior management and HR encouraged the line managers to ensure a high survey response rate by openly discussing the survey (i.e., its questions and theoretical foundation) and emphasizing the survey's anonymity. To support the line managers, some members of senior management and HR arranged a competition (with cake as the reward) for the highest survey response rate, and the line managers could enroll their departments to participate. Senior management and HR encouraged the line managers and the safety representatives to consider whether the safety representative should be involved in motivating the employees to complete the survey.

The screening phase

In the screening phase, senior management invited and reminded employees via email to complete a survey (available in English and Norwegian) regarding psychosocial work environment experiences. Senior management and HR also recommended that line managers encourage employees to complete the survey. The distributed questionnaire was the Knowledge-Intensive Work Environment Survey Target (KIWEST), a validated questionnaire tailor-made for academia, which covered psychosocial risk factors (Innstrand et al., 2015). HR analyzed the confidential and anonymized survey results and provided them to line managers, who presented the results to employees in the action planning phase.

The action planning phase

In the action planning phase, the line managers and safety representatives used a checklist provided by HR to plan survey feedback and action planning meetings with employees. The checklist guided the safety representatives and line managers to discuss the survey results and relevant matters, determine how to develop the action plans, and decide how to implement the action plans. The checklist also encouraged line managers to review the survey results, assess risks, discuss relevant issues, define roles, decide the composition of groups to develop actions, and outline a schedule for developing and implementing actions. The checklist also contained a meeting framework, which, among general guidelines, recommended inviting all employees, that the meeting should last approximately three hours, that it should decide how to distribute the results, and refreshments and food should be provided. At the meeting, the line managers presented the results and interpretations of the survey and facilitated employee-driven development of action plans. HR provided template PowerPoint slides to present at the meeting. The slides contained the theoretical underpinnings of the intervention and the department's survey results compared to the average university department. The slides encouraged employees to discuss positive and negative items from the presentation of the results and to select three areas for conservation and three areas for improvement (for more information, see Innstrand & Christensen, 2020). In the aftermath of the action planning meeting, senior management and HR encouraged line managers to create an action plan consisting of the developed actions in dialogue with their safety representatives. The action plan formalized who was responsible for implementing the action plans and contained a schedule for their implementation.

The implementation phase

In the implementation phase, senior management and HR allocated the responsibility for implementing action plans to line managers. In addition, senior management and HR encouraged safety representatives to ask and monitor

their line managers regarding the implementation status of the action plans.

The evaluation phase

In the evaluation phase, line managers and their safety representatives delivered a report (i.e., "Factsheet II") to HR and senior management that was a general evaluation of the intervention process. This report presented how employees received the survey results, how many attended the survey feedback session, and why there might have been low survey feedback and action planning attendance. Moreover, they asked the line managers and the safety representatives to describe how the action plans were developed. Further, they asked the line managers and safety representatives to report which working conditions their employees wanted to conserve and which they wanted to improve, what action plans employees agreed to implement, and the date for implementation. The line managers and safety representatives rated their intervention experience in general using a Likert scale ranging from "very good" to "poor." They also responded to two questions that asked what they experienced as most positive and most negative about the intervention. Finally, the line managers and safety representatives reported what they believed could have improved the intervention. **Figure 1** illustrates the intervention's phases and the safety representatives' prescribed steps.

Data analysis

To investigate the types of roles the 15 safety representatives crafted for themselves in the organizational intervention, we transcribed the interviews verbatim, analyzed the evidence, and developed conclusions with deductive thematic analysis (Clarke et al., 2015). Deductive thematic analysis constructs themes from a theoretical basis. Thus, we analyzed the safety representatives' account of how they prioritized and deprioritized their tasks and social relationships (i.e. their job crafting) (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001) in the five phases of the intervention. Thematic analysis has the following six phases (Clarke et al., 2015): familiarization, creating codes, searching for themes, reviewing themes, naming and defining themes, and writing the manuscript.

The main author first read the interviews twice to become familiar with the data. A co-author also read the interviews to ensure that the thematic analysis was based on the interview data. The main author then used Microsoft Word to create initial codes from meaningful data excerpts pertinent to the research questions. We grouped these initial codes with a preliminary coding structure based on both the interview guide and the research questions. Short codes data excerpts relevant for safety representatives' job crafting (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001) of their roles (i.e., prioritizing and/or deprioritizing of tasks and relationships) were sorted to the referenced intervention phase (e.g., the screening phase) with data excerpts placed in comments. Based on these codes and again using Microsoft Word, the main author searched for and suggested preliminary and plausible thematic patterns answering the research questions. The authors then reviewed and revised these preliminary themes in relation to the research question, "What roles do safety representatives craft for themselves in organizational interventions?" We accomplished this by investigating the fit between the coded data and the data set and inspecting whether the themes could be defined. Finally, to establish the study's conclusions and while writing the manuscript, the final themes were named and defined as they linked to safety representatives' job crafting in organizational interventions. We finalized the themes while writing the paper because it provided a dynamic approach that enabled the integration of insights among the authors while writing and discussing the paper. We identified five themes of safety representative job crafting. The names and definitions of the themes reflect their central organizing concept, and quotations from the data provide validation (Clarke et al., 2015). The analysis of the research questions of "What are the mental models of context and intervention that impact the roles they craft?" and "What possible consequences do the roles safety representatives craft have for intervention implementation?" was finalized based on the five identified themes. The authors deliberated the results of this study throughout the analysis and writing process, using meetings, emails, and a workshop.

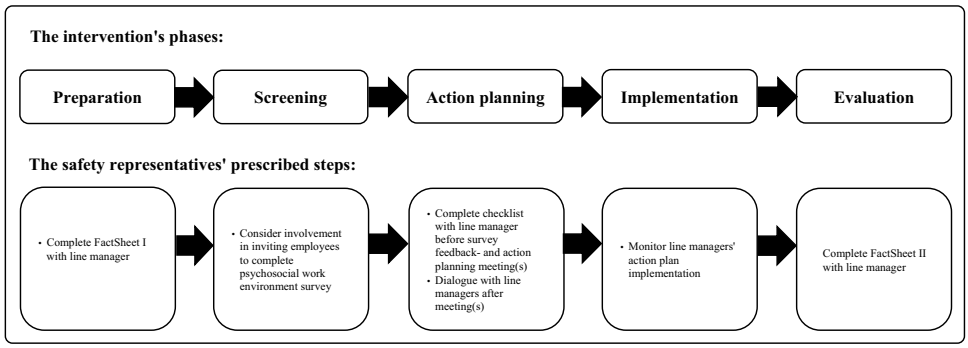

Figure 1: The safety representatives' prescribed steps throughout the organizational intervention's phases.

Results

The analysis shows the five roles safety representatives crafted for themselves, the mental models of context and intervention affecting the roles they craft, and the possible consequences the different types of job crafting have for intervention implementation. The analysis identified five overarching themes of roles safety representatives crafted in the organizational intervention: "watchdog of the work environment," "watchdog of the intervention," "counsellor," "driver," and "abstainer." One safety representative mainly crafted a role as a watchdog of the work environment, two safety representatives primarily crafted their roles as watchdogs of the intervention, six safety representatives mostly crafted their roles as counselors, two safety representatives largely crafted their role as drivers, and four safety representatives mainly crafted their role as abstainers. It is important to note that the five themes are not mutually exclusive for the same safety representative; they represent the main form of job crafting in which they engaged. Depending on the context, the same safety representative could manifest different roles of job crafting at different phases of the organizational intervention or even during the same intervention activity.

The following sections present an analysis of the generated themes intertwined with an analysis of the impacting mental models; an analysis of the possible consequences for the intervention implementation follows each. **Figure 2** shows a visual summary of the identified themes, the mental models of context and intervention that appear to inform them, and the possible consequences for the intervention implementation. **Table 1** provides the thematic analysis results and contains representative quotes from the interviews to support the analysis. The analysis also includes other supporting quotes from the interviews. An *italic* font emphasizes the themes.

Watchdog of the work environment

The safety representatives best described as *watchdogs of the work environment* crafted a role in which they involved themselves in implementing intervention activities depending on the perceived quality of the work environment. These safety representatives worked with the line manager in the preparation phase of the intervention, participated in the obligatory activities, and prioritized following up on implementing intervention activities only if the survey results revealed a problem with the work environment. Thus, their mental models of the work environment appeared to play a significant role for these safety representatives. They saw it as their role to get involved in the intervention only if they believed the work environment was poor or heading in a negative direction. Implicit in this type of job crafting is a mental model of the line manager as someone who invites the safety representative to attend meetings and preparations for the intervention and its activities.

Possible consequences

The *watchdogs of the work environment* were concerned that focusing on problems where none were believed to exist would create problems the intervention intended

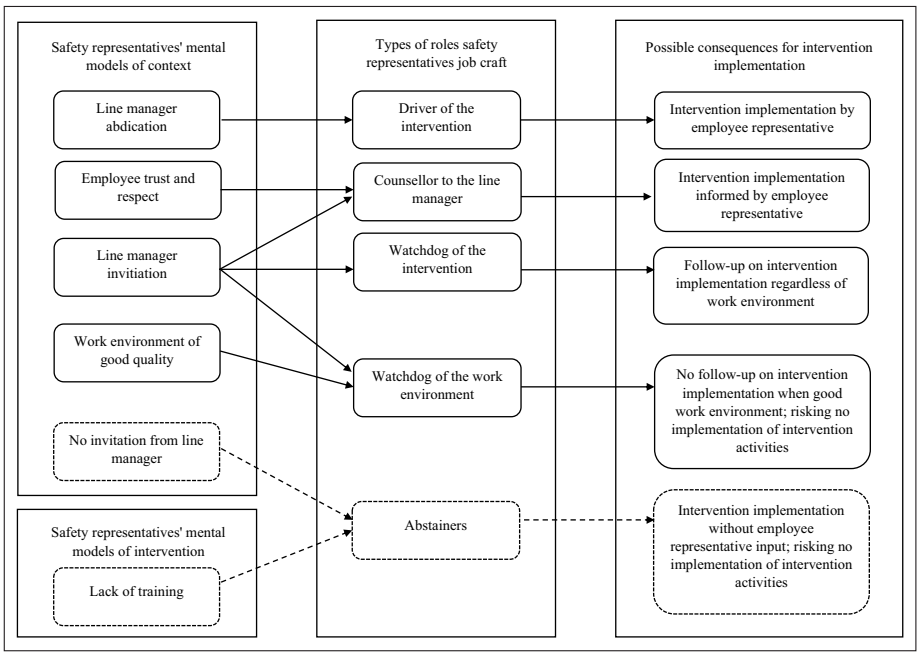

Figure 2: Safety representatives' mental models, types of crafted roles, and possible consequences for intervention implementation.

Table 1: The safety representatives' job crafting types in the organizational intervention.

Type of job crafting (Themes)	Representative data (Data extracts)
Watchdog of the work environment	[My role was to] be there from the beginning and to fill the [factsheets] with the line manager. (…) And if you get any [results] that you get a low score on, the safety representative should get involved. [14SR]
Watchdog of the intervention	I observed that [management] took it seriously the entire time (…) [My role in the intervention process] was to make sure that everything was done correctly, mostly being a watchdog. [13SR]
Counselor	[The line manager and I] had some conversations [before the intervention] (…) about the [intervention] process. How to implement it and what is best for this section. (…) [My role] is to be there for the employees, on that side, right? (…) [We] went through the main things about the results with the line manager in advance. And then we saw some tendencies: "What can we point to and what can we not point to?" So, we had some bullet points ready in advance [of the survey feedback meeting]. (…) After the [action planning meeting], [the line manager and I] wrote the [action plans] down and looked over them; that it is these we should have as action plans. [12SR]
Driver	My role in the intervention (pause). I think it was necessary that someone was pushing (…) Someone must be the responsible party here, and I got all the information. I was talking to other people. I was talking to other safety representatives. It depends maybe on which way… I have been safety representative for a very long time, so I feel safe; no one threatens me, if you understand. And if I talk, people listen. So, that maybe is the difference between safety representatives, which have been there for one year, I have been here for 5/6 years. So, I feel safe. [4SR]
Abstainer	I got an email [from the line manager]: "We have to do [the factsheet]," and then I got a new e-mail that the office manager had already done this. So, [my line manager] just came by and we looked at it for just one minute, the factsheet. So, it was really not participating I would say, it was more like: "Okay, I will check out that you were here." (…) I do not think that my role [in the intervention] was what it was supposed to be. [I was] just a tick-point. And I did not like that. (…) It says: "Work on this together with your leader," and that did not happen. [8SR]

to remedy. Thus, a possible consequence for the intervention implementation is that it comes to a halt after the development of action plans because *watchdogs of the work environment* will not prioritize the tasks and relationships that ensure their implementation if the work environment is considered unproblematic:

> We did not follow up on [implementing the developed action plans] as there were no problems [with the work environment]. You do not look for problems. You know what I mean? If you do not have a problem, you do not look for it. [14 SR]

Watchdog of the intervention

The safety representatives identified as *watchdogs of the intervention* crafted a role for themselves in which they observed and safeguarded that the intervention implementation was in good shape. They crafted roles that prioritized following up on the implementation of the intervention activities, often by monitoring that the line manager followed up implementing the intervention activities according to plan. However, the *watchdogs of the intervention* also prioritized following up on the employees' efforts in the intervention:

> [I] tried to help the employees develop good actions. That's my focus, that the actions should be something that feels relevant and that we actually want to do. (…) I'm not sure it should be a lot more than that because health and safety at work is really legally the responsibility of the manager. So, my job is to alert management when something is wrong and demand that they fix it. [2SR]

Differing from the *watchdogs of the work environment*, their mental models of the work environment's quality appeared irrelevant for whether the *watchdogs of the intervention* prioritized following up on the implementation of intervention activities. They prioritized those tasks and relationships regardless of context. In common with the *watchdogs of the work environment*, the *watchdogs of the intervention* had a mental model of a line manager who invites them to meetings and preparations for the intervention activities.

Possible consequences

Having safety representatives craft their role as *a watchdog of the intervention* may ensure that line managers and employees implement the intervention activities (e.g., the action plans), irrespective of their mental models of work environment quality: "Make sure the action plans do not become forgotten in a drawer" [13SR]. In comparison, having safety representatives craft their roles as *watchdog of the work environment* presents a risk to keeping up the intervention implementation momentum (e.g., by not

implementing the developed action plans) when they perceive the work environment to be of good quality.

Counselor

A third role safety representatives crafted was as a *counselor*, someone who actively represents the employees' interests in discussions with their line manager about implementing intervention activities. In contrast with the *watchdogs*, the *counselors* actively engaged in how the line manager implemented the intervention activities. Thus, they prioritized both the task of counseling and their relationship with the line manager. In general, they counseled their line managers on implementing the intervention activities before they began, how to interpret the survey results, and which action plans to implement. Some who crafted a role as *counselor* also took it upon themselves to summarize and mediate the feedback from the groups at the action development meetings for the line manager: 7SR said, "I was the one who sort of compressed the different feedback from the groups, and I very much relied on what they had written." In common with the *watchdogs of the work environment* and the *watchdogs of the intervention*, the *counselors* have a mental model of a line manager who invites them to participate in meetings where they can counsel the line manager on how to implement the intervention.

Possible consequences

A consequence for the intervention implementation was that it was shaped by the employees' work environment interests, as interpreted by the safety representative. Thus, the line managers got input from an employee representative's standpoint regarding how to constructively implement the intervention activities. This included, for instance, how to interpret the survey results and what action plans to implement.

Driver

A fourth way safety representatives crafted their role was as a *driver*. The *drivers* crafted their role as someone who implements the intervention activities. The *drivers* "pushed" the implementation by making it a priority to directly address and motivate the employees to participate throughout the intervention process and by taking responsibility for its completion. They did so by ensuring the employees completed the survey, leading the action planning meeting, and implementing the action plans themselves. The safety representatives' mental models of context enabled them to prioritize the tasks and social relationships that crafting a role as a *driver* seemed to require. First, the line manager seemed to have abdicated responsibility for implementing the intervention, a role the safety representative thought needed filling. Second, having the trust and respect of colleagues was necessary to feel "safe" to drive the implementation of the intervention.

Possible consequences

The consequence for the intervention implementation of safety representatives crafting their role as drivers appeared to be an employee-driven implementation of intervention activities. The *drivers* discussed and encouraged the employees to answer the survey, planned the survey feedback meeting with the line manager, presented the survey results to the employees, and made sure the action plans were implemented:

> I motivated the people to answer the questions, and we talked a lot about it. During this process, when we got the [survey], we could see how many had answered and everything, so I just asked: "Have you answered, have you answered? It's important that you do." (…) we are three safety representatives. So, we sat with the managers here and we presented some … we presented everything, but we decided first what … which topics were lower or higher than two years ago and what we thought was the thing we had to [focus on] (…) One other safety representative here, he made the presentation [of the survey results] and everything. (…) I was leading [the action plan development] (…) I am going to follow up [the implementation of the action plans]. [4SR]

While having safety representatives who craft their role as *drivers* seemed to make the intervention implementation more bottom-up, some safety representatives reported dissatisfaction with doing something they did not view as their mandate. They had a mental model wherein the line manager had abdicated responsibility, and they thought it was "wrong" that safety representatives were to do something they neither had the responsibility nor the authority to do. They wanted to craft a role as a *watchdog* or *counselor* but ended up as a *driver*. Without a formal mandate, a possible risk to the intervention implementation of having safety representatives craft a driving role, therefore, appears to be a resentful implementation of intervention activities:

> [Management] leaves responsibility (…) to the safety representative [for the intervention]. (…) I think the managers, institute managers, and the deans, those who have the formal responsibilities, you should start with them. Send them on a course or whatever, but they should run the whole survey. They should be the ones with the whip: "Answer now!" Not us. [The safety representative is] supposed to just follow and see that things are happening. If it is not happening, then you must report it to a higher level. But now we are running the business, and that is wrong because we don't have any authority, and we don't have any responsibility either, so this is a major problem. [1SR]

Abstainer

The fifth and final way safety representatives crafted their role we termed *abstainers*. These safety representatives let the intervention occur without taking the initiative to involve themselves in its implementation. Mental models of context appeared to be crucial for safety representatives crafting roles as *abstainers*. They may have wanted to craft their role as a *counselor* but felt unable to do so in a context where the line manager did not invite them

to the intervention implementation. Thus, they believed their line manager relegated them to a formal "tick-point" instead of enabling them to craft a role as a counselor who cooperates and provides insights into the intervention implementation from an employee representative's perspective. Moreover, some of the *abstainers* said they were unclear about what their role was supposed to be. They pointed to a mental model of the intervention as a reason for their unclarity: a lack of training and instruction for how to be a safety representative in the organizational intervention.

Possible consequences

A possible consequence of safety representatives crafting a role as an *abstainer* in an organizational intervention is that the intervention implementation was not informed by someone representing the employees' work environment interests. This renders its implementation more top-down, as in driven and informed mostly by the line manager. As these safety representatives do not monitor the line manager's implementation, there is also an increased risk that the intervention activities are not implemented by the line manager. The *abstainers* do not strictly represent a form of job crafting, as they did not actively shape their work situation. The *abstainers* are nonetheless included as a theme because they provide important insight into how mental models of context and intervention affect safety representatives' role and the possible consequences for the intervention implementation.

Discussion

Using job crafting theory (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001), the analysis of these results show the different roles safety representatives may craft for themselves in organizational interventions (i.e., as watchdogs, counsellors, drivers, and/or abstainers). The analysis also indicates that safety representatives' mental models of context (i.e., the line managers' invitation of their contributions or not, the work environment's perceived quality, and the employees' trust and respect for them) and of the intervention itself (i.e., lack or presence of proper training in the preparation phase) influence the roles they craft. Finally, the analysis illustrates the possible consequences the different roles safety representatives may craft for themselves have for the intervention implementation. This paper's analysis thus provides deeper insight into what occurs in organizational intervention processes (Nielsen & Miraglia, 2017).

The intervention process (i.e., the intervention design and implementation, the context of the intervention, and participants' mental models of context and intervention) determines the outcomes of organizational interventions (Nielsen & Randall, 2013), as many studies can support (e.g., Cox et al., 2014; Ipsen et al., 2015). Researchers have, for instance, found that organizational interventions break due to partial and poor implementation (Biron et al., 2010). The findings of this study suggest that the different roles safety representatives craft are likely to influence intervention implementation in distinct ways, which is likely to inform the organizational outcomes.

The safety representatives who craft roles as watchdogs of the intervention monitor whether line managers implement the various intervention activities, thus appearing to ensure an outcome that the line managers implement and complete the intervention. The safety representatives who craft roles as counselors counsel their line managers on how to effectively and constructively implement the intervention. Therefore, the counselors may ensure an organizational outcome influenced by indirect employee participation (Abildgaard et al., 2018). Instead of seeing the intervention implemented by line managers, the safety representatives who craft roles as drivers take ownership of the organizational intervention by implementing and completing it. The "rivers are thus likely to create an organizational outcome mostly determined by the safety representative, which perhaps can be considered direct employee determination.

In common for watchdogs of the intervention, counsellors, and drivers, implementing action plans in the implementation phase appears to be a benefit, either by ensuring that line managers implement the action plans, counseling line managers on implementing the actions plans, or implementing the action plans themselves. In this regard, the safety representatives who craft roles as watchdog of the work environment or abstainers appear to be exceptions. The watchdogs of the work environment monitor the line managers' intervention implementation of actions only if they perceive that the work environment is of poor quality. Thus, if these safety representatives perceive a work environment of good quality, the intervention appears vulnerable for not being completed, rendering an intervention without concrete outcomes. Moreover, the abstainers let the intervention be implemented without any of their input, thus risking unimplemented intervention activities.

The results also reinforce the importance of intervention participants' mental models of their context and the intervention (Nielsen & Randall, 2013). Previous research has found that participants' mental models affect their understanding and practice of roles in organizational interventions (e.g., Christensen et al., 2019; Ipsen et al., 2015). Echoing job crafting theory's link between context and job crafting (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001), this paper adds to the literature by showcasing the centrality of the safety representatives' mental models of context in how they craft their formal roles throughout concrete organizational interventions. The safety representatives' mental models of their work environment appear to be a prominent contextual feature affecting their role. If the work environment is perceived to require improvement, the safety representatives seem more inclined to position themselves to closely follow up on the implementation of intervention activities. This could be by crafting a role that ensures the line manager implements the intervention activities and/or by proactively providing counsel to line managers on how to implement the intervention activities.

Moreover, in line with the importance of leadership for job crafting (Wang et al., 2017a), the safety representatives' mental models of their line manager seem especially

important for their job crafting. When the line manager does not seem to involve the safety representative in planning or implementing the intervention activities, the safety representatives appear less motivated to craft a role that contributes to the intervention implementation. This could be by feeling unable to craft a role in which the safety representative counsels the line manager on implementing the intervention. Conversely, if the safety representatives experience the line manager involving them, they also feel enabled to craft a counseling role for their line manager.

In situations where line managers do not invite safety representatives to arenas in which they can craft roles, the lack of autonomy hindered job crafting (Wrzesniewski & Dutton, 2001). Job autonomy appears to play a distinct role when safety representatives perceive that the line manager abdicates responsibility to drive the intervention and safety representatives feel trusted and respected by colleagues. With job autonomy, line manager abdication of responsibility, and respect from colleagues, safety representatives have the freedom and legitimacy to fill the void left by the line manager by crafting a central role in which they drive intervention activities, such as encouraging survey completion, running the action plan meeting, and implementing the action plans.

These findings point to a conundrum between safety representatives' legislative mandate and management's expectations, which may lead to their differing levels of involvement in organizational interventions (Rasmussen et al., 2014), and the relationship between structural location and job crafting (Berg et al., 2010). Although line managers have a duty to consult safety representatives (Working Environment Act, 2017), they still have a managerial prerogative (Norwegian Bar Association, 2000), while safety representatives do not. These regulatory facts suggest that safety representatives who drive the intervention go beyond their legislated mandate. As the participants of this study can attest, this may engender resentment among the driving safety representatives when combined with a perception that their line managers have abdicated their responsibility to drive the intervention. Nevertheless, the findings of this study indicate that safety representatives might drive organizational interventions, but this role should not be a result of line manager abdication, which does not bring a good intervention implementation. Instead, it is possible to envision a different situation in which the intervention positions safety representatives to be co-drivers who collaborate with line managers from start to finish. A solution in the spirit of the Nordic model's emphasis on employee co-determination in work environment matters (e.g., Working Environment Act, 2017), but that likely requires increasing the amount of time (Hasle & Jensen, 2006) safety representatives have for executing their role.

The importance of mental models of context for safety representatives' job crafting in organizational interventions thus points to a need for contextual awareness by all participants. An improved intervention process creates improved outcomes (Nielsen & Randall, 2013), and managing mental models of context is crucial. Therefore, senior management, HR, line managers, and regular employees should all be conscious of their influence on the safety representatives' ability to craft a role conducive to an intervention process wherein intervention activities are planned and implemented, from start to finish, through a collaborative effort between line managers and safety representatives. This argument echoes the collaborative tradition of the Nordic work-life context but is also highly pertinent internationally, as research shows that collaboration between management and employees is beneficial for employee health (Egan et al., 2007), motivation, commitment (Bakan et al., 2004), and constructive organizational intervention processes (Nielsen et al., 2010).

Judging by the findings of this paper, organizational interventions are likely to benefit from collaboration between safety representatives and line managers. Such collaboration creates an intervention implementation in which activities are implemented with the employees' interests in mind as well as the interests of management. As the outcomes of an organizational intervention depend on the quality of the intervention process (Nielsen & Randall, 2013), generating contexts in which safety representatives can craft productive roles may increase the chances of success. Management should clarify the role of management and the role of the safety representative in the organizational intervention to create a shared understanding of the situation (Nielsen, 2017). Management should also enable safety representative co-determination and participation in planning and implementing intervention activities; whereas, employees should be conscious of how their behaviors may or may not signal trust and respect to the safety representative they elected.

The findings of this paper thus reinforce the importance of context in setting boundaries for job crafting (Berg et al., 2010; Wang et al., 2017a; Wrzesniewski & Dutton, 2001). The findings also suggest that the safety representative can take on a type of leadership role to drive and ensure the intervention's implementation. For instance, the safety representatives crafting their role as drivers did so in a context where their line manager did not take responsibility for implementation. These safety representatives had the option to let the intervention go unimplemented, but instead they took it upon themselves to implement the intervention in their line managers' place. In contrast, other safety representatives' context appeared to define their role fully, letting the intervention occur without their contributions. Although an understandable course of action, in terms of time management (Hasle & Jensen, 2006) and because the line managers did not invite them, these safety representatives also had the option to cite the intervention's intentions and legislation (Working Environment Act, 2017) to demand their contributions be integrated into the intervention process. Nevertheless, it is important to consider how the line managers' managerial prerogative to lead, control, decide, and organize (Norwegian Bar Association, 2000) creates formal boundaries that should make everyone be cautious about how much leadership to expect from safety representatives.

In addition to context, the intervention design is also important for the intervention process (Nielsen & Randall, 2013). For instance, the preparation phase familiarizes the participants with the measures of the organizational intervention (Nielsen et al., 2010). Besides showcasing the importance of having a safety representative involved in the intervention activities, the findings of this paper suggest that training safety representatives in the preparation phase may help in reaping the benefits safety representatives can offer in an organizational intervention. Instead of individual interpretations of how formal and broad mandates translate to a concrete organizational intervention, safety representatives may, in the preparation phase, go through training in how to fruitfully craft roles appropriate for their situation. In this training, the safety representatives can learn the benefits of crafting roles that go above and beyond the traditional stance in which they reactively safeguard the work environment and the organizational intervention implementation. Training may inform and encourage safety representative to attend to the positive aspects of the working environment and how the organizational intervention may preserve these positive aspects. Training may also help safety representatives understand the possibilities and positives of an approach in which they support their line managers in the implementation of intervention activities. Perhaps optimally in terms of employee co-determination and participation, safety representatives may learn to co-drive the organizational intervention with the line manager, given that they have enough time to do so (Hasle & Jensen, 2006).

Limitations

There are four criteria for validity in qualitative research (Yardley, 2015): sensitivity to context, commitment and rigor, coherence and transparency, and impact and importance. This study shows sensitivity to the context of research and theory when generating the research question, as it poses a previously unaddressed research question, building on prior research and theory. Regarding commitment and rigor, the sample size of this study satisfies the recommended number of informants for thematic analysis (Clarke et al., 2015). However, a systematic bias may stem from those who opted to participate in this study, as only 15 out of 35 phoned safety representatives volunteered to participate. This may have created a skewed analysis regarding whether the interviewed safety representatives speak for a sufficient variety of perspectives on the topic, challenging commitment and rigor (Yardley, 2015). Nevertheless, the safety representatives worked in different departments: administration, natural sciences, social sciences, and humanities. In addition, we suggest that the research achieved saturation, as similar themes emerged in our different interviews (Charmaz, 2006).

This research attempts to achieve coherence by trying to conduct the study in a way that coheres as a whole, where there is a match between the data interpretation, the research question, the theoretical procedure, and the methods conducted (Yardley, 2015). Furthermore, we achieve transparency, as the paper contributes a specific account of how the codes and themes were generated based on the data (Yardley, 2015). Relatedly, the authors of this paper were active in the research process (i.e., by creating the premises and generating the themes); this might pose a potential limitation having to do with intersubjective reliability (Clarke et al., 2015). Nevertheless, we created the interview guide based on recommendations of past intervention research (Nielsen & Randall, 2013). Furthermore, a third party conducted some of the interviews, and research questions structured the analysis, making evaluations of validity transparent and readily available for everyone.

Impact and importance were goals of this study, showcasing how safety representatives make substantial contributions to organizational interventions, and ensuring its successful implementation. Closely related is external validity, which could potentially pose a limitation as well. Scholars have argued that findings in qualitative research can never be generalized from one context to another (Guba & Lincoln, 1989). However, other scholars have argued that the aim of qualitative research is not generalizability in a quantitative and statistical sense, but rather to provide insights for different yet similar contexts (Yardley, 2015). Organizational interventions have proved to be important in other organizations than academia, for instance at blue collar workplaces (Nielsen et al., 2014). Thus, the findings of this study may arguably provide valuable insights for practitioners implementing, and scholars researching, organizational interventions in other work contexts.

Conclusion

This study adds to the organizational intervention literature by adding knowledge about the types of roles job-crafted by safety representatives in organizational intervention processes. Influenced by mental models of intervention design (i.e., training) and context (i.e., work environment, line manager, and colleagues), the safety representatives crafted roles in which they safeguarded the work environment (i.e., watchdog of the work environment), safeguarded the intervention implementation (i.e., watchdog of the intervention), counseled line managers on how to implement the intervention activities (i.e., counselor), drove the implementation of the organizational intervention (i.e., driver), and/or let the intervention occur without their input (i.e., abstainer). Job crafting by safety representatives appeared to influence the intervention implementation by ensuring or not ensuring the implementation of the intervention activities (e.g., implementing action plans in the implementation phase). However, this study does not directly investigate safety representatives' influence on the outcomes of organizational interventions. Thus, to ascertain this influence more conclusively, future researchers may deploy a design wherein they study the effects of safety representatives' job crafting on the outcomes of organizational interventions.

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Competing Interests

The authors have no competing interests to declare.

Author Contributions

- Eyvind Helland wrote the paper, conducted interviews, and conceived, designed and performed the analysis.
- Marit Christensen contributed with idea and writing the paper, conducted interviews, and conceived and designed the analysis.
- Siw Tone Innstrand contributed to writing the paper and conceived and designed the analysis.
- Anne Iversen contributed to writing the paper and conceived and designed the analysis.
- Karina Nielsen contributed to writing the paper and conceived and designed the analysis.

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Appendix I - III

Appendix I: The Knowledge-Intensive Working Environment Survey Target (KIWEST) used in paper I

Appendix II: The interview guide for paper II

Appendix III: The interview guide for paper III

Appendix I

The Knowledge-Intensive Working Environment Survey Target (KIWEST) used in paper I

ARK
Arbeidsmiljø- og klimaundersøkelser

KIWEST2-MAL

Vennligst velg språk:
*Please select language:**

- ○ Norsk
- ○ English

ARK
Arbeidsmiljø- og klimaundersøkelser

KIWEST2-MAL

Welcome to ARK-KIWEST - Working Environment Surveys for Universities and University Colleges

Please answer all the questions in one session. If you stop before you have finished, you will have to start over. We will send two reminders before data collection ends.

You agree to participate in the survey by answering the questions and submitting the form by clicking "Done" on the last page. If you wish to withdraw from the survey after submitting your answers, please contact ark-kontakt@ntnu.no, referring to the email address to which the invitation to participate in the ARK survey was sent. Two weeks after the reply deadline, respondents' email addresses will be removed from the survey answers, after which it will no longer be possible to withdraw.

The Norwegian University of Science and Technology (NTNU) is responsible for the data collection and storage.

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Interpersonal relations

To what extent do you agree or disagree with the following statements about relations within your unit, ?

	Strongly disagree 1	Dis-agree 2	Neither /nor 3	Agree 4	Strongly agree 5
I feel that I am part of a community at my unit	○	○	○	○	○
People in my unit sometimes help me in a difficult situation, but do not support in a way that is matter-of-factly	○	○	○	○	○
My work is hampered by power struggles and territorial thinking in my unit	○	○	○	○	○
The climate in my unit is rigid and rule-based	○	○	○	○	○
People in my unit sometimes help me in a difficult situation, but indicate that I should have dealt with the problem myself	○	○	○	○	○
People in my unit sometimes help me in a difficult situation, but expect everlasting gratitude	○	○	○	○	○
This unit gives me ample opportunities to improve my personal performance	○	○	○	○	○
The climate in my unit is distrustful and suspicious	○	○	○	○	○
There is a good atmosphere between me and my colleagues	○	○	○	○	○
There is a good sense of fellowship between the colleagues at my unit	○	○	○	○	○
People in my unit sometimes help me in a difficult situation, but support me reluctantly	○	○	○	○	○
The climate in my unit is competitive	○	○	○	○	○
People in my unit sometimes help me in a difficult situation, but do so with a reproachful tone or gaze	○	○	○	○	○
In my unit, intrigues impair the work climate	○	○	○	○	○
People in my unit sometimes help me in a difficult situation, but combines this with reproaches	○	○	○	○	○
The climate in my unit is encouraging and supportive	○	○	○	○	○
In my unit, there is a great deal of tension due to prestige and conflicts	○	○	○	○	○
The climate in my unit is relaxed and comfortable	○	○	○	○	○

If a statement does not apply to your situation or unit, please select "Not applicable".

	Strongly disagree 1	Dis-agree 2	Neither /nor 3	Agree 4	Strongly agree 5	Not applic-able
Men and women are treated as equals in my unit	○	○	○	○	○	○
In my unit, there is room for employees of a different ethnic background or religion	○	○	○	○	○	○
In our unit, we stand together in trying to reach our performance goals	○	○	○	○	○	○
In my unit, there is room for older employees	○	○	○	○	○	○
I'm happy with my unit's level of task commitment	○	○	○	○	○	○
In my unit, there is room for employees with various illnesses or disabilities	○	○	○	○	○	○

Job demands

To what extent do you agree or disagree with the following statements?

	Strongly disagree 1	Dis-agree 2	Neither /nor 3	Agree 4	Strongly agree 5
I know when a task is completed	○	○	○	○	○
I am often given assignments without adequate resources to complete them	○	○	○	○	○
I am expected to continually develop my competence	○	○	○	○	○
It happens quite often that I have to work under heavy time pressure	○	○	○	○	○
I determine when my work assignments are completed	○	○	○	○	○
I frequently receive incompatible requests from two or more people	○	○	○	○	○
My job involves tasks that are in conflict with my personal values	○	○	○	○	○
It is up to me to assess when I have completed a work assignment	○	○	○	○	○
The nature of my work means I continually have to develop and think in new ways	○	○	○	○	○
I frequently have too much to do at work	○	○	○	○	○
I have to do things that I feel should be done differently	○	○	○	○	○
I feel pressure to continually learn new things in order to manage my work tasks	○	○	○	○	○
I have enough time to do what is expected from me at work	○	○	○	○	○

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Work organisation and job contents

To what extent do you agree or disagree with the following statements about your work situation and your unit, ?

	Strongly disagree	Dis-agree	Neither /nor	Agree	Strongly agree

	1	2	3	4	5
What is expected of me at work is clearly expressed	○	○	○	○	○
My unit is constantly evolving to meet the employees' needs	○	○	○	○	○
I must carry out work which I think should be done by someone else	○	○	○	○	○
I feel that the objectives of my job are diffuse and unclear	○	○	○	○	○
I have a sufficient degree of influence in my work	○	○	○	○	○
My unit is open-minded and adapts to changes	○	○	○	○	○
I can make my own decisions on how to organize my work	○	○	○	○	○
I must carry out work that put me into awkward positions	○	○	○	○	○
I have a clear understanding of which tasks constitute my job	○	○	○	○	○
In my unit, no one listens to new suggestions and ideas	○	○	○	○	○
I must carry out tasks that I think are unfair that I should do	○	○	○	○	○
My unit is flexible and continually adapts to new ideas	○	○	○	○	○
There is room for me to take my own initiatives at work	○	○	○	○	○
I must carry out work which I feel demands more of me than is reasonable	○	○	○	○	○
My unit strives to retain status quo rather than to change	○	○	○	○	○
I manage my work situation in the direction I want	○	○	○	○	○

NOTE: *If research/teaching is not defined as part of your job, please select "Not applicable".*

	Strongly disagree 1	Dis-agree 2	Neither /nor 3	Agree 4	Strongly agree 5	Not applic-able
I get the administrative support I need for planning and implementation of teaching and examinations	○	○	○	○	○	○
I get the administrative support I need for my research	○	○	○	○	○	○
I get the technical support I need for my research	○	○	○	○	○	○
I get the support I need for internationalisation of my research	○	○	○	○	○	○

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Management

To what extent do you agree or disagree with the following statements about management in your unit, ?

	Strongly disagree	Dis-agree	Neither /nor	Agree	Strongly agree

	1	2	3	4	5
My unit management is always reliable	○	○	○	○	○
I can trust information from my unit management	○	○	○	○	○
I can expect my unit management to treat me in a consistent and predictable way	○	○	○	○	○
My unit management withholds important information from the employees	○	○	○	○	○
I am treated fairly by my unit management	○	○	○	○	○
My unit management is open and honest with me	○	○	○	○	○
My work is recognized and appreciated by my unit management	○	○	○	○	○
It is possible for the employees at my unit to express their views	○	○	○	○	○
I have complete confidence in my unit management	○	○	○	○	○
I am respected by my unit management	○	○	○	○	○
My unit management trusts the employees to do their work well	○	○	○	○	○
I am confident that I can trust my unit management	○	○	○	○	○

"Your immediate superior" is the person with whom you have (or will have) employee appraisal interviews ("medarbeidersamtaler").
If a statement does not apply to your situation or unit, please select "Not applicable".

	Strongly disagree 1	Dis-agree 2	Neither /nor 3	Agree 4	Strongly agree 5	Not applic-able
My immediate superior contributes to the development of my skills	○	○	○	○	○	○
My immediate superior encourages me to participate in important decisions	○	○	○	○	○	○
My immediate superior encourages me to speak up when I have a different opinion	○	○	○	○	○	○
My immediate superior treats the employees fairly	○	○	○	○	○	○
My immediate superior talks with me about how well I carry out my work	○	○	○	○	○	○
My immediate superior listens to me when I have problems at work	○	○	○	○	○	○
My immediate superior distributes work assignments fairly	○	○	○	○	○	○
My immediate superior treats the employees impartially	○	○	○	○	○	○
My immediate superior gives me the help and support I need from her/him	○	○	○	○	○	○

The following statements refer to the administrative level above your unit, .
If a statement does not apply to your situation or unit, please select "Not applicable".

	Strongly disagree 1	Dis-agree 2	Neither /nor 3	Agree 4	Strongly agree 5	Not applic-able
I can expect the management of the next administrative level to treat me in a consistent and predictable way	○	○	○	○	○	○
The management of the next administrative level is always reliable	○	○	○	○	○	○
The management of the next administrative level is open and honest with me	○	○	○	○	○	○
I am confident that I can trust the management of the next administrative level	○	○	○	○	○	○
I have complete confidence in the management of the next administrative level	○	○	○	○	○	○

Your relationship with your job

To what extent do you agree or disagree with the following statements?

	Strongly disagree 1	Dis-agree 2	Neither /nor 3	Agree 4	Strongly agree 5
I am happy to tell others about my workplace	○	○	○	○	○
Job worries or problems distract me when I am at home	○	○	○	○	○
I feel motivated and involved in my work	○	○	○	○	○
The things I do at work help me deal with personal and practical issues at home	○	○	○	○	○
The things I do at work make me a more interesting person at home	○	○	○	○	○
My work is meaningful	○	○	○	○	○
My job reduces the effort I can give to activities at home	○	○	○	○	○
I would recommend a close friend to apply for a position at my workplace	○	○	○	○	○
Stress at work makes me irritable at home	○	○	○	○	○
My work has a positive influence on my health	○	○	○	○	○
The skills I use at work are useful for things I have to do at home	○	○	○	○	○
My work has a negative influence on my health	○	○	○	○	○
Having a good day at work makes me a better companion when I get home	○	○	○	○	○
I feel that my workplace is of great importance to me	○	○	○	○	○
My job makes me feel too tired to do the things that need attention at home	○	○	○	○	○
I feel that the work I do is important	○	○	○	○	○

How often do you have the following experiences?

	(Almost) never 1	Some-times 2	Often 3	(Almost) always 4
I seem to be in a hurry and racing against the clock	○	○	○	○
I find myself continuing to work after my co-workers have called it quits	○	○	○	○
It is important to me to work hard even when I do not enjoy what I am doing	○	○	○	○
I stay busy and keep many irons in the fire	○	○	○	○
I feel that there's something inside me that drives me to work hard	○	○	○	○
I spend more time working than on socializing with friends, on hobbies, or on leisure activities	○	○	○	○
I feel obliged to work hard, even when it is not enjoyable	○	○	○	○

I find myself doing two or three things at one time, such as eating lunch and writing a memo, while talking on the telephone	○	○	○	○
I feel guilty when I take time off work	○	○	○	○
It is hard for me to relax when I'm not working	○	○	○	○

	Never 0	A few times a year or less 1	Once a month or less 2	A few times a month 3	Once a week 4	A few times a week 5	Every day 6
At my work, I feel bursting with energy	○	○	○	○	○	○	○
At my job, I feel strong and vigorous	○	○	○	○	○	○	○
When I get up in the morning, I feel like going to work	○	○	○	○	○	○	○
I am enthusiastic about my job	○	○	○	○	○	○	○
My job inspires me	○	○	○	○	○	○	○
I am proud of the work that I do	○	○	○	○	○	○	○
I feel happy when I am working intensely	○	○	○	○	○	○	○
I am immersed in my work	○	○	○	○	○	○	○
I get carried away when I'm working	○	○	○	○	○	○	○

How do you feel about your present job and workplace in general?

	1	2	3	4	5	6	7	
Manageable	○	○	○	○	○	○	○	Unmanageable
Meaningless	○	○	○	○	○	○	○	Meaningful
Structured	○	○	○	○	○	○	○	Unstructured
Easy to influence	○	○	○	○	○	○	○	Impossible to influence
Insignificant	○	○	○	○	○	○	○	Significant
Clear	○	○	○	○	○	○	○	Unclear
Controllable	○	○	○	○	○	○	○	Uncontrollable
Unrewarding	○	○	○	○	○	○	○	Rewarding
Predictable	○	○	○	○	○	○	○	Unpredictable

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Background information

Have you had an employee appraisal interview ("medarbeidersamtale") *during the last 24 months*?

- ◯ Yes
- ◯ No
- ◯ Not relevant (due to leave or becasue I was recently employed)

***If yes*: On the scale from 1 to 5, how do you feel about the employee appraisal interview(s) you have had during the last 24 months?**

	A waste of time 1	2	3	4	Very positive 5	Not applic-able
If you have not had an employee appraisal interview during the last 24 months, please select "Not applicable".	◯	◯	◯	◯	◯	◯

How many hours over and beyond your agreed working hours do you normally work per week?

- ◯ 0
- ◯ 1 - 5
- ◯ 6 - 10
- ◯ Over 10

What percentage of your position is allocated to:

	0%	Under 25%	25 to 50%	Over 50%
Research	◯	◯	◯	◯
Teaching	◯	◯	◯	◯
Dissemination	◯	◯	◯	◯
Artistic development work	◯	◯	◯	◯
Study work	◯	◯	◯	◯
Fieldwork	◯	◯	◯	◯
Laboratory work	◯	◯	◯	◯
Clinical work	◯	◯	◯	◯
Research support services	◯	◯	◯	◯
Administrative tasks/services	◯	◯	◯	◯
Technical services (operation and maintenance)	◯	◯	◯	◯
Other (please specify below)	◯	◯	◯	◯

Other work tasks:

Note: Survey results will be presented in such a way that individual respondents will not be recognisable. Data will only be made available in anonymised form.

Sex:

Age:

- ◯ Under 30 years
- ◯ 30 - 39 years
- ◯ 40 - 49 years
- ◯ 50 - 59 years
- ◯ 60 years or more

Job category:

- ◯ Academic
- ◯ Technical/administrative
- ◯ Unit leader (rectorate, dean, head of dept., director, head of section etc.)

Terms of employment:

- ◯ Permanent
- ◯ Temporary

Percentage of full-time position:

- ◯ Under 25%
- ◯ 25% - 49%
- ◯ 50%
- ◯ 51% - 99%
- ◯ 100%

Time of employment at :

- ◯ Under 5 years
- ◯ 5 - 9 years
- ◯ 10 years or more

Please click "Next" in order to finish and submit your answers.

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For å sende inn dine svar og samtykke i å delta i undersøkelsen, vennligst klikk på «Done».

To submit your answers and agree to participate in the survey, please click "Done".

Appendix II:

The interview guide for paper II

Note: This is a translated version of the interview guide, from Norwegian to English. The interviews were semi-structured; the interview guide functioned as a foundation from which to ask questions about the safety representatives' role in the organizational intervention.

Process evaluation of the ARK Intervention Program with a focus on the leader's role

Introduction to the interviewee: Thank you for your participation. The goal of this research is to provide constructive contributions to intervention research. The interview will last about 45 minutes. The goal of the interview is not to evaluate your role, or how your department did it, but rather to find out more generally about the role of the leader in the ARK Intervention Program's process. It is voluntary to participate, and you have the possibility to withdraw from the project at any time. Your contribution will stay anonymous throughout the entire research process. Do you have any questions before we begin?

Preparation and anchoring

- In what way were you introduced to the ARK Intervention Program's process?
    - Do you know who decided that the heads of departments would drive the processes? (Did you get any influence on that decision? Did you get opportunities to ask questions?)
- What was communicated to you the goal of the ARK Intervention Program's process was?
- Did you receive training in the ARK Intervention Program's process? (Did you receive enough information? Was the information good enough? What is needed for making the training better? Theory, implementation?)
- How did you motivate your employees to participate in the ARK Intervention Program's process? (How did you communicate with your employees about this?)

    - Did you meet resistance? (What were their resistance against? Did you meet indifference?)
    - Did you do any risk analyses about resisting employees? (Regarding participation, your own role as a process leader, negative feedback, leader support).
- Were you motivated to implement the ARK Intervention Program's process?
- Were you and your employees equally motivated for the ARK Intervention Program's process? (In what ways did you agree/disagree?)

Screening: Answering the survey

- What was done to motivate the employees for responding to the survey? (How?)
- What, if any, do you see as the value of FactSheet I?
    - How did you use FactSheet I in the development of the work environment at your department?

The development of action plans

- How were the results of the survey presented? (What did you do? May you elaborate in detail?)
    - What was your role in presenting the survey results?
    - How did you prepare for this meeting?
- Did you do any preparations in terms of possible negative results from the survey? (risk assessments and made strategies?)
- Did you experience leader support in this phase? (What kind of lead support? Was it satisfactory?)
- Some of the questions were about leadership. Were they useful in your execution of your role as a leader? (Were some more or less useful?)

- Was anything done to motivate the employees to participate in this phase? (What?)
- What do you believe are central success factors and risk factors in this phase?
- How did you go from presenting results to the development of action plans? (Detailed action plans, communication of implemented action plans)
- For you as head of department, what was the goal of the action plan development?
    - What do you believe was the goal for the employees? (What do you believe motivated the employees?)
- How do think your employees contributed to developing action plans?
- What role did you have in developing the action plans?
    - What action plans were developed?
    - Which action plans do you believe were important? (In what ways? Did they contribute to the department's overall aims?)
    - Were there any action plans you disagreed with? (How did you manage the potential disagreement?)
- Did you use the concepts from the survey to develop the action plans? (for instance, social community at work, empowering leadership etc.)
- The results were about concepts like "trust, justice, engagement, support". How was it to go from these concepts to developing concrete action plans?
    - What might potentially be useful tools to make the development of action plans easier?

Implementation of action plans

- What was the procedyre from the development of the action plans and their implementation? (What was the implementation strategy?)
- Who was responsible for implementing the action plans?

    - What was your role in implementing the action plans?
    - Whose responsibility was it to follow up on the action plans' implementation?
    - Did the action plans become part of the department's plan? (How were these plans followed up on? Who were responsible for following them up?)
- To what degree were the action plans implemented?
- Looking back, do you have any suggestions on how to improve the implementation of action plans?

Evaluation of process and action plans

- How do you see the usefulness of FactSheet II?
    - How was FactSheet iI used at your department?
- Was the effect of the action plans evaluated? (In what ways?)
    - Do you see any need for other types of tools to evaluate the action plans' effect?
- As you see it, did the action plans have an effect? (Why, why not?)

The ARK Intervention Program's process as a whole

- Did you experience having enough time and resources to do a good job with the ARK Intervention Program's process? (Can you elaborate?)
- What was the safety representative's role in the ARK Intervention Program's process?
    - What do you think the safety representative's role might be?
- What did you want to get out of the ARK Intervention Program's process as head of the department?
- Did you as a leader get the support you needed from the organization to conduct the ARK Intervention Program's process? (For example, from HR/HMS/leader group/ other leaders). In what ways? (Motivation? Information?)

- Do you have a plan for transferring knowledge and experience about the ARK Intervention Program's process throughout leadership changes? (Which?)
- Looking back, would you as head of department have done something different?
- In terms of work environment development, what tools do you need to do a good job? (Beyond what was offered? Anchoring, screening, action plan development, implementation and evaluation? From the ARK Intervention Program, senior management, co-workers, safety representatives or others?)
- What do you believe are the most important success criteria for a good work environment development?

Appendix III:

The interview guide for paper III

Note: This is a translated version of the interview guide, from Norwegian to English. The interviews were semi-structured; the interview guide functioned as a foundation from which to ask questions about the safety representatives' role in the organizational intervention.

Process evaluation of ARK with a focus on the role of the safety representative

Introduction to the interviewee: Thanks for participating. The purpose behind this research is to provide constructive contributions, based on your role as a safety representative and as a representative for the employees, towards research on organizational interventions and organizational development. The interview lasts around 45 minutes. The purpose with the interview is not to evaluate your role specifically, or how your workplace performed, but rather to find out more about the role of the safety representative in the ARK-intervention. Participation is voluntary, and you can withdraw from the project at any point in time. Your contribution is anonymous throughout the whole process and your data will be treated with confidentiality. I have brought schemas and reports (translation note: about the intervention) that you may use as a help for answering the questions, in case you wish to use them. Do you have any questions before we begin?

About preparation and anchoring

- How were you introduced to the ARK-process?
- How was the purpose of the ARK-process communicated to you?
- Did you get any training in the ARK-process? From whom? (Did you get enough information, was it good enough? For example: Theoretical background or how to approach implementing the intervention?)
- How were employees motivated to participate in the ARK-process?
- How was information about the ARK-process communicated to the employees?
- What was your role in communicating about ARK to the employees?

- Was there resistance towards the ARK-process? (What was the resistance about? Did you meet indifference?)
    - Was any risk analyses conducted regarding resistance among the employees at your department?
- Were you motivated to participate in the ARK-process? Is there something about the process that does not motivate you?
- Were your colleagues motivated for the ARK-process?
- How was the cooperation with the line manager in implementing the ARK-process?
- How was the cooperation in completing FactSheet 1?
- Did you find FactSheet 1 useful? How?
- Did you use FactSheet 1 for organizational development? How did you use FactSheet 1 in the development of the work environment at your workplace?

About the survey

- How did the line manager involve you in the ARK-process?
- What was done to motivate the employees in answering the survey? (How? Describe)
- Did you do anything to motivate your colleagues for completing the survey?
- Could anything have been done differently? Was there anything missing?
- How did you and your colleagues experience the survey? How did that experience influence the further process? What did you think about the questions and their relevance?

About presentation of the results of the survey

- What was your role as a safety representative in the feedback meeting?
- How were the results of the survey presented? What did you do? Could you elaborate in detail?

    - Who was in charge? Was there leader support or assistance from consultants/HR?
    - What do you think was your role in the presentation of the results?
    - How did you prepare for the meeting?
    - Did you contribute as much as you wanted?
- Was anything done before the survey feedback meeting to motivate the employees for participating in this meeting? (What?)
- What do you think are key factors so that this meeting becomes a success?
- What challenges did you have in relation to the survey feedback meeting?

About the action plan development

- How was the meeting where you developed the action plans? (meetings? day off? any specific tools?)
    - Did the line manager have leader support (HR for instance?)
    - If you used consultants, what was their role?
    - How were the action plans developed? Did you use a method or some tools?
    - Were the developed action plans based directly on the results of the survey? (From abstract psychological concepts to concrete action plans?)
    - Do you think the results of the survey were enough to develop the working environment?
    - Do you think it was easy to understand what the psychological constructs meant and how to translate them to your everyday working life? Do you think you got a good enough explanation about how to use them and how to base improvements upon them?
    - What do you was the main purpose of the employees for participating in the action plan development? What was their motivation?

- How did the employees contribute to developing the action plans?
- What role did you have in the development of the action plans?
- What was the role of the line manager in developing the action plans?
- Was there, in this phase, any cooperation between you and the line manager?
- What role did the employees have in developing the action plans?
    - How did you use the results to develop action plans?
    - What action plans were developed?
    - Which did you think were the most important? (In what ways do you think that the action plans contributed to reaching the overarching goals of the workplace?)
- Did you use the concepts of the survey to develop the action plans?
- The results were about concepts like "trust, justice, commitment, support". How was it to move from these concepts to developing concrete action plans?
    - What could be useful tools for making the development of action plans easier? What would you need?
    - Did you feel that the leader prioritized this task? Do you think this process should receive more or less resources?

About implementation of action plans

- Were you involved in implementing the action plans? How?
- Were the employees involved in implementing the action plans? How?
- What was the line manager's role in implementing the action plans? How?
- What was the implementation strategy?
- Who were responsible for implementing the action plans?
    - What was your role in implementing the action plans?

    - Who were responsible for following up on the implementation of the action plans?
    - Were the action plans included in the workplace's overall plan? (How were the action plans followed up? How had the main responsibility to follow up?)
- How do you evaluate the process with implementing the action plans?
- Looking back, do you have any suggestions on how to improve the implementation of the action plans?

About the process evaluation

- Were you involved in the process evaluation?
- What was evaluated?
- How was it evaluated and by whom?
- Did you complete FactSheet2 with your line manager?
- How do you see the use of FactSheet2?
    - How was FactSheet2 used in your workplace?
- As you see it, did the action plans have an effect? (Why, why not?)
- Where the effects of the action plans evaluated? (How?)
- Do you have any tools that measure the success of the action plans?
    - Do you need any other tools to evalyate whether the tools had an effect?

About the ARK-process as a whole

- Do you think that you had enough time and resources to do a good job with the ARK-process? (Could you elaborate on that point?)
- What was your role as a safety representative in the ARK-process?
    - What do you think the safety representatives' role should be in the ARK-process?

    - How was the cooperation with the line manager?
    - Were the employees involved and sufficiently informed about the process? What was your impression of how informed the employees were? How involved they were?
- What did you want to get out of the ARK-process as a safety representative?
- In case of a new safety representative, is there a plan to transmit knowledge about ARK to the new safety representative?
- Looking back, would you as a safety representative do anything differently?
- What do you think are the most important success factors for a good work environment development?

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