

Defining and implementing a smart working environment for employee sustainability: action research for organisational development and learning

Organisational
development
and learning

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Abstract

Purpose – The purpose of this study consisted of an organisational development intervention in a growing small and medium-sized enterprises (SME) where the top management's objective was to become an attractive workplace for the next generation of employees. The central problem is how to develop a smart working environment (SWE) based on the needs of this target group. The aim is both practical and theoretical.

Design/methodology/approach – The action research (AR) approach was used as a frame for the organisational learning process. The problem identification, targets and activities were developed in an iterative process together with the management team and employees. Starting from the main problem, a methodological plan was outlined for the intervention, including several instruments for collecting both qualitative and quantitative data. AR is an emergent process in which data, researchers and participants are equally contributing in deciding on the next steps to be taken.

Findings – The theoretical findings pertain to the definition of what an SWE is in this specific context and how it evolved during the intervention period. It is identified as expansive learning of the concept, which is illustrated through the iterative phases allowing for the expansion of understanding and implementing new ways of being, doing and relating in the organisation.

Research limitations/implications – The results are based on a limited and contextually specific sample and are thus descriptive in relation to the organisation subjected to study. Further research is needed to see how the findings are transferable to other contexts.

Practical implications – This study highlights how participative approaches and managerial sensitivity to employees' needs are valuable for defining and implementing an SWE and how this approach can improve organisational dynamics and contribute to organisational learning.

Originality/value – The study gives insight into factors that the new generation of employees finds most important at work. While prior research on SWE mostly focuses on efficiency and effectiveness framed by



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digitalisation and workspace, the present findings emphasise the importance of working with the socioemotional dimension at work for ensuring employee sustainability.

Keywords Smart working environment, Employee sustainability, Organisational learning, Action research, Expansive learning, Formative intervention

Paper type Research paper

Introduction

This study consisted of a formative intervention in a growing small and medium-sized enterprise (SME) where the top management's objective was to become an attractive workplace for the next generation of energy technology industry workers as a warrant for employee sustainability. From this objective, the aim of the intervention was to develop a smart working environment (SWE) that would favour employees' well-being at work and identification with company values. Hence, the management team of the company needed to better understand the desires of young employees, who comprised the majority of the staff during the intervention. Furthermore, the company grew from 10 to 20 during the 18 months of the intervention. The point of departure for the intervention was not merely to understand the needs of the next generation of employees but also to cater for the socialisation of new employees of the organisation. As a newcomer, one needs to learn about and understand both overt and covert norms, as well as to adapt and negotiate his/her role within the social context (Myers and Sadaghiani, 2010). In this case, newcomers were most likely to be young, and many were entering their first employment.

The study also draws on the notion of formative interventions aimed at expansive learning of a contextually defined concept (Sammino *et al.*, 2016). Although the authors do not use a cultural-historical activity theory-based framework, certain concepts from this line of research were purposefully adopted. For instance, the concept of expansive learning is used to frame the aim of the study: defining and implementing the concept of SWE. The concept of formative intervention is used to describe the research design of taking formative actions, starting with a problem without having a specific end result in mind. This is in contrast to traditional intervention studies that test a pre-defined method for creating a specific effect (e.g. positive psychology interventions in organisations, Meyers, *et al.*, 2013).

The nature of the intervention was not aimed at fixing a problem *per se* but at increasing positive functioning and strengths of the organisation by implementing formative, participatory development without any known method beforehand. Iterative phases of targeted learning actions were carried out while involving the target group in the process. Because of this, the study was framed as action research (AR) (Eikeland, 2012).

This article gives, at first, a brief background on how smart working has been defined in studies on organisational development (OD) and how organisational learning plays a role in the development and implementation of an SWE. Then, the AR methodology is described as a research paradigm for formatively improving a context. Thereafter, each of the five phases of the AR process is described in detail, both regarding choice of learning actions and theoretical underpinnings, as well as intermediate results. This leads to a synthesis of results related to the expansive learning that an SWE entails. Finally, the authors discuss the outcome of the whole process, draw conclusions and give suggestions for further work and research pertaining to the evolving understanding and development of an SWE.

Background

Continuous organisational learning is critical for staying competitive (Garvin *et al.*, 2008; Senge, 1990). Hence, companies need to abandon inappropriate ways of working to adapt and successfully survive organisational and environmental contingencies and changes (Birkinshaw *et al.*, 2008),

support emergent needs (Gastaldi *et al.*, 2014), reduce negative effects (Wang *et al.*, 2012) and sustain superior performance (Kaplan and Norton, 2006). Managers, aware of the employees' centrality in the value creation process, are investing increasing resources in the identification of the right strategies to balance the new business challenges with the evolving needs of their employees (Leonardi, 2011). Indeed, the value creation within the business is no longer strictly linked to the implementation of new business models (McGrath, 2013; Gastaldi *et al.*, 2014) but also to how employees translate these business models in their daily activities, adapting them to the changing environment (Brown and Eisenhardt, 1998).

In light of these considerations, many organisations are rethinking their organisational practices and investing in employees' involvement to identify high-leverage solutions that will have a mutual benefit for employees and organisations (Grawitch *et al.*, 2009). These new emerging solutions, in the literature are defined as "Smart Working" practices (Plantronics, 2014), referring to those practices that provide all employees with the best working conditions and environment to accomplish their tasks. The concept of smart working emerged in the literature in the early 2000s as a new approach for organisations. It emphasised a shift from conventional ways of working and classic managerial styles based on control (Brewer, 2000) to new solutions based on higher flexibility. Additionally, it focused on a higher discretion in performing the work activities and on the centrality of the quality of results that workers provide (Torre and Sarti, 2019). Despite the increasing relevance of smart working studies in the literature, researchers tend to tackle smart working from the side of engineering until reaching an occupational safety and health perspective (Munir *et al.*, 2018; Podgórski *et al.*, 2017). Only little research observes it from the perspective of intervening in the workplace and on work practices to create smarter ways of working (Colbert *et al.*, 2016; Wallo *et al.*, 2021).

Models of smart working usually focus on three elements: layout, ICT and HR (Gastaldi *et al.*, 2014). Many studies, thus, target how workplaces support flexibility in choosing work tools (facilitated by technological advancement) and flexibility in space and time (Gastaldi *et al.*, 2014; Angelici and Profeta, 2020). In these studies, technology and the digitalisation of work tools are a substantial part of defining what an SWE is (Podgórski *et al.*, 2017; Torre and Sarti, 2020). Other studies focus more on space, especially space downsizing (Tagliaro and Ciaramella, 2016), as a holistic approach towards managing flexible and creative workspaces for employees (Errichiello and Pianese, 2018). Gastaldi *et al.* (2014) found four typologies of companies regarding smart working, which they named inconsistent, analogical, digital and complete smart working based on how they concretely targeted efficiency, effectiveness and employee engagement to create an SWE. The researchers concluded that the last typology, a complete smart working, tended to focus more holistically on employee work-life balance and the employees as a key resource (*ibid.*). Further, according to Brandi and Iannone (2021), workplaces can provide opportunities for individual discretion and ongoing learning through collaboration with other employees.

To summarise, the definition of an SWE is broad, including a variety of elements. And, although technology and space have dominated the research so far, targeting business results through increased efficiency and effectiveness, there are also studies in which employees' well-being is emphasised. Examples of this are interventions aiming to create shared grounds for employees, facilitate teamwork and communication within the organisation and co-create a transparent and inclusive working culture (Goodstein and Burke, 1991). These kinds of interventions are often initiated by the top management to provide guidance using stories, artefacts and symbols reflecting company values. Targeted and formative interventions can help employees reflect on and develop the meaning of their work and working together (Brown, 2018), which is also framed as expansive organisational learning (Engeström and Sannino, 2010).

In this study, the main question was “How to develop a smart working environment”. A methodological plan was outlined for the intervention, including several instruments for collecting both qualitative and quantitative data (Creswell and Plano Clark, 2018). But the problem identification and targets were developed in an iterative process with the management team and employees as active participants (Eikeland, 2012). Here, an important starting point was a pre-questionnaire highlighting problems to be addressed, which directed the intervention towards targeting organisational values, organisational culture and psychological safety. This article describes how the intervention was conducted with the ambition to define and create an SWE and, thus, have a positive impact on employee sustainability in the company.

Methodology

Action research for organisational development

This study is a participatory, formative intervention for OD, using an AR approach. The approach builds on the interdependence of theory and practise for the purpose of social and organisational transformation (Lewin, 1945; Altrichter *et al.*, 2002). It is an emergent and iterative process (Greenwood *et al.*, 1993), in which the participation of people in the designated context is a key element (Baserville, 1997). Eikeland (2012) describes the concept of post-scientific AR, in which organisational learning becomes practice-based in the development of understanding and knowledge building for improving an organisation. A participatory and dialogical ontology as such. This is in contrast to the modernist models of conducting organisational research using a dualistic ontology separating the doers from the spectators, i.e. the researched from the researchers etc. (*ibid.*)

There are several factors that distinguish AR interventions from common organisational consultations, such as having the goal of gaining scientific knowledge, implementing a collaborative approach and a dual commitment of both researchers and participants, using theoretical frameworks as foundations for actions of the intervention, having an experimental approach, as well as having a goal of contingent learning (Baserville, 1997).

The research is situational in its character, and it involves cooperation and co-creation of both researchers and participants, which emanates into an iterative and cyclical co-learning process (Ivaldi *et al.*, 2021). The cyclical phases are:

- problem identification;
- gathering of data;
- interpretation of data;
- targeted actions to address the problem;
- evaluation and measures of effects; and
- identifying next steps of the continuous and never-ending process (Altrichter *et al.*, 2002; Eikeland, 2012).

These phases overlap and are iterative; therefore, each phase builds on the knowledge gained from the context to decide the content of the next phase (see Figure 1).

Each phase, its content and the progressive timeline of the intervention are illustrated in Table 1. All phases will be described in detail in the rest of the article.

Participants

The CEO of a consulting company for wind power plant development approached the researchers for assistance in OD. The company is located in Finland. However, the staff included several nationalities, so the language of choice in meetings was English. During the

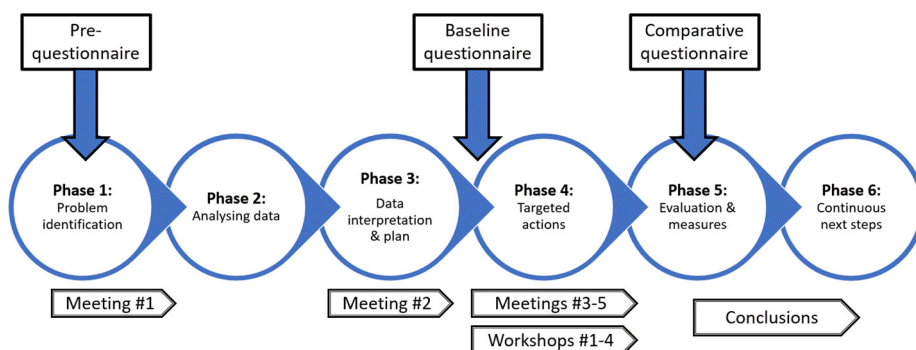


Figure 1. Outline of the iterative action research design

Source: Authors

AR phases	Activities of the intervention	Participants	Months
Phase 1	Gathering data: pre-questionnaire	COO, whole staff ($N = 10$)	-4
	Meeting #1: Problem identification	CEO, COO, researchers	1
Phase 2	Data analysis of pre-questionnaire data	Researchers	1
Phase 3	Meeting #2: Presenting data interpretation, proposing a strategy and discussing the implementation plan	Management team ($N = 5$), researchers	2
Phase 4	Pre-workshop activity, baseline questionnaire	Management team ($N = 5$)	2
	Management team workshop #1: Positive storytelling, mission, vision, values activities	Management team ($N = 5$), researchers	3
	Pre-workshop activity, baseline questionnaire	Employees ($N = 11$)	3
	Employee Workshop #1: Positive storytelling, mission, vision and values activities	Employees ($N = 11$)	3
	Meeting #3: Workshop follow-up	Management team ($N = 5$), researchers	3
	Meeting #4-5: Co-planning internal workshop	COO, CEO, researchers	5
Phase 5	Employee workshop #2: Company strategies and values	Management team ($N = 5$), employees ($N = 11$)	5
	Management team workshop #2: Strengths, perspective taking, storytelling, mindfulness, psychological safety, emotions and regulation	Management team ($N = 5$), researchers	9
	Gathering data: comparative questionnaire	Whole staff ($N = 20$)	17
Phase 6	Gathering data: post-reflections	COO/CEO	18
	Evaluation and measures of effects	Researchers	18
	Identifying next steps of the continuous development and learning	Researchers, CEO, COO	18

Table 1. Timeline, activities and participants of the AR intervention phases

Source: Authors

intervention, the company doubled its number of employees from 10 to 20 (see [Table 1](#), column three), while the management team, including the CEO and COO, remained the same individuals throughout the intervention. The mean age of the employees in June 2022 was 32 (year of birth ranging between 1968 and 1999).

Data gathering and research instruments

There are several purposes for collecting data in AR, which makes the research process both intricate and difficult to overview ([Altrichter et al., 2002](#)). Firstly, data were collected to understand the needs pertaining to the identified problem. A pre-questionnaire was developed and administered for gathering qualitative data on employees' needs and perceptions about what constitutes an SWE (described thoroughly in the section about Phases 1–3 below).

Secondly, data were collected to measure the effects before and after the intervention. For this purpose, guided by the results of the pre-questionnaire and by the problem identification carried out together with the management team, two questionnaires were combined: [Edmondson's \(2019\)](#) measure of psychological safety, including seven items, and the UWES3, a three-item scale measuring work engagement operationalised as vigour, dedication and absorption at work ([Schaufeli et al., 2019](#)). Both questionnaires have a robust history of reliability and validity.

Thirdly, to continuously gather data to guide the progression of the iterative intervention, both individual and group activities were implemented, as well as documentation of the workshops. Finally, the COO/CEO were asked to provide post-reflections on the intervention, as well as on additional activities taken to get a full picture of changes made.

To summarise, the qualitative data were important for the iterative progression of deciding which steps to take next, while the quantitative data served to measure the baseline of factors of interest, as well as the effects of the intervention. Hence, the AR process included collecting both qualitative and quantitative data and used an exploratory sequential design ([Creswell and Plano Clark, 2018](#)), as qualitative and quantitative data were analysed separately and not integrated in analysis ([Johnson and Onwuegbuzie, 2004](#)). How the data were used for both practical development and theoretical analysis are explained in detail below.

Iterative action research phases and their intermediate results

Phase 1–3: Identifying problems, gathering and interpreting data

The first three phases of AR were identifying problems, gathering data and interpreting these as a means for giving the direction of the intervention ([Lewin, 1945](#); [Altrichter et al., 2002](#)). In this bottom-up process, employees were included in identifying the problems to be addressed using an anonymous pre-questionnaire described below.

Pre-questionnaire: smart working environment. The pre-questionnaire was designed to collect qualitative data about the employees' ideas on what could be improved within the company. In AR, this understanding of participants' situational needs forms a basis for guiding decisions on how to design the actions of the intervention ([Eikeland, 2012](#)). The pre-questionnaire had seven open-ended questions asking employees to write down their experiences, needs and suggestions on how “to have a smart working environment” in relation to the following themes: workload balance, challenge balance, development possibilities, compensation, communication, colleagues and other aspects of importance. The questionnaire was developed and administered four months prior to the beginning of the intervention. This was a critical point in the lifetime of the company, which was in the process of moving into a new and bigger office. The pre-questionnaire was administered to all employees ($N = 10$) in 2020 with a 100% response rate. The word range of replies was 5–170 words/question with a total of 2,576 words including all replies.

A qualitative content analysis (Krippendorff, 2018; Graneheim and Lundman, 2004) was conducted by the first and second authors to strengthen trustworthiness by using investigator triangulation (see Figure 1, Phase 2: analysing data). Meaningful condensations were done on each unit of analysis to identify both latent and manifest content (Graneheim and Lundman, 2004).

Several important topics emerged from the pre-questionnaire to give an understanding of experiences and needs of the employees. This analysis resulted in 20 subcategories sorted into seven themes (Table 2). Five out of the seven themes found were predetermined by the questionnaire structure. The two new themes emerging were:

- (1) *Interaction with Colleagues*; the need for social interaction with colleagues (both on duty and off duty); and
- (2) *Workspace*; suggestions on how to design a flexible workspace

The pre-questionnaire targeted work-related issues, while the participants added social and relational issues, as well as work ergonomic aspects related to the office facilities.

Phase 4: Targeted actions

This phase included three workshops conducted by the researchers in parallel with both the management team and the employees, and one workshop conducted by the management team for the employees. Prior to the first management team workshop, the pre-questionnaire data were analysed, and two meetings were held with the management team to present these results and plan the intervention. Three themes were selected to be addressed more specifically in the coming workshops as the core part of the intervention: organisational values, organisational culture and psychological safety (Meyers *et al.*, 2013; Brown, 2018; Edmondson, 2019). The

Themes	Subcategories of employee needs for an SWE
Interaction with colleagues	1. Facilitate team building and inclusion 2. Facilitate a positive work culture through social relations 3. Have a transparent and agreed upon break culture 4. Provide recreational opportunities outside office hours
Work-related communication	5. Provide openness in work processes 6. Provide psychological safety, trust and support 7. Allow diversity and flexibility in language use
Workspace	8. Provide a smart and flexible work environment related to, e.g. noise and temperature
Workload balance	9. Facilitate long-term planning and foresight 10. Facilitate holistic planning
Challenge balance	11. Improve work processes and collaboration 12. Align challenges holistically for individuals 13. Align challenges with meaning 14. Allow for cognitive balance
Development possibilities	15. Provide autonomy 16. Allow for expertise development 17. Be invited to be involved
Compensation	18. Give fair pay 19. Provide transparency in the bonus system 20. Need for backup motivators

Source: Authors

Table 2.
Themes and
subcategories of the
pre-questionnaire
content analysis

validated questionnaire on psychological safety was used both as a reflective tool for the management team and the employees during the process (in combination with theoretical information and discussions about the concept), as well as for measuring the effect before and after the intervention.

The workshops were designed as collective learning experiences, combining both theoretical learning and learning through collaborative activities (Eikeland, 2012), with a focus on how to define and create an SWE as a joint and collaborative endeavour. The objective of keeping the management team and employee workshops separate was to minimise the influence of authority. The content and theoretical underpinnings are described in detail below.

Management team workshop #1. In the first management team workshop, the focus was on company values. Organisational values are the pillars of the identity of an organisation and the principles that impact the way the organisation conducts its business (Hatch, 1993). Every company has a unique set of core values that support its vision and decision-making processes. Reinforcing and sharing the organisational values is a key element for building organisational culture. It also impacts people's well-being, sense of belonging to the organisation and performance (Di Fabio, 2017). Indeed, thoughtful, well-implemented and operationalised values can serve as the foundation for a positive, high-performance culture. It is rewarding to invest time in getting everyone on the same page by establishing corporate values, developing a mutual understanding of them and making them an integral part of everyday work experience (Brown, 2018).

Before the workshop, participants were asked to complete a pre-activity. The purpose of this activity was to get them thinking about positive moments in their work that had significant meaning to them (Meyers *et al.*, 2013). They were introduced to a mindfulness exercise as an introduction to the pre-activity (Lange and Rowold, 2019; Kabat-Zinn, 1982, 1990), before they were asked to write a short story about their chosen significant experience. This guided them to, unknowingly, frame their stories in relation to the company mission, vision and values. One purpose of the activity was to get new perspectives on operationalising the values (Brown, 2018). During the workshop, this information served as background material for reflecting on and benchmarking other companies' values, mission and vision statements.

Employee workshop #1. The first workshop for the employees, targeted elaboration and reflection on their values, both personal and professional. Measures were taken to eliminate any influence of the management team and give the employees a neutral space to learn about the results of the pre-questionnaire, discuss the topics and further identify problems to address. According to the content analysis (Phase 2), one crucial aspect that emerged was the need to develop a transparent and inclusive organisational culture, based on established and shared values, to set the groundwork for team building and effective communication. In this case, reflecting on values was especially important because of the high number of newcomers. The workshop activities were aimed at the identification, discussion and sharing of the values of employees, starting from their individual values to reach the company values, with a specific focus on co-creating strategies for how values are broken down into concrete ways of working and communicating in everyday situations (Brown, 2018).

Findings from these two workshops, including discussions about individual and organisational values, showed a discrepancy between employees' and management team members' perspectives. The management team saw the values as being clear and openly shared within the organisation, while the employees requested more clarification of the organisational values. These findings were presented to the management team, and based on these, the employee workshop #2 was designed with the management team to communicate and share the company mission, vision and values.

Employee workshop #2. Thus, the second workshop for employees was held by the CEO, COO and the rest of the management team. The researchers were involved in discussing and planning the workshop, as well as giving feedback on specific content to be presented to the employees. However, the idea was that the management team held the discussion with the employees about the company's mission, vision, values and future organisational strategy. Based on the feedback from the first employee workshop, the management team decided to include a third value, *teamwork*, in addition to *integrity* and *quality*. The work with the employees on their own personal and professional values showed that relational factors constituted a prevalent theme. This theme was also evident in the results of the pre-questionnaire. This was addressed to build consensus about values in the company (Brown, 2018).

Management team workshop #2. Building on these findings, a second management team workshop was conducted by their own request to learn more about issues that had surfaced. This half-day workshop started with pre-activities of video content to watch, as well as taking the character strengths test online (viacharacter.org) as a base for discussing personality, strengths and a growth mindset for addressing work strategies, leadership and learning (Bakker and van Wingerden, 2021; Dweck, 2007). The workshop also included activities on perspective taking and storytelling as a strategy for meaning making (Forman, 2013; Denning, 2012; Khmour *et al.*, 2020), e.g. for the purpose of operationalising company values (Brown, 2018). This was seen as an important issue based on the discrepancy found earlier between employees and management team. Development related to teamwork was another issue of importance found in the pre-questionnaire. Thus, psychological safety was addressed, which is a construct of team-level trust where the team leader is the key to creating safety in teams (Edmondson, 2019). This is beneficial for many reasons, e.g. it increases effectiveness (Rozovsky, 2015) and feelings of inclusion (Clark, 2020). Psychological safety at the workplace "describes a climate where people feel safe enough to take interpersonal risks by speaking up and sharing concerns, questions, or ideas" (Edmondson, 2019, p. 22). When psychological safety is missing, people avoid speaking up, and impression management is prioritised, i.e. we try to avoid creating negative impact by remaining silent although we possess vital information related to work (Edmondson, 2019; Clark, 2020). In connection with this, activities were included for learning about emotional intelligence (Goleman, 2019; Wagstaff *et al.*, 2013), which is an essential construct for successful leadership and a building block for the ability to create psychological safety (Edmondson, 2019; Brown, 2018). This part included hands-on activities for emotional regulation (Brackett *et al.*, 2011) and subjective understanding of emotional reactions through practising mindfulness (Lange and Rowold, 2019; Kabat-Zinn, 1982, 1990) and learning about the nervous system and its impact on who we are in relation to others, the reality we see and the stories we tell (Porges, 2011, 2017).

Phase 5: Evaluation and measures of effects

Phase 5 involved collecting a second sample of data to measure any potential change in the last year. In this phase, the COO gave her post-reflections on the intervention process, listed additional side actions taken, as well as gave her own subjective view of the outcomes.

Comparative post-questionnaire: quantitative analysis. The purpose of gathering quantitative data a second time was to be able to compare measures before and after the intervention to see if there were any changes pertaining to the measured constructs, which in this case was psychological safety (Edmondson, 2019) and work engagement (Schaufeli *et al.*, 2019). For both scales, a seven-point Likert scale (1= strongly agree; 7 = strongly disagree) was used. Additionally, in the post-questionnaire, two open-ended questions were added, asking them to describe what an SWE is to them and, furthermore, to give examples

of how the company could become an even smarter working environment. The post-questionnaire was conducted in June 2022, approximately seven months after the final workshop and 15 months after the first activities of the intervention. The response rate of the measures after the intervention was only 50% ($N = 10$), while the baseline questionnaire data collection had a 75% ($N = 12$) response rate.

Instead of reversing the item scores after data collection (Edmondson, 2019), the wording of three items (1, 3 and 5) was changed beforehand on the psychological safety scale. Therefore, they all had the same direction of sentiment. The argument for doing this was to be able to use the results directly in the workshop for reflective purposes, which was an important objective for including this questionnaire. Two sum variables were made of the two scales measuring psychological safety (seven items) and work engagement (three items). Thereafter, an independent t -test was conducted to test for variance in group means (Borg and Westerlund, 2006). The work engagement scale violated the assumption of normality, and thus, a Mann–Whitney U was conducted for this scale. The summarised scales were used as dependent variables, and group affiliation was the independent variable (ibid). No significant differences between before and after groups were found regarding psychological safety ($M = 3,86$ before; $M = 3,76$ after) or work engagement ($M = 2,75$ before; $M = 2,48$ after), although the lower values in the after scores imply a move towards a slight improvement, as can be seen in Figures 2 and 3 below.

Post-questionnaire: qualitative content analysis. The two open-ended questions asked the staff to define what an SWE is and how to improve it at the company. A qualitative content analysis was conducted on the replies ($N = 10$) using the process of meaning condensation of meaning units, creating categories and themes (Graneheim and Lundman, 2004). From the replies on what makes an SWE, six categories were derived: *motivation and emotion*, *relational factors*, *personal development*, *work processes* and *business results*. The second question, on how to become an even smarter working environment, the replies were categorised into only three themes: *relational factors*, *personal development* and *work processes*. Their suggestions for improvement did not address *motivation and emotion* specifically. However, the *relational factors* mentioned are interconnected to the latter category. Thus, these two cells were merged in the third column of Table 3.

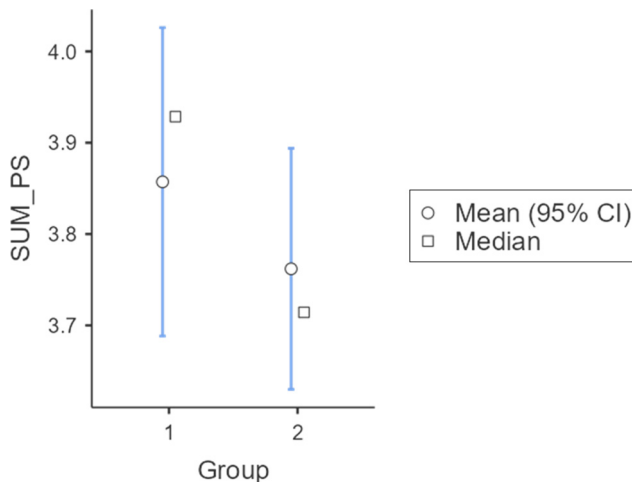
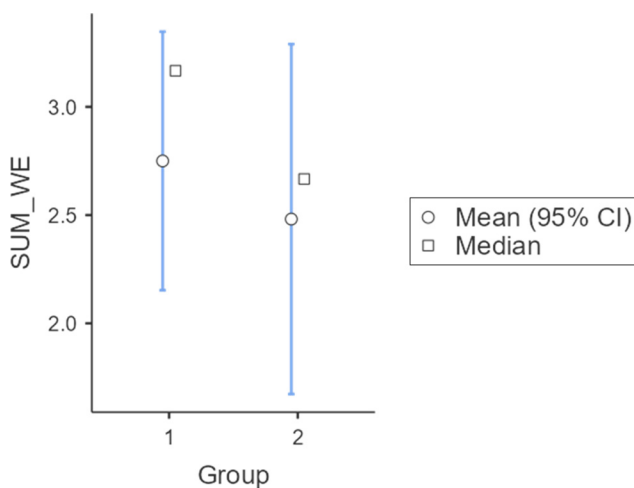


Figure 2.
Mean and median comparison of Group 1 (before) and Group 2 (after) on the sum scale of psychological safety (SUM_PS)

Source: Authors



Source: Authors

Figure 3.
Mean and median
comparison of Group
1 (before) and Group
2 (after) on the sum
scale of work
engagement
(SUM_WE)

In conclusion, to describe what an SWE is has to do with how you feel, but on the improvement side, focus is given to what to do only, which includes how to create positive relationships, how to work better together and overall improve work processes. For this, they ask for more training. Moreover, results of both *relational factors* and *work processes* overlap as to how employees describe and suggest improvements, while the theme of *business results* is not mentioned in relation to how to improve an SWE.

Post-reflections of the COO. Based on the COO's post-reflections from her own subjective perspective, there were several positive outcomes. For instance, she felt that relational aspects and staff cohesion had improved; they had gained an overall awareness of well-being at work and continued this well-being work, as well as communicating the focus on an SWE approach, which was also acknowledged by the employees.

Overall, I would say that the process led to an increased awareness of well-being at work and what is important to our employees. This is something that we continue to think about, develop, and improve. // We have gained better cohesion, a good team feeling. Various questions on how to affect well-being in the workplace are something that I (and we) continue to actively work on, since one of my main goals is to create an SWE and a workplace where everyone finds it exciting to come to work. We also actively communicate that we want to offer an SWE, and last week I received feedback from an employee that showed awareness of this among the staff. (COO, 2022).

Furthermore, the COO listed the activities taken by the management team during the intervention process, in addition to the content of the workshops. These activities were chosen based on the results of the pre-questionnaire, the learning from the workshops, and the co-operation and planning of the SWE together with the researchers. [Table 4](#) summarises the activities in relation to prior themes.

Synthesising results on describing an smart working environment

The aim of the AR as a formative intervention was to define and develop a SWE. The concept of SWE was approached exploratively to identify how the people operating in the context defined it. [Table 5](#) is a synthesis of the results pertaining to this topic based

Themes	Q1: Describing an SWE	Q2: How to improve an SWE
Motivation and emotion	<ul style="list-style-type: none"> • Feel appreciated • Have fun • Be inspired • Feel safe to contribute • Feel included 	<ul style="list-style-type: none"> • Give acknowledgement • Show empathy • Create psychological safety • Be reliable • Show willingness to help each other
Relational factors	<ul style="list-style-type: none"> • Feel part of something • Appreciate diversity • Consider other people • Be kind to each other • Show respect • Communicate • Create psychological safety 	
Personal development	<ul style="list-style-type: none"> • Have opportunities to grow • Receive challenges 	<ul style="list-style-type: none"> • Provide training
Work processes	<ul style="list-style-type: none"> • Have structured processes • Have clear roles and responsibilities • Maintain rules and discipline • Show effort towards quality, flexibility and efficiency • Support autonomous teamwork • Facilitate inter-team cooperation 	<ul style="list-style-type: none"> • Be included in transparent work improvements • Facilitate transparency regarding workload of teams and individuals • Improve team-based work processes • Give project work support • Improve work structure and methods
Workspace	<ul style="list-style-type: none"> • Provide a modern and ergonomic workspace • Give flexibility in work time and place 	<ul style="list-style-type: none"> • Encourage flexibility
Compensation		<ul style="list-style-type: none"> • Give more benefits
Business results	<ul style="list-style-type: none"> • Achieve profit • Produce quality 	

Table 3.
Post-questionnaire:
qualitative content
analysis

Source: Authors

on the data gathered from the pre-questionnaire and the COO intervention actions, depicted in relation to the themes found from the post-questionnaire SWE definitions.

In the first column pertaining to the themes found in the pre-questionnaire, there was no mention of the theme *motivation and emotion*. This might be due to there being no predetermined theme related to emotional factors in the pre-questionnaire. Although, the respondents would, of course, have had the chance to add this in the last open-ended question. Thus, one conclusion to draw from this might be that the intervention had opened

a broader perspective on how they saw an SWE, in which emotional factors and how they feel were included.

Furthermore, in the pre-questionnaire, there were several themes that were merged into broader themes in the sequential columns from the other analyses. For instance, the themes of *interaction with colleagues* and *work-related communication* were merged into *relational factors*, and the themes of *work balance* and *challenge balance* were merged into the theme of *work processes* in the later columns. This might also be partly due to the predetermined themes of the pre-questionnaire.

The second column represents the themes of the intervention actions highlighted by the COO as being part of the intervention process. These included *relational factors*, *work processes* and *workspace*. In the post-questionnaire, most of the replies focused on *relational factors* and *work processes*, while *business results*, *compensation* and *workspace* were mentioned only once each. An explanation for the lack of mention of workspace might be that the employees felt content with the inclusion provided and actions taken already for improving the physical workspace (see Table 4).

Discussion

In accordance with AR, this study had both a developmental and a theoretical aim. The first aim is related to OD: to build consensus around how the company can create an SWE based

Themes	Actions taken by the COO during the intervention process
Relational factors	“Extra-curricular activities” were introduced once a week, i.e. a joint voluntary leisure activity (badminton, padel, bowling, party games, afterwork, etc.).
Work processes	The development discussions, the onboarding process for new employees and clarified roles and responsibilities were reviewed and updated. Based on the feedback, “Teamwork” was chosen as the company’s third value in addition to integrity and quality. The values were presented and at the 2021 summer employee workshop
Workspace	The identified measures were: involvement of employees (e.g. in planning Christmas and summer parties); implementation of a “quiet” room based on the feedback; as well as focus on creating a nice office and giving employees the opportunity to participate and come up with ideas (e.g. chose wall paintings, conference room names)

Table 4. Themes of development and COO’s actions during the intervention process

Source: Authors

Pre-questionnaire themes	Post-questionnaire themes		
	COO actions	Describing an SWE	How to improve an SWE
Interaction with colleagues	Relational factors	Motivation and emotion	Relational factors
Work-related communication		Relational factors	
Development possibilities	Work processes	Personal development	Personal development
Workload balance		Work processes	Work processes
Challenge balance	Workspace		
Workspace		Workspace	Workspace
Compensation		Business results	Compensation

Table 5. Comparing themes from pre- and post-data and COO actions during the intervention

Source: Authors

on the needs of the employees. This aim was tackled through cycles of activities targeting the development and identification with the company values, psychological safety and organisational culture, instigating both theoretical learning and learning through collaborative and reflective experiences. However, this can be considered a starting point of a much longer and ongoing process of evolving a dynamic work environment (Eikeland, 2012).

The second aim (theoretical), to define the concept of an SWE, targeted expansive learning in relation to this specific concept in this particular work environment (Engeström and Sannino, 2010). Expansive learning in organisations is more or less ever-present. However, formative interventions, such as the one undertaken in this study, can speed up the process of learning pertaining to specific areas (ibid). Prior research on smart working mostly defines the SWE concept as technological development bringing affordances of a more flexible workplace pertaining to tools, space and time (Gastaldi *et al.*, 2014; Torre and Sarti, 2020; Angelici and Profeta, 2020). While the emerging definition of an SWE in this study touched upon flexibility, there was no mention of technological tools *per se*. This is, however, not to say that digital tools are not important for an SWE. Rather, it suggests that this generation of employees takes the affordances of technology for granted as a ubiquitous part of a work environment. Instead, the focus is on the needs behind what technology affords, e.g. providing transparency, working efficiently, facilitating flexibility, etc. (Hassenzahl, 2010).

That said, the most important result of this study pertains to employees' needs in an SWE and especially the relevance of the socioemotional and relational dimensions. However, this is not surprising since psychological research, for decades, has defined human relations as the most significant factor for employees' wellbeing in an organisation (Donaldson and Donaldson, 2018). This fact calls for a broadening of the definition of what SWE entails, not merely defining it as an evolving workplace concerning tools, space and time (Gastaldi *et al.*, 2014) but also including socioemotional and relational factors related to employee sustainability in the workplace. In this sense, an AR process meets these social needs since a strong focus is placed on employees' empowerment through inclusion and participation. And hopefully, this way of working will become part of day-to-day work.

Further, the results show how the definition of an SWE evolves over time in relation to the prevalent needs of employees. For instance, there seemed to be a contentment regarding the development of the workspace, as the comparative analysis of the qualitative pre- and post-data showed less focus on the workspace after the intervention. The employees' needs had been met, for instance, by creating designated quiet spaces, which was an element that came up in the pre-questionnaire (see more examples in Table 4). Hence, this shows that needs are dynamic in relation to environmental affordances. Furthermore, there were only single mentions of issues related to compensation or business results, which implies that this is not a prioritised part of how employees define an SWE.

An intervention such as this one is brief and should be seen as a starting point only, never as a full solution. The work that needs to be done for organisational development is a daily and continuous process, and the purpose of initial AR cycles is to learn (Eikeland, 2012). Other studies on developing organisational soft values, such as emotional intelligence, suggested that these kinds of interventions require longitudinal and idiographic approaches (Wagstaff *et al.*, 2013). The recommendation in the present study was to continue with the activities started during the intervention, as well as broadening them to include all staff members. Future activities for further developments may be geared towards developing relational factors pertaining to both social activities and work processes, targeting perspectives on teamwork and addressing both personal and professional values in a consistent way, making them part of

the socioemotional and relation dimension (Brown, 2018). Organisational values may preferably form a basis for introducing newcomers, as well as for staff training on a regular basis on the communication and operationalisation of the values.

In line with Gastaldi *et al.* (2014) suggestions, the intervention was based on the centrality of employees in the development of an SWE, identifying four elements as essential for the process:

- (1) the relevance of carrying out single studies in controlled organisational niches, in our case in the energy tech sector;
- (2) the quantification of the benefits associated with an SWE that are discussed in this study through the analysis of quantitative and qualitative data;
- (3) the engagement of the managerial team in the process; and
- (4) the employee trainings included in the intervention.

Conclusions

As the organisation subjected to study was quite young and growing, the work culture was not yet stabilised. The continual addition of new employees required deliberate and conscious focus on the socialisation of newcomers, as well as the evolving work environment and work culture. Thus, the results pertaining to what an SWE is in this context should be seen as a time stamp in the evolution of a dynamic work environment rather than a definition of something static. The continued participation in this evolution gives empowerment and is thus an effective tool for creating an SWE (Eikeland, 2012).

The AR is based on a transformational research paradigm, focusing on a contextual understanding and development by addressing specific problems identified by the target group itself (Eikeland, 2012). In this study, a point of departure was identified by the voices of the participants, on which the consecutive workshops and learning activities were based. These learning activities were critical encounters in which the participants had the opportunity to both learn and influence the AR process. During the intervention, the employees were given agency in affecting their own working environment as they were involved in operationalising and affiliating values in connection to the concept of an SWE. Hence, they were given the opportunity to get involved and, thus, identify with the changes made and efforts taken to improve and evolve as an organisation. This can be described as expansive learning (Engeström and Sannino, 2010) of the concept of an SWE as defined by the employees. However, this expansive learning was not merely conceptual but rather practical in relation to ways of working and ways of relating to each other. This facilitates in managing, supporting and telling stories that are in line with the concept of the desired SWE, which was confirmed by the COO's post-reflections.

This study resulted in a qualitative definition of a SWE, defined by the employees. Based on the data collected and the consecutive analyses, the definition of an SWE adopted in this study is multidimensional and includes emotional, social and work-related issues that are intertwined. Summarised, the participants in this study define a SWE as a place where:

- You feel appreciated, included, safe, inspired and excited;
- You feel part of something and accepted for who you are;
- People are respectful, kind, considerate and communicative;
- Processes, rules, roles and responsibilities are clear and transparent;
- Support is provided for teamwork autonomy and inter-team cooperation;

- Discipline and effort are taken to maintain quality, flexibility, efficiency and psychological safety;
- You have opportunities to grow and be challenged; and
- It is fun to work and make money in a modern and ergonomic workplace.

This process highlighted how participative approaches and managerial sensitivity to employees' conditions are valuable and effective for creating an SWE and improving organisational dynamics. However, there are no quick fixes, which was evident by the lack of significant effects when comparing group means before and after the intervention. It suggests that improving a work environment must be considered a long-term investment. It is a continuous process of learning together and making everyone feel included in the process; to empower, give agency and provide safety for everyone to have a voice within the organization (Eikeland, 2012).

Methodological considerations

In this study, the measures of psychological safety (Edmondson, 2019) and work engagement (Schaufeli *et al.*, 2019) were used to control for effects of the intervention. This was a limited choice regarding targeted effects, considering that an AR intervention influences many latent dimensions. However, its primary objective was to be used in parallel as a reflective tool during workshops. Both the psychological safety scores and those of work engagement showed positive results for both before and after groups (see Figure 2), with a slight increase post-intervention (see Figure 3). But the differences were not statistically significant.

There were several problems related to this quantitative analysis. Firstly, the number of respondents was low, which gave skewed data; secondly, the response rate was only 50% for the post-sample, probably due to an unfortunate timing of the data collection; and thirdly, the fact that the company doubled its number of employees during the process, and thus, many of them had not been part of the intervention from the beginning. Hence, the results are not generalisable, and follow-up studies are needed to get a long-term perspective on development. Furthermore, the measure of work engagement (Schaufeli *et al.*, 2019) targeting vigour, dedication and absorption is suggested to be too limited (Banihani *et al.*, 2013). One additional factor to be included is self-efficacy, which in a workplace setting is defined as the belief in one's "ability to control and impact one's environment successfully" (Schaufeli *et al.*, 2019, p. 579), as this has been found to be an important predictor of work engagement (Xanthopoulou *et al.*, 2009, 2013).

Another conclusion drawn was that, although the researchers interpreted psychological safety as something to be dealt with based on the pre-questionnaire, the activities and content of the intervention only had time to introduce psychological safety as a concept, thus not specifically leading the participants from declarative knowledge to procedural and conditional knowledge (Weinstein *et al.*, 2011). I.e. the management team learned about concepts such as psychological safety and emotional regulation but did not get enough time to practise how and when to apply the knowledge in real life (Brown, 2018; Edmondson, 2019; Clark, 2020). And preferably, there is a need to be trained on these issues for the whole staff, not only the management team. This further demonstrates how an AR intervention is brief and incomplete as a sole activity, rather a kick-off only, to point in which directions to continue the work on a day-to-day basis. One approach to assist this could be to make a context-based questionnaire from the definition of an SWE and continuously use it to monitor how the working environment is evolving.

Regarding the biases in the study, neither the researchers nor the participants are neutral in AR, and there is no strive towards objective involvement. The iterative process of AR leans on a hermeneutic ontology and epistemology in which all parties involved are expected to

influence the process with their subjective understandings and interpretations (Nielsen, 2009). The result of this AR study is based on a limited and contextually specific sample and, thus, is descriptive in relation to the organisation subjected to study. Further research is needed to see how the findings are transferable to other contexts. For the sake of brevity, a thick description of the qualitative results, such as aligned excerpts, was not possible to include, which would have given higher transferability of results. However, investigator triangulation adds to the trustworthiness of the study (Creswell and Plano Clark, 2018). This AR and the participatory, formative intervention process were possible because of the open-mindedness and participation of the management team and employees of the company.

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