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Sustainability of learning at work: experiences of police, hospital, and ICT personnel

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ABSTRACT

Global megatrends, such as digitalisation, and contemporary crises have highlighted the importance of continuous development and learning in the work context. Learning can be inspiring and motivating but also stressful when generating competence that is not applicable or has poor utilisability. In this study, we approached the ambivalent nature of learning at work from the sustainability perspective. According to the literature, sustainability of learning can consist of four broad aspects: transferability and continuity of learning, well-being, and temporality. We aimed to examine experiences of learning among personnel in three work-life contexts: preventive police work, hospitals, and information and computer technology (ICT). Using theory-driven thematic analysis, we revealed a variety of aspects of sustainability of learning and their different emphases in the three studied contexts. The main finding is that learning and well-being are closely intertwined and temporally framed in sustainability of learning. Based on this finding, we discuss practical implications and future research directions.

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Introduction

Global megatrends, such as digitalisation, and contemporary crises have highlighted the importance of learning in the work context (see e.g. Collin, Van der Heijden, and Lewis 2012). The speed of change poses challenges for sustaining competence and well-being at work. Competence must be updated rapidly, but learning something new requires additional resources, as daily problems fragment learning processes, producing distinct yet superficial understandings and experiences (Lemmetty and Collin 2019). Thus, learning can become stressful (Janssens et al. 2017; Järvensivu and Koski 2012; Lemmetty and Collin 2020). In this study, we challenge approaches that have mainly emphasised the positive effects of learning and elaborate different aspects that make learning at work sustainable.

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Even though learning may have positive effects on well-being, excessively stringent learning requirements have been shown to cause exhaustion and decrease well-being (Huhtala et al. 2021; Kubicek, Paškvan, and Korunka 2015). A recently identified risk for occupational health is the need for continuous learning to maintain competence and expertise (e.g. EASHE 2019; Eurofound 2017; Lemmetty and Collin 2020). Under hectic work conditions, the time provided for learning is insufficient, and learning may transfer to leisure time, creating various problems, such as difficulties with work–family reconciliation (e.g. Järvensivu and Koski 2012). Despite the awareness of these risks, learning at work has so far lacked a critical perspective. Likewise, empirical research on the effects of increasingly stringent learning requirements is lacking (Huhtala et al. 2021),

In this study, we approached the ambivalent nature of learning at work from a *sustainability* perspective, including in well-being, transferability, continuity and temporal perspectives of learning. In work-life research, sustainability has mainly been referred to a process for achieving environmentally sustainable outcomes (Albinsson and Arnesson 2012; Kearney and Zuber-Skerritt 2012; Scully-Russ 2012). As sustainable work life aims to achieve environmentally, economically, and socially sustainable goals, different human resources (HR) and processes, such as learning, should also be considered (e.g. Pfeffer 2010). Maintaining employees' capacity to handle the diverse and complex demands of work and change in organisations can be achieved by ensuring individual and group learning, equal and open interactions, and shared understanding (Kira and Lifvergren 2014; Zink 2014). The humane basis of sustainable work thus includes opportunities for individuals to grow personally, learn at the group level, and become more sustainable in all respects. For this reason, research should pay particular attention to the processes of learning, its environments and the actors involved (Brandi, Collin, and Lemmetty 2022; Kira, van Eijnatten, and Balkin 2010), and learning concepts should be developed from the perspective of human and social sustainability (Zink 2014).

In this research, we examined sustainability of learning among personnel in three work-life contexts: preventive police work, hospitals, and information and communication technology (ICT). More specifically, we asked: What kinds of experiences do hospital personnel, police officers, and ICT personnel have regarding the sustainability of their learning? To provide a rich picture of experiences, we selected these three occupational fields due to their requirements to continuously update competence and learning, which results in various changes – for instance, in organisational practices, responsibilities, structures, and technologies.

Approaches to studying sustainability of learning at work

According to work life and higher and adult education research, sustainability of learning consists of various aspects, such as the transferability (e.g. Tractenberg, FitzGerald, and Collman 2016), applicability, and usability of learning (e.g. Hays and Reinders 2020; Prugsamatz 2010). Research has also evidenced a relationship between learning and well-being (e.g. Lemmetty and Collin 2019; Painter-Morland, Demuijnck, and Ornati 2017). Next, we describe the different aspects of sustainability of learning found in previous research. We also elaborate on how these aspects of sustainability may relate to employee well-being. As sustainability refers to the ability to maintain or support a

process continuously over time or meet the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development 1987), we also approach sustainability of learning from a temporal perspective.

Sustainability of learning

The *continuity* and *applicability* of what has been learned are important aspects of sustainability (Hays and Reinders 2020). Prugsamatz (2010) described sustainable learning as maintaining continuity. The idea of continuity is similar to the concepts of lifelong and in-depth learning (Hays and Reinders 2020; Tractenberg, FitzGerald, and Collman 2016) but relies on the interrelationship between different learning situations. Learning continues between these situations by combining past and new knowledge (Albinsson and Arnesson 2012; Kearney and Zuber-Skerritt 2012; Tractenberg, FitzGerald, and Collman 2016). At the organisational and work community levels, sustainability and learning can also be combined. In this case, continuity refers to an organisation's ability to sustain learning processes under conditions of change and development (Kira, van Eijnatten, and Balkin 2010; Prugsamatz 2010).

The continuity of learning also depends greatly on the *usability and extensive utilisation* of prior knowledge and new learning (Lemmetty and Collin 2020; Prugsamatz 2010; Tractenberg, FitzGerald, and Collman 2016). The extensive utilisation of what has been learned is one of the prerequisites for in-depth learning, which can lead to the development of skills and abilities (Albinsson and Arnesson 2012). Brandi and Christensen (2018) explored the sustainable integration of new knowledge and skills in practice and found that the application of new knowledge within 10 weeks of a learning activity promoted the sustainability of learning. The rapid application of new knowledge deepens the learning experience and reduces poor information and learning recall, thus preventing the waste of time and resources (see also Lemmetty and Collin 2020). At the collective level, it may also allow individual competences to be transferred to a learning community (Albinsson and Arnesson 2012). For instance, the study of police supervisors' conceptions of sustainable workplace learning (Lumiala and Collin 2023) showed the importance of rapid application and widespread use of previous knowledge for efficient practice in this challenging work environment. For transfer to occur, individual and group learning should take place simultaneously so that the development of one contributes to the development of all (Kira and Frieling 2007).

One aspect of learning sustainability is *transferability*. The transfer and broad utilisation of the lessons learned are beneficial to present and future situations, thus saving individual resources (Boud and Soler 2016; Hays and Reinders 2020; Lemmetty and Collin 2020; Tractenberg, FitzGerald, and Collman 2016) and maintaining competencies and in-depth learning outcomes that can be used in multiple ways (Albinsson and Arnesson 2012). Learning transfer studies in educational contexts have questioned whether higher education effectively prepares individuals to not only meet immediate educational requirements (e.g. completing a course) but also achieve what may be required in the future – inside or outside educational institutions. Lemmetty and Collin (2020), for example, showed both positive and negative aspects related to sustainability of learning gained from formal education and training. Formal training was perceived as useful for

broadening theoretical understanding but problematic in terms of outdated information and applicability. A future orientation is thus attached to transferability, through which the benefits of learning in relation to future challenges are essential for learning sustainability (Boud and Soler 2016). For example, in the context of growth companies, Lemmetty and Collin (2020) showed that transferability typically actualises through technological or structural changes and depends on whether previous learning experiences (gained from formal or informal contexts) can be fully utilised and transferred to new situations.

From the perspective of transferability, it is also important to promote proactivity in learning processes, with learners actively anticipating and updating skills that are important for the future (Hays and Reinders 2020). Proactivity thus refers to both the actions of the learner and the orientation of learning towards knowledge or skills that are expected to be useful in the future. In addition to proactive new learning, proactivity also involves evaluating previous skills and learning from those that are no longer needed. Thus, proactivity in learning is the interaction between learning and anticipation, which ensures the continuous, active promotion of knowledge under changing conditions. Hays and Reinders (2020) suggested that sustainable learning should involve the future and anticipation and not just skills needed in the past.

Interdependence of learning and well-being

Learning at work is often considered to increase vitality, psychological resources, and well-being (Fritz, Fu Lam, and Spreitzer 2011). However, any job increasingly entails negotiations and exchanges of views that can sometimes lead to conflict. Thus, learning may also be a burden and threat to employees' well-being (Järvensivu and Koski 2012; Lemmetty and Collin 2019) – and therefore not be sustainable. For instance, time pressure and increasing requirements for continuous learning at work (EASHE 2019; Eurofound 2017; Kubicek, Paškvan, and Korunka 2015) have been shown to have both positive and negative effects on employees' well-being, to varying degrees in different occupational fields and contexts (Heikkilä et al. 2022; Huhtala et al. 2021). While learning constitutes the foundation of human sustainability (Di Fabio 2017; Painter-Morland, Demuijnck, and Ornati 2017), it can be considered closely related to the enhancement of well-being in organisational and work practices (Di Fabio and Rosen 2018; Galuppo et al. 2019). From the perspective of well-being, in addition to outcomes, sustainability in organisations should include equal and fair processes, practices, and cultures (Roloff 2008) that consider employees' needs (Shen and Zhu 2011), including learning needs.

Workplace learning is inherently cognitive and demanding (Sweller 2011). Thus, learning requires effort to solve problems and may necessitate moving out of one's comfort zone (Janssens et al. 2017). Challenging work situations can trigger learning processes (Kim and Beehr 2018; Lehesvirta 2004) and organisational changes may produce learning requirements beyond employees' control (Howell et al. 2008; Järvensivu and Koski 2012). Thus, new challenges and continuous changes in the workplace can lead to demanding learning requirements impacting well-being (Di Fabio 2017; Kira, van Eijnnatten, and Balkin 2010). Employees are increasingly responsible for continuous learning in organisations, and they may face strain and challenges, often with insufficient

resources (Collin et al. 2018; Lemmetty and Collin 2019). External learning demands also influence well-being, and learning may creep into leisure time challenging the balance between work and leisure (Järvensivu and Koski 2012). Thus, well-being is an important aspect of sustainability of learning in the context of work. Hence, simultaneously examining individual well-being and learning is necessary. The relationship between learning and well-being seems bidirectional and ambivalent. By ensuring broad transferability, wide applicability, and utilisation of what is learned, ‘throwaway’ learning can be avoided, and well-being resources can be saved and sustained (Lemmetty and Collin 2019). This relationship mainly manifests positively but can also be negative (Lumiala and Collin 2023). According to Kira and Frieling (2007), developing a sustainable work life allows both individuals and work processes to sustain performance in a changing world. Conversely, in its absence, organisations may take advantage of their employees to reach their business goals. Consequently, sustainability of learning maintains long-term well-being, even if learning processes include stressful moments, experiences of exhaustion, or other factors that may threaten well-being.

Temporal aspect of learning

Although the temporal aspect has not been much studied in the social sciences (Rau and Edmondson 2013), especially not from the learning perspective, it is a built-in feature of the concept of sustainability. All forms of HR consumption (including time) have consequences. In the case of learning, we can learn to use our time competently to fulfil our personal needs while simultaneously reflecting on the potential impacts of our time use on others (Grauer, Fisher, and Frank 2022). The perspectives of transferability, applicability, and utilisability of learning involve asking what has been learned in the past, to what extent and how quickly the lessons learned can be utilised in the future, and in what situations and which contexts its application and utilisation is possible while sustaining employees’ well-being.

The temporal perspective of competence development (learning) also relates to career sustainability. In their conceptual model of sustainable careers, De Vos, Van der Heijden, and Akkermans (2020) see the time dimension as an opportunity for dynamic learning in different phases of a career by adapting both positive and negative events. For instance, the idea of learning new things and broadening one’s expertise through training and courses may, at the moment, feel like a good idea, for example, from the perspective of well-being. However, in the long run (e.g. from the perspective of the career), the ‘usefulness’ of the training cannot be anticipated and is thus not sustainable. Neither is it possible to utilise all the competence gained along the career path in the most sustainable way (De Vos, Van der Heijden, and Akkermans 2020). Thus, one’s career is not limited to a linear sequence of uninterrupted work positions but can imply varying degrees of change across jobs, organisations, occupations, and employment status.

Research methods

The study’s aim was to examine *sustainability of learning among personnel in three work-life contexts: hospital, preventive police work, and ICT* by asking what kinds of experiences police officers, hospital personnel, and ICT personnel have regarding the sustainability of

their learning. We aimed to provide a rich picture of sustainability of learning by examining the experiences in these three work contexts in Finland. We also aimed to show how learning sustainability was experienced in general and whether these experiences may differ in their emphasis on aspects found according to the occupational field.

Organisational contexts and participants

The organisations participating in this study were a central hospital's surgery unit, a preventive unit of the Helsinki Police Department, and an ICT organisation. The first organisation was a medium-sized hospital in Finland with approximately 2,500 employees. The participating personnel comprised both nurses and physicians from the operational unit. A hospital is a suitable, multifaceted environment for learning research because many kinds of learning situations involving patients require new kinds of guidance to ensure efficient training and prevent unexpected and undesirable learning outcomes. The task of the second context, the preventive police unit, is to anticipate and prevent crimes. Preventive police work is characterised by strong self-direction, multiprofessional cooperation, and situational problem-solving. Learning is essential for performing tasks that are crucial for society and compliance with the law. Although the importance of vocational education and training for police competence is indisputable, a considerable portion of police officers' learning occurs in daily practice. The third participating organisation was Pinja, a medium-sized technology company with over 450 employees. The company serves Finnish clients from the private and public sectors and international organisations from over 30 countries. Its personnel include software developers, information technology experts, and knowledge management experts. Digitalisation and rapid technological advancements create a constant need to update employees' competencies. Thus, the company has introduced teamwork and leadership practices to support learning.

Data collection

The data consisted of 82 individual thematic interviews lasting approximately one hour and were conducted either in the interviewees' offices or virtually using Microsoft Teams. Twenty-six interviewees were from the hospital, 26 from the police, and 30 from the ICT organisation. The interviewees also included employees with supervisory and managerial roles. We interviewed physicians and nurses in the hospital, experts and project managers in ICT, and junior and senior police officers in the police unit with the work experience from 2 to over 30 years. In the overall data there were 44 males (in hospital 9, police 15 and ICT 20) and 36 females (hospital 17, police 9 and ICT 10). The interview themes included competencies needed at work, learning in the workplace, well-being, the organisational environment, and leadership. The themes did not directly focus on sustainability of learning but included aspects related to learning motivation, well-being at work, overwhelming work situations, working with colleagues, and leadership's support of learning. We asked, for example, what competences are needed at work and how they are learned (typical good and bad learning situations), developed, sustained, and utilised in the interviewee's organisation, as well as questions regarding experienced well-being, the atmosphere at work, and support provided by the organisation and colleagues for

solving everyday problems. Due to the open-ended nature of the thematic interviews, how the interviewees experienced the sustainability aspects of their learning could be interpreted in a data-driven manner.

Analysis

The analysis was performed holistically by intertwining the aforementioned themes. The interview data were analysed using theory-driven thematic analysis (Braun and Clarke 2008). Three researchers *first* familiarised themselves with the transcribed interviews to obtain a holistic picture of the data (altogether, almost 1000 pages of written transcript). *Second*, after a grounded reading of all the material and an initial picture of the data was obtained, each researcher focused on a single organisational context. For all three organisations, a clear analytical guideline was created to help the researchers conduct the analysis in the same way. With the understanding that this theory-driven and initial thematisation may overlap, the guideline displayed aspects of sustainability under the headings transferability of learning, continuity of learning, and well-being. *Third*, the researchers held several discussions to reach an agreement on the final themes and avoid bias in interpretations. *Fourth*, the researchers engaged in a more in-depth examination of the broad categories of sustainability of learning to identify different experiences under the three main themes and other possible experiences of sustainability of learning. In the *final step* of the analysis, the researchers engaged in a detailed discussion of the findings for each organisational context, focusing on how the experiences of the aspects of sustainability of learning were similar or different among the three organisational contexts. This final phase was conducted in a more data-driven manner to offer space for broader interpretations. Although the initial aim of the study was not to compare the experiences in the three contexts, we found that issues under the main themes had a different emphasis in different contexts. Moreover, based on the analysis, we found that a new theme – *temporality* – needed to be created because of its weight (frequency of expressed experiences) in the interviews. These four themes (later called aspects) are described next.

Findings

In this section, we describe the experiences of sustainability of learning under the broader themes (aspects) of continuity, transferability, well-being, and temporality. The revealed experiences of sustainability were related to both employees' approaches to learning and learning conditions at work. Concerning each theme, we first describe the common experiences in all three work contexts and then focus on context-specific differences in the emphasis of each theme. [Table 1](#) presents a holistic picture of the experiences of sustainability of learning in the three occupational contexts. For authentic quotes, we have indicated interview ID, gender, occupational title, work experience, and organisation. Regarding work experience, we mean the following: novice, having less than five years of experience; experienced, more than five years; and old-timer, more than 15 years.

Table 1. Aspects significant for the sustainability of learning among ICT, hospital, and police employees.

Context	Continuity	Transferability	Well-being	Temporality
<i>All three contexts</i>				
	Depth of learning	Transfer of what has been learned from education to practice	Ambivalent nature of learning as inspiring and a burden (learning overload)	Proactive learning
	Applicability of learning	Transfer of learning between individuals and the community	Issues that were not directly related to one's core tasks caused stress.	The continuum of learning and development
	Utilising life experience		Positive meaning of community (colleagues and supervisors)	Future orientation of learning
<i>Context-specific aspects</i>				
Hospital	Continuous practical applications in work situations	Learning at work embedded in formal education	Shared experience of learning as inspiring and overloading	Experience Apprenticeship structure Competence-based anticipation
Police	Utilising life experience in learning interactional and cultural skills	Widely available and utilised competence in the community Experience from other spheres of life	Possibility of succeeding and developing in one's job Using one's competence in the community through meaningful tasks	Being prepared, anticipation
ICT	Inevitable waste of learning Continuous technology-oriented learning situations	Technological/ curious thinking and perseverance with learning Transfer of learning from other spheres of life (leisure and family) Underutilisation of lessons learned in education due to rapid technological developments	Motivating nature of work (and learning) Learning load related to the nature of the field Stress from competence sharing during ongoing project	Learning for future technological developments Learning in different phases of projects and one's career Creating solid base for learning at beginning of one's career Proactive and sustainable attitude to respond to future challenges

Continuity aspect

Performing challenging tasks was described as part of continuous learning. This means the lessons learned, and the usability of such learning from one situation to another. Different work situations and tasks with different colleagues helped with using previously learned skills. Any experience was perceived as useful, as competence development throughout one's career was seen as a never-ending continuum. This continuity was also described as the *depth of learning*. Being able to apply what was learned on a regular basis was necessary for understanding it deeply. Committing to new learning became more difficult with age, but one could always try to see the bigger picture – how things were interrelated and why they were done in a certain way. This kind of meaningful learning was viewed as long-term shared learning consisting of a widely used and continuously growing toolkit:

Some things could be usable, but there are things, of course, to go through and discuss what we have come up against so that we can use them later. In a way, you can think of it as a toolkit—the things that you learn all the time, things that you find, how something can be solved, what should be done—so it's all about constantly expanding the same toolkit. (Hospital participant 6, man, physician, old-timer)

Applicability of learning

The continuity of learning also manifested as the quick, wide applicability of learning. Ideally, new learning should be applied to everyday work as soon as possible. However, this was not always possible because there were situations in which learning was inevitably wasted, especially in technological work. However, interviewees in all contexts highlighted at least the partial applicability of any learning situation, even if the original target of learning was forgotten. Therefore, the most essential thing was how to connect new issues to what had been previously learned:

If you have been through something and thought about it for a moment—I previously had a similar situation; what was done then?—You may start in a new situation or question whether you can use the existing knowledge and the developed processes and wonder how you can apply it specifically to that new situation. (ICT participant 20, man, production manager, experienced)

Utilising life experience

In all contexts, learning commonly refers to everyday problem-solving, assessment and reflection, knowledge application, interaction, collaboration, and information acquisition. These daily practices are built on previous knowledge, understanding, experience, and, eventually, competencies, which could be collectively referred to as work and life experience. In preventive policing, for example, what has been learned from life experience was especially important because of the diversity of the work and its connection to various social phenomena. In addition to basic policing skills, interactional and cultural skills, for example, were emphasised. Such skills were developed at various stages of life and in different life situations. The process of developing a broad experiential understanding began long before joining the police force. Several interviewees described work experience gained in contexts other than police work as an important learning resource. Life experience thus included sustainable knowledge and skills acquired through a long learning process that was transferred from one situation to another:

All kinds of encounters have been the most important for me in my job, and one thing that I tell parents and pupils at schools [when visiting them as clients of preventive policing] is that my work has made me a much better parent. (Police participant 19, woman, senior police officer, old-timer)

Transferability aspect

Transfer of what has been learned from education to practice

Vocational education offered the basics needed to practice a profession, but what was learned at work complemented education. Basic education was essential, especially in healthcare and police work, as it also provided the legal qualifications to practice as a

physician, nurse, or police officer. Due to rapid technological changes, education provided ICT professionals with the technological attitude, curious thinking, and perseverance to apply what was learned to new tasks: ‘School gave me such a good base and things that I needed to work in the ICT field in general, but actual competence came through experience gained from the different work roles I have performed’ (ICT participant 20, man, production manager, experienced).

For physicians, the role of education was slightly different. Their education and continuous training, including apprenticeships, accumulated along their career path. Transferability was high, as learning by doing was integrated into formal learning, and the lessons learned were soon applied to other situations. After basic medical education, learning deepened through work experience and self-imposed theoretical training. However, this process required time, as what learning was needed in work life varied at different times: ‘If you think about work history and in the long term, a lot of things have been learned that are not needed today’ (Hospital participant 4, man, physician, experienced).

Although vocational education and training were thought to provide basic expertise in all the studied contexts, according to the interviewees, most expertise was acquired from doing the work itself. From the perspective of the applicability of formal education, what was important was how effectively and systematically the knowledge gained could be utilised. For example, specific training might not be directly applicable to one’s job due to the rapid development of technologies. Learning does not always translate into practical competence for everyday work. The application of newly acquired knowledge was crucial for bridging the gap between formal education and practical use. Through applying learned concepts, a deeper understanding and practical competence could be developed. For ICT professional and police officers it was typical that what has been learned could also be transferred to work from other spheres of life (leisure or family):

At work or in hobbies, learning is based on that persistence—at least to some extent. ... But real learning comes when you can use those things in everyday life and in practice. This is where strong, in-depth learning and professionalism come from. (ICT participant 7, man, project manager, experienced)

Transfer of learning between individuals and the community

In terms of transferability, the interviewees described sharing what was learned with others as essential for the work community. The transfer of practices and knowledge between actors was seen as a collective process of sharing expertise. Moreover, learning could be enhanced by reflecting on others’ experiences:

Well, I don’t copy anyone’s way of doing things, but I select what I can use ... If someone acts with the client and sees that—well, that went nicely—I could model and apply it, so it is my way of applying it, and it is natural for me. (Police participant 12, man, senior police officer, novice)

The transfer of knowledge and practices from individuals to the group was important in making knowledge widely available to everyone. Shared learning could be applied to problem-solving and new processes among novice and more experienced colleagues. For example, at the hospital, shifts were planned in a way that there are experienced workers always on duty to ensure patient safety but also to include novice workers’

opportunities for learning. Sharing learning collectively was also described as essential in terms of resources and time, as individuals did not need to learn everything independently. Transferability was seen as important for learning within a community in which everyone created networks and worked in a highly specialised area. In such work, tacit knowledge was easily personalised, but this could be prevented by transferring what was learned from one person to another. The exchangeability of expertise was another essential element of sustainability. For example, if an expert in a particular area left a group, the group might lose important information:

We had one guy on our team who had trained in terrorist negotiations in Ireland. Many times, I asked if we could go through these things together to see how they did their job there, but he never shared his expertise with us. He was here only for a year or so, and then he just left and took his knowledge with him. (Police participant 10, man, senior police officer, old-timer)

Well-being aspect

Ambivalent nature of learning as inspiring and a burden (learning overload)

Work manifested as an arena for success, motivation, and inspiration but also burden. Continuous learning and competence development were compulsory built-in features of the work of police officers, physicians, nurses, and ICT professionals to keep up with the pace of change in society, technology, and new procedures. Developing oneself was manifested as motivating and sustaining meaningfulness in one's work. Learning something new was seen as always possible, even for individuals with long work experience, and the outcome of a successful learning process created a feeling of victory. Learning was described as a responsibility and intrinsic feature of work, and employees needed to have the will, readiness, and ability to learn new things: 'In my opinion, learning doesn't feel burdensome; it is the feeling of incompetence and the desire to know that feels burdensome. You often feel like you want to know much more than you do' (Hospital participant 25, woman, physician, novice).

However, depending on individual and situational features, the requirements for learning manifested as either optimal or excessively burdensome. In the first case, learning situations could thus cause a temporary feeling of leaving one's comfort zone, but despite the inconvenience caused, this could motivate one to learn new things. In the latter case, learning could be experienced as an *overload*. Experiencing a burden was described as an essential part of learning, but it should be kept in check to ensure long-lasting, in-depth, and sustainable learning. Tasks that required new learning were described as motivating, while routine and 'overly familiar' tasks were burdensome and reduced the motivation to learn because learning from them was no longer possible. In contrast, tasks that required excessive learning at a given time resulted in learning overload. New knowledge was not retained, and more time was needed to start learning again and find motivation. This situation was typical at the beginning of new projects, tasks, jobs, or careers, when many new things were to be learned in a short time, causing feelings of hurry and learning overload:

It [learning] places such a heavy load on me, and I know from experience that it may annoy and cause stress, but when you get it done, all that is left is learning. So, yes, at least

afterward, it seemed rewarding; it felt like I got something out of it for the company and even for myself. (ICT participant 20, man, production manager, experienced)

Issues that were not directly related to one's core tasks caused stress

Information systems, administrative duties, unfunctional applications, and a lack of communication and information between teams and departments created burdens, even though, for example, information systems should help employees perform their work more effectively and save resources. Although the following extract is from a hospital employee, frustration resulting from unfunctional systems was also evident in police work. 'These [computers] are quite ... they are time robbers. If you know how to use them properly, of course, they provide a lot of valuable information, but they also take a lot of time' (Participant 2, man, physician, hospital).

An important experience of sustainability that promoted well-being in all organisations, especially in the hospital and the police, was the *positive meaning of community (colleagues and supervisors)*. Teamwork reduced stress and accelerated learning by offering the possibility of reflection across individuals and teams. Especially at the hospital, the feeling of being in the same boat seemed to strengthen the experience of learning together and making learning less burdensome for individuals. The goals that the team could reach together based on the members' competence and ability to learn continuously decreased the overload of learning. The ability to recognise the team's learning strengths and weaknesses – a kind of 'group-level metacognitive skill' – was another important factor. In preventive police work, involving helping people, gathering information, problem-solving, and anticipation, the continuous updating of competences and knowledge was an essential prerequisite for *success*. Well-being thus helped to reduce ignorance at the individual and group levels. Well-being was promoted when doing meaningful work with competent and learning-oriented colleagues: 'We all have our own community and team, and we have a common mission that everyone knows. I believe that these folks are always a kind of resource' (Police participant 8, man, inspector, old-timer)

While the meaning of work community and colleagues was mainly seen as a positive phenomenon, it could also manifest as a threat to well-being. For instance, at the ICT organisation, well-being was thought to be undermined if one person's competence was needed in many simultaneous projects. Such situations were stressful because a single person was responsible for many things at the same time, which spread resources too thin. Typical of the technological field was that no one had sufficient time to learn everything needed. However, employees entering the ICT sector were committed to the field and accepted the constant need to learn. To them, work was motivating in itself, and tolerance of learning too much developed over time, thus promoting well-being. For police officers, unsustainable well-being meant that the needed knowledge and work processes lacked clarity and structure, making them feel unable to accomplish their tasks., which threatened their well-being at work.

Temporality aspect

When describing the aspects of sustainability of learning, the importance of the temporal dimension emerged within the three initial aspects described above. We labelled the main

temporal experiences of sustainability as *proactivity*, *the continuum of learning and development*, and *future orientation*.

Proactivity

Being prepared for changes and new problem-solving situations was the most important aspect of proactive learning in all studied contexts. In the ICT organisation, proactivity manifested as an active orientation towards gaining knowledge that could be easily utilised and benefit one's work. This, in turn, was connected to the transferability of learning to things that might be needed in the future. Sustainability in the form of proactivity also emerged as the ability to notice usable procedures in leisure activities. Proactivity was also at the heart of preventive policing aimed at producing sustainable solutions for citizen security. However, information for solutions might not always be quickly or easily available. Therefore, proactive learning emerged as a way for continuous clarification and to search for information: 'We must be aware of what happens in the world all the time, and we must react very quickly before something serious happens [for example, in cases of public protests]' (ICT participant 21, woman, team leader, experienced).

A problem for police officers was that, while they recognised information that was not useful in anticipating situations, they might not have sufficient resources to identify useful information in this respect. Anticipation was related to monitoring law changes and, generally, how and why policing was changing in Finland and elsewhere in the world. At the hospital, proactivity manifested being prepared to respond individually and collectively to unusual situations, such as catastrophes. Experiences from similar previous situations helped gain a deeper understanding of what to rely on in future cases: 'Experience can deliver competence that makes anticipating possible' (Participant 16, woman, nurse, hospital, experienced).

The continuum of learning and development

The idea of continuity of learning included the idea of a continuum embedded in the structures of learning and development. This manifested especially in the hospital's apprenticeship structure, which aimed to train novice workers under the guidance of more experienced workers. Everyone acted as a learner and teacher throughout their career, reinforcing the feeling of developing in a continuum: 'We have a strong tradition of always educating the next generation' (Hospital participant 11, woman, physician, old-timer).

The feeling of temporality also manifested in how learning was experienced as stressful at different times and in different situations along one's career path. Employees in the ICT organisation described the temporality of learning, especially regarding well-being. Learning requirements could be burdensome, for instance, at the beginning of one's career or a project. Thus, it was important to build a solid base for continuous learning at the beginning of one's career. To make this kind of learning possible, sufficient amounts of new learning were required; otherwise, there would be no basis for sustainable development later in one's career. Even more important was how stressful learning was perceived in the long term. Being aware that experiencing a burden was temporary fostered well-being, but too much learning could become a burden in the long term:

Then, in a way, challenges and problems are also one thing that helps. If there are enough of them—not too many—especially when they are things that are in your own hands, are helpful. But things that are not under control in any way, of course, they are not that helpful (ICT participant 7, man, project manager, experienced)

Future orientation of learning

The future orientation of learning was important in all studied contexts. At the hospital, guidance was important for preparing less experienced employees for future situations, teaching them to trust themselves, and helping them identify future developmental needs:

And when they have completed surgery with my help, next time, I'll be behind the door in the hallway to be approached. So, they get to try their own wings little by little. I describe this as a weaning period. (Hospital participant 8, man, physician, old-timer)

In the police unit and the ICT organisation, future orientation naturally included the requirements of work. In preventive police work, there was a constant need to anticipate future risks. Shared previous experiences and deeply learned things related to core tasks were utilised to solve possible future problems. Trust in individual and shared experiences also promoted well-being. In the ICT organisation, future orientation was related to constant technological developments. Competencies needed to be constantly developed to be able to work in the present and the future. Along with the rapid applicability and transferability of skills and competencies, there needs to be an orientation towards the future:

Competencies don't necessarily expire, but that doesn't change the fact that you have to learn new things! These new design software systems—you just need to keep up with them. (ICT participant 6, man, department manager, old-timer)

Discussion

This study's findings suggest that sustainability of learning is experienced as the continuity and transferability of learning, well-being, and temporality. Different descriptions of sustainability emerged from the interviews with preventive police officers, hospital nurses and physicians, and ICT professionals in Finland. The four aspects deepen our understanding of how learning at work can become sustainable. Additionally, our finding of the temporal aspect in all three contexts further broadens our understanding of the importance of time in framing sustainability, an aspect that has been little elaborated in past studies. We learned that the transferability and continuity aspects seek to maximise the *benefits* of learning, while the well-being aspect also includes more critical views on sustainability, pointing to the unsustainability of learning. While the aspects of transferability, continuity (Hays and Reinders 2020; Tractenberg, FitzGerald, and Collman 2016), and well-being (Heikkilä et al. 2022; Huhtala et al. 2021; Lumiala and Collin 2023) can be traced in the extant literature, the temporal aspect is less familiar in the field, although it emerged as an essential aspect of sustainability of learning in our data. Thus, our findings confirm and strengthen the existing research on sustainability of learning while also discovering a deeper context-specific understanding of the phenomenon at hand, for instance, through the additional temporal aspect.

Our analysis shows that, in addition to transferability and continuity, experiences, proactivity, in-depth learning, and benefits are viewed as essential aspects of learning. Previous research has also identified these elements (see e.g. Boud and Soler 2016; Lemmetty and Collin 2020; Lumiala and Collin 2023); thus, our findings confirm and strengthen the research in the area. However, our findings provide new insights into how learning can become burdensome and threaten employees' well-being, thus providing further evidence that sustainability is also related to enhancing well-being in work practices (Di Fabio and Rosen 2018; Galuppo et al. 2019) and needs to be considered an important element of workplace learning (Brandi, Collin, and Lemmetty 2022; Pfeffer 2010). Our findings reveal that learning and well-being are closely intertwined and temporally framed. Well-being is simultaneously a requirement and an outcome of learning processes. To be sustainable, learning outcomes should be applicable and transferable, and learning processes should be continuous and sufficiently in-depth. Ensuring the transferability and continuity of learning through meaningful but not excessively demanding tasks enhances individual and organisational well-being.

In addition to previously described aspects of sustainability, the identified temporal aspect of learning emphasises the importance of proactivity (Hays and Reinders 2020) and future orientation for sustainability of learning. The long-term sustainability of learning emerged as particularly important, for example, from the perspective of sustainable careers (De Vos, Van der Heijden, and Akkermans 2020). A temporary feeling of stress is a natural part of learning (Janssens et al. 2017; Sweller 2011). However, learning that becomes excessively burdensome may feel threatening to one's well-being in the long term instead of seen as in-depth learning that is continuous and applicable (Kim and Beehr 2018). Consequently, from the perspective of well-being, it is important to examine long-term learning instead of individual learning situations.

Our study has limitations. Despite broad empirical data and three researchers ensuring the plausibility of the interpretations, one can be critical of whether all three researchers have handled the data in the same way. However, we tried to describe the analytical process transparently to ensure the reliability of the interpretations. Our findings may be transferred to similar kinds of contexts in healthcare, police, and ICT work. This study was conducted as part of a larger research project, and ethical assurances, such as research permits, and privacy statements, were put in place. Moreover, all participants were well informed throughout the process about the confidentiality and anonymity of the findings. The storage of empirical material was implemented according to the project's instructions. In addition, security clearances for the researchers were completed due to the confidentiality of the material from the Finnish police.

Conclusions

This study provides an empirical understanding of the descriptions of sustainability of learning in three different work contexts. However, further empirical research is needed to provide a more comprehensive and generalisable description of sustainability of learning. Our new notion of the meaning of temporality in learning warrants further investigation. Moreover, a research design that can provide a better understanding of the communal nature of learning creating sustainability would be important, given that much learning takes place in collective practices and interactions. This could be done

by adopting various methodological approaches (e.g. ethnography) that enable the study of sustainable work practices from the individual to the organisational level. In addition, more quantitative analyses would be useful to test the theoretical framework. In this study, we made no distinction between employees and managers or supervisors. However, it would be important to examine sustainability of learning in different roles across organisational levels – especially those of supervisors and middle managers, who play a major role in supporting employees' learning on a daily basis. Since our findings also reveal differences in sustainability of learning among organisational contexts, further research is needed to examine why different work contexts place different emphases on the relationship between learning and well-being – for example, why the experience of work-related well-being is stronger in one work community than in another, and how this experience can be enhanced at different stages of projects and careers. This would be important for HR practitioners and middle managers to consider in the endeavour to make work life and learning more sustainable.

Although we did not focus on the challenges associated with learning, they were described in the data. For example, the applicability of skills developed through training and courses to everyday work was deemed insufficient. Likewise, the transfer of the responsibility for learning to individuals and thus the adequacy of organisational methods for supporting the sustainability of learning were criticised (see also Lemmetty and Collin 2020). These findings suggest that organisations should develop learning and support structures that aim to not only provide information but also facilitate the various stages of the learning process. Transferring what has been learned in education to practice and supporting it in this process is one option, but it also creates new challenges and requirements for supervisory work.

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