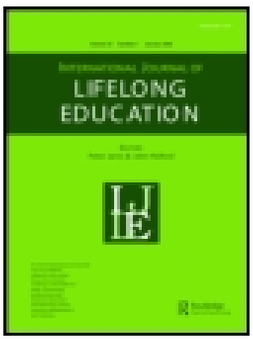

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Throwaway knowledge, useful skills or a source for wellbeing? Outlining sustainability of workplace learning situations

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ABSTRACT

Rapid changes in working life have raised awareness of the need for lifelong learning among personnel, and there is increasing concern regarding the sustainability of such learning, especially in growth companies, where learning can be seen as a prerequisite for many work practices. Hence, the aim of this study is to understand the sustainability of learning situations from the perspectives of individual wellbeing, widespread use of previous knowledge and rapid application of new knowledge. We broaden the understanding of workplace learning from the perspective of sustainability by identifying different workplace learning situations and outlining the sustainability of these situations. Two Finnish growth companies participated in the study, representing the technology and industrial field. The data consist of 68 interviews, and a qualitative thematic analysis was utilised. The study found three thematic categories of learning situations: technological development, structural changes within the organisation and formal learning situations. Sustainability perspectives manifested in these situations, but both negative and positive aspects of learning were observed. The findings can be utilised in organisations to enable more sustainability in learning. The research reveals a new and critical understanding of the sustainability of workplace learning.

KEYWORDS

Workplace learning; sustainability; growth companies; qualitative research

Introduction

Workplace learning – where individuals and groups learn at work or for work (Billett, 2001; Collin, 2006) – has become a requirement in contemporary working life because of the continuous change, digitalisation and high-cognitive demands found in most work environments (Harteis, 2017; Kira et al., 2010). These demands test employees' coping skills with work, forcing employees to learn continuously in different working life situations (Järvensivu & Koski, 2012; Lemmetty & Collin, 2019; Ryan et al., 2008).

Both informal and formal learning situations at work are important (Collin, 2006; Lave & Wenger, 1991; Marsick & Watkins, 1990) because they produce the employee knowledge and skills (Paloniemi, 2006; Rowolds & Kauffeld, 2009) needed both to achieve innovative solutions and cope with work (Collin, 2006; Segers et al., 2018). Learning at work not only focuses on individual information generating processes, but also on collective activity that emerges during interaction and participation practices (Billett, 2000). According to Manuti et al. (2015), learning should not be distinguished from the individual and the collective, but rather, it should be thought of as a whole that combines both aspects. In addition, it has been suggested that research on workplace learning should be diversified across disciplines because it has been highly context based and situated and

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influenced by the specific characteristics of a given industry or organisation (Collin, 2006; Tynjälä, 2013).

Although learning at work has been mostly seen as a factor in generating vitality and psychological resources through development (Fritz et al., 2011), it has also been seen as burdensome for individuals and sometimes even problematic (Järvensivu & Koski, 2012; Lemmetty & Collin, 2019). Even though there are a range of good ideas about how deep and sustainable learning should be realised (see, e.g., Albinsson & Arnesson, 2012) in the context of working life, these ideals are sometimes far from the reality (see, e.g., Albinsson & Arnesson, 2012; Lemmetty & Collin, 2019). Studies (e.g., Howell et al., 2002; Järvensivu & Koski, 2012) have found that organisational change or work itself can create learning requirements that employees do not have the ability to influence or respond to. The demands associated with taking responsibility for one's own continuous learning at work may be experienced as a burden by some employees (Lemmetty & Collin, 2019), leaving them to face daily work challenges alone. From this critical point of view, the concept of sustainability becomes important for workplace learning theory development and for practical implications in working life.

Sustainability is usually discussed in connection to the depletion of natural resources, climate change, and the preservation of humanity and can be divided into environmental, economic, social and human sustainability (Pfeffer, 2010; Scully-Russ, 2012). Of these, the last two are not commonly used in the literature and research (Gallagher et al., 2017; Pfeffer, 2010; Speth, 2010), even it is argued that it is impossible to achieve sustainable results without first paying attention to human sustainability (Pfeffer, 2010). Researchers have studied sustainability in relation to learning (e.g., Benn et al., 2013; Albinsson & Arnesson, 2012; Kearney & Zuber-Skerritt, 2012; Kira et al., 2010; Scully-Russ, 2012) in different ways while underlining that existing research-based knowledge bringing these themes together is diffuse. Sustainability research in the field of learning has also been characterised by a lack of common framing. The most typical starting point is to see learning as a tool for environmentally or socially sustainable solutions (see, e.g., Albinsson & Arnesson, 2012; Kearney & Zuber-Skerritt, 2012; Scully-Russ, 2012), but there is a call for research on the sustainability of workplace learning situations themselves from a people perspective (Kira et al., 2010; see also Pfeffer, 2010; Gallagher et al., 2017). Therefore, in the current study, we approach the sustainability of the learning situation by paying attention to the perspectives of individual well-being (Di Fabio, 2016; Gallagher et al., 2017; Pfeffer, 2010), the wider use and recycling of existing knowledge (see Di Fabio, 2016, 2017; Hays & Reinders, 2020; Tractenberg et al., 2016), as well as the rapid application of new knowledge (Brandi & Christensen, 2018).

In the present empirical study, our aim is to broaden the understanding of workplace learning from the perspective of sustainability by examining it in interviews with Finnish growth companies (N = 68). By using a thematic analysis (Braun & Clarke, 2006), we locate different situations of workplace learning, from which we identify and outline different perspectives on sustainability. In this way, we illustrate the potential for achieving sustainability in learning, which can then be viewed and applied by organisations, managers and human resources (HR) experts.

Workplace learning situations – towards a perspective of sustainability

Workplace learning situations produce knowledge and skills

Workplace learning approaches learning as a practice, aiming to develop the skills and knowledge of individuals and teams (Billett, 2000; Collin, 2006; Matthews, 1999; Paloniemi, 2006; Tynjälä, 2013), but if successful, it also promotes the competence of the entire organisation (Brandi & Christensen, 2018; Elkjaer, 2005; Järvensivu & Koski, 2012; Prugsamatz, 2010; Tynjälä, 2013). Workplace learning is realised in organisational work practices through which individuals learn simultaneously (Billett, 2000; Collin, 2006; Tynjälä, 2013) in a number of different work situations. These situations

have often been divided into formal or informal learning situations, where learning can take place as both individual and collective activities (Lave & Wenger, 1991; Marsick & Watkins, 1990).

Informal learning at work has been strongly linked to work practices (Marsick & Watkins, 1990), manifesting as an everyday phenomenon (Lave & Wenger, 1991; Livingstone, 2008). This type of learning is often intertwined with the work itself and, thus, will increasingly become the responsibility of individuals and groups in the future (Ellinger, 2004). Informal workplace learning usually happens during problem solving (Bereiter & Scardamalia, 1993), hence taking place outside formal education and guidance (Billett, 2001). Furthermore, informal learning is increasingly recognised as being based on interactions among employees (Billett, 2001; Collin, 2006), collective and shared practices and experiences (Brown & Duguid, 2001; James et al., 2013). However, more recently, it has also been described as an autonomous practice (Noe & Ellingson, 2017) and as a situation in which the individual contributes to the learning process (Yeo, 2008). Although nowadays workplace learning is increasingly seen as informal in principle, the importance of formal learning is still noted (Collin, 2006). Formal learning refers to training and education for work, and it has been found to be useful when it comes to gaining a large body of new knowledge quickly (Collin, 2006).

One of the aims of formal and informal learning at work is to promote the development of the competences and skills of individuals and groups (Collin, 2006; Paloniemi, 2006; Rowolds & Kauffeld, 2009; Tynjälä, 2013). Thus, we see the different learning situations and the practices that occur in them as a platform for the use and development of knowledge and skills at work. This is why, in the current study, we focus on the situations in which learning takes place (Billett, 2001; Tynjälä, 2013).

Sustainability of learning

In the context of work life, there has been a call for studies that look at the sustainability of learning situations (see Albinsson & Arnesson, 2012; Kira et al., 2010). When examining the sustainability in relation to learning, it can be defined as maintaining continuous learning (Prugsamatz, 2010), the widespread use of previous knowledge (Collin et al., 2017) and, the application of new knowledge (Brandi & Christensen, 2018). In addition, there has been a need for a critical examination of learning and its sustainability because it has been argued that learning is not inherently a positive phenomenon but can also be a problematic and overwhelming activity for individuals (Albinsson & Arnesson, 2012; Järvensivu & Koski, 2012; Lemmetty & Collin, 2019). This is because of the continuous change and learning challenges it brings, could be a risk for the wellbeing of individuals and organisations (Di Fabio, 2017; Kira et al., 2010). For this reason, learning should be viewed from the perspective of human sustainability – focusing on peoples' health, education, skills, knowledge and comprehensive wellbeing (Gallagher et al., 2017; Pfeffer, 2010).

Based on an understanding formed through previous research, we have compiled a suggestion of three perspectives to examine sustainability in workplace learning situations (see Figure 1): the perspective of individual wellbeing, the perspective of the rapid application of new knowledge and the perspective of the widespread use of previous knowledge. Next, we describe each perspective in more detail.

Individual wellbeing in learning situations

In recent years, a strong argument has been made that it is not possible to achieve development that is sustainable for the environment or economy, without guaranteeing humane and socially sustainable working lives for people and communities first (Pfeffer, 2010). From this perspective, sustainability can be linked to changes and learning in organisations: it involves the broad promotion of human wellbeing (D'angelo et al., 2018; Di Fabio & Rosen, 2018; Galuppo et al., 2019) in different operations of organisations (Galuppo et al., 2014). Wellbeing is not only the absence of disease or infirmity, but it is also a state of complete physical, mental, spiritual and social wellbeing (World Health Organization [WHO], 2007; see also Di Fabio, 2017), being one kind of a basic metaphor in

Figure 1. Three perspectives on sustainability in learning situations.

sustainability (Painter-Morland et al., 2017). From the point of view of wellbeing, sustainability in organisations should be extended not only to the outcomes of processes, but also to practices and cultures that are equal and fair (Roloff, 2008), taking into account the needs of employees (Zhen & Shu, 2011). These notions show that sustainability should not be viewed only in terms of the ecological and environmental, but also in terms of promoting the wellbeing of all people (Di Fabio, 2016).

This aspect of sustainability can be linked to the critical perspective on workplace learning. In recent years, studies of workplace learning have provided evidence of burden and problematic nature of learning (Järvensivu & Koski, 2012; Lemmetty & Collin, 2019). Although learning within organisations has increasingly shifted to being the individual's responsibility (Ellinger, 2004), the real opportunity to influence may not have been granted (Howell et al., 2002). Many changes in the world of work as a result of technological advances and structural changes challenge workers to learn while working every day, but the time and resources may not be available (Collin et al., 2018). Learning can increase the workload, so it infringes upon employee leisure time and causes problems, including balancing work and family life (Järvensivu & Koski, 2012; Lemmetty & Collin, 2019). This combined with Kira and Frieling (2007, p. 301) argument, according to which sustainable working life development *'enables both, employees and organisations to keep up their functioning capability in the changing world. Instead, unsustainable development is partial development where, for example, a work organisation reaches its businss objectives by exploiting its employees*', reveals the need for a simultaneous examination of individual wellbeing and learning in the context of working life. Given these considerations, the current study utilises the perspective of individual wellbeing as one perspective to outline sustainability in workplace learning situations.

Widespread use of previous knowledge

Sustainability in learning has also been defined in previous studies in terms of the transferability and usability of learning and knowledge (see Hays & Reinders, 2020; Tractenberg et al., 2016). In these studies, sustainable learning is learning that continues beyond the end of formal instruction (Tractenberg et al., 2016); it can be described as continuous learning situations and generating new understanding and means for learning (Kearney & Zuber-Skerritt, 2012; see also Prugsamatz, 2010). This idea is based on the verb 'to sustain', which refers to maintain continuous learning (see Prugsamatz, 2010); it comes close to the concepts of lifelong learning and deep learning (Hays & Reinders, 2020; Tractenberg et al., 2016), but it is not so much described as a single learning method or as a whole of a lifelong scale but rather as relationships between different learning situations: learned things deepen and develop when previous knowledge is widely utilised. Thus, sustainability is strongly linked to the utilisation and usability of learned knowledge and abilities (Albinsson & Arnesson, 2012). For this reason, a second perspective in our study is utilising the perspective of widespread use of previous knowledge in workplace learning situations.

Rapid application of new knowledge

From previous research, another more practical approach to examining the sustainability of learning can be observed: the rapid application of what has been learned. In their study, Brandi and Christensen (2018) examined the sustainable integration and anchoring of new knowledge and competences in practice; they found that it would better for the sustainability of learning if the application of new knowledge could emerge during the ten weeks after completing the learning activity (Brandi & Christensen, 2018). By the rapid application of new knowledge, it is possible to achieve a deeper learning experience and prevent the forgetting of information and, thus, the waste of time and resources spent on gaining this information. This aspect comes close to the theories of informal workplace learning, which suggest learning emerges when doing the work tasks themselves (Lemmetty & Collin, 2019; Yeo, 2008). In this case, learning and the application of it happens quickly, so it also is understandable why sustainability has been seen as a basic and included element of learning. Although when looking at the previous examinations about the problems of workplace learning, for example, the challenges of having enough time for the learning process as a whole, the optimistic attitude towards workplace learning can be questioned (Albinsson & Arnesson, 2012; Lemmetty & Collin, 2019), and in the field of workplace learning research, the focus should turn towards looking at sustainability itself.

Summary of the starting points of the study

The three perspectives to outline the sustainability of learning situations, as described above, are not only separate approaches but can be seen also as connected and overlapping viewpoints. First, if sustainability in learning is realised, it is not just a matter of material resources, but it is of using, revitalising, reusing and rapidly applying knowledge and skills (Di Fabio, 2016). Through this, learning can become a resource from the point of view of learners, thus helping reduce the workload and promoting the wellbeing of individuals and organisations. When knowledge and legacy solutions are transferred to meet new challenges or achieve new results (Di Fabio, 2016, 2017), for those working in organisations, this could mean using fewer resources in relation to overwhelming learning. Accordingly, the widespread use of knowledge and individual wellbeing can be seen as overlapping perspectives. The premise of the rapid application of new knowledge is attached to the above perspectives because the utilisation of prior knowledge can also be seen as an application of what is learned; on the other hand, it is linked to the wellbeing of individuals by preventing the individual from forgetting new knowledge and, thus, relegating a past learning situation as useless. Our suggestion of the three perspectives for outlining sustainability in learning situations receives support from Sterling's (2010) idea, according to which sustainable education should be sustaining, tenable, healthy and durable.

Research aims and questions

The aim of the current study is to understand the sustainability of learning situations from three perspectives: individual wellbeing, widespread use of previous knowledge and rapid application of new knowledge. Thus, we broaden the understanding of workplace learning from the perspective of sustainability by identifying different workplace learning situations and outlining the sustainability from these situations. To achieve the aim of the research, two research questions were formed, as follows:

(1) *What kind of workplace learning situations are described in growth companies?*
(2) *How are the three perspectives of sustainability manifested in these learning situations?*

Methods

Research design overview

The study was conducted by means of qualitative research as an interview study. The data consists of semi-structured thematic interviews. Thematic analysis (Braun & Clarke, 2006) was utilised as an analytical tool. The qualitative interview research was chosen as methodological strategy, because the aim was to describe the nature of the phenomenon under study in a particular context (Hammersley & Atkinson, 2007).

Qualitative research emphasise various descriptions and words about the phenomenon under study. Bodgan and Biklen (1997, p. 6) defined that 'the qualitative research approach demands that the world be examined with the assumption that nothing is trivial, that everything has the potential of being a clue that might unlock a more comprehensive understanding of what is being studied'. Thus, in the current study, the everyday phenomenon at work – learning – is not taken for granted, but with the aim of seeking to form a new understanding of its holistic nature, especially from the perspective of sustainability. The current research utilises the divisions of learning situations at work presented in the previous theory (formal-informal) (see, e.g., Marsick & Watkins, 1990; Tynjälä, 2013), as well as the perspectives taken from previous studies combining learning and sustainability as an analytical framework. At the same time, however, the new and detailed meanings produced by the data are taken into account, through which existing information can be mirrored and developed. Thus, there is a dialogue between theory and data, which is why the present study can be seen as a combination of data- and theory-based research (see, e.g., Braun & Clarke, 2006). Based on the nature of qualitative research, the current research does not seek to generalise information but rather seeks to describe people's activities in a specific context (see Hammersley & Atkinson, 2007; Levitt et al., 2018) – in the current study, this is done in two work organisations.

Study participants

Two researchers conducted this study, both working in the field of adult education. The researchers have a long experience of researching learning at work. Although the area of sustainability is new for the researchers, theoretical understanding of the relationship between the concepts of sustainability and learning has developed during this research process. Similarly, the deepened understanding gained through the data has also increased researchers' familiarity of the topic. Thus, the dialogue between the theory and the researchers' own observations and the interpretations formed through them have taken place in the research process (see also Hammersley & Atkinson, 2007; Levitt et al., 2018).

Two companies participated in the data collection. The purpose of the current study was not to compare organisations but rather to collect an extensive amount of data. The *technology* organisation employs approximately 270 people, whereas the *industrial* company employs approximately

350 people. These two organisations have grown rapidly in operating profit and the number of employees in recent years. In terms of change, the target organisations are interesting because digitalisation is causing numerous changes in the use of technology. Furthermore, because of continuous growth, changes in the organisations' structures have been widely discussed. The organisations participating in the study operate in Finland, where the rights of employees are protected by law and the autonomy of individual employees and teams is often strong (see Collin et al., 2018). It is therefore expected that employees' opportunities to influence on their own learning are well enabled and their well-being is promoted by democracy and the legal obligations of organisations.

Research collaboration with the organisations began in 2017 by agreeing with key personnel of the organisations (HR managers, CEO) on the objectives, purpose and progress of the research. In the organisations, all staff members were informed of the start of the study by email. In addition, in the interview situation, the interviewees were reinformed about the aims and practices of the study. Only employees and supervisors were selected for the actual interviews, as the purpose was to examine descriptions of the personnel – not the top management. The interviewees were contacted for the first time when recruiting for the interview and during the actual interview situation. They participated voluntarily and they were not offered compensation for that. The organisations did not contribute to the cost of conducting the study. Employees participated in the study during their working hours.

The participants were randomly selected by the researchers, but they still represented different groups of employees and came from different teams. The interviewed employees and supervisors in the technology company (N = 44) worked as software designers, automation designers, electrical designers, managers, project managers, assistants and marketing planners. The employees and supervisors (N = 24) interviewed in the industrial firm were civil engineers, managers, business managers, IT experts and assistants.

Data collection

The actual collection of the research data started in the technology organisation in the spring of 2017 and in the industrial organisation in the spring of 2018. For interviews, four and ten visits were made to aforementioned participating organisations over a period of four to six weeks. The collection of research data ended when participants from most areas or teams in the organisation had been interviewed and the total number of participants appeared to be sufficient in relation to the objectives of the research. Altogether 68 interviews were conducted with employees and supervisors. The interviews were conducted on the premises of the organisations, in closed conference rooms with only researchers and the interviewee on site. The interviews lasted from 35 to 60 minutes.

During the interviews, we asked the interviewees to describe situations in which learning occurs either at work or for work (Billett, 2001). We conducted the interviews as thematic interviews, and the interviewees were first given the opportunity to freely express their views and experiences related to each theme: 'workplace learning', 'competence development', 'skills and knowledge', 'education and courses' and 'wellbeing at work'. Prompting questions such as 'How do you learn in your job?' or 'What kind of things affect your learning at work?' were asked if the interviewee had difficulty discussing the topic. To strengthen our understanding of a socio-cultural understanding of the phenomenon and to gain insight into the concept of sustainability, we also asked about the consequences of learning situations and the reasons behind each learning situation.

The interviewees described the situations, expressing both their views and their previous experiences. They also gave concrete examples of different learning situations. In this way, we gained access to extensive descriptions that also made it possible to locate the socio-cultural factors in the background of learning processes and practices.

Data analysis

The interview data were transcribed before starting the actual analysis based on the principles of thematic analysis (Braun & Clarke, 2006). The analysis was carried out both, data-drivingly and theory-based, informed by the previous theories of workplace learning and sustainability. The analysis progressed through three phases. First, the transcribed interview data were read numerous times to form a general understanding of the data. At this point, we also wrote notes and made preliminary outlines of the empirical material.

Second, we identified all sections of the interviews that included descriptions of informal or formal workplace learning situations (see Lave & Wenger, 1991; Marsick & Watkins, 1990). We examined the contents of the situations by asking why a learning situation would seem to have arisen and how the employee described the nature of the situation. We found similarities and differences between the different situations, which allowed us to categorise them into three categories of learning situations (Braun & Clarke, 2006). Some of the interviewees started to describe their learning strongly through formal training, but as they moved to talk about their own work, they also described many of learning related events emerging at their daily work.

In the third phase of the analysis, we examined the workplace learning situations from the perspectives of sustainability, which emphasise individual wellbeing, the widespread use of knowledge and the rapid application of new knowledge (see Figure 1). In this phase, we focused especially on the consequences and processes of learning. We studied the material by asking the following questions: What descriptions related to individual wellbeing emerge in various situations? In what way do the interviewees talk about the use of what they have learned in each situation? How is the application of learning described in speech? When examining the descriptions, we noticed the reasons the participants described for learning, the outcomes they saw because of learning and the other related factors they described as being linked to the learning situations. We also found out how they described their own activities, the activities of the organisation and the activities of colleagues in relation to learning situations. Through this, we identified themes related to sustainability from the different categories of workplace learning situations.

After identifying the themes, we followed the principles of a thematic analysis proposed by Braun and Clarke (2006): examining the relationship between the different observations and phenomena and looking at the themes in relation to the entire dataset and preunderstanding formed in the first stage. Finally, we named the themes according to their contents and divided them into the negative aspects of learning from the perspective of sustainability and positive aspects of learning from the perspective of sustainability. After this, we had three different categories of workplace learning situations, all together including six themes related to sustainability perspectives.

Findings

In this section, we present our findings through three subsections. We named these subsections according to the workplace learning situations that we identified. For each situation, we describe our interpretation of the situation from sustainability perspectives (see Figure 1).

Learning through technological changes

The typical learning situation at work was advanced because of technological advances. Based on the data, maintaining technological competence seemed to require work-based learning. In this case, the learning situations underlying the development of technological competence were described as work based and strongly informal.

Problems of long-lasting utilisation and usefulness of learning

From a sustainability perspective, employee descriptions revealed problems related to quick application and widespread use of previous knowledge in learning situations. Meaning that, the learning was not utilised in the situation, when employees could not apply it quickly or use previous knowledge with it. Usually this happened when, employee could not delve into learning deeply or could not use previous knowledge because the changes were happening too quickly.

> When we have such a fast pace at work or when we want desperately to develop something, it is just that so many new [programmes] come … people feel [tired], too many, and we don't want to learn them all … because another one will be launched again within a year or so. (Civil engineer, industrial organisation)

As can be seen from the citation above, the experiences of the personnel showed that a certain type of *throwaway knowledge* made its way into the field of learning. The biggest challenge for sustainability in the face of change seemed to be haste and hurry. Technological development was perceived as very fast, especially in the technology organisation, but also in the industrial company, and staying up to date with all the changes and developments required employees to spend a lot of time learning during work tasks or even evaluating how they could use previous knowledge in the new situation. However, the interviewees felt that there was often not enough time for learning and that it was more important to get the job done in one way or another to progress to the next task. Because of this continuous hurry, there was no time to reflect on what was actually done. In such cases, learning was not taking place in a profound way and, thus, could not be beneficial in the future.

> When you just do your work on a continuum, you hardly notice any specific learning moments, you just perform your job to have it done … you open a system and you have to do something in it, you just do it like a machine. Of course, it would be nice if you had time to think, organise, and like … that this was something we were doing and it affects this kind of thing, and where all this information goes. (Assistant, technology organisation)

Our interview data also revealed that in when the learning situation should have progressed quickly, the outcomes of learning was not complete. Here, if the outcome of the learning process was not high quality or even complete, the skills and knowledge of the individual could not develop as much as needed for future use.

> I had to get one new software ready, which I should have spent at least two days studying it alongside the work, but in practice I had two hours to complete it, so it became such a raw product. (Engineer, industrial organisation)

There was also an organisation-level problem in terms of learning and employee wellbeing: because individuals' technical and learning-to-learn skills vary, workers became insecure about being able to learn informally at work in the way that the ongoing changes were demanding:

> There were a lot of challenges and problems within this project, which the steering group did not, in my opinion, take a stand on. It [the end result] already went to the next level, it went ahead and once again left this deployment to be tested by those there in production with extra work. With the idea that 'Yes, you can do it' … It was also about the resources that we had to get the trainees to help and support [to get it done], because my coworker sometimes did those things day in and day out and completely tired of it. (Developer, industrial organisation)

> Changes in working life – everyone can't survive with it. In IT, there are technological leaps that have dropped certain types of people. They have not kept up with that change, they have not been able to embrace that 'leap', but they have caught up with the old technology. It is a danger to people and a challenge for companies. Will the 'throwaway culture' extend to people too? So, OK, let's take new people in, and the former employees just try to survive in life … or do we think that we should coach competent and good people and keep them on? (Manager, industrial organisation).

The experience of the 'throwaway culture of learning' was connected to technological changes. In interviews, the rapid and continuous change in technologies appeared to be a significant factor in the lack of time for learning, which rendered learning superficial. On the other hand, a change in technology drives organisations into a variety of development activities in which not all employees remain involved – as in the above quote, some 'drop'.

Quick applicability of new knowledge and previous experiences as resources

In the organisations, technology development was also experienced as a process that forces continuous learning while working. Sustainability, from the perspective of the rapid application of learning, emerged when learning situations were directly linked to work.

> It [learning] comes in that job when a new project is started, and it has this new hardware or something new. Then we will consider how it works and try to understand it. (Engineer, technology organisation)

In this case, the work situation caused a need for learning new information, and it was possible to immediately apply what was learned. This seems to be a sustainable process because when new knowledge can be applied quickly, it strengthens the learning experience, which is useful in future learning situations.

> Especially at the early stages, when I started in this job, learning took a lot of time. But now, it is really fast to get into the new things. [Interviewer: Are there any of the same kind of elements in those new cases as in some previous ones?] Yes, there are usually many of the same principles in them, and that makes it much easier to get involved whenever there is little experience already in the background. (Engineer, technology organisation)

As the quote above illustrates, experiences from previous learning situations are a resource for future learning. From the point of view of sustainability, experience appears is a contributing factor because it reduces the burden of future learning, which is relevant also from the point of view of human wellbeing. If it is possible to learn in a way that will reduce the need for new learning in the future, organisations should invest in such opportunities.

Learning through structural changes

The other important learning situation emerged when the organisations' structures changed. In these situations, the employees had to learn new roles and practices and get to know new team members, supervisors or subordinates. Employees' descriptions showed that organisational structures in technology and industrial organisations are often changing and that they never really stabilise until they change again.

Duplicate work and overwhelming changes

Changes in organisational structures produce challenges for the sustainability of learning from the perspective of individual well-being. Because of the compressed timeline and persistence of such changes, learning new roles and structures could be problematic. A compelling example of structural changes is constant changes in the roles of employees, meaning that learning a new role also needs to take place quickly.

> I now have this ongoing project where people have been taken from different directions, and it takes a lot of time to even realise what is the strength of anyone, what anyone wants to do, what they want to learn, and so on. (Civil engineer, industrial organisation).

Role changes imply that the responsibilities of individual employees will change, which may complicate the work of all other employees. This produces a domino effect, in which the uncertainty in the role of one essential actor causes uncertainty in others as well. The problem could be that employees are not aware of who is responsible for a certain task at a particular moment or that they do not know how to deal with this person. This causes confuse and slows down processes:

> It is really confusing, really ineffective, and confusing, changing [structures] all the time. Therefore, no one knows who is responsible and who decides. In a way, those hidden structures are more influential than the actual organisation chart … and it takes a lot of time for people to know what one's responsibility is. (Developer, industrial organisation)

Continuous changes in structure were perceived as overwhelming and challenging. The problem was not the changes themselves, but rather, it was their unexpected emergence – changes took place too quickly, leaving no time for learning. In addition to the small amount of time spent on learning, it was also a problem if the change was not clearly implemented. The above quote clearly illustrates that employees need the restructuring and changing of responsibilities to be clearly stated to allow them to learn a new structure and to know who can get help from whom in problem-solving and learning situations. When the structure remains unclear, perceptions and hidden structures can form, causing further problems for employees' wellbeing and coping at work:

> The staff feels that they do not have time to learn, which is related to how quickly we are trying to make a change. Our whole team is pretty sick and tired because this environment is so tense that … our view as a team is that quite a few people wonder why we are tired and we try to tell it because it's all so messy. (Manager, industrial organisation)

Platform for utilising previous knowledge

On the other hand, the responses towards learning-related structural changes in the organisation included accounts of the sustainability perspectives being met. Learning was perceived as sustainable if the changes took place consistently. In these cases, people had time to get know how to work in the new role and who was responsible for what, and everyone did not have to perform the same tasks. They could delegate the work to those in charge, allowing them to use their own resources for certain things. Even after a change, the employees described that structures and processes should be clear and that attention should be paid to communication. A way to support sustainability in learning during change would be to slow down the process of change:

> If we slow down that momentum [in the situation of changing the structures], we would be more effective, if people really could learn. (Manager, industrial organisation)

> Learning also requires application. In a changing organisation like this, specific things should be permanent so that they can be learned and be applied in the next time, when something [in the structure] changes again. (Developer, industrial organisation)

Thus, from the above quote, it can be seen that changes provide a platform for learning if, though, some things remain the same, in which case the application of the new can be made on top of old knowledge.

Learning through formal education and training

The participants had a lot of experience of formal and on-the-job education situations. Formal education seemed to be useful when the intention was to learn a new way of thinking or about a theoretical framework. Such needs emerged, for example, in the context of changing roles. Sometimes, education was also described as helpful. However, whether formal training and courses proved to be sustainable for learning was entirely dependent on how the new knowledge could be used or applied.

Outdated or wrong information and problems of application

One challenge related to formal education was finding and securing access to truly meaningful and useful training. Because the need for new knowledge can be specific and arise quickly, it is difficult

to find courses that address immediate learning needs. This reduces the chances of applying what one has learned.

> Well, that [technical] know-how has come from these projects, but it seems like training was not so useful. (Engineer, technology organisation)

There were also challenges in how different kinds of training sessions can be fully utilised in practice. The participants raised concerns that training was being provided, but their provision could not be put into practice, leaving the learning as wasted. One respondent described the phenomenon as 'half-learning':

> Learning emerge when doing changes. Possibility to internalise and test. It requires the right frames. Half-learning is frustrating. […] After one day of training, one cannot yet talk about learning. (Developer, industrial organisation)

One problem in formal learning is that the training is often too general. The situations for organisations, for teams or even for individuals can be unique, making it difficult to find specific training for a particular situation. Therefore, the benefits of formal education and training from the perspective of sustainability were questioned. For example, the training of engineers focused on the development of technical expertise although it would also be important to know how to work with people because the basics of leadership skills do not change much, and this knowledge can be used for a long time. Learning leadership and interaction skills would seem to be more important than technical learning, but the training often does not develop these skills.

> Most of what I learned in school, I do not use. I don't use it at all. I should rather learn how to deal with people … when I had to change whom I worked with, and the environment, or a bunch of people all the time, getting to learn more about how I motivate those people to work. (Civil engineer, industrial organisation)

Broad theoretical understanding as useful resource

Some interviewees described formal training as useful. For example, when it came to learning a broader and more theoretical whole, it was felt that education could help:

> In the cases of broad, abstract or theoretical topics – external training is better in my opinion. Whenever an outsider is teaching theory and bringing in a new frame of reference, it deepens and broadens the ability to mirror our own way of doing projects to something else. (Manager, technology organisation)

In this case, for example, the broad frameworks learned during the course could be mirrored, applied and utilised in the development of workplace activities. They could also become part of the workplace or team practices or culture, so their effects could also be seen as long-lasting.

Discussion

In the current study, personnel in growth companies described learning situations as emerging from technological advances and learning situations as resulting from structural changes in the organisations. These were described as informal learning situations (see Tynjälä, 2013). In addition, descriptions of formal training were found (see also Collin, 2006). All these described learning situations included both individual and collective features of learning, thus being very typical kinds of workplace learning (see Manuti et al., 2015). We examined the situation descriptions from the perspectives of sustainability, finding that all the descriptions included both negative and positive aspects of learning from the perspective of sustainability. Table 1 describes the main results of the study.

In previous studies, workplace learning is described as positive and motivating for the employee. However, in the current study, we discovered that workplace learning situations do not always meet the perspectives of sustainability. According to previous theories, workplace learning should be

Table 1. Summary of the findings.

Workplace learning situations	Learning through technological changes	Learning through structural changes	Learning through formal education and training
Negative aspects of learning from the perspective of sustainability	• Problems of long-lasting utilisation of previous knowledge • Low usability • Throwaway knowledge	• Domino effect: duplicate work • Continuous changes as burdensome and challenging	• Wrong focus or out-dated information • Problems of applying learning
Positive aspects of learning from the perspective of sustainability	• Quick applicability of new knowledge • Previous learning experiences as resources	• Sometimes platform for utilising previous know-how	• Useful in broadening theoretical understanding

a means of coping with work and finding innovative solutions (Billett, 2001; Tynjälä, 2013), but at the same time, it could also be detrimental to the wellbeing of employees, challenging both work and time management (see also, e.g., Järvensivu & Koski, 2012; Lemmetty & Collin, 2019). When enabling lifelong learning in the context of work, one should consider not only the promotion of continuous learning (Järvensivu & Koski, 2012; Kearney & Zuber-Skerritt, 2012; Prugsamatz, 2010), but also the critical examination of learning, the given resources for it and its causes for employee wellbeing.

Returning to the assumption that we made at the beginning of the article about the realisation of sustainability in learning and its positive consequences, we can confirm that learning situations, which seem to be sustainable from the perspective of the widespread use of previous knowledge, could also enable individual wellbeing (Di Fabio, 2016, 2017). Similarly, those learning situations that did not appear to be sustainable, for example, in terms of the application learned, could cause extra work and involved a risk of strain (see also Kira et al., 2010). In other words, there were learning situations in the data where the learning remained so superficial that employees saw it as 'half-learning' or futile. The perspective of individual well-being proved to be interesting because it could be interpreted as related to a number of different descriptions of learning situations. For example, when learning was expressed as problematic, employees described mainly the consequences of learning, for example, stress and fatigue. Thus, well-being was strongly referred to problems of sustainability, although it was not as clear as the themes of utilisation and application of knowledge in the interviewees' speech.

In the current study, we found that constant changes in organisations are forcing employees to learn while working. This would seem to be somewhat overwhelming for employees, especially if the changes occur so often that the learning processes attached to the previous ones are not yet complete. Although previous studies (e.g., Collin, 2006) have described the need for formal learning in the workplace precisely because employees can quickly learn something new, based on the current study, it seems that it is the informal learning at work, that provide opportunities for rapid learning. However, from a sustainability perspective, the question arises as to how quickly the new lessons learned become part of real knowledge or whether it is one-off information that is impossible to exploit in the long run.

Related to the above notions, learning at work is a highly paradoxical phenomenon, and its nature seems to be strongly influenced by organisational factors (Prugsamatz, 2010). Indeed, learning situations can emerge as sustainable or unsustainable depending on the perspective from which sustainability is viewed, as well as what kind of factors outside the individual prevail in each situation. For example, in the present study, we noticed that an organisation's structural changes in which the employees did not have enough time and resources for learning could emerge as burdensome and overwhelming situations. In these cases, continuous changes became overwhelming because employees had to learn new roles and organisational charts while still doing their daily work. On the other hand, when we looked at these situations from the perspective of utilising previous knowledge, we found that structural changes could emerge as a platform for sustainable

learning. Thus, when considering the sustainability of a learning situation, several factors and nuances must be taken into account to see why a situation becomes unsustainable.

However, there are some limitations to the current study: the research interviews were conducted only once for each interviewee, and some of the situations described were still 'going on'; thus, the benefits of many learning situations may only have appeared afterwards. For this reason, more extensive follow-up research should be carried out to identify the benefits or disadvantages of learning more reliably.

The current research was conducted in two growth organisations to ensure that the interview material would be as comprehensive and extensive as possible. However, the results can be seen very contextually, so their transferability to other types of organisations or to organisations operating in different sectors is questionable. In addition, it should be noted that individuals with different job titles participated in the study. However, their descriptions were not viewed through roles, so the importance of work tasks for sustainability in learning was partially overlooked. Therefore, in the future, it would be necessary to study sustainable learning from the perspectives of those in different roles because there can be many differences between them. In the future, it would be necessary to look at sustainability in learning at the organisational level, as well as the contradictions between individuals' descriptions of learning at work and organisational development. Indeed, more research on the sustainability of learning in different contexts is still needed.

Because the findings show that many kinds of organisational-based factors (e.g., time and resources for learning) affect learning, managers and supervisors could now have some tools to help increase the sustainability of employee learning. Thus, as a practical implication, organisations should understand the requirements of learning by allocating sufficient resources and designing assignments and projects based on the learners' existing expertise.

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