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Chapter

Ways of Learning: Suggestions for an Uncertain Future

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Abstract

Human resource managers have to keep up to date with new technologies, with changes in employment laws, business strategies as well as knowing what kind of people are coming out of the educational system. Keeping up to date on new learning methods and finding time to be creative is challenging. In this chapter a range of learning methods are presented and the challenges of adapting various learning forms to match the needs of ever-changing organisations is discussed. The starting point for understanding learning is based upon the concept of workplace learning (WPL). The study is builds on interviews carried out in a range of organisations in Norway and the main finding is that that different business sectors are interpreting and reinterpreting ways of learning. The potential for using these learning forms in different businesses and public sector organisations is discussed. This chapter contributes to our understanding of methods for working with skills and upskilling in an uncertain future.

Keywords: learning at work, learning forms, future

1. Introduction

One of the important tasks of HR managers is providing their organisations with the appropriate competence at all times. Sometimes this task is a simple one whereby every employee who leaves or retires is replaced by a new colleague with a similar competence profile, however, for most HR mangers the task is much more complex than this. Most modern organisations exist in an ever-changing environment, where organisations can be merged, bought up, or downsized. Tasks can be outsourced, replaced by machines, or become obsolete. Specialists such as those with technology competence or an understanding of the green deal are in demand and there is often a need for a combination of firm-specific knowledge and for example updated technological knowledge. In order to ensure a good supply of qualified and competent employees, most HR managers use two methods, recruitment of new employees, and training and re-training of existing ones. It is this training and development of existing employees that we focus on in this chapter. There are many ways of developing competence and preparing employees to tackle future challenges. A quick overview of recent topics in the Journal of Workplace Learning in 2022 and 2021, mentions fluid work, learning from incidents, coaching, configuring workplaces for global

work, learning-oriented leadership, agile learning, self-directed learning, facilitation, problem-based learning, and simulation. All these forms of learning are available to HR managers, and they must pick and choose what is best for their employees. The study presented in this chapter looks more closely at how a diverse group of HR managers are interpreting the needs and finding solutions for their particular challenges.

In this chapter, we will examine how a range of firms and public and private sector organisations pick and choose between the various forms of learning to develop the appropriate competence for existing employees. The chapter is organised such that the data and methods used in the research are presented, followed by a presentation of some of the main concepts of learning at work and a short review of recent literature on learning at work. Examples of how HR managers work with competence development and some of the learning forms we found in a range of Norwegian organisations are described and discussed. The chapter concludes by offering some suggestions to HR managers or training managers.

2. How to understand learning at work: views from literature

There are various perspectives that have been used to study learning at work. One perspective which is relevant to the current study is workplace learning (WPL). The concept of workplace learning has gained interest among researchers trying to understand the broad aspect of learning at work. It is not limited to formal or informal learning, to theoretical or practical. It can be used to study learning in all kinds of workplaces, such as business, industry, or public sector. The concept differentiates between training and learning and suggests that the role of HR manager is not simply to make sure that employees attend courses but to ensure that they actually learn "to make sure that learners learn, not just that training takes place" [1]. An important aspect of workplace learning is that it assumes a lot of learning is social learning and thus based on interaction between workers [2] and it can be shaped by the tasks being carried out and the way the workplace is organised. Another interesting aspect of workplace learning is that theories of emergence have been used to study workplace learning [3, 4]. Emergence assumes that learning is practice-based, but knowledge or knowing is never stable and is continuously changing [5]. One of the models developed to assess different workplaces and how they might affect learning is the expansive-restrictive continuum which defines the characteristics of different working environments [6]. Lee et al. found that workplaces that had a more expansive learning environment produced better long-term learning and more adaptable employees. Thus, when using this concept, we might look for fluid and changeable forms of learning. We expect employers to be organising tasks in such a way as to stimulate new learning and we expect them to take a broad perspective on learning and not limit themselves to specific skills needed now.

A popular model for learning at work, which is frequently used by HR managers in Norway is based on the work of researcher Linda Lai, who has developed a method of linking competence development to management strategies and has championed the idea of competence planning [7]. Lai's model defines the manager's responsibility and highlights the importance of clearly defined work descriptions based on competence requirements. She describes competence in terms of cognitive knowledge, social knowledge, attitudes, and values.

Another learning concept that has become increasingly popular in recent years is a concept known as 70:20:10. This concept is not based on academic research but

has arisen from consultants in the US. It builds on the idea that 10% of learning is the result of formal education, 20% is the result of collaboration with colleagues or dialogue with others and the remaining 70% is the direct result of learning from tasks in the workplace. Experiences of using 70:20:10 in multinational companies have been published by Ruud [8].

In addition to these concepts of learning at work, our study of recent literature provided some interesting findings from empirical studies. The articles retrieved in the literature search can be divided into two broad themes:

- Organisation or learning context

- Self-driven learners

The majority of articles were taken up with the organisation or the context of learning often examining various factors which might support or hinder the development of a learning organisation.

Some of the factors found to affect the learning organisation are, for example, gender [9] where a gender mix was found to have a positive effect on the learning environment. Management support and particularly feedback were found to improve the learning environment for nurses and improve their motivation to learn [10], while the opportunity to develop contact with others outside the organisation seems to have a positive effect on the learning organisation. This can be achieved by encouraging employees to develop personal networks. A study of professionals [11] found that by stimulating employees to develop personal networks, their opportunity for informal learning was increased. One study carried out in a multinational company considered how social media networking might stimulate and support learning [12]. The authors suggest that social media has no place in a situation where learning is viewed as the acquisition of knowledge, but that it fits very well into the concept of learning by doing. They found that learning happened in the same way as face-to-face learning, but that employees learned more about other contexts outside their own workplaces. Negative influences on learning environments were also found in, for example, a study of a governmental social welfare department [13]. When a concept of continuous improvement based on the principles of "Lean manufacturing" was introduced, the learning environment became restricted, and employees found it difficult to define learning as a "Lean investment" or in terms of short-term economic gain. The result was that learning was down-prioritised in relation to other work tasks.

Several studies addressed the role of the learner and considered how this might influence the learning process. One such study [14] looked at a learner-centric model and examined ways in which employees become learning agents responsible for their own learning. They found that in order to succeed as learning agents, the employees should have had some time to develop their identities, that is, it did not work so well with young and inexperienced employees. They also found that space for dialogue and reflection on work tasks, which was not steered by management was important in order to develop the necessary independence. A longitudinal study [15] of an industrial company looked at how employees developed, what they called, responsible autonomy. It was found that by allowing employees to have a central role in developing new innovative ways of working, the learning environment was improved as well as productivity. Not all studies were positive, however, about the idea of self-steered learning. A study of small ICT companies [16] identified challenges to individuals in a flat organisation without a traditional hierarchy or traditional structures. Employees struggled to

prioritise learning or define their learning needs and they still required a lot of support from HR or management. Another study [17] described a large telecom company that decided to allocate 40 hours a year to each employee for training and competence development. The employees were free to decide how to use these hours; they could choose from a large library of digital courses, attend conferences or read. Employees were positive, but after 2 years it was found that most employees were unable to use up all the hours. They found it challenging to prioritise their own development over performance goals. The only part of the organisation where the project was successful, was where managers had regular dialogue with their employees about competence development and encouraged them to see the value of developing their own competence.

This brief overview suggests increasing interest in informal learning, that is learning outside the educational system or the classroom and also suggests increasing interest in practice-based learning.

3. Data and methods

This chapter includes the results of a research project carried out in Norway in 2021 for an employer's organisation, Spekter. Spekter represents employers of firms and public sector organisations who have in total 220,000 employees. Spekter invited NIFU to interview HR mangers or training managers to gain a better understanding of how they worked with the planning of competence needs for the future. This was done by interviewing 19 HR managers or training managers. These interviewees were chosen by Spekter and included people who were known to have opinions on learning methods and long-term competence needs. Thus, these interviews are not representative of the national population or any particular sector of employment. They do however include representatives from a range of different sectors, such as public health including several hospitals, cultural institutions such as a theatre and an orchestra, Norwegian national television, electricity providers, pharmacies, transport and postal delivery services. The meetings were carried out during the pandemic, so they were all done online, using Teams. There were always two interviewers involved. An interview guide was used, but the interviews were semi-structured, and interviewees were encouraged to tell their stories and give examples. All interviews were recorded and transcribed before being analysed. Since there were two interviewers, we were able to discuss our interpretations and check with interviewees in cases of doubt. In some cases, interviewees sent us copies of documents mentioned in interviews.

In addition to the interviews, we also carried out a study of recent literature on learning at work. This was done to ensure that more recent developments were included in discussions and provided the starting point for our interview questions. The literature study also helped us to put the findings into a larger and more international context. The literature study was organised by developing a range of relevant search terms and using them on recent publications of selected journals. We found 254 relevant publications and after sorting them based on abstracts, we read 22 full-text articles. As in all literature studies, searching keywords gives a broad overview of research interest in the chosen themes. A closer examination of the chosen texts often reveals a variety of perspectives on the theme and often very different research questions or different focuses. Here we noted the broad themes and dipped into some of the papers in more detail to give a better picture of what recent research can tell us about learning at work. The themes from the literature study are described in terms of their relevance to HR managers.

In addition to these academic publications, we consulted some national and international reports and policy documents, mainly from Scandinavian countries.

4. How HR managers are working to meet future competence needs

In most cases, interviewed HR managers were involved in the organisation's strategic planning and this exercise was one of the main sources of information on future competence requirements. Typical outcomes of the strategic planning were the establishment of new offices or expansion into new regions, new markets, use of new technologies, and campaigns designed to achieve various short-term goals. In addition to the strategic planning, the HR managers also considered throughput, that is, how many employees are expected to retire or leave during the next 12 months and how many will need to be replaced. Some sectors are subject to changes in legal requirements, these requirements might be that a certain percentage of employees must have health and safety training. Other sectors are influenced by norms in their field, for example, many firms working with technology are expected to have employees who are certified, either by a supplier or by a professional body, to use the technology. Some sectors are heavily influenced by professional norms which generate the need for new competence. An example of this is psychologists who need to attend refresher courses to keep their competence up to date. All of these factors result in a need for new competence which feeds into the plan for training and competence development. **Figure 1** below sums up the drivers identified.

Many HR managers have studied educational science or the psychology of learning and are therefore familiar with various theories of learning. However, there are also those who are always on the lookout for new perspectives on learning which might be more relevant for learning at work. Most of them were aware of concepts of strategic learning and many used the work of Norwegian researcher Linda Lai, [7]. Most of the interviewees were familiar with these concepts and were thus used to planning future competence based on long-term organisational strategies.
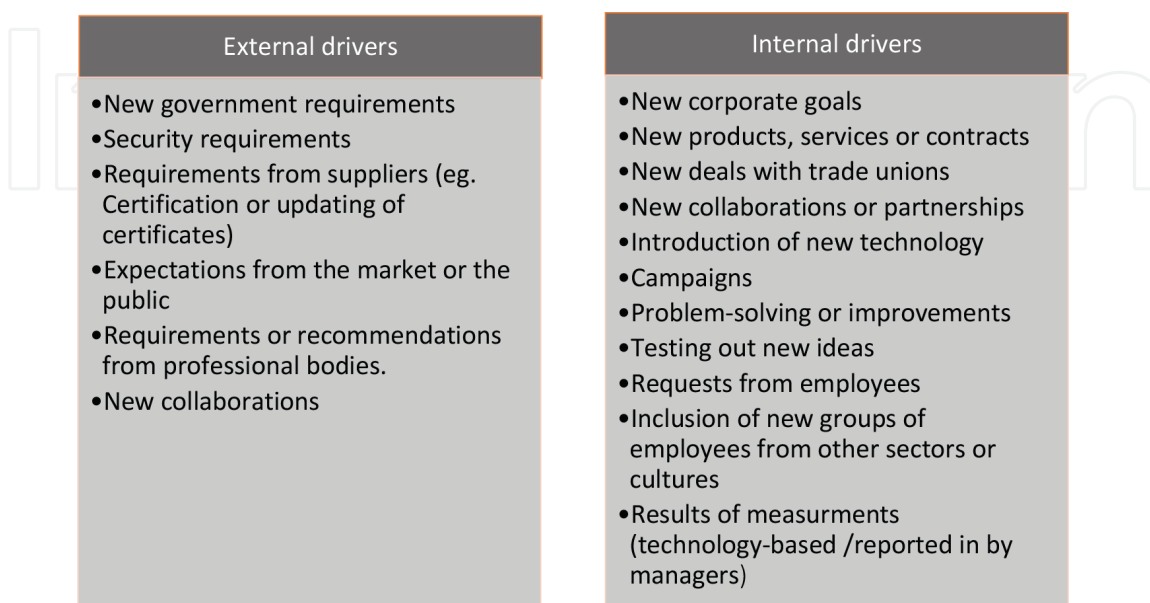
External drivers	Internal drivers
•New government requirements •Security requirements •Requirements from suppliers (eg. Certification or updating of certificates) •Expectations from the market or the public •Requirements or recommendations from professional bodies. •New collaborations	•New corporate goals •New products, services or contracts •New deals with trade unions •New collaborations or partnerships •Introduction of new technology •Campaigns •Problem-solving or improvements •Testing out new ideas •Requests from employees •Inclusion of new groups of employees from other sectors or cultures •Results of measurments (technology-based /reported in by managers)

Figure 1.
What drives the need for new competence? (source: interviews).

Many HR managers admitted that they needed more than long-term strategic plans; they also needed more practice-based learning. Several of them mentioned the 70:20:10 concept [18]. Many interviewees found this concept very useful and used it to help plan what tasks or projects employees should work on as part of their practice-based training. They claimed that the concept made them much more aware of the potential of being proactive rather than allowing 70% of learning to be unintentional. Several of the interviewees worked in organisations with apprentices and they were very aware of the importance of the master/apprentice relationship, see [19] and took care to match good masters or good teachers with the right apprentices. They were also concerned with allowing enough time for reflection and learning for the apprentices.

Most of the HR managers interviewed also mentioned the concept of the learning organisation, see [20] and in our data, there are several examples of them trying to create arenas for exchanging experiences and discussing what they have learned and encouraging employees to be actively involved in developing their own competence.

We asked how they kept up to date about ways of learning, many mentioned that they still had close contact with academic environments and invited them to present their research on learning at meetings. Others had reading groups where HR employees read different publications, both academic and non-academic, and discussed them in monthly meetings. Some admitted that they searched YouTube for good examples of learning at work, while others mentioned learning from partners in different sectors when they participated in projects with them.

5. Examples of ways of learning

All the organisations in this project had examples of formal learning. Formal learning is a form of learning which is intentional and can be measured afterwards. Usually, this kind of learning results in study points or some kind of certificate when the course or training period is completed. Examples of this were internal courses or participation in further education or re-training programs at educational institutes.

What was more interesting was the informal learning and how it varied between the different organisations. Most of these examples were forms of practice-based learning.

The ways most organisations choose when training staff or developing new competence can be divided into practice-based initiatives and others which are mainly theoretical but may also include a mix of theory and practice. The next figure summarises the various forms of learning found in cross-sectoral group (**Figure 2**).

5.1 Digital learning

Digital simulation technology has gradually become more common in practical training at work. One of the earliest examples of digital simulation of working tasks was the flight simulator, whereby pilots could train their abilities to land a plane in different conditions. The pilots got feedback on the results of their efforts and could measure progress in their attempts. In our project, we had several hospitals, and all were actively using different kinds of digital simulation where the results of the employee's actions could be calculated, and they could see the effect it would have on a patient. Various kinds of simulation were used in training of both doctors and nurses. Most of these hospitals started to use simulation a few years ago with fairly simple technology where employees could practice using various tools and

Practice-based learning	Theoretical or mixed theory & practice
Mentoring	Formal education at universities and colleges
Placements	Further education
Job rotation	Courses & programs arranged by professional bodies
Leave of absence to learn from another workplace	Apprenticeships
Working in several part-time positions	Internal or external courses
Bringing in external project- or production managers with new requirements & expectations	Certification (usually offered by technology suppliers)
Campaign based learning	Campaign based learning
Participation in R&D projects	Short videos
Simulation (roleplay or technological)	

Figure 2.
Forms of learning found in cross-sectoral group.

technologies, such as how to insert a catheter, inject and set up drips, and how to connect various machines to measure the condition of the patient. The employees had already attended courses and learned these techniques, but they said that using the simulation technology gave them the possibility to practice various techniques over and over again. In most systems, they received feedback on how well they achieved their task. The training manager explained how the technology for developing simulations has become much better in recent years, making it possible to create new scenarios and include new technologies. The inclusion of sensor technologies has also made it possible to carry out more remote work where a more experienced surgeon can guide a less experienced one at a different location.

One of the transport companies participating in our project described how they had recently taken the step into using virtual reality (VR) and augmented reality (AR). They found AR particularly useful for training mechanics to repair vehicles. Augmented reality is based on images from the real world, but the user is able to interact with these images in a new way. In virtual reality, the user is immersed in artificial images and stimuli. The transport company explained how employees put on special clothing with integrated sensors, for example, gloves which make it possible for the mechanic to "feel" the screws and the materials they are trying to repair. Both employees and training managers are delighted with the opportunity to train using AR which is customised to their needs. As the training manager pointed out, some of this technology has been around for a while, however it is only recently that it has become cheaper and easier to implement. Like the healthcare example, one of the greatest benefits has been that employees can try things out again and again until they have mastered all the necessary movements and have learned to "feel" for errors and to feel when the repair has been done correctly.

A national delivery service organisation has noticed that many of their new data systems can provide information that is useful in identifying the need for training. This national delivery company registers packages at different stages in their delivery and at different places. The main aim of this registration is to help them to locate packages and to make sure that the company achieves it performance goals of fast delivery. They have noticed that certain places experienced delays at certain times. They decided to investigate and found that many employees were uncertain about how to deal with certain situations occurring when delivering parcels in the winter when there was snow on the roads. The HR department worked with some local managers to make a short video clip that explained to drivers what they should do and

showed them how to put chains around the wheels of their vehicles in order to drive in deep snow. The video only lasted about 5 minutes and was loaded up to YouTube and a link was sent to all the relevant employees. Within the next few hours, almost all the employees had seen the video. During the following months, fewer delays were registered on routes with bad weather. Since then, the HR department has produced many short videos of this type and has found them particularly useful to remind employees of certain procedures which they have learned in courses, but which may have been forgotten. Some themes they mentioned were new health and safety rules, guidelines for filling in forms, and reporting events. The HR department say that this way of spreading information gives them a great deal of flexibility, it is not expensive to produce, and employees seem to be happy and find the videos useful.

A similar example was found in a transport company. Newer buses, trains, and trams are equipped with digital technology which measures functionality of the vehicle and reports on errors and risks. It was found that this technology could also be used to measure the actions of drivers and their actions and reactions could be compared with averages. This provided an indication of who needed more training or if there were particular tasks or situations that all drivers found difficult to deal with. The management cooperated with trade unions in developing ways of using these measurements as the basis for developing new training programs and offering individual tuition. These examples used technology developed in-house using minimal resources but taking advantage of communication technology and the familiarity employees had with viewing video clips on their mobile phones.

By mixing different forms of digital technology, such as algorithms, high-quality visual content, reliable measurements, and feedback, a huge range of learning opportunities can be developed. The HR managers interviewed suggested that those who have not yet included simulation among their learning methods, should get acquainted with the technology and evaluate the potential for their own organisations. As one HR manager said, "this doesn't happen by itself."

5.2 Campaign-based learning

We found that one important way of learning was to organise a mix of theoretical and practical learning in the form of campaigns. These campaigns were aimed at improving a specific type of competence during a limited period of time. In some cases, the campaigns were a way of providing focus for employees who managed their own learning, but in other cases, the campaigns were linked to business goals. Several of the organisations in this study allowed employees to devote a certain amount of time to what they called "own learning" and the campaigns were an optimal way of structuring this time. Examples of some of the themes covered were quality control, health and safety, and more general ICT courses. Those who used campaigns to further business aims mentioned themes such as security, project management, and customer relations. An example of this kind of campaign is described in the previous section where a transport organisation produced videos for employees handling parcels. The company's aim was to improve performance and reduce errors and the videos were an attempt to resolve this issue. Organising learning in campaigns does not necessarily include any new forms of learning. The learning may be in the form of courses, group discussions, presentations, or providing opportunities for trying out new technologies. The novelty here is in the way the training is organised. HR managers suggested that by organising training in the form of several campaigns every year, they had a lot of flexibility and they also felt it was easier to link learning goals to business goals in this way.

5.3 Learning by moving about

Most HR managers are aware of the benefits of exposing employees to other areas of the organisation or to other workplaces. We often find this in programs organised for new employees in larger companies. The idea is that employees will learn about the business from different viewpoints, and they will be able to talk to other employees in different departments and observe ways of working. In the current project, we found several variations of the concept of learning by moving about.

We found examples in the cultural sector, where moving about was a way of life. In a theatre, we found that employees were encouraged to take a leave of absence and work in the same job, but in a different organisation, preferably in another country for a few months. There are long traditions of working this way within theatre and entertainment. This kind of arrangement might not be practical for most employers, but ways of creating similar opportunities might be considered because of the benefits in terms of learning about alternative ways of working, new ideas, new technology, and new ways of meeting public expectations. The theatre pointed out that most of their innovations arose from situations where one employee had been away for a while and came back with new ideas.

We found something similar in the health sector. They did not have organised leave of absence, but many doctors took up short-term positions in other countries in order to work with famous surgeons and learn from them. The HR department had registered that many came back with suggestions for improvements in procedures as well as new surgical skills which they shared with colleagues.

Another form of learning from different environments was found within an orchestra. The employees often had part-time positions in the orchestra and most also had part-time jobs teaching in schools or universities. Like the theatre and the hospital, HR observed that there was a flow of ideas from one organisation to the other. Employees learned techniques in one job which they took to the other. They went on courses for one employer and took the competence to the other. Similarly, to the theatre and hospital, this flow of knowledge produced new ideas and was a source of innovation and new thinking.

The theatre and a national television company mentioned a variation of learning from other environments. Both were in the habit of hiring project or production managers linked perhaps to one particular project. These managers often came from a similar project in another country on in another organisation. As in the examples above, the learning came as a result of new expectations about how things should be done. The new production managers assumed that certain technology would be available, that certain routines would be established, or that employees could do something which they had never done before. One could say that external influences create a need for new competence or new understanding.

From studies of innovation, we know that exposure to alternative ways of working is a frequent source of innovation. In some cases, the learning will occur while working in a new situation but moving about can also generate a need for new courses or formal learning.

5.4 Learning from working in projects

This is not traditionally thought of as a form of learning, but HR managers, particularly in organisations involved in research, were very aware of the opportunities for learning in research or product development projects. Some described this

learning as "just something that happens in projects" and what they were referring to, was the knowledge resulting from trial and error. Trying out new ideas on customers, testing new technologies, and experimenting with new ways of working.

One example was from a hospital, which received funding for research collaboration with several other hospitals, local municipalities, and local businesses. The hospital employees admitted that it was quite a shock for them to have to consider how the other non-health service organisations thought about the issues. Often the priorities were very different, ways of sharing information and solving problems were also different. As one of the nurses said "I think we were so entrenched in the hospital environment, it is like its own little world, we forget that things can be viewed differently. The project gave me a lot to think about and I think the knowledge I gained was valuable".

The HR managers with experience with projects as arenas for learning, thought that this form of learning was perhaps undervalued. Those who worked with the 70:20:10 model had become much more conscious of the value of learning in projects.

5.5 Learning from task-shifting

Task-shifting is a term frequently used in the health sector, whereby many employees are trained for more than one position and can take over responsibilities for a colleague. In Norwegian, the word for task-shift describes the process as one of sliding rather than shifting into another task. This idea of sliding seems to be particularly appropriate because it is a seamless move from the job the employee normally does, to other tasks, which are not normally part of their job description. This way of overlapping each other's competence gives employers a great deal of flexibility. In situations where a department is understaffed because of sickness or in emergencies, it is relatively easy to move another person over to cover the gap. Studies of this way of working suggest that employees are not usually able to take over all tasks of a colleague, often the task shift is applicable for certain prioritised tasks. A typical example of this way of working is when a cardiologist draws up plans for standard treatment of arterial fibrillation. These tasks and treatment plans are based on international standards; however, the role of the nurses can be expanded. The nurses can take over greater responsibility for patient communication. This frees up some of the cardiologists' time and speeds up the process. Another example is where experienced radiographers take responsibility for the first selection of ultrasound pictures before they are evaluated by radiologists. This kind of flexibility does of course have a cost, in that employers have to ensure that a large number of staff are trained for multiple tasks. If employees do not practice these tasks regularly there is a risk that their skills will not be as polished or high quality as necessary. This kind of system also requires a good deal of coordination in order to ensure that competence is used efficiently and that the quality and quantity of services are not reduced. There are many groups who can be affected if task-shift working is not managed correctly, patients can suffer and professionals are often protective about their areas of responsibility, so changes and sliding over boundaries should be carefully negotiated with employee and patient representatives.

Task-shifting is normally viewed as a way of organising scant resources, but it is also practice-based work, where employees regularly get the opportunity to work with different tasks, which provides greater value in terms of competence.

5.6 Learning from talking about learning

Talking about learning does not sound like a form of learning, but several of the more forward-thinking HR managers were certain that this is the way to go in the future. They had gained experience from working in groups where colleagues often exchange experiences and help each other solve problems. Some HR managers have analysed these group workshops and have concluded that the opportunity to put their own experiences into words makes it easier to share what they know with colleagues. Several HR managers have also been trying out the 70:20:10 concept, (See point 4) and devoting time to finding out what employees are learning while doing their normal work. They say that this has created a much greater awareness among employees about the knowledge they actually have and also resulted in employees being more involved in planning their own competence development.

6. Discussion on future use of various ways of learning

Many of the learning forms mentioned above have been around for a long time and are no doubt familiar to most HR managers; however, some forms of learning are less well-known or have been interpreted in a novel way. These are mostly practice-based, however novel use of video clips and campaign-based learning should also be included. Here we consider the different learning forms and the situations where they are most appropriate. Going back to some of the drivers of learning in **Figure 1**, we link them to examples of learning from the interviews in the next figure. **Figure 3** below summarises various stimuli for learning activities.

This table may be a bit confusing because some of the same learning forms can be found in multiple columns, this reflects the complexity that HR managers have to deal with when planning training and learning. The kinds of learning that occur in the first column, can be in response to a strategic aim that the employer has, which in turn requires new competence. The learning forms in column two are normally stimulated by a totally different need, which comes from outside the workplace, that is the requirements of the various professions. Again, working with professional organisations, societies, and trade unions on competence development is something that HR managers are used to.

It is the three remaining columns that are most interesting because these kinds of learning often arise from another kind of stimulus. Here we have identified local needs, these are often short-term and may not be linked up to the company strategy. The kind of learning that arises from local needs, is sometimes not traditionally classified as learning, it might be regarded more as problem solving; however, it does result in new competence, and HR managers should be aware of these forms of learning and be able to use them in similar situations to solve local problems. The column called technological opportunities is included to highlight forms of learning which do not necessarily arise based on a need, but on a new opportunity opened up by technology. This is particularly evident in the examples where new forms of technological monitoring can provide data that makes managers aware of a need for training. Examples of this are the technology used to monitor the behaviour of drivers of trains, trams, and buses. This technology can be used to monitor individual or group practices that need to be improved. The technology used in simulation, both for drivers and within healthcare to train on using new technology or carrying out

Strategic planning	Professional requirements/ recommendations	Local needs	Technological opportunities	Other opportunities
Formal education at universities and colleges	Formal education at universities and colleges	Short videos	Short videos	Leave of absence to learn from other workplaces
Further education	Further education	Job rotation	Digital simulation	Bringing in external project or production mangers with new practices
Allowing employees to have several part-time positions in different organisations		Individual training based on feedback from technological measurements	Individual training based on feedback from technological measurements	Allowing employees to have several part-time positions in different organisations
Participation in development projects and R&D projects		Mentoring		Participation in development projects and R&D projects
Job rotation				
Placements	Placements	Campaign based learning		
Mentoring				
Apprenticeships				
Internal & external courses				

Figure 3.
Stimuli for learning activities.

operations, makes new forms of learning possible. It is important that HR managers follow up on new technological developments and consider how these might be utilised in their organisations. In the course of discussions between organisations in the project described there, it became evident that there was a potential to use technologies developed for the health sector in other sectors.

The final column is an attempt to include some of the opportunities for new ways of developing competence that arise in different sectors. These are largely based on traditions within the different sectors. For the orchestra example, where most of the permanent employees have part-time positions. This kind of arrangement is obviously not practical for all workplaces, but during our discussions in the project, it emerged that HR managers in other sectors with lots of part-time employees thought this might be interesting, particularly when considering potential recruits for part-time positions and what external knowledge they might bring with them from other part-time work. The concept of allowing employees to take a leave of absence to work in a different organisation was greeted with similar interest, as HR managers saw the opportunities to develop specific types of knowledge.

Although none of the HR managers mentioned the concept of WPL, their organisations have many of the characteristics of expansive learning environments. See [1]. They do not seem to be concerned with limiting learning to what is absolutely necessary to carry out their tasks today. As one of the HR managers said, "if the knowledge is not so useful today, it might be exactly what we need tomorrow". In this way, some of the HR managers are thinking ahead in terms of more general competence for the future. Many of the organisations had examples that fell into 4.3 *Learning by moving about*, suggesting that most were quite open organisations, where knowledge is not compartmentalised but flows more freely. This kind of learning also presents many opportunities to develop soft skills, such as communication and adapting to different cultures. Learning from projects is a good example of what Stephen Billett [19] was talking about in his paper on workplace affordances and individual engagement when he mentions developing an individual curriculum for learning at work. The examples of learning from task-shifting are similar to those described by Nicolini and Gharhardi [3] on practice-based learning. The examples which we have called *talking about learning* are good examples of sensemaking as described by Weick [4], where employees discuss and agree on a shared understanding of what they are going to do. The examples of digital learning are similar to the concept described as tool-mediated learning in Engeström's activity theory [21]. Many of the examples suggest that teamwork is valued and that organisations are open to bottom-up innovations. The practice of moving people around and allowing leave of absence makes room for reflection, which is so important for all learning. All these qualities and characteristics are what WPL leads us to expect in more expansive learning environments. Most of the examples described here show that the aim is not just to ensure that a certain percentage of employees have participated in a course or have achieved a certain certificate; the emphasis has been more on learning and understanding and being able to carry out work tasks to a high standard.

7. Challenges for people management

So far, we have focused on the positive results of using multiple forms of learning, but some of these forms of learning pose particular challenges for people management.

Autonomy was a theme that has turned up in earlier studies of learning at work. In the interviews, no one mentioned autonomy directly. However, many of the examples they describe are based on the idea of employees taking the initiative to discuss and reflect on what they have learned and what they need to learn. For the firms using the 70:20:10 concept, success is dependent on employees being actively involved in designing their own learning. HR managers should consider how employee engagement in learning might suit their own organisations. We know that some firms have done this, particularly technology firms, with limited success [17]. Although this issue has not been researched thoroughly, the findings so far suggest that employees being involved in their own competence development is positive; however, it might be advisable to ensure that this freedom is balanced by good dialogue with managers and that employees be followed up regularly.

A similar challenge for HR managers is the potential conflict between lean management methods and some of the more time-consuming ways of learning, such as sensemaking, developing new relationships, learning in projects, or by moving around and talking about learning. There may be others in the organisation who demand short-term results and it is important that HR managers are able to explain

that some forms of learning are necessary to produce the skills and abilities the organisation needs but that they will produce long-term results, not quick fixes.

Another potential challenge to people management when using these learning forms is related to the use of personal data. We saw examples in the transport company and with parcel delivery, where various tasks were monitored digitally and logged. In both cases, HR management used the data to develop relevant and often individual training. In both these examples, local trade unions and employee representatives were involved to ensure that employee data was not misused and that employees were aware of monitoring.

The role of people managers is changing, and these challenges suggest that it is important that HR or other managers are actively involved in planning and following up on the competence development of their employees. The array of learning methods makes it possible to adjust learning to fit the needs of the employer and the needs of the employees, but in order to be successful, this needs to be carefully managed and adapted as required.

8. Conclusions

This chapter has presented the concept of workplace learning and examples from recent literature and used these to interpret forms of learning found in different organisations in the public and private sectors in Norway. The main findings are that HR managers are very aware of the need for both theoretical and practical training and they see the need for long-term strategic plans for knowledge development as well as having the ability to offer local learning initiatives at short notice. These HR managers have been willing to experiment with new concepts, such as 70:20:10 and try out new technologies. We also found that different organisations in different sectors had adapted technologies and concepts to fit their own needs and some had developed more novel solutions. By using the WPL concept, we are led to understand that many of these learning initiatives we have described will contribute to a more adaptable workforce which is hopefully better prepared for an uncertain future.

The contributions of this chapter are both theoretical and practical. The theoretical contribution is the development of a detailed overview of what drives the need for competence development. This overview differs from earlier ideas that business strategies are the starting point for all competence development. The study has also provided more nuanced descriptions of informal learning and expanded the concept of informal learning to include problem-solving activities which result in new skills or knowledge.

It is hoped that these examples will provide practical guidance and inspiration for HR-managers. The focus has largely been on informal learning and learning forms which have been developed for specific organisations. By grouping these learning forms according to the drivers which stimulate learning and discussing how and when the various learning forms might be used, this should prove useful for HR-managers in their planning of learning and competence development. When these HR managers in this study were brought together to hear about the findings, there was tremendous interest in each other's work and a desire to learn from each other and try out different learning forms based on the experience of the others. We hope that this exchange of ideas might result in new forms of learning adapted to new industries and to new tasks. Uncertainty and change are often viewed negatively, hopefully the examples described here can help people managers to see change as an opportunity to develop the people who are already there in the organisation to meet future challenges.

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Conflict of interest

The author declares no conflict of interest.

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