

Learning in the workplace and the significance of school-based education: a study of learning in a Danish vocational education and training programme

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Over the last decades educational researchers and politicians have shown a growing interest in the concept of learning in practice, i.e. learning in the workplace. Learning in practice plays an important role in connection with lifelong learning, as the workplace is an obvious setting for realizing this aim. Theories about learning in practice often include a critique of school-based learning by seriously questioning the idea that learning in school can be transferred to action and by emphasizing the context dependence of learning and acting. This article contributes to the debate by pointing out some advantages of combining school-based and workplace-based learning. The results of a study of learning in a vocational education and training (VET) programme for sales assistants show that both the theoretical training in the VET school and the practical training in the workplace are necessary to develop competency. Furthermore, the results indicate that a careful matching of specific parts of the curriculum with the learning setting (the workplace or the school) may improve the trainees' achievements. The matching is not only useful in improving VET programmes but is also generally useful in planning lifelong learning as work-related education.

Introduction

Educational debate and practice seem to be characterized by periods dominated by a specific educational theory or device. The Danish educational debate has, for example, focused during the past few decades on a succession of topics including project work, experience-based learning and learning as opposed to teaching. At any one time the issue in focus is adopted as the only advisable way of looking at and conducting educational activities, until it is succeeded by a new favourite. Project work, for example, may thus become the method for learning everything for a while, leading to a widespread derogatory attitude towards teaching. Fortunately, when the initial infatuation has subsided, the educational theory or device finds its place in educational practice and is used appropriately alongside other theories and devices.

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One such favourite issue is the well-researched field of learning in practice (Schön 1983: 6, Lave 1982: 8, Lave and Wenger 1991, Boud and Garrick 1999: 164, Billett 2001, Ellström 2001). Studies of learning in practice focus primarily on learning in the workplace, although examples of other practices are found (see, for example, Lave and Wenger 1991 for a study of anonymous alcoholics). In this article I use learning in practice as synonymous with learning in the workplace.

Over the past 20 years there has been a growing interest in learning in practice. The role of practical experience in developing the professional practitioner has been acknowledged (Daley 1999); the professional practitioner does not solve problems simply by applying rules learned through formal education (Ryle 1949), but rather relies on intuition, which develops from practical experience (Claxton 2000, Dreyfus and Dreyfus 1986).

Recognition of the advantages of learning in practice has had an impact on school-based educational programmes. In Denmark, for example, the interest in teaching and teaching methods has been replaced by an interest in the students' or trainees' learning processes. The amount of project work involving students trying to solve problems as they would do in practice has escalated. Vocational schools have also adopted practice-related learning methods, e.g. practicum.¹

An important motivational force behind the interest in learning in practice is the goal of overcoming difficulties of transfer, especially transfer of knowledge into action. Danish studies of learning in vocational education and training (VET) programmes, which are organized according to the dual principle (alternating between theoretical and practical training in VET schools and practical training in workplaces), are rife with examples of trainees'² difficulties in transferring knowledge into practice or perceiving the connection between the school-based and practice-based parts of these programmes (Aarkrog 2001: 13).

Studies of learning in practice show that informal learning at work is the most common way of learning for employees and by far exceeds learning in formal settings outside work (Collin 2002). Informal learning in the workplace should be legitimated (Solomon *et al.* 2001) and it is better to concentrate on strengthening learning in the workplace than to count on the transfer of school-based learning as an efficient tool for developing professional skills (Woerkom *et al.* 2002: 382). Some researchers or theorists go even further and seriously question whether formal education is at all necessary for acting in practice: learning, according to them is situated and cannot be transferred (Brown *et al.* 1989, Lave 1988). As Dianne Mulcahy put it: 'Rather than regarding competence as something individuals or organizations *have*, it might be better to regard it as something that they *do*. ... Perhaps we should think more in terms of competence *through* work than *for* work' (Mulcahy 2000: 521, original emphasis). The emphasis is on what the person is able to do, rather than on the person's explicit knowledge. The knowledge of how to do things lies in the body and memory rests in the bodily acts. Verbalization or reasoning is not necessarily a part of learning, and learning in practice has highlighted the importance of tacit knowledge (Molander 1993). 'Our knowing is ordinarily tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing. It seems right to say that our knowing is in our action' (Schön 1983: 49). Though efforts have been made to define the nature of tacit or internal knowledge (Wolek 1999), learning in practice, for example in traineeships, still maintains its unique and somewhat elusive characteristics.

However, the critique of learning in practice points to the advantages of learning in formal settings (schools, colleges, etc.). In this line we find studies emphasizing the problems of learning in the workplace, for example lack of interest in the employees' learning (Cornford and Gunn 1998) and the focus on profit and production, which influences the relationship between learner and facilitator (Hughes 1999). A number of studies also discuss the rejection of the cognitive aspects of learning found in some theories of learning in practice (Anderson *et al.* 1996), while still others argue that instructional strategies facilitate the necessary learning of concepts as a knowledge base in workplace learning and performance (Billet and Rose 1997).

On the whole, the studies present learning in school and learning in the workplace as opposites, and they tend to support only one or the other of them. A modification of this dichotomous view is a study of the interrelationship between informal and formal learning in which a central conclusion is: 'All (or almost all) learning situations contain attributes of formality/informality, but the nature of and balance between them varies significantly from situation to situation' (Malcolm *et al.* 2003: 317).

Other studies show that school supplements learning in practice and that it is important to specify what can be learned in school and practice, respectively (Svensson 2003: 9). I also regard the two learning settings, the school and the workplace, as complementary. The school provides opportunities primarily for formal learning and the workplace primarily for informal learning. An important aspect of learning in practice is that, in contrast to the traditional view of learning being connected with teaching, learning is regarded as an aspect of daily life, occurring, for example, when parents talk with their children, friends meet and colleagues talk at lunchtime. The emphasis on the informal aspects of learning creates the risk of all situations being perceived as equally good instigators of learning; I prefer to understand the different situations as providing different opportunities for learning. While theories of learning in practice overcome the problem of transfer from school to practice by demonstrating that performing in practice is accomplished precisely by performing in practice, transfer becomes an important issue if learning in school and learning in practice are to be combined.

Although learning in practice is an important alternative to learning in school, not least for many of the participants in the VET programmes, the rehabilitation of learning in practice, as proclaimed in the Danish educational debate in the 1990s (Kvale 1993), should not undermine the opportunities for learning in school. Instead, educational practice may benefit from the advantages of having two settings at its disposal. The two settings render possible different kinds of learning processes, and maintaining these differences may enhance the learning outcome (Bowman 1988).

In this article I exemplify the importance of retaining the school and workplace as parallel learning settings by presenting the results of a study of a vocational training programme for sales assistants that allowed me to specify which parts of the curriculum are best learned in school and practice, respectively.

I have used, among other theories, Jean Lave and Etienne Wenger's concept of legitimate peripheral participation in communities of practice as an analytical tool, focusing on two aspects: learning through legitimate peripheral participation within workplaces as communities of practice and the notion that the specific community of practice determines the opportunities for learning. I

conclude that the specification of the different opportunities for learning in the workplace and the school, respectively, is useful to bear in mind when planning lifelong learning.

A study of a VET programme for sales assistants

The study concerned the Danish VET programme for sales assistants. Qualified sales assistants are typically employed in retail shops in all lines of business, dealing in specialist articles or staple goods.

The duration of this training programme is 4 years, comprising 40% school-based theoretical and practical training in a commercial VET school³ and 60% on-the-job training. The programme is divided into two parts. The first part involves the study of general subjects such as Danish, social sciences and a foreign language, as well as general commercial subjects such as service and accounts. This study focuses on the second part of the programme in which the trainees alternate between training in the school and in the workplace. The school-based part includes four themes: 'customers', 'goods', 'information' and 'payment'. In this article I give examples from the themes 'customers', including how to address the customers and how to deal with complaints, and 'goods', including knowledge about the contents and treatments of the goods, in this case textiles.

The objective of the study was to analyse the trainees' learning in the workplace and their transfer of knowledge and skills from the commercial VET school to training in the workplace. The following questions were addressed:

- what and how do the trainees learn in the workplace;
- what kinds of knowledge and skills do the trainees transfer from school to the workplace?

The study focused on the roles of the school and the workplace in the trainees' competence development. The assumption was that elucidation of the opportunities for learning and, hence, competence development in the two settings would contribute significantly to an improvement in the VET programmes.

The study comprised four commercial VET schools (two trainees at each school all females) and eight clothes boutiques where the trainees were doing their on-the-job training. The trainees were followed through their last year of the programme while they participated in Modules 2 and 3 of the school-based⁴ training and in one period of on-the-job training. In chronological order the study included:

- observation of the teaching of Module 2 in the commercial VET school and interviews with the teachers and trainees;
- observation of the trainees' on-the-job training in the workplace and interviews with the employers and trainees;
- observation of the teaching of Module 3 in the commercial VET school and interviews with the teachers and trainees.

Alongside this the trainees made short diary entries. Whenever they encountered a problematic situation in the shops they wrote down how they solved the problem and whether they applied anything from the school-based parts of the programme.

The trainees' learning during their training in the workplace was analysed from different theoretical perspectives: theories about learning in practice and theories about transfer. The aim was to answer two questions:

1. what aspects of learning in the workplace are elucidated by the various theoretical perspectives;
2. what functions of the school can be deduced using the various theories?

In the following I have chosen one of the theoretical perspectives and have recorded the results of the analysis based on Lave and Wenger's theory about learning in communities of practice.

In this theory learning is defined as 'increasing participation in communities of practice' (Lave and Wenger 1991: 49). The outcome of the learning process is the ability to participate in the community of practice.

Socialization is the key word. A community of practice is a set of relations among persons, activity, and the world over time and in relation with other tangential and overlapping communities of practice. (Lave and Wenger 1991: 98)

The theory focuses on the newcomer's inclusion in the community of practice. The newcomer's position and situation as a learner is called legitimate peripheral participation (Wenger 1998). By listening to, imitating and cooperating with the old timers (the experienced members) of the community of practice the newcomer learns how to participate in the community of practice. The development of a professional identity means becoming like the old timers, talking and acting like them: in other words, maintaining the community of practice. The newcomers cannot learn *about* the community of practice; they must learn *in* the community of practice, e.g. to talk as they do there: 'For newcomers then the purpose is not to learn *from* talk as a substitute for legitimate peripheral participation; it is to learn *to* talk as a key to legitimate peripheral participation' (authors' emphasis) (Lave and Wenger 1991: 109). Learning is a process of becoming socialized to the specific community of practice. The newcomers develop identities that match the particular community of practice.

For the analysis of learning in the training programme the two important aspects of the theory are that:

1. each community of practice provides specific opportunities for learning;
2. it is possible to reach full participation in the specific community of practice by participating there.

In the following I give two examples of the trainees' learning in the VET programme in order to exemplify the relevance of the theory. The first example illustrates learning how to serve customers; the second illustrates learning about the goods in the shops.

Serving customers

Applying the theory about legitimate peripheral participation to the study of the trainees' development of the competence 'serving customers' illustrates that the

trainees actually learn in the way the theory prescribes (Aarkrog 2001: 13). Although the trainees learn about customer types and practice addressing customers at school, they perceive the shop or boutique as the central setting for developing the competence of serving customers. The trainees watch and listen to experienced colleagues and imitate them. Gradually they move towards full participation in the community of practice, which they recognize as their own gradual acceptance of the way to do things in the workplace. In the following example the trainee records how she developed her identity as a sales assistant by participating in a particular boutique:

You somehow imagine what it would be like to serve the customers, but this does not really correspond to what it is really like. And this has been a learning process for me. We follow a principle in our boutique, which you are taught in the beginning. It is about how to treat the customers. It goes something like this: you have to make small talk and say hello, when the customer enters. There must always be someone by the fitting rooms, and so on. You attend to the customer and make it something special to shop in our boutique. When I began here, I thought: I am just going to sell some clothes; it can't be that difficult! I was surprised at how much you have to be on your toes. I thought it was difficult to make small talk in the beginning. I felt false. But gradually you get into it. You get a response from the customers, and it seems less artificial to talk that way. It comes naturally.

As a newcomer the trainee wonders about the way the salespeople talk to the customers in the boutique. Gradually she/he adopts the ways of communicating and eventually she does not even think about it anymore.

Systematic instruction on how to serve the customers is scarce and the trainee mostly learns by listening to the old timers or by launching into attempts on her own, as expressed by another trainee:

In the beginning I listened to the others serving the customers, and gradually I was allowed to try myself. When I am about to learn something they normally instruct me a little and then I just have to plunge into it and do my best in order to learn, although I am allowed to ask if I am in doubt.

Plunging into the task is an important aspect of learning in the workplace and one which is voiced in almost all the interviews. It expresses the necessary route towards learning. It also illustrates some of the insecurity connected with learning in the workplace or in practice, as is precisely expressed by Donald Schön in his study of architects' professional development:

In the architectural studio, the paradox inherent in learning to design places the student in a predicament. He is expected to plunge into designing, trying from the very outset to do what he does not yet know how to do, in order to get the sort of experience that will help him learn what designing means. He cannot make an informed choice to take this plunge because he does not yet grasp its essential meanings, and his instructors cannot convey these to him until he has had the requisite experience. Thus he must jump in without knowing—indeed, in order to discover—what he needs to learn. (Schön 1987: 93)

To summarize, the theory about legitimate peripheral participation is an adequate description of developing the competence ‘serving customers’: the trainees begin by watching and listening to the old timers and gradually they are allowed to engage in more and more complicated tasks. They may get some brief instruction, but the predominant way of learning is to plunge into performing the tasks. By staying and participating in the community of practice the trainees develop their identity as sales assistants.

An interesting consequence of this is that at school the trainee defends the way they treat the customers in ‘her/his’ shop. One of the purposes of the dual principle is that the trainees may exchange and learn from each other’s practical experiences. However, the trainee’s objective is to learn to perform like the experienced sales assistants in her/his shop. Not until the trainee is recognized as an experienced sales assistant may they start questioning the way of performing in the shop. As long as she/he feels a legitimate peripheral participant she will seek confirmation:

You may wonder why you have to act in that particular way in the shop. But then it is nice to hear that the other trainees act in the same way in their shops. So what I do can’t be wrong.

In the training programme for sales assistants part of the training in serving customers takes place at the VET school. Simulating practice, the trainees play the roles of sales assistant or customer, respectively, in order to train themselves for situations involving serving customers. However, this way of learning is not regarded as successful. A trainee comments on it in this way:

At school we once had to act as customer and sales assistant in front of a camera in order to learn how to serve the customers. It seemed rather artificial to do so, and you cannot really use it for anything in practice.

This confirms Lave and Wenger’s theory: what you learn by participating in the community of practice is to participate in that community of practice. Playing roles at school merely constitutes another community of practice in which participation is aimed at becoming an actor, which is not the objective of the teaching. This complies with Lave and Wenger’s depiction of learning in schools: the school is a specific community of practice and participation there leads to participation in that community, i.e. being a proficient student who is able to do well at examinations. However, this view of the school and of transfer shows that Lave and Wenger have little faith in students’ abilities at abstraction.

At school the trainees learn about customer types and the psychological aspects of serving customers. Although the trainees find this information interesting, they do not perceive this knowledge as necessary to perform their duties in practice.

Serving customers exemplifies a competence that can be developed by participating in a community of practice in which the activities are aimed at serving customers. The integration of learning and participation in a specific community of practice limits the opportunities for learning to that place or context. Therefore, it is interesting to specify the opportunities for learning in the community of learning, in this case clothes shops. I will return to this shortly.

Knowledge of the goods in the shop

Another core competence in the training programme for sales assistants is the ability to inform customers about the goods in the shop. This is an important aspect of serving the customers, as it reinforces the specific characteristics of the shop or boutique in their competition with department stores, supermarkets and so on. The ability to inform customers about the goods implies knowledge of the goods. The trainees mainly obtain their knowledge of the goods at the VET school, and they regard this part of the school-based training with utmost respect. It is also respected by the employers, who otherwise tend to be rather critical of the school-based parts of the programme. Their respect for the trainees' knowledge is evident and often results in allocating responsibility by allowing the trainee to participate in new and more advanced tasks in the shop.

Using the terminology of the theory of learning in communities of practice the study shows that the significance of knowledge about the goods allows the trainees to leap forwards in the progression from peripheral to full participation. The trainees find that knowledge of the goods is an opportunity to learn more, as expressed by one of the trainees:

We deal in expensive goods, and therefore it is necessary to advise and inform the customers. Therefore, knowledge about the goods has been important to me, because it has meant that I am allowed to take care of more complicated and 'expensive' services.

Knowledge of the goods takes the trainees important steps further in the learning process in the workplace, because this knowledge opens the door to more complicated tasks. This means that the progression from peripheral to full participation is not only accomplished by participating in the particular community of practice, i.e. the specific workplace. The school-based training also contributes to this development. The trainees recognize this:

At work you are not told anything about the quality of the goods (what they are made of). However, at school you obtain knowledge about this important part of our job. It won't do to answer: 'I don't know', if a customer asks about the goods. In the shop the purpose is to sell, and there are many things that one ought to know about this that one cannot learn there. This is one of the reasons why I think the school is important, because one actually learns very useful things there.

The trainee expresses the central aspect of learning by participating in communities of practice: learning is limited to the opportunities available within that community. This may seem banal. However, Lave and Wenger do not discuss this as a problem. Analysing the opportunities for learning in the shop it appears that learning is subjected to the objectives of that particular community of practice. In the shop or boutique the main objective is to make sales and to earn money, and the opportunities for learning are incorporated in this purpose. In other words, the trainees may learn from participating in the various routines in the shop: serving customers, ordering new goods, decorating the shop windows and making advertisements for the goods and so on.

Some of the competencies can only be developed in the workplace: serving customers is one of them. The theory of learning by legitimate peripheral participation is an adequate description of how the trainees develop this competence. The competence is bound to the specific community in which it is learnt. John Stevenson, who has studied workplace activity and knowledge in motels, points out that the norms of activities are not necessarily an expression of individual beliefs but are collective, which means that they are bound to the particular workplace. The norms are situated, which means that general knowledge, for example about how to treat the customers, is not relevant (Stevenson 2002). Each community represents specific rules, values and so on, which means that participation in the community can only be learned in the community.

Other competencies need to be supplemented with school-based training in order to develop: knowledge of the goods is an example of this. There are two interesting points to be made about this kind of knowledge. Firstly, it cannot be learned in the workplace and, secondly, the knowledge is necessary in order to develop from a peripheral to a full member in the community of practice.

As concerns the first point, knowledge of the goods cannot be learned in the workplace because this kind of knowledge presupposes teaching. The trainees do not acquire sufficiently systematic knowledge just by listening to experienced colleagues informing them about the goods. In order to inform others about the goods it is necessary to have a surplus of knowledge, a knowledge tank from which you can choose the relevant information. Like schoolteachers, sales assistants need systematic knowledge which goes further than what is needed in confrontations with students or customers, respectively.

To acquire this systematic knowledge teaching is necessary, and teaching is not part of the community of practice in the workplaces that have been studied. Introducing teaching into these communities of practice might undermine the important opportunities for learning there. Including teaching activities alters the purpose of the community of practice and consequently the opportunities for learning.

The case study shows that systematic knowledge of the goods is necessary to take the trainees further in their progression from legitimate peripheral participation towards full participation, even though this knowledge cannot be learnt in the workplace. That means that the trainees are able to transfer knowledge from school to workplace.

According to Lave and Wenger learning is situated in a community of practice. Therefore, it is important to specify what may be learned in the particular community of practice in order to draw attention to the advantages and limitations of learning there.

Lave and Wenger's theory of learning in communities of practice focuses on learning by participating in the activities of a particular community, and the goal is full participation in that community. The theory does not take into account the fact that different kinds of competencies demand different kinds of learning activities. Participating in tasks in the workplace can only lead to the development of some competencies, while others can only be developed outside the workplace. Accordingly, school is an important supplement to learning in the workplace. Though Lave and Wenger correctly argue that teaching is not the only way to accomplish learning, teaching is still an important instigator of learning.

Jean Lave briefly mentioned the characteristics of learning at school (Lave 1997: 97). However, she did not investigate the characteristics of these practices further. She

did not use the concept of community of practice to specify the limitations of learning which are inherent in any setting and which may lead to recognition of the possibility of enhancing the learning outcome by combining learning in various settings.

Conclusion

In this article my aim has been to show that learning in the workplace is not sufficient to ensure qualified performance in the workplace. Although much can be learnt in the workplace, it is necessary to supplement experiences here with school-based learning. It is fruitful to regard the workplace as a specific community of practice which offers specific opportunities for learning. These opportunities differ from those in schools. Any attempts to make school copy learning in the workplace or the workplace adopt the characteristics of school-based learning will diminish the advantages of learning in school and in the workplace, respectively. Jean Lave and Etienne Wenger's theory has been used to illustrate how each community of practice offers specific opportunities for learning. However, this way of interpreting Lave and Wenger's theory leads to a critique of their argument that learning can only be situated.

My purpose has been to argue that learning is enhanced if the opportunities for learning in the various communities of practice are combined. Therefore, teaching for transfer is an important challenge not only in the VET programmes but also more generally in lifelong learning activities.

In order to strengthen the dual training system, continuing education and, in a broader sense, lifelong education it is necessary to clarify the relation between the qualifications needed to solve tasks in workplaces within specific trades and the opportunities for learning in the school and in the workplace, respectively. What qualifications are best obtained in school and in the workplace, respectively?

In this connection an important issue for research is to generate a system for matching specific qualifications with specific learning settings.

According to this study of learning in the VET programme for sales assistants, some of the school-based knowledge can be prestigious. This prestige strengthens the trainee's position in the community of practice, the workplace. School-based education thus seems to be an important aspect of improving one's position in the workplace. Accordingly, it is also advisable to recognize the advantages of school-based education in a lifelong learning perspective.

Notes

1. A practicum is a setting designed for the task of learning in practice (Schön 1987: 37).
2. In Danish VET programmes the terms 'pupils' or 'trainees' are used about the participants. In this article I use trainees.
3. VET programmes take place in either technical or commercial VET schools.
4. The school-based part consists of four modules of 2 weeks duration each.

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