Integrating distributed learning in work situations: A case study

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ABSTRACT
E-learning is fueling efforts to integrate distributed learning systems in organisations. This paper provides a case study of integrated work and learning processes in a customer service center at Telenor in Norway. It also explores the relationship between learning and context in professional organisations. Research includes a triangulation of qualitative and quantitative research methods to explore various aspects of how the integration of work and learning affects the learning process. Two hypotheses for further research are suggested.

Keywords
Context awareness, Distributed learning, Organisational learning

Introduction: the research problem
In order to compete in today’s global marketplace, corporations require employees to learn new skills and construct new knowledge quickly and continuously (Hesselbein et al., 1997; Meister, 1998). How can learning improve performance when tied more closely to specific work processes and the context of the learner?

E-learning provides several means for learning to be tied more closely to work. By connecting learning more closely with working, the context in which learning takes place is more easily made meaningful and relevant to the process of knowledge formation (Hutchins, 1995). The Latin derivation of ‘context’ suggests putting things together (contextere) or interweaving (Collins English Dictionary, 1982). ‘Context’ may refer more narrowly to the immediate and specific features of a social situation, but it can also refer to wider social, political and historical circumstances and conditions that make interpretation of events meaningful. Context is the sum of physical, structural, social, psychological and cultural elements. To understand the essence of some particular social phenomenon is to understand the social relations that make that phenomenon possible (Bhaskar, 1998). Context is a prerequisite for the action of learners. In this paper I explore the importance and influence of a social context to understand the process of knowledge formation.

In previous papers we have explored ways to make learning systems more adaptive to the learner by introducing object-based systems with agent support (Milrad & Folkman, 2000) and by allowing learning to take place at home when the learner chooses (Folkman & Berge, in press). In this report we look at how learning can be integrated and adapted more specifically to the learner’s work situation.

The underlying assumption is that learning is embedded in the situation and that the real situation affords learning by tying learning and doing more closely together (Lave, 1988). This approach also corresponds with constructionist theory, which highlights the relationship between learning and context as a basis for knowledge formation (Jonassen & Land, 2000; Kafai & Resnick, 1996).

When learning is closely integrated in the work situation, the division between work and learning get blurred. This transformation requires a shift in the organisation from work-oriented management to managing a learning organisation (Nonaka & Takeuchi, 1995; Senge 1998). The underlying model of learning has to change as well as the way that learning is conducted (Argyris & Schön, 1996; Fjuk & Wasson, 1999). The underlying research problem of this paper is to explore implications of blending learning into work environments. More specifically I will look at how contextual variables like culture and collaboration might affect such blended learning processes.

The case
Based on a national survey of more than 1,000 distributed learning initiatives in Norway, Telenor Customer Services (Telenor CS) was selected as a case for this research (Jacobsen & Kristiansen, 2000; Kristiansen et al.,
The remodeling of call centers in Telenor CS is part of the idea of transforming the organisation into a learning organisation in which distributed learning is tightly integrated with work processes. The customer service center (hereafter CSC) has 130 employees. Most of the training in the CSC is conducted with personal computers in a distributed learning system. Training occurs in learning rooms in the customer service center. People are taken out of their workspace to a nearby training room equipped with multimedia terminals connected to both internal networks and the Internet. Training can last from an hour to multiple days. It consists of a combination of lecturing and simulations of the actual data system and collaborating with more skilled peers on live systems. After finishing a learning session, people head back to their workspace just outside the learning room.

Research methods

I used a triangulation of research methods including interviews, surveys, observations and secondary data. In triangulation, one needs to consider whether a set of data collected by different research methods can be used to complement or contribute to or confirm findings based on other research methods. The most reasonable answer is that different methods can serve different purposes in the research process as described by Flick (1998). Complementary methods might provide valuable insights that other methods overlook.

The design of this type of research process makes it similar to grounded theory building (Land & Hannafin, 2000). Data is used to improve further theory building, rather than to support or test a specific theory.

To conduct this kind of research, the researcher needs to be involved in various learning activities. By sharing time and space with learners, it is possible to derive a shared understanding of what is going on in the process of learning by approaching the topic by intersubjective methods (Schutz, 1972). There is a need to be aware of and expose the underlying values and assumptions of the researcher as part of the research process. This approach offers the reader a fair chance to filter data and personal beliefs and assumptions held by the researcher and the effect it might have on the research process.

Findings

The following themes include findings from interviews (12 open interviews with employees, 8 with top and middle managers), 10 days observations and a structured survey of 75 employees in the CSC. Each theme is concluded with a short comment on the findings and their relation to the problem under study.

Theme 1: The learner is in control.

Interviews indicated that employees are generally positive about making use of distributed learning because it gives them the option to run training at their preferred speed and progress. The control over self-learning appears to be most important to learners.

The survey result supports these findings. 61% of employees (n=46) prefer personal computer based learning to regular classroom learning. 68% (n=51) agree that learning should take place at or nearby their workplace. 97% (n=73) prefer learning to take place within working hours. 69% (n=52) accept work-related learning outside working hours. 60% (n=45) want to access learning programs at their workstation.

Managers were concerned that organisational learning would suffer as a result of focusing on individual training. Another problem was to assess knowledge of CSC as a team. High turnover in the CSC makes “knowledge walking out the door” a major concern. Training for handling customer complains was considered an example of how to support shared learning.

Comments: When learning becomes an individual effort, team benefits vanish and organisations like the CSC become vulnerable to high turnover. The paradox is that while individuals became more knowledgeable, the organisation as a whole does not. Other mechanisms to take care of both the individual and the organisational part of learning seems to be lacking.
Theme 2: Most learning takes place in the work situation.

Both top and middle managers in the CSC expressed a well-formulated model of how learning is expected to take place in the CSC as well as an elaborated model of how learning should be integrated in the working situation by using multiple learning methods including distributed learning, simulations and physical integration of learning facilities in the workplace.

Employees preferred learning to take place at the workstation rather than in the training room. 77% (n=58) regard human coaching as critical to the success of current training. Most coaching takes place in the workspace. However, the survey shows different results: the most important source of help in the learning process was: Instruction 50% n=(38), coaching 32% (n=24) and peer help 25% (n=19). (N is larger than 75 because some gave double response to this question).

Comments: Learners perceive learning as a mix of learning and doing, in which work practice guided by an expert is regarded as most important for developing skills. Peer collaboration is more popular inside the learning room than outside. There are obvious difficulties in creating a shared, collaborative space of learning and working in the CSC.

Theme 3: Practical obstacles reduce peer learning in the workspace, but peer learning is extensive in the learning room.

Managers in the CSC were relatively positive about the learning methods, but complained that they had limited time and budgets to implement peer learning. Improvement of peer collaboration was considered important to the success of learning.

Employees consider time and work overload the general reasons for the limited peer interaction in the CSC. A few consultants interact with their peers regularly; others hardly communicate with their peers, even though workstations are set up in small groups.

Small gadgets, toys, pictures, stickers and other items are placed on the individual desk to create a personal atmosphere. The workstation becomes a personal, almost sacred space that prevents intrusion by others.

This finding is supported by counting frequency of questions and interactions between workers in the call center. Four rounds of one hour counting were conducted in the peak hour of incoming telephone traffic. The results (see Table 1) show that the total number of questions asked decreased radically from the first to the third work day of new employees: from a total frequency of 59 in one hour the first day at work, to 11 second day and 15 third day. The reference group of more experienced workers asked an average of 16 questions in one hour. Only 15% of all questions were directed at peers and decreased rapidly from day one to day two. Questions are generally posed to coaches even when coworkers might be experienced enough to answer.

<table>
<thead>
<tr>
<th>Days at work</th>
<th>Frequency of question in one hour</th>
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<tbody>
<tr>
<td>1</td>
<td>59</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Half year (reference group)</td>
<td>16</td>
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Table 1. Frequency of questions over a time period

In the learning room, the situation is quite the opposite: 57% (n=43) agree that the social aspect of learning is well taken care of in the learning room. 60% (n=45) are satisfied with the instruction given as part of the training. 84% (n=63) collaborate with peers in the learning room.

Comment: Peer collaboration exists mainly in the format of coaching in the workspace while the more spontaneous peer-based collaboration is typical for the learning room. In order to make collaboration possible, resources, such as time and space, must be allocated. Time restrictions, physical set-up and group norms in the workplace seem to be obstacles to this type of collaboration opposite to the supportive atmosphere in the learning room.
Theme 4: There are major differences between the learning culture and the working culture in the CSC.

A coach leads the training session in the training room, and managers are available to explain problems or routines. Learners simulate systems used at the workstation and training focus on real problems and expert help. Learners are encouraged to use coaches actively as they will do in their daily work. The integration of factual knowledge and simulation of work processes connects instruction closely to the work situation.

There exists a competitive culture in the CSC that is naturally integrated in the training room without any explicit reference. Many training tasks are turned into informal competitions among learners.

Roles are mixed up in the learning room. However, this mix of roles is seldom present in the call center. There is a hierarchy consisting of consultants, coaches and managers. All three levels interact regularly and informally. The mix up of roles and informal collaboration is more typical for the learning room than the call center.

A final finding is from open-ended responses on how to improve learning in the CSC. Employees suggest: introducing more tasks and problem solving (n=9), giving more time to training (n=8) and providing more reliable data systems (n=3). The last comment (reliable data systems) is supported by a review of problems reported to the IT manager in the CSC in the last six months. A total of 277 errors were reported. 7 were related to the training room. 41 were related to the customer management system run by workers. 152 errors were related to software or hardware errors on the individual workstation and 84 to other problems. In general, the learning room reflects little of the IT problems that trouble the workstations in the call center. The fact that IT problems are a general source of breakdowns and frustration in the daily work was not reflected in the training; neither was how to troubleshoot.

Comments: Based on the description given so far the learning room seems to be perceived and utilized as the arena of collaborative learning and experimenting, while workstations form the arena of individual learning and experience supported by a coach. These two form the whole arena of learning in the CSC. Rules and cultures in the two learning arenas are different, not shared and somewhat opposite. The problem of aligning learning with work is exemplified by how IT problems are on the agenda in the workspace, but not in the learning room.

Discussion and conclusions

The workplace offers a context and a dynamic structure that learners utilize for different purposes in their effort for learning (see Table 2). In the case presented, a review lesson informs the learner that reality is riddled with both IT and user problems. Peer collaboration is supported in the training room, but not so well integrated in the work culture of the call center. Other aspects, such as competition, are represented both in the learning room and at the workplace. These matches and mismatches are depicted in Table 2.

<table>
<thead>
<tr>
<th>Training Situation</th>
<th>Work Situation</th>
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</thead>
<tbody>
<tr>
<td>IT problems absent or not well represented</td>
<td>Many IT problems exist</td>
</tr>
<tr>
<td>Peer collaboration well supported</td>
<td>Lack of support for peer collaboration</td>
</tr>
<tr>
<td>Competition present and represented</td>
<td>Competition present and represented</td>
</tr>
</tbody>
</table>

*Table 2. Similarities and differences between the training and working situations*

The gap between what is taught in the training room and what workers experience at the workplace is described as frustrating by more workers. This is one of the main reasons workers consider learning to take place mainly at the workplace. Learning in the training room is regarded as general preparation to start work. Problems with IT equipment and errors in software seem to be a great source of frustration and concern.

If training fails to consider difficult situations caused by IT problems, learners will be less able to cope with and frustrated by these situations in real life. In this case, IT problems are hardly addressed during training. Learners encounter these problems as they start operating the computer in the work situation. At this point they will quite frequently experience frustration and other problems. Such breakdowns represent a situation in which peer collaboration can be observed to take place, not unlike the type of collaboration observed in the training room. While peer collaboration is not generally supported in the call center, it seems to occur on occasions when new learning is required to complete the job.
Missing support for peer collaboration in the call center does not hinder but restricts the pattern of collaborative learning that could be observed in the training room. Other aspects of the work culture is better integrated, one example being the competitive culture in the call center. This is both reflected in the training room and given strong support at the work place. The correspondence between the competitive culture in the call center and the teaching and performing of the same values in the training room seem to be effective in establishing a competitive attitude among the workers while collaboration lack this type of support. Some aspect of the learning process observed can be tied to different layers of knowledge and the interplay of these. Bydgdås and Haugstad (1999) describe four types of knowledge:

a. Formal individual knowledge - based on their formal training.
b. Experiential individual knowledge - experiences, mental models and skills that are not formalized or conscious to the individual.
c. Formal organisation knowledge - routines, habits, collaborative patterns, methods and terms that are more or less formal and explicit and open to every individual in the organisation.
d. Informal organisational knowledge - collective habits, routines and collaborative patterns that are not formalized - often referred as the organisational culture.

The second and fourth categories (informal individual and organisational knowledge) are often neglected in training. In the specific case, call center workers generally know how to perform their task but not how to utilize structured knowledge or collaborative methods learned in the training room when confronted with reality in the call center.

Organisational knowledge (categories c and d) is difficult to transmit via training software because they involve intrinsic properties of the learner and the context. This aspect of the learning effort is taken care of by coaches and informal collaboration among learners in the CSC.

Based on the findings and theoretical discussion, I will continue by discussing the question posed at the beginning of the paper: How can learning improve performance when tied closer to specific work processes and the context of the learner?

To get the expected results from integrating learning in work situations, there must be consistent between the content of learning and the context of working. Peer collaboration will not take place if the rules and culture of the call center does not support it. Efficient learning programs are not generic or static; they are constantly modified and adopted to the context of the work place. When IT problems occur, collaboration takes place to a certain degree. When there is a match between 1) the learning content, 2) the teaching of it and 3) the context in which it will be used, such learning seems to be efficient. Adaptation to the competitive environment in the customer care center is an example of a good match.

There are more variables that influence the effect of learning strongly. One example is the need for a management commitment to make this type of distributed learning successful. In this case, time allocation turns out to be the challenge. It is still easier to let people leave job to the training room rather than integrate learning as part of the works culture in the call center. Time for peer collaboration and informal group processes is a prerequisite for taking advantage of the initial investment in the learning room and the new learning methods. In the attempt to connect learning with working, the difference between learning and working gets blurred. Dysfunctional situations appear when the learning culture does not fit the working culture in the organisation.

The other aspect is the risk of making learning process a closed system. Integrating learning and working too closely may cause a risk of reproducing behaviour that needs change. This is demonstrated in the research: spontaneous peer collaboration vanishes when learners return to the workspace. New employees rapidly adapt to the working culture. The result is not necessarily the desired one: the working culture provides skilled individuals and impoverished structural knowledge of the CSC.

Based on these findings, I will suggest a general research hypothesis for further investigation: The success of integrating distributed learning methods in an organisation is directly related to the ability to align or alter the learning and working culture that exists within the same organisation. Success does not depend on similarity of the two cultures, rather on how they blend into each other. A second hypothesis is: learning systems that are too tightly adapted to the current work culture are more likely of becoming static and ineffective.
References


