A Case Study of Blended Learning in a Nordic Insurance Company: Three Issues for E-learning

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***Abstract*—The aim of this paper is to study one application of blended learning in a large, multinational organization. The focus is on understanding what blended learning means in the context of workplace learning, what advantages and disadvantages can be identified and, based on empirical findings, to discuss how courses are set up with the objective of enhancing learning outcome through a combination of social interaction and individual learning at the same time taking into consideration critical factors such as cultural diversity. A sociocultural perspective guides our analysis, in particular Vygotsky's notions of "duality of learning" and "zone of proximal development." The sociocultural perspective helped us to choose one interpretation of blended learning among the multiple approaches available.**

***Index Terms*— blended learning, case study, collaboration-based blended learning, sociocultural perspective, technology-enhanced workplace learning.**

I. INTRODUCTION

The rapid diffusion of Information and Communication Technology (ICT) in modern businesses and their increasing use of this for educational purposes (e.g., web-based training) have brought about tremendous changes in the way we learn and communicate within and between organizations. The implementation of technology-enhanced learning (TEL) has attracted great interest from practitioners in the field of workplace learning [15]. Many companies have started to implement e-learning solutions as a source for flexible training of their workforce, which we refer to as Technology-enhanced Workplace Learning (TEWL). But the first generation of e-learning turned out not to fulfill its promises to replace time-consuming and high-cost conventional teacher-led training.

In a nutshell, one can say that if the earlier e-learning settings had a focus on individual learning, it tended to see the learner as a passive recipient of information, a situation that would hardly be reflected in practice. In the emerging knowledge-based society [18][25], it is not sufficient to see the learner as a passive agent. Instead, individual learning is seen as part of and even motivated by social processes, highly dependent on interaction with others. Collaborative interaction generates understanding of the subject matter on a deeper level supported by active participation in the learning process and the construction of knowledge through collective agency.

These changes are in concert with the requirements of the new knowledge economy [2]. Practitioners and researchers have turned to new arenas to understand to what extent collaborative interaction may enhance individual learning outcome and in particular to enhance and nurture individual learning. For example, these considerations resulted in the establishment of the field Computer-Supported Collaborative Learning (CSCL) [20]. CSCL provides a framework for the development of technological solutions that focus both on communication and collaboration with others as well as interaction with the system itself (e.g., by applying multimedia learning principles and by providing appropriate scaffolding). Moreover, these changes may be said to result in one specific type of Blended Learning (BL), namely BL that integrates individual and collaborative learning. We developed this notion of blended learning that we refer to as collaboration-based blended learning. It is proposed to address some of shortcomings of self-paced e-learning that we found in our study.

II. CASE

The company that we report on is a Nordic multinational insurance company. It has offices in Denmark, Finland, Norway and Sweden, the Baltic countries, and Russia. The company has three business areas: Private, Commercial, and Industry. The company provides services at both national and international levels. The learning and competence development needs of the leaders are important to the company. The training and competence possibilities provided include on-the-job training, e-learning courses, and courses and seminars that are based upon the BL methods. But the integration of the components in BL courses is predetermined by several factors.

An example is a course in insurance claims analysis concepts (e.g., income statement, balance sheet, claims, cash flow report, key ratios). It is integrated with F2F simulation training. The e-learning component consists of several modules, and some have graphic displays and visual effects and (see Fig. 1). Each module is followed by a summary and a quiz (each consists of five multiple-choice questions).

III. BLENDED LEARNING: A LITERATURE REVIEW

We introduce the notion of blended learning by listing the definitions that we have found in the literature. On that basis, we develop one direction further, which we have compared against the data we have collected. Blended learning may be defined as:

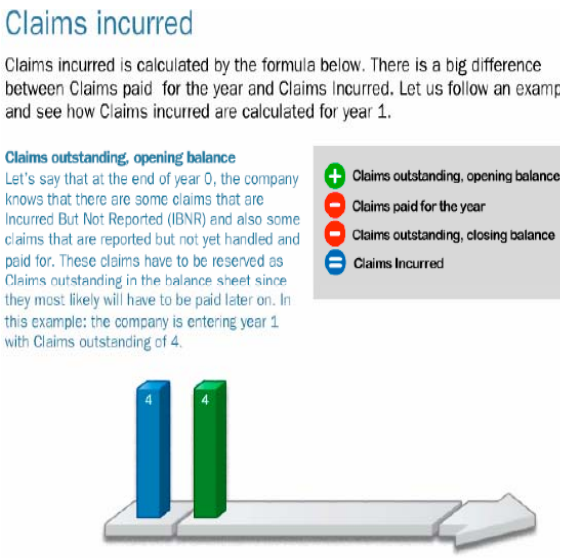

Figure 1. A screenshot of part of the e-learning component of a blended learning course

"…((a)) balanced learning. This balance is achieved by combining the advantages of two learning modalities, such as classroom instruction, with self-paced instruction that is delivered on the Internet" [23].

"Blended learning is a mix of self-paced (asynchronous) work and instructor-led (synchronous or face-to-face) elements" [21].

"…the use of different internet-based tools including chat rooms, discussion groups, podcast and self-assessment tools to support a traditional course" [1].

"…a combination of two or more of all possible formal and informal learning types," including both face-to-face and online instructions [11].

"Blending involves a planned combination of approaches, such as coaching by a supervisor; participation in an online class; breakfast with colleagues; competency descriptions; reading on the beach; reference to a manual; collegial relationships; and participation in seminars, workshops, and online communities" [17].

"Blended learning addresses many of the shortcomings of traditional physical classroom or pure e-learning courseware models by combing self-paced, collaborative, and human mentoring approaches, which lead to higher learning completion rates" [19].

Although many definitions of "blended learning" share the same criteria, there are some differences in the emphasis given to student involvement, use of multimedia, synchronicity, and learning environment [1][11][17] [19][21].

In sum, the main objective of BL is to enhance the learning outcome by combining two kinds of learning environments, one associated with online learning and the other conventional teacher-led classroom learning. Current research reveals that the integration of these two components is still challenging and remains an open issue for further research.

A distinction between two types of BL emerged after the pre-screening of data from the case study we report on:

1. *Concept-oriented BL (CBL1):* the online part is concept-oriented and meant for individual use (e.g., self-paced e-learning), whereas the F2F part is collaborative learning (e.g., scenario simulation, work groups),
2. *Collaboration-based BL (CBL2):* the online part is computer-supported collaborative learning (e.g., online communities), whereas the F2F part is individual oriented (e.g., conventional classroom instruction, PowerPoint presentation, mentoring).

In addition, many researchers have started to look upon BL in corporate settings from a global prospective, revealing new constraints such as the following: 1) regional, cultural, and professional backgrounds [4], 2) intercultural learning and instructional design principles to obtain cultural awareness [21], and 3) adjustment of the programs to local settings (e.g., social contexts, culture, language) [10][16].

Different researchers have identified what they believe are the key components of a successful BL solution in the context of workplace learning:

1. *Combining self-paced and collaborative learning* [4][6][17],
2. *Social inclusion* [26],
3. *Learner-centered pedagogy* (or learner-centric learning) [1],
4. *Scaffolded learning processes* (both technological and pedagogical dimensions) [4][6][17],
5. *Communication* [17] and *community building* [9],
6. *Technological affordances that allow communication and collaboration* [5], and
7. *Reflection* [9].

IV. THEORETICAL PERSPECTIVES

The literature on BL is practice oriented, but rarely informed by theory. Our research is informed by sociocultural theory on development and learning. The overall perspective and the main lens through which data are analyzed are Vygotsky's idea on the duality of learning, which says learning occurs on two levels, one social and the other individual. Vygotsky based this on the "genetic law of cultural development," which says social interaction precedes individual learning and is commonly formulated (translated from Russian) as follows:

"Every function in the child's cultural development appears twice; first, on the social level, and later, on the individual level; first, between people (inter-psychological), and then inside the child (intra-psychological). This applies to voluntary attention to logical memory to the formation of concepts. All the higher functions originate as actual relations between human individuals" [24, p57].

As a consequence of the duality of the learning principle, learners with less experience depend upon those with more expertise, at least in the beginning of the learning process. Scaffolding within the Zone of Proximal Development (ZPD) is another, related concept from sociocultural theory. Scaffolding describes the process of moving from what can achieved without guidance to what can be achieved with guidance so that

less experienced individuals learn from those with more expertise, while mediated by language and other sociocultural means. When the learner is able to perform on her own what she before could achieve only by guidance, social scaffolding is replaced by self-regulation, which is a goal of teaching.

These ideas have had a big influence (directly or indirectly) on the design of computer-mediated communication (CMC) and many forms of computer-based training (CBT). The areas of most relevance to our work are Instructional Design (ID), computer supported cooperative work (CSCW), and computer supported collaborative learning (CSCL). Our study is one modest attempt to extend these lines of research, and we take as a starting point a model of blended learning (CBL2) that is informed by Vygotsky's idea of the duality of learning.

V. Research Questions

One objective of blended learning is to enhance learning outcome by taking into account both individual and collaborative aspects of learning. This is supported by Vygotsky's ideas that we presented above. Thus, a theory-informed research question that we wish to explore in this paper relates to the components of blended learning and in particular the integration of individual and collaborative learning. The question is formulated as follows: *how can blended learning integrate collaborative interaction and self-paced learning to enhance learning outcome.*

VI. Analysis of Results

A. Method

We conducted an embedded single case study to address the research question. The case study was based upon a single organization but included more than one unit of analysis (e.g., developers vs. users; Nordic countries vs. Baltic countries). According to reference [27, p.1], case studies are the most appropriate "when how or why questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context." The question we explore in this study is about learning situations observed in naturalistic settings. The researchers had no influence over this situation, the participants who were interviewed, or during the observation of the blended learning courses.

Triangulation, the combination of alternative sources during data collection, was applied. This gave us a more comprehensive understanding of the problem than a single data source could give. Triangulation is composed of the use of different techniques, as well as may take advantage of both qualitative and quantitative methods by combining them. This mixed-method approach provides richer data and contributes to generalization and external validity (across contexts) that is in line with the purpose of our study: to get overall information about a phenomenon of interest and to describe it from different angles.

The data collection techniques (employed by the first author) were interviews, direct observation, participant-observation, and reading relevant written material obtained from the company (e.g., e-learning courses manual with screenshots of the system).

Twenty-seven participants were interviewed. They were divided into three groups according to their role in the training practices at the company: 1) nineteen users (this group is represented by participants in the courses from Denmark, Latvia, Lithuania, Norway, and Sweden; 2) five developers from Denmark, Norway, and Sweden (employees of the company who play different roles during the process of developing training material are included in this category); and 3) three external consultants from Norway and Sweden (who are the representatives of the consultancy company who have been delivering courseware solutions to the company for a long period of time: both e-learning and blended learning courses).

The data consist of about 30 hours of open-ended face-to-face interviews and one-hour interviews held over the phone. The three-day observation of a course held in Estonia and the first author's experience as a participant in a two-day course in Sweden are taken into consideration when analyzing the data.

All the interviews were held in English, and the extracts cited in this chapter are used without any considerable changes in order to avoid misinterpretation of what was said by the respondents.

B. Findings

Three main themes will be discussed and illustrated by the data extracts: 1) the contribution of individual and collaborative learning, 2) scaffolding self-regulated learning and collaborative interaction, and 3) adaption of e-learning in a multinational organization.

1) The contribution of individual and collaborative learning

Extract 1 is taken from an interview with one of the external consultants during observation of a course in Parnu, Estonia. The respondent has much experience in working with standalone e-learning as well as with BL. In this extract, the roles of e-learning and F2F sessions are discussed. The interview was held immediately after the course was completed.

Extract 1: Learning in the classroom can never be replaced with e-learning, because e-learning is e-learning. It is not comparable, you are not networking in e-learning, you are not meeting other people, and you are not discussing other things. The effect from meeting, classroom training is much bigger. I think you should mix them, definitely because e-learning is good for preparation, and it works. Sometimes it works very well in terms of follow-up for something done in the middle of the course, and at other times as a reminder.

The respondent emphasizes that standalone, concept-oriented e-learning is often not very useful as a learning method because it tends to be tedious and lacks a social dimension. S/he stresses the importance of social interaction in the learning process. The respondent considers e-learning appropriate for individual, self-paced learning, and for this purpose e-learning is very good. It may serve as the means to prepare oneself for classroom learning or as self-assessment after the conventional (F2F) course has been completed. In accordance with the classification given in this study, this type of BL is concept-oriented BL (CBL1).

The data analysis revealed that learning might be effective only if it combines individual and collaborative learning, and this is in line with the socio-cultural

approach. Successful integration depends upon several factors, ranging from technological affordances and cultural diversity. Standalone, self-paced e-learning will not take into account this range of factors if it is not supplemented by other forms of learning (formal, informal, online, or F2F). The reason for this is that self-paced e-learning tends to treat the learner as a passive recipient of ready-made information. This belief contradicts the requirements of knowledge society [12][18][25].

2) Scaffolding self-regulated learning and collaborative interaction

The next extract is taken from an interview with a user from Sweden who participated in a blended learning course that comprises about 30-40 hours of self-paced e-learning supplemented by a one-day physical meeting. The interview was held in Bergshamra, Sweden.

Extract 2: E-learning environments could be more interactive; we could have more interactions with the system. Like you have a database behind where you have actually answered wrong ((to)) the questions and you would ((get)) some ((form)) of feedback: "It is wrong because of…," or "You should have answered like this and that…." Because when you get some answers wrong and you can't figure out why, "I thought they were right," and you didn't know why. And that is a kind of environment also when you are sitting with an e-learning task. And that is very important because if you get frustrated or irritated because this stupid machine doesn't answer anything. You just feel, "Oh, I don't like this." But if you get ((some)) kind of interaction ((in)) this kind of environment, then it will ((turn out to be better)) for e-classes.

The user talks about the limitations that e-learning courses have. The main disadvantage of concept-oriented e-learning is that it doesn't provide sufficient technological scaffolding. This makes e-learning a non-motivating, boring, and even sometimes irritating way of learning. Immediate feedback from the system could have turned self-paced learning into a more interesting and engaging process. Then up-to-minute interaction with the system could become a solution to these problems.

The company chose to use a conventional BL approach (CBL1), rather than an approach that would take advantage of CSCL technology (CBL2). The main reasons for this were economical and cost-efficiency, but also lack of a good CSCL tool.

Thus, there is a dilemma whether self-paced e-learning courses should be provided with any kind of support. On the one hand, it is assumed that self-paced e-learning as a component of a BL course should be so simple that a learner wouldn't need any assistance in accomplishing it, except for the automated system support, e.g., by applying multimedia learning [14]. This may be predetermined by the type of self-paced e-learning with the objective to inform rather than to perform [3]. Others consider self-paced e-learning more complicated, and a sufficient technological or pedagogical scaffolding should be provided. A lack of this function may diminish the learning process [13] and motivation to take the course. One may do the e-learning course without thinking about the answers or even not complete it at all. But the objective is not in accomplishing a course because one is obliged to but in learning from it.

The analysis reveals that in order to enhance collaborative interaction (e.g., forum), an F2F session should precede the online component and serve as an introductory course. This could contribute to social awareness that is crucial for development of collaborative learning environments for allocated learners [7]. At the same time, it is not enough to leave the participants on their own. An instructor plays a crucial role and should facilitate the collaborative interaction online (if there is such a function) by, e.g., introducing a theme for discussion that is related to the course. The learning environments should provide support for social processes [8], but the analysis shows that this kind of assistance was not available or was not structured enough.

3) Adapting e-learning in a multinational organization

Because the company operates in different countries, the question of cultural diversity must be taken into consideration. The next extract is from an interview with one of the developers. The interview was held in Hvidovre, Denmark. The question that was asked was whether the development of courses is a joint effort between countries.

Extract 3: Yes, because we are Nordic unit…I think, that we try to build our courses in a Nordic perspective. Taken into consideration the different things…it's very different from Finland to Denmark, for instance. And it is also very different from Finland to Russia. It will be a tremendous big step to bring management development into Russia as we have it in the Scandinavian countries. It's a completely different way of how they are looking at management and leadership in Russia, than it is in the Scandinavian countries. That's why we have decided that the Baltic countries have their own management training and Russia will have ((its)) own management training. And ((at)) some ((point in)) time we might integrate the Baltic and the Russian way of having management training. And then again, maybe in 5-10 years we can look at it as one package, because there are huge differences in cultures between the different countries: Scandinavian, the ((Baltic states)), and Russia. Right? So to ((understand the)) difference, we target only those specific countries ((by)) themselves. So we will never mix ((them)). That's not possible.

The company is a multinational enterprise consisting of several headquarters. Even though the cultural differences of the three regions (Baltic, Nordic, and Russia) are formidable, it is possible to link the Nordic countries (Denmark, Finland, Norway, Sweden) with the purpose of delivering common courses; and it has been done. The biggest challenge for the present is to have a common set of courses for the Nordic and Baltic countries. They have different languages and their own culture; but the most important difference is in the way management is perceived. The involvement of the Baltic countries and eventually Russia in a common set of courses seems to be impossible at the current point in time due to the foreseen challenges depicted above.

After several attempts at developing a common competence policy, the Company Academy was established in 2007. Behind the establishment of the

Company Academy was the idea of collecting all the training available and to allow for sharing across the BAs. The next interview is with a user of BL in one of the Nordic countries. The interviewer asked about the reason for the establishment of the Academy.

Extract 4: We ((have)) three business units within ((the Company)). ((They)) are commercial, industrial, and private. We arrange the same courses in two different places in the organization. It is not coordinated at a higher level, so I guess the intention is if I develop a certain two-days ((courses)), then this ((courses)) could be taken to the ((Company)) Academy level. So all ((could be)) consider ((ed)) ((and)) offer ((ed)) there. I can see some benefits of doing that. Also, my employees can take part in a course arranged somewhere else in the organization. But it is difficult because they have to be very structured. The intention is not to build up a large organization, but more to take all the courses arranged in different places in the organization and bring them ((together)), publish the courses at some higher level.

Interviewer: Was the Company Academy developed to include both Nordic and Baltic countries?

Extract 5: I guess the intention is to have both Nordic and Baltic countries. Otherwise, it would be strange to let the Baltic countries out of the scope. We also want to connect Baltic countries even more and transfer knowledge ((between)) Nordic and Baltic ((regions)). You can't do both…either it is decentralized or you centralize it, but in-between will never be a success, because it is a lot of energy leakage in arguing who is responsible and such.

The respondent talks about the vision of the Company Academy for corporate training with e-learning. The purpose of the Academy was to collect all the specific courses developed in different BAs as well as to take part in the development of common courses within the company to streamline the effort. Before the Academy was established, all three BAs had their own HR departments. The process was decentralized, and they worried there would be duplicate courses developed in the different BAs. At the same time, not all the courses were available across the BAs. The respondent asserted that it was a good intention to establish a competence policy, but the process must be further structured in order to succeed. What the respondent means by this is that the process of course development should be either centralized or it should be decentralized. Mixing may result in failure.

This identifies a dilemma that is not easily resolved. On one hand, specific contexts dictate local and often very different solutions. On the other, the company at large wants to minimize costs and to streamline the business to make sure there are no unnecessary duplicated development efforts. One can speculate that the Company Academy needs more time to find its way so that development efforts (local and global) can emerge and resolve the tension. It is too early to say what the effect this will have for the Academy. Adapting courses with global perspectives to local contexts turned out to be a challenge. The practice of having, e.g., English as a common language has failed, and now all the courses are translated into all the company's national languages. The main problem may occur due to differences in language proficiency level. Courses in a non-native language may hinder learning by being non-motivating and time-consuming if a non-native language is used. The working environment is a crucial factor as well. Whether it is stable or unstable determines the employees' attitude and orientation toward the company training programs.

VII. Discussion

The interdependency of social interaction and individual learning is emphasized in the ideas of Vygotsky. He suggested social interaction is a prerequisite of individual learning. This has had a big impact on research in instructional design, CSCW, and CSCL. We have shown that social interaction can serve as a design principle and analytic lens for blended learning as well. Language (i.e., communication) mediates between the two domains, supporting both social interaction and self-regulated learning [22].

Thus, communication and social interaction are crucial elements of collaborative learning. This was supported by our data in that the respondents said that standalone self-paced e-learning was not complete as a method of learning for them in the workplace unless it was extended by support for collaborative interaction.

BL can overcome the shortcoming of self-paced e-learning as we have argued for in this paper. Nevertheless, blended learning introduces new challenges associated with the integration of online and conventional teacher-led classroom training. According to Vygotsky, learning can be understood through the concept of the Zone of Proximal Development (ZPD) [24]. Therefore, to develop authentic learning environments, appropriate scaffolding mechanisms should be provided within the ZPD: either to enhance and direct self-paced learning or to guide collaborative interaction. This can be accomplished by a combination of pedagogical and technological scaffolding [12]. With the increasing sophistication of ICT support, scaffolding will not be reduced to human-human interaction (e.g. more capable peers). On the contrary, pedagogical, social, and technological scaffolds will flourish in the near future. At the same time, the level at which scaffolding is provided may vary depending upon critical issues: e.g., objectives of learning, level of expertise, technological affordances, and cultural diversity

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