

Integration of e-learning outcomes into work processes

Kerstin Grundén
Kerstin.grunden@hv.se

Department of Economics and IT
University West
Sweden

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Abstract

Three case studies of in-house developed e-learning education in public organizations with different pedagogical approaches are used as a starting point for discussion regarding the implementation challenges of e-learning at work. The aim of this article is to contribute to the understanding of integrating mechanisms of e-learning outcomes into work processes in large, public organizations. The case studies were analyzed from a socio-cultural perspective using the MOA-model as a frame of reference. Although the pedagogical approaches for all of the cases seemed to be relevant and most of the learners showed overall positive attitudes towards the courses, there were problems with integration of the e-learning outcomes into work processes. There were deficiencies in the adaption of the course contents to the local educational needs. There was also a lack of adjusting the local work organization and work routines in order to facilitate the integration of the e-learning outcomes into the work processes. A lack of local management engagement affected the learners' motivation negatively. Group discussions in local work groups facilitated the integration of the e-learning outcomes. Much of the difficulties of integrating e-learning outcomes into work processes in big organizations are related to the problems with adjusting centrally developed e-learning courses to local needs and a lack of co-operation among among the developers (often IT-professionals) and the Human Resources Department of the organizations.

Keywords: e-learning; implementation; integration; socio-cultural perspective; MOA-model

Introduction

Efficient learning and e-learning processes are crucial for modern knowledge organizations. E-learning is a method that uses information and communication technology (ICT) in order to transform and support teaching and learning process ubiquitously (Kigozi Kahligi et al, 2008). E-learning is often used interchangeably with distance learning, virtual learning, online learning, or web-based learning. Learning outcomes should be integrated into work processes, in order to contribute to increased efficiency and quality of the organization. Efficient integration of learning outcomes into work situations is a key to success for e-learning at work, from a management perspective. Such aspects are however, not very focused on research studies as of yet. Nunes et al (2009) argues that effectiveness of e-learning is one of the most debated and controversial issues in the workplace and the impact of individual learning in overall business performance is particularly difficult and subjective to measure. Despite the fact of the growing trend in e-learning courses being

launched at workplaces, there is still a lack of relevant evaluation methods and understanding of the effectiveness of these courses (Hardt, 2009). The traditional knowledge about learning in non-virtual settings is not immediately transferable to more virtual settings (Johannsen Duus 2009). E-learning in work organizations is still immature, and there is a need to further explore efficient design principles and adequate pedagogical approaches (Kigozi et al, 2009; Gao et al, 2006). The design of an e-learning course should correspond with the learning needs of the individual and organization in order to be effective.

The article focuses on the research issues of integrating e-learning outcome problems into work processes in large public organizations, and which steps that could be taken in order to improve the integration. The main aim of this article is to contribute to the understanding of integrating mechanisms facilitating the application of e-learning outcomes into work processes. Some in-house developed e-learning courses will be used as a starting point for a discussion of integrating learning outcomes into work processes. The author was involved in the evaluation of these e-learning efforts and detailed results from each case study are published in several articles by the author. Therefore a summary of each study is presented in this article. The courses were developed by some large public organizations in Sweden, and they were developed on the basis of different pedagogical approaches. Although a majority of the learners were satisfied with the courses, there were integration problems of learning outcomes in all of the studies. The analysis and discussion of the integration problems can hopefully inspire and encourage further design and implementation efforts of e-learning education at work contributing to increased quality and efficiency of the organization.

Workplace learning and e-learning

There are both similarities and differences between learning at universities and workplace learning. The main differences are the different contexts and their different inherent logics. At universities teaching is usually based on scientific methods, but there are no such demands for workplace learning. Business orientation (described in an ideal-typical way) could be seen as the opposite of a traditional academic orientation (Johannsen Duus, 2009, p. 9). Public organizations are also characterized by an orientation to demands external to the organization, although these demands have different inherent logics compared with the market-based paradigm. The application of e-learning courses in public organizations also needs restructuring of design principles compared with traditional e-learning courses at universities. However, much more literature focuses on e-learning at universities compared with e-learning at work.

Firstly, workplace learning aims to generate learning outcomes that can immediately be applied into the work process by the learners and contribute to better quality and efficiency. E-learning education at the workplace is traditionally expected to be more efficient compared with traditional learning in classroom courses. When e-learning courses are developed they can easily be spread to thousands of users located at different geographical locations of the organization, and the studies can be made at different points in time. In-house development of e-learning education becomes more and more common, especially for larger organizations that can afford the development and production costs (Nunes et al, 2009). Traditional educational forms such as sending the employees to

external courses, or organizing an internal course in a traditional classroom way are also expensive. However, such courses can be more integrated in department budgets and more “invisible” as total costs for education for an organization. In-house development of e-learning courses requires more initial investments in technology and a central organizational unit or a project group often provides development efforts. Furthermore, the costs for distribution to many learners and the use of the system are usually lower compared with more traditional education.

Traditionally, learning has been defined as an individual process through which the individual acquires knowledge and skill. Social constructionists have questioned this view and argue that learning should be viewed as a social process that takes place through interaction with people. Lave and Wenger (1991) argued that learning at work usually takes place in “communities of practice”, where the individuals are socialized into the culture and norms of those communities in informal learning processes. However, workplace learning is not only a social practice; it also involves individual, psychological and cognitive processes. The different individuals could have different backgrounds for example. Different educational and social backgrounds, as well as different work experiences and competencies can affect the learning process. Human learning involves complicated patterns of motivation, understanding, meaning, emotions, defense, resistance, consciousness and sub-consciousness. Illeris (2004) argues that the technical and organizational environment also affects the learning processes at the workplace, and can either facilitate or hamper learning efforts: “Learning takes place in a dynamic relation between the employees’ learning processes, the communities at the workplace and the enterprise as technical-organizational system” (ibid. p. 431).

The traditional work division in a bureaucratic organization can hamper a general, overall understanding, and the modern process-oriented work organization can facilitate such an understanding. Information systems can also be institutionalized in the organization. Berger and Luckman (1979) argued that institutions control social activities in accordance with predefined action patterns. IT-systems can then obtain the role of an “artificial communicating subject”, and affect social and individual actions, competencies and learning possibilities (Grundén, 1992).

Still technology tends to determine how learning takes place at the workplace (Tynjälä & Häkkinen, 2005). There is also still a danger that e-learning education is technology driven instead of learner driven. The field of e-learning is predominantly characterized by “the sequential courseware paradigm”, relying on a traditional pedagogical perspective with the conservative “drill-and-practice” model as a norm for e-learning education (Nunes et al, 2009). In fact the vast majority of literature in workplace learning focuses on formal learning and training from such traditional approaches (ibid.). According to this perspective, knowledge is seen as objective and general, and knowledge is acquired through memorizing and adapting facts. The role of the teacher is to facilitate a mediating process of knowledge from the contents of the course to the learners. The learners are more or less treated as objects. The social aspects of learning are ignored as well as the contextualized nature of human activity systems (ibid.). Such learning processes can be described as “surface learning” (Svensson & Åberg, 2001). Instead the design of e-learning courses can be more inspired by the development-oriented perspective, where knowledge created through communication among adult subjects is seen as an interactive process (ibid.). Knowledge is seen as socially constructed and created in local situations. Understanding and motivation are central aspects promoting learning in the development-oriented

perspective. The learners have a more active role compared with the traditional perspective. Learners strive for deeper understanding and reflection, according to the develop-oriented perspective. The teacher is more like a coach and tries to stimulate the learners' own responsibility for their learning process. Reflection activities need to take place in collective learning settings where people have space and time to reflect on their work. Within the theoretical field of organizational learning several researchers emphasize the role of social processes in transforming individual learning into organizational learning (Argyris & Schön, 1996; Senge, 1990). Høyrup (2004) argues that reflection plays an important role as the driving force of organizational learning. Collective reflection activities could probably facilitate the integration of learning outcomes into work situations.

In this article the concepts "integration of e-learning outcomes into work processes" are focused upon instead on more traditional concepts such as "transferring learning to behavior" used by Kirkpatrick and Kirkpatrick (2005). The latter concepts are more related to the traditional pedagogical perspective, where the studies mainly take a positivist and quantitative approach, which often is reductionist and inconclusive (Nunes et al 2009).

The focus on "integration" instead of "transferring" is more related to a socio-cultural perspective, where the learners' subjective learning processes are focused on interaction with the social and organizational context of the courses. The concept "learning outcomes" is concerned with the achievements of the learner rather than the intentions of the teacher (Adam 2004, Duus 2009), and are also related to the socio-cultural perspective.

According to a study by Hardt (2008) of 27 case studies of e-learning drawn from literature, a vast amount of e-learning courses are still evaluated using traditional methods such as Kirkpatrick and Kirkpatrick's (2005) four level model or not evaluated at all. There is obviously a need for alternative evaluation approaches, based on a socio-cultural perspective of e-learning in large organizations.

The MOA model developed by the author (Grundén 1992, Grundén 2009a) was used as a theoretical frame of reference for the studies. The model is based on a socio-cultural understanding of implementation and use of information technology in the organization, such as e-learning courses. A different design of the e-learning courses, the organization of the studies and the technology used are supposed to give different learning outcomes for the learners and consequences for the organization. The main characteristics of the model are the focus on different interest perspectives related to the implementation process of e-learning courses at work. The consequences of the course for the work processes (from a management perspective), for the work situations (from the perspective of the employees) and for quality and efficiency aspects of the product or service produced (from the customer or clients perspective), are especially focused on in the studies.

Empirical studies on learning and e-learning in the workplace with different pedagogical approaches

Introduction

The author participated in the development process and evaluated several e-learning courses within some large public organizations in Sweden. The County Administrative Board and the Västra Götaland Regional Council developed the web-based courses discussed in this article. The courses were developed according to different pedagogical approaches.

Both quantitative and qualitative research methods were used in the studies. The following table gives an overview of the e-learning courses developed and pedagogical concepts discussed in this section:

Pedagogical approach	Course/concept	Organization	Individual and/or group oriented	The role of the researchers: I = Initiators P = Some development E= Evaluation
Traditional	Diabas	County Administration	Individual	P, E
Blended learning	Study circle, e-Government	County Administration	Individual and group	I, P, E
Blended learning	“Was not thinking about it”	Västra Götaland regional council	Individual and group	E

Table 1. The e-learning courses and pedagogical concepts.

The three studies are described in detail in published articles by the author; the study of the course Diabas is published Grundén (2004) and Grundén (2009c) the study of the study circle is published in Grundén (2010), and the study of the course “Was not thinking about it” is published in Grundén (2009b). A summary of the studies is given below.

The evaluation study of the course Diabas

Background

The County Administrative Board is one of the largest public organizations in Sweden, responsible for central government administration. The different expert fields are also organized into 16 different departments, each responsible for specialized areas. The County Administrative Board of Västra Götaland has about 900 employees situated at eight different geographical locations in the region.

The employees dealing with matters in these areas mainly have an academic background and work as handling officers in different expert fields. The organization could be characterized as a professional bureaucracy according to the terminology of Mintzberg (1983). The organization is also described as a modern knowledge organization by management (Länsstyrelsen Västra Götaland, 2010).

There was a continuous need for further education for the handling officers, due to new expert knowledge in their fields, and to new propositions and regulations from the government. External courses were often considered as too expensive. Therefore the development of in-house courses was seen as an alternative.

At the end of 2001 a collaborative project was initiated with participants from both the County Administrative Board of Västra Götaland and University West. An internal organization, the County Academy for development and distribution of e-learning education, was launched. The County Academy had the main responsibility for the development of the web-based courses, and researchers from University West contributed with some development support. The author was responsible for the evaluation of the developed courses discussed in this article. The first web-based course developed was the Diabas course for dealing with daily diaries. At each department there were one or two registrars who made the most registrations in the diaries for the handling officers. However, management wanted the handling officers to take a more active role in the registrations of their own matters. One aim with the course was to increase the competence of the handling officers so that they could register the activities for their own matters in the electronic diary.

The Diabas course was designed according to a traditional pedagogical perspective. In the course test matters could be initiated, dealt with and terminated. There were several exercises in the course, as well as search and statistical functions. The course was divided into four separate sections. The first section dealt with the laws and decrees regulating the registers, and the advantages with relevant routines for dealing with registers were illustrated in a video. In the second section an introduction was made to the information in the Diabas system about a subject. Searching information on a subject was the focus of the third section. The fourth section dealt with the registration of documents and measures in different subjects. This section was designed in an interactive way where the learners could register subjects in a test database of the Diabas system. The course was organized as a self-study course and the learners used their personal computers for the course (during working hours).

Research Methodology

The author was responsible for the evaluation of the course. The study was longitudinal and used different research methodologies. The current work situation of the workers was studied with interviews before the course was launched. Five registrars and eight handling officers in three different authorities were interviewed. The interviews lasted about an hour and were recorded.

A questionnaire was distributed to the seven learners that tested the course. An evaluation seminar that was recorded and analysed was also held with the learners at the end of the course. Two months after the learners had finished the test use of course, telephone interviews were made in order to examine whether the learning outcomes of the course had been integrated into their work or not.

The author evaluated the course after regular use of one hundred employees in the southern district. A questionnaire was distributed to the first hundred learners after they had passed the course. Phone interviews were then made a month after the course focussing on whether the learning outcomes had been integrated into their work or not.

Main results of the study

According to the results from the interview study of the current work situation the respondents were satisfied with the existing work division, and the handling officers were not motivated to start registering their own matters. The respondents emphasized that the existing work division had a long tradition in the organization.

The test learners were mainly satisfied with the prototype course, but proposed some minor changes of the contents and the structure. The course was somewhat modified and was then offered as a voluntary, regular course for the employees. However, during the first year none of the employees voluntarily requested the course. Then the management of the southern region of the organization demanded all employees to study the course.

According to the results from the questionnaire distributed to the learners after the course was finished, 87% were satisfied with the course. Some of the learners were frustrated when they found the course too easy or too difficult; 14% of the participants thought they had more than sufficient pre-knowledge for the course, and 10% thought they had insufficient pre-knowledge for the course. The fact that course contents were not adjusted to different knowledge levels seemed to negatively affect the learners' motivation and contributed to the problems with integration of the e-learning outcomes into the work processes. Although the course was marketed as a course for individual studies, some respondents organized their studies in their local work group. The learners also seemed to prefer to discuss problems with their studies with members of their local work group, instead of contacting a centrally located tutor.

Before the course 97% of the handling officers did not make their registrations themselves. Although 87% of the learners had an overall positive opinion of the course, 53% had not applied the new knowledge to their work, a month after the course. A lack of integration of the learning outcomes into work routines seemed to be the main reason. Some aspects that affected the lack of integration could be a lack of motivation by the handling officers to change the work division, time pressures due to heavy workload, work routines that were

not adjusted to the new work tasks and a lack of managerial engagement. The fact that 47% started to make their own registrations was probably related to increased demands by management, compared with the previous situation. The establishment of the internal County Academy facilitated the production and distribution of the course. The County Academy was, however, only vaguely related to the activities of the Human Resources Department of the organization, a fact that probably contributed to a lack of support activities for the integration of e-learning outcomes into work processes.

The evaluation study of the study circle about e-Government

Background

The background of the study circle about e-Government was an interview study made by the author (Grundén 2004). The interviews focused on attitudes and knowledge about e-Government for different personnel groups at the County Administrative Board of Västra Götaland and their competence needs. The author suggested that a web-based study circle with focus on basic issues of e-Government could be relevant for the competence development needed by the employees. The project group then decided to develop such a course. Study circles have a long tradition within the Swedish popular movement and have frequently been used by educational associations. Study circles have also been used in working life, most often as a complement to other change activities (Erikson & Holmer, 1991). A study circle usually consists of a smaller group with a study leader, who is more of a co-ordinator than a teacher. The study circle often has a generally formulated subject for study, but the participants can decide what aspects of the subject they wish to study more thoroughly.

All personnel of the national County Administration were supposed to participate in this education. The main goal of the study circle was to give basic introduction to e-Government. The study circle should also stimulate work place discussions about e-Government related issues. The author participated in the working group that developed the course and was also responsible for the evaluation of the education.

Study circles inspired the pedagogical approach of the course for the implementation of e-Government at the County Administration, although the contents and discussions were more formally organized. A main objective of the course for implementing e-Government at the County Administration was to offer basic information related to e-Government and to discuss changes of organisation, technology, work roles and customer services. The first modules of the course were described as suitable for individual studies, and the final discussion tasks for discussion in groups. This was however, not a compelling structure. Each department could organise the studies according to their own approach. The individual parts of the course were expected to take half an hour for each of the four modules. The work place discussions were expected to last about half a day.

The research methodology

When the study circle was finished eighteen respondents from different positions (administrative assistants, handling officers, managers) and authorities were interviewed about their experiences from the course. The interviews took about half an hour. The interviews were recorded and transcribed before the contents analysis was made. The use of the contents analysis method was inspired by the methodology discussions by Kvale and Brinkmann (2009).

The main results from the study

The respondents appreciated that the course was offered “on time”, when the new competencies were needed. There were different comprehensive opinions of the course. Many respondents mentioned that the course contents were not adapted enough to the different pre-knowledge levels of the learners. Some learners found the information too simple and others had problems with too much theoretical information. Some respondents criticized however, that there was too much information, and not enough practical exercises. Some of the respondents commented that they were practically disposed themselves, and had troubles incorporating too much theoretical information. They also asked for greater relevance of the course material with their practical work. There were lots of external links in the course information. Some respondents were positive to this extended possibility of information, but others were confused and thought the structure of the course was negatively affected by all the links. All these aspects indicate that the course was not personalized enough, contributing to the integrating problems of the e-learning outcomes into the work processes.

Some of the departments organized the study of the course both as individual studies and group discussions at the work place. Individual studies without group discussions were most common at departments with very heavy workloads due to the implementation of e-services.

The group discussions were held at ordinary work meetings for those departments who organised discussions. The work group of the department was split into smaller groups who focussed on different discussion tasks. Then each group presented their discussions at the end of the meeting to the others. Such a meeting took a few hours roughly. The respondents who had participated in group discussions were very satisfied. The respondents who had not participated in group discussions thought discussions would have probably been desirable.

A member of the project group responsible for the implementation of e-Government took the initiative to organise follow-up group discussions based on the results from the interview study and the study circle. Every authority from all geographical locations in Västra Götaland who had participated in the study spent half a day discussing experiences from the implementation of e-Government hitherto, centred on the following themes; change of the work roles, changes of customer relationships, implementation work and competence needs. The authorer participated in these discussions. The discussions contributed to the competence development and cultural change for the departments.

The County Academy facilitated the production and distribution of the course, but the County Academy was only vaguely related to the activities of the Human Resources Department and this probably contributed to integration problems.

The evaluation study of the course “Was not thinking about it”

Background

The region Västra Götaland is governed by elected politicians and the region council has about 1.5 million inhabitants. Forty-nine municipalities are included in the region. The municipalities are responsible for preschool and school, social services and elderly care, and similar community services. Some activities are required to have by law. Other activities are optional and decided by local politicians. The municipalities are organized into 18 counties and two regions. The regions are counties with enhanced regional development responsibilities. The main tasks of the regional councils are to manage health care within the region, but they are also responsible for growth and development matters and oversee the development within these sectors. Västra Götaland Regional Council decided in 2005 to develop an e-learning course that would focus on the treatment of persons with disabilities and the interaction of disabled patients with healthcare professionals. The overall aim of the course was to improve the interpersonal behavior of the healthcare professionals towards disabled patients. The course was developed in cooperation between Västra Götaland Regional Council, the Department of Disability, and some consultants. A project group was responsible for defining the contents of the course. This group consisted of representatives from health services, regional offices, disability and inclusion services and representatives from disability organizations.

The course was offered to about 45.000 employees within the healthcare sector in Västra Götaland. The course was designed as an interactive e-learning course distributed on the intranet of the regional organisation. The overall aim of the course was to change the informal meeting behavior of the healthcare professionals towards disabled people. The blended learning approach of the design of the course, with the combination of individual and group discussions seemed to be a relevant structure for the education. Both formal knowledge about appropriate meeting behavior, and deeper reflection of the actual needs of changed behavior in discussions with colleagues, are needed in order to affect informal meeting behavior at the workplace.

The course information consisted of seven personal portraits of disabled patients and different encounters between healthcare professionals and disabled patients. The course also contained links to information for further improving the knowledge of the learners, different questions and tests. The individual studies of the course were estimated to take 1-2 hours. The work units organised the studies of the course in accordance with local needs.

Research methodology

Researchers from the University West were responsible for the evaluation of the course. A quantitative inquiry was distributed to a sample of the coordinators when most learners at each work unit were supposed to have passed the course. The inquiries from one of the healthcare districts including hospital care, primary care and dental care were used as the basis for analysis for a qualitative follow-up study by the author. The aim of the qualitative study was to understand integrating mechanisms of learning outcomes into work situations. The selected respondents were divided into two groups. Only four respondents (8,9 per cent), changed their meeting behaviour according to the results from the inquiries. These four respondents were selected as one respondent group of the qualitative study. Another respondent group consisted of five respondents from different occupations and fields of care who not had changed their meeting behaviour according to the results from the inquiry.

The interviews took about an hour and were recorded. The interviews were then transcribed before the content analysis was made. The use of the content analysis method was inspired by the methodology discussions by Kvale and Brinkmann (2009).

During the analysis work changes in the physical environment as consequences of the learning outcomes from the course were identified. In further analysis the respondents were classified according to the impact (high or low) of the total learning outcomes in work situations (including both changed meeting behaviour and changes of the physical environment).

The main results from the qualitative study

The learners who had not changed their meeting behavior explained that they already had a good meeting behavior towards the disabled. Instead a majority of the learners found the discussions about accessibility to the physical environment more relevant, and some changes to the physical environment were made as a result of the course. The contents of the course seemed not to be related enough to the local needs and problems for many of the learners, contributing to integration problems.

The course was organized in different ways at different workplaces. At some workplaces there were only individual studies of the course. However, at many workplaces there were individual studies in combination with group discussions in the work group. At some workplaces the group discussions were also followed-up by different activities such as initiating some changes at the work place. Group discussions with follow-up activities were arranged by work units with a high degree of impact of the course on the work. Self-studies with no follow-up activities were most usual at work units with a low degree of total impact. A lack of enough time for studies was mentioned by several coordinators as a reason for not having group discussions. Group discussions were prioritized by units with a high degree of impact, in spite of the fact that group discussions probably took up more time from daily work.

The contents of the course were seen as relevant for the work and to the pre-knowledge of the learners at work units with a high degree of total impact. On the contrary, the contents of the course were not seen as relevant by work units with a low degree of impact of the course in work situations.

A high degree of engagement by management and coordinators contributed to a high degree of total effects of the course, and a low degree of engagement contributed to a low degree of total impact. There was no particular organizational unit responsible for development and implementation of e-learning courses, and there was a lack of organizational support of the implementation contributing to great discrepancies among the different units.

Discussion

The pedagogical approaches of the courses

The pedagogical approaches of the courses seemed to be relevant, according to the evaluation studies. Although the traditional approach is the most common paradigm for e-learning courses hitherto (Nunes et al, 2009; Tynjälä, & Häkkinen, 2005), two of the studied courses had a blended learning approach where the studies were organized as both individual and group studies. Learners in all of the studies especially appreciated the group discussions. The study circle of e-Government was initiated by the author and the course “Was not thinking about it” was mainly developed by people with a background in social professions. The traditional pedagogical perspective is probably more established in the technical and natural sciences and professions compared with the social sciences and professions. Regardless of the pedagogical approaches, there were integration problems of the e-learning outcomes into the work processes in the studies. A relevant pedagogical approach was no guarantee of success.

Motivational aspects for the learners

Motivation is an important aspect of learning. According to the results from the studies certain aspects seemed to affect the motivation of the learners to a high degree. Motivation is a prerequisite for learning, but it is not the single aspect contributing to integration of e-learning outcomes.

Management engagement

Even if the learners see a course as relevant, they can have difficulties prioritizing the course if management is not positively engaged and legitimizes the studies. Time pressures in an ordinary workday highly affect the possibilities to study at work. The studies have to be confirmed and encouraged by management in order to be legitimized. Managerial engagement could be important both for the studies of the course and the integration of learning outcomes into the work process. In the course “Was not thinking

about it” a high degree of engagement by management and coordinators contributed to a high degree of total effects for the course, and a low degree of engagement contributed to a low degree of total impact. The lack of co-operation among the developing units of the courses and the internal Human Resources Department, probably contributed to lack of management support.

The relevance of the course contents for the work

If the learners do not find that the course contents are very relevant for their work, they are consequently not very motivated to study the course. During the first year the Diabas course was offered to the employees, and no one studied the course voluntarily. According to the study of their work situation before the course, most handling officers did not want to start to register their own matters, and therefore the course contents did not seem relevant for them. According to the results from the study of the course “Was not thinking about it” the contents of the course were not seen as relevant by work units with a low degree of impact of the course on the work.

Adjustment of the course contents to the pre-knowledge of the learners

The course contents were not adjusted to the pre-knowledge of the learners in the studied courses, and affected the motivation of the learners in a negative way, according to the results from all of the cases. In a large-scale course there seems to be a need to differentiate the course contents according to different pre-knowledge levels, e.g. learners that have no experience of the field, learners with some experience, and learners with much experience. The learners probably feel more motivated if the course takes into account their pre-knowledge, instead of treating all learners in the same way. Although there exists theoretical knowledge about the importance of relevant problem analysis before design and implementation of information systems as well as web-based courses, the studies show deficiencies of the adjustment of the courses to local needs. The fact that the courses are centrally developed, most often by IT professionals, contributes to difficulties to understand all different local needs of very big organizations.

Group discussions as integrating mechanisms

Group discussions could promote development-oriented learning and integrate the learning outcomes with the community of practice, especially group discussions with follow-up activities. There is a need for a critical mass of learners in order to have meaningful group discussions. The main reason mentioned by the respondents for not having group discussions in the courses was heavy workloads and time pressures. There is also a need for “making sense” of the course, from a perspective of the community of practice (Lave & Wenger, 1991), in the same way as the process of sense-making related to IT-adaption, according to Henfridsson (1999). Sense making probably contributes to motivation and a sense of meaning of the course for the learners and facilitates the process of adoption and adjustment of the learning outcomes with the local needs of the various work situations. According to a socio-cultural perspective learning at work mainly takes place within communities of practices (Lave & Wenger, 1991) and can also contribute to the integration of e-learning outcomes into work processes.

Problem analysis before the design of the course

A problem analysis and analysis of needed knowledge before the design of a course can contribute to a deeper understanding of the competence needs in the organization and can identify pre-knowledge needs and knowledge levels of the learners, in order to design the course in a more relevant way. A common mistake is to suggest a technical solution to a problem, even if the root problem is of a social character (Checkland, 1991). Even if we have theoretical knowledge about the importance of making problem analysis in development work, the results from our case studies show that the local educational needs were poorly analysed. In large organisations with many learners, it is a challenge to examine the knowledge needs of a course. There is a need for further methodological approaches that contribute to improve the investigation and integration of local needs into e-learning efforts.

The interview study of the current work situation before the Diabas course was launched seems to be important in order to understand the norms and culture of the registrars and handling officers dealing with the official registers. There was, however, no such analysis made by the systems developers as part of the development work. The pre-study contributed to a deeper understanding of the work culture and negative attitudes by the handling officers towards a change of the current work division. The result of the pre-study influenced the marketing and implementation strategies of the course.

If the developers of the course “Was not thinking about it” had analysed the needs of the course more thoroughly they could have identified knowledge needs of the healthcare professionals to better understand the design of the physical work environment that could be of importance for disabled patients. Such aspects could have been included more in the course contents and in the marketing of the course, affecting motivational aspects and learning outcomes from the course. In large organisations with many learners, it is of course a challenge to investigate the knowledge needs of a course.

Dilemmas of e-learning in large organizations

Advantages of e-learning at work are often described as having low distribution costs and the learners could take part in the courses regardless of time and place. However, there are also some problems of e-learning in large organizations that do not receive much attention in the literature, and this affects the integrating mechanisms of e-learning outcomes into the work processes. According to the socio-cultural perspective, learning is primarily a social process that takes place in the interaction with people. Illeris (2004) argues that learning takes place in a dynamic relation between the employees' learning processes, the communities at the workplace and the enterprise as a technical-organizational system.

E-learning courses in large organizations are most often centrally developed by professionals at a central IT department, and they typically do not have much of a pedagogical background. There are obviously problems of adapting centrally developed e-learning courses to local workplace learning needs and cultures in large organizations. It is a real challenge to design e-learning courses that are relevant for different local communities of practices within the organization. There is also a need for establishing an e-

learning culture and organization facilitating the integration of e-learning outcomes into work processes. An example of this could be managers taking a more active part in supporting the learning process.

There was not much co-operation among the developers of the courses and the Human Resources Department in the organizations studied, and this fact contributed to the problems of integrating learning outcomes into work processes. Although there exists research knowledge about the importance of management engagement and the relevance of the contents of courses for the local work situation, the organization of the implementation in the studied organization seemed to hamper the integration of learning outcomes.

More empirical studies are needed, in order to validate these results. There is also a need for finding examples of best practices and a need of more evaluation studies from a socio-cultural perspective, in order to improve our understanding of e-learning processes in large organizations.

Conclusion

Three different evaluation studies of in-house developed e-learning courses in large public organizations were analyzed and discussed from a socio-cultural perspective using the MOA-model as a frame of reference. Although the pedagogical approaches for all of the cases seemed to be relevant and most of the learners showed overall positive attitudes towards the courses, there were problems with integration of the e-learning outcomes into work processes.

There were deficiencies in the adaption of the course contents to the local educational needs. There was also a lack of adjusting the local work organization and work routines in order to facilitate the integration of the e-learning outcomes into the work processes in all of the studies. A lack of local management engagement affected the learners' motivation negatively, and a high degree of management engagement contributed to the learners' motivation in the studies. Group discussions in local work groups facilitated the integration of the e-learning outcomes.

Much of the difficulties of integration of e-learning outcomes into work processes in large organizations are related to the problems with adjusting centrally developed e-learning courses to local needs and with engaging local management. There is a need for increased co-operation among the developers (often IT-professionals) and the Human Resources Department of the organization, in order to integrate knowledge and support. A socio-cultural understanding of e-learning in large organizations could contribute to understanding integration problems and the challenges of e-learning outcomes into work processes. Our studies showed that group discussions were efficient, integrative mechanisms. According to a socially constructive perspective, learning is seen as a social process that takes place in the interaction with people. Lave and Wenger (1991) argue that learning at work usually takes place in "community of practices".

There is a need to further explore development and implementation methods of e-learning courses in big organizations, with a focus on integrating mechanisms of e-learning outcomes into work processes. There is also a need for more evaluation studies from a socio-cultural perspective, in order to improve our understanding of e-learning processes in large organizations.

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