E-Learning to Train Staff in Danish Hospitals – Three Genres of E-Learning

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Abstract. This paper presents a study of the use of e-learning in education and training of hospital staff in Denmark, in particular in relation with the implementation of electronic patient records (EPR). The study consists of a survey mapping the dissemination and main experience from using e-learning in Danish hospitals. The study shows a widespread use and a considerably agreement on the potentials of e-learning in education and training of hospital staff, but also problems and doubtfulness concerning the actual role of e-learning in the overall educational and organizational strategy for the hospital. The majority of hospitals use some sorts of computer-based training program to support the staff in acquiring necessary knowledge to operate the EPR. I argue that a more differentiated understanding is needed in order to realize the potentials and direct the use of e-learning in hospitals. Three genres of e-learning which differ in regards to qualification addressed are identified and I claim that a more explicit understanding of the differences between them is needed in order to guide the choice of e-learning of hospital staff.

Keywords. e-learning, hospital staff training, genres of e-learning, EPR

1. Introduction

E-learning, understood as the use of information and communication technology to support and enhance learning practices is, no doubt, a growing enterprise. E-learning industry is estimated to be worth over thirty-eight billion euros and during the fall 2007 over 3.9 million students were participating in on-line learning at institutions of higher education in the United States [1].

E-learning has a growing impact in workplaces. According to a report published by e-skills UK [2] we are approaching a point where learning technologies are stable, the workforce are IT literate, and the benefit of e-learning can finally be realized. The study, which is based on data from more than 200 organizations and included 1,000 individuals, maps the maturity of e-learning in six categories and shows that the included organizations differ widely in the extent to which they have embedded e-learning. Another maturity model from US [3] for workplace e-learning identifies four stages of e-learning and the main characteristics, challenges and benefits of each of them. A sign of maturity is that e-learning is embedded, reflected in business strategy, supported by management, and integrated with other communication and knowledge managements tools used in the organisation.

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Also in the health care area e-learning is expected to provide innovative approaches for educating health care workforce especially in the realm of nursing, primary care, and community health. While not at magic potion e-learning is seen as a valuable supplement in educating health care workers [4].

In hospitals setting use of e-learning to staff education and training has passed its infancy. In the current strategy for e-learning in Denmark the ambition is to develop a platform for leaning management systems to be used by all public employees, including hospital staff, that 5% of the competence building should be organized as pure e-learning whereas 22% should be blended learning of some sort [5].

E-learning is often characterized by delivery form (e.g., internet, CD-ROM, video), communication style (e.g., synchronous, asynchronous), and technology involved (e.g., virtual class rooms, conference system, collaborative systems, mobile learning). In this paper I will focus on the qualification addressed and use these to identify and characterize different genres of e-learning to inform the choice of e-learning.

2. Methods and Materials

The study of use of e-learning to clinical staff in Danish hospitals consisted of a survey aimed at mapping extend of use of e-learning. The study was carried out in spring 2006. The survey is based on interviews with people responsible for e-learning at the hospitals. All in all 35 persons were interviewed. The hospitals in Denmark are managed by the counties (thirteen counties plus the metropolitan area) and data for the survey was collected in a top-down manner, meaning that we contacted the ICT departments in the counties area health board, which in some cases had the information we needed and in other cases directed us to the counties central education centre, or to ICT department or the education centre in the hospitals and sometimes to people running project at a single ward. Interviewing, that in most cases was carried out by telephone, was based on a structured questionnaire asking what (kind of program, extent of use), how (is e-learning used at the hospital and experiences), and why (do they use or not use e-learning, opinions, plans and expectations).

3. Results

The survey revealed that e-learning, at the time the survey was carried out, was used in nine counties where five counties did not use e-learning. In seven of the counties where e-learning was used it was a regular part of the staff training and implemented by the central organization. In the remaining two counties e-learning was an isolated initiative rooted locally in a single ward. As for the counties that did not use e-learning at the time, four of them had experience with small e-learning projects before and all of them said they had plans for future deployment of e-learning in staff education and training.

3.1. Programs Offered

E-learning was applied to support learning in four different domains: ICT systems, clinical knowledge and skills, administrative and organizational knowledge and skills,

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2 The thirteen counties were changed to 5 regions in the beginning of 2007.
and general knowledge and skills. The majority of the hospitals involved in the survey had experience with use of e-learning in educating staff in use of electronic patient records. Thus six of the counties used e-learning for this purpose at the time of the survey, three had done it before and ten counties expected to use e-learning for this purpose in the future. Other areas within ICT, such as ICT security and use of Office, were also addressed by e-learning in a few counties. E-learning within the area of clinical knowledge and skills was also employed by a number of counties. The e-learning applications in this area covered a variety of knowledge domains e.g., procedures for resuscitation after heart failure, clinical coding, and the interpretation of CTG curves used to identify fetal distress, and measures for hand sanitary. Common to the e-learning programs for clinical purpose are that they are all developed at one hospital (Skejby hospital) and then sold to the others. A few examples of e-learning to support administrative and organizational work were in use in one county e.g., procedures for test ordering for nurses, a virtual network for nurses functioning as supervisors, and a virtual network for nurses interested in research. Finally one e-learning program aiming to support learning in more general domain of knowledge, that is fire and procedures for rescue, were found.

3.2. Target Group and Setting

More than half of the e-learning programs found in the survey had all clinical staff as target; two of the programs (hand sanitary and procedures for rescue at fire) had all employees as target. The remaining e-learning programs had a more specific group (nurses, physician etc.) of employees as target. In half of the cases e-learning was available for staff both at the hospital and at home, in the other half of the cases e-learning was only available at the hospital, the latter sometimes combined with the possibility of having a CD-ROM to work with at home.

The actual setting of e-learning, whether it was used as the only offer for support in a domain or it was combined with other kinds of educational initiatives, differs a lot. As for e-learning programs to support the use of EPR systems they were in all cases combined with other educational initiatives. Thus e-learning was in some cases used as an alternative to class room courses and the material used in the e-learning program and the class room is identical. In other cases e-learning was used to prepare staff before they participated in class room courses. And finally some of the involved hospitals used e-learning as a supplement to class room courses which were regarded as “real” educational offer. In use of e-learning to support learning in other areas of ICT, in the clinical domain, the administrative, organizational and general domain the tendency was that e-learning was the only learning support offered.

3.3. Potentials and Problems

The main reason given for use of e-learning was related to flexibility in time and place, limitations of cost, possibility for employees to go through the e-learning program in their own pace and time, extend the learning support offered, synchronization of education to large targets group making sure that everybody goes through the same material, the possibility to use e-learning to revive learning within a given domain, and the need to educate temporary employees. Main barriers mentioned in the survey were economical, organizational and pedagogical. Thus e-learning, especially in connection with EPR implementation, was considered as expensive and difficult as the EPR
systems often changed during the implementation the e-learning program had to change as well. Logistics concerning access to computers during working time is one example of organizational barriers on a practical level. But more important were problems in making time and space during working hours to do e-learning. At some hospitals e-learning was explicitly defined as a work task and time was allocated to do it, but in many cases the staff had to do it in breaks and spare time. Even in the cases where time was allocated the employees were often interrupted by “real” work tasks. Also mentioned often in the survey was lack of an overall strategy and management support. Additionally lack of knowledge of e-learning possibilities was mentioned as a barrier. As for pedagogical problems, again especially in relation to e-learning in EPR implementation, the programs were described as rigid and limited, offering no opportunity to experiment and explore. Lack of support was another issue often pointed at.

To summarize the findings all involved agreed on the overall potentials of e-learning in educating and training hospital staff. And almost all expected to use e-learning in the future. Main experience was in use of computer-based training programs to support the learning of EPR programs. These programs were considered expensive to develop and update, it was difficult to find the time to do e-learning and the programs were to some of the experienced staff too limited. The success of e-learning is, as also show in this study, dependent of management support, integration of e-learning in the overall educational strategy and the place and space for doing e-learning during work. But apart from this I will argue there is also a need for more attention on this kind of knowledge about systems intended to support learning.

4. Discussion

E-learning covers many different kinds of program. The vast majority of the programs used by participating hospitals were a kind of computer-based training programs consisting of lessons and exercises. The lessons are guiding the user through each frame of e.g., the EPR system explaining the possible activities such as registration of a patient or prescription of medicine. The exercises correspond to the lessons but with no guidance. Variations within this structure were found; in one e-learning program, used in one hospital, the lessons explained the basic principles behind the program using visual models and the exercises allowed for a more free examination of the functionalities of the system. E-learning was in a few cases integrated in e.g., the EPR system thus functioning more as a tool to be used during work. Examples of this incorporated both the option of going through a specific lesson re-reading and learning some activities and using the e-learning system as a kind of reference work. Finally the survey showed a few examples of e-learning as systems that support communication and knowledge exchange. These programs did not include a specific content but instead act as a frame for people to communicate and produce their own content.

Research in human computer interaction, e.g., in the domain of process plants, has shown the use of a variety of behaviour for control of action. Three typical levels of performance have been identified: Skill-, rule- and knowledge-based performance [6, 7]. Skill-based performance is based on a real-time, multivariable, and synchronous coordination of physical movements with a dynamic environment. Rule-based performance is based on stored rules and requires a conscious preparation of the work sequence beforehand. Knowledge-based performances are based on task evaluation and
choice of goal and imply analysis of means and planning. E-learning in computer-based training programs, the kind of e-learning used most in training of hospital staff, supports solely a rule-based learning and behaviour.

5. Conclusion

The different types of e-learning programs, e-learning as computer-based training, as tools in work situations, and as a platform for communication, address different types of knowledge and behaviour. Very few examples of the latter two categories were found in the survey; the vast majority was in the traditional computer-based training form. There seems to be a need for more e-learning as a tool to use in the work situation – available, just in time, when needed. In the same way there seems to be great potential for e-learning systems to support communication and knowledge exchange in and between different groups of hospital staffs.

References