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Learning of each other – online: On the division of labour between technology and supervisors

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Abstract

The article discuss challenges and solutions when an existing course programme, in which contributions from the group form an integral part, is to be converted into an online programme. The focus is on division of labour between technology and supervisors. The case is the Norwegian online version of Chronic Disease Self-Management Program from Stanford University. The interplay between humans and technology is discussed from a theoretical framework developed from the works of Latour and Nonaka. In special difference between human modelling and a technological systematic and rule-based approach is emphasised. By delegating parts of the role in classroom courses to the e-learning solution, it has been possible to create a solution where participants are learning from each other. This demands knowledge on the part of the supervisors so that they help to increase the effect of the technology and not work against it.

Keywords:

Patient education, Distance education, Educational technology, Man-machine systems, Lay knowledge.

Introduction

The volume of health related e-learning programmes is supposed to increase. Provided by public, voluntary and private sector. Many of those natural to offer online exist already as ordinary courses, which means that they must be transformed from classroom to online. This article discusses this transition, with an emphasis on how interaction between technology and human resources can facilitate good learning processes.

The case investigated is the Norwegian online version of Chronic Disease Self-Management Program from Stanford University [1]. This was transferred from classroom to online as a design-based research project [2, 3]. The transformation is discussed on the basis of learning theories and theories about the interaction between humans and technology.

As part of their final reflections, participants are asked to say what they felt to be most useful. It is quite obvious from these that participants have felt that they have been part of a group. Against this background we discuss challenges and solutions when an existing course programme, in which contributions from the group form an integral part, is to be converted into an online programme. The focus is on division of labour between technology and supervisors.

Background

In its traditional form Chronic Disease Self-Management Program is a 15-hour course spread over 6 weeks. The course intends to help participants manage their illness, carry out normal activities and tackle emotional challenges. The programme aims both to impart knowledge from a set syllabus and to enable the participants to share their experiences. The course has been translated to a number of languages, among others Spanish, Chinese, Australian English and Swedish. The course also forms the basis of The Expert Patient Programme that is offered by the Department of Health in Britain. The programme was translated into Norwegian in 2001.

Chronic Disease Self-Management Program is not linked to any specific diagnoses and is a supplement to normal treatment and education in managing specific illnesses, both for people with chronic illnesses or disabilities and their families. The course content and programme are set out in a detailed instructor handbook. The pedagogical foundation of the course is to be found in the work of Albert Bandura [4]. The programme has been developed and modified over a period of time through close cooperation between health professionals and users.

Among others the course has been tested on persons with heart and lung diseases, strokes and rheumatoid arthritis (e.g. [5, 6]. The results showed a significant increase in among other things training, mastering symptoms, improved communication with health professionals, own experienced health situation and exhaustion. It was registered that the participants also had fewer social inhibitions and a reduced use of health services. In the American health system the programme gives a cost/effect score of 1:10.

Method

The course was transformed from classroom to online within the framework of design-based research. Brown [2] and Collins [3] are regarded as portal figures for this type of research, but several directions exist, such as e.g. formative research [7], design research [8] and theory-based design [9, 10]. It is theory-based design that will be adopted in this project.

In design-based research the key feature is that the research aims and the developmental aims are closely interwoven [11]. In this project the aim is of developing a good learning environment coincides with the aim of developing an understanding of the connection between technological and human organisation for learning. Moreover, in design-based research it is essential that the development take place in iterative development processes. Here this has been solved through so-called extreme programming [12].

What is special about theory-based design [9, 10] is that it is based on the assumption that all learning environments consist of five elements that stand in a dialectic relationship to each other. These are: 1) psychology that forms how one understands learning and thinking, 2) pedagogy that dictates how to organise learning environments, 3) culture that reflect values appriciated, 4) technology which support, govern or make for a richer learning environment, and 5) pragmatism with regard to the availability of resources.

Thus the precondition for enacting a successful transformation from classroom to online is knowledge about the course and combined with knowledge about e-learning. With the aid of this knowledge the course is built up pragmatically within the framework provided by the culture and the technology in accordance with the fundamental psychological and pedagogical principles.

Norwegian Net School has developed PedIT, an online e-learning platform well suited to the course. In May and June 2004 the course was run as a pilot using this e-learning solution. The pilot had 18 participants and four supervisors, all of whom were experienced instructors from classroom courses. The pilot led to minor alterations in the online solution, which in accordance with extreme programming were implemented during the test period. Even so, the most important outcome was the experiences gained by the supervisors in how to organise this type of activity.

In the autumn of 2004 a trial programme was run, consisting of 2 courses with a total of 78 participants in 8 separate groups. The material presented here originates from this trial. The material contains 3200 utterances. 75% of these are related to action plans.

A similar model was tested in 2008 with 48 participants. From 2009 the project is part of the regular portfolio of the Norwegian Study Organization for Disabled.

Theory

In our discussion of e-learning as technology we shall make use of theories that in the main have been developed by the French sociologist Bruno Latour. An important point in his work is that both humans and technology are actors with agency [13]. Latour's colleague Madeleine Akrich [14] compares this agency with that of a film manuscript that defines the framework of the actors' actions.

In the remainder of the text we will discuss the interaction between the e-learning tool and the supervisors. In this discussion we shall make use of the terms delegation, programme and anti-programme. Delegation involves leaving control of action to others, programme is what one is steering towards, and anti-programme refers to others' actions with the aim of neutralising control. Since it is Latour's work that is a basis for our discussion, these 'others' may be both human and non-human actors.

In one article Latour [15] discusses strategies used by hotels in order to keep possession of their keys. Three of these are: 1) the staff remind the guests to hand in their keys before they leave the building, 2) display notices that politely request the guests to hand over their keys, and 3) attach heavy key-rings to the keys. All of these are delegation, but whereas the first two involve describing a desired action, the third action is inscribed in the key.

Reminding the guests to hand in their keys convinces one group of guests, putting up a sign a larger group, and attaching heavy weights to the keys an even larger group. It is easy to imagine that hotel guests are very keen to take their keys with them, which mean that they remove the key from the key-ring. In that case this is an anti-programme to the hotel's programme. If the hotel chooses to weld or nail the key-ring to the key to avoid this happening, this would be a case of an anti-anti-programme.

Where the balance between programme, anti-programme and anti-anti-programme goes is a matter of opinion, especially when one delegates things to technology, since technology does make judgements. In what follows, we shall discuss how technology can and must take over part of the supervisor's tasks on an online course, and what responsibilities are best left to the supervisor. But first we ought to look at learning.

Learning

The aim of an educational programme is learning, but this is a difficult concept to define, which explains why so many pedagogical theories and approaches exist. Here we shall make use of an approach developed by Nonaka et al (e.g. [16, 17]). This approach focuses on how the surroundings must facilitate four types of transformation of knowledge if learning is to be effective:

Socialization: this involves experiencing things together. Here individual tacit knowledge is shared, and becomes common tacit knowledge. In this process, shared experience and empathy are important.

Externalization: This is the process by which tacit knowledge becomes explicit knowledge. In this process a key feature is to articulate the joint tacit knowledge from the socialising process.

Combination: In this process, 'old' and 'new' knowledge is combined to form more complex knowledge structures. In this process reflection is essential in order to achieve this combination of new and 'old' knowledge.

Internalization: This is the process during which what one thinks in the combination phase becomes practice, and thus where explicit knowledge forms the basis for tacit knowledge by its becoming part of our behaviour.

Nonaka combines these transformations into what he calls an SECI model. In what follows we shall discuss in more detail how technology can be designed to support these processes.

In the model below (Figure 1) we see in the dark part of the diagram what can be included in the course, and in the lighter part what must be done by the participants as part of their daily lives / routine. In other words, the content of the lighter part must be delegated to the participants in the form of 'homework', while the content of the dark part can be delegated to the course.

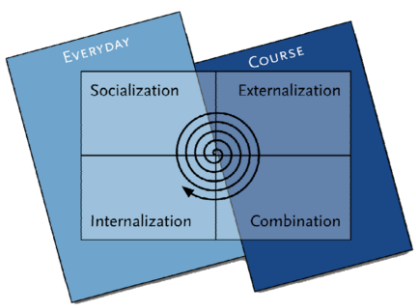

Figure 1- Didactic model based upon Nonaka [16]

Furthermore, we shall look more closely at the interplay between humans and technology in four areas of the online Chronic Disease Self-Management Program.

Group pages

When one meets in a room, one shares time and place. This is not the case when one meets online. At the same time all the participants comment on the fact that they have felt that they belong to a group. Essential to this experience are the group pages, which are the first thing the participants meet when they log in.

In addition to presenting the group, the group pages also serve as an entrance to action plans, course sections, forum and the large group. The fact that the group pages act as an entry page is an important signal that the group is a key component.

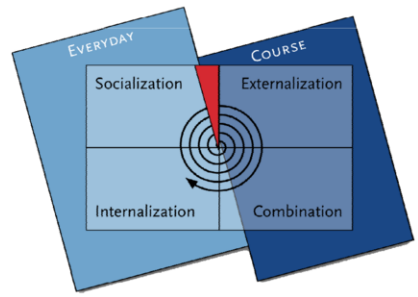

Figure 2- Socialization

In the programme, training in presenting yourself as a person with a problem is a key element, since it is represents an important opportunity to involve the course members more actively. Facilitating socialization (Figure 2) is therefore important. Parts of this function are delegated to the technology, and are thus independent of whether or not participants has logged in. In this context, weeding out those have signed up for the course but not joined has an important contribution to make. This has been delegated to the technology. The supervisors present themselves and thereby provide a model for the participants as to how they should do the same.

Course items

On traditional courses there are short lectures delivered by the instructors from a detailed manuscript. In the online version these are known as course items and take the form of texts that are to be read. On the traditional courses the short lectures are followed up by questions and group exercises. These have two different forms: brainstorming and problem-solving.

In brainstorming the question is defined by the course, and the participants offer their thoughts in relation to this. In the problem-solving the participants contribute by mentioning what they personally experience as difficult, and the other course members are challenged to help them find workable solutions. Both the brainstorming and problem-solving activities serve to incorporate the experiences of and suggestions from the participants in the course items. In this process, the supervisors are also important contributors, but most of all as equals as well as role models who demonstrate how one is expected to 'behave'.

In the SECI model [16], brainstorming and problem-solving activities are placed in the transition between dialogue and systemizing, while the course items are to be found under systemizing, where syllabus meets existing knowledge (Figure 3). The result of this meeting must be put into practice in one's daily life for it to become active.

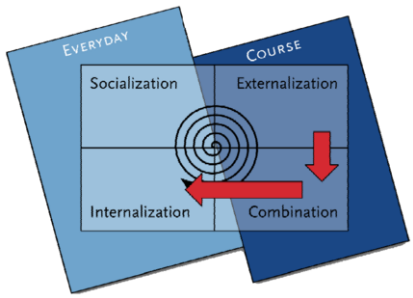

Figure 3- Brainstorming and problem solving

Action plans

An action plan can be described as a New Year's resolution meant for a week. An action plan starts with a set of targets such as, e.g. that you plan to walk a kilometre three times a week. You tell the group that you intend to do this, and when you come back a week later, you tell them about your experiences.

Moreover, the comments show that the action plans represent an important link between course and everyday life. The background for the high level of activity and positive comments with regard to the action plan is that it facilitates activity on all the four contexts indicated by Nonaka [16] (Figure 4). This is incorporated in the technology in a way which puts a focus on the group.

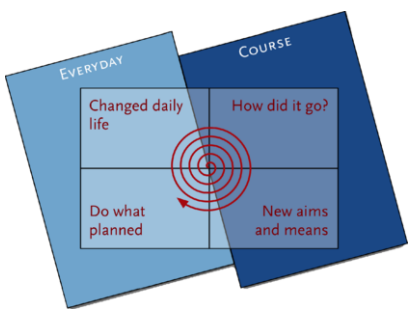

Figure 4- Action plans

Sharing the action plans in written form both emphasizes the obligatory nature of the task and offers the chance of a shared group experience. Here the technology makes a contribution in a number of ways. If the participant has written his or her action plan or their own evaluation without having received any feedback, the text 'I need comments' appears automatically on the group page. When you click on this sentence, you will be directed to the person's action plan. Moreover, 'I am proud of myself' appears if the participant checks this choice when he or she writes their own evaluation.

'I am proud of myself' and 'I need comments' are programmed into the software to focus attention on the participants' processes. This compensates for the reduced human presence in the case of e-learning, and replaces something of what is lost by the absence of body language and oral communication. Delegating this function to automatic programming and technology also has a normalizing effect.

Forum

The idea behind the forum is to provide a place where everyday experiences can be freely exchanged. In the forum it is possible to communicate in the same way as one would normally do during the breaks between classes on ordinary classroom courses. In other words, the discussion forum is an unstructured part of the dialogue and systemizing in the SECI model [16] (Figure 5), and creates a place for everything that does not fit in naturally elsewhere.

The discussion forum has little or no structure or control, with the exception of a desire to offer support to good discussions and put a stop to or give a twist to those that might seem unfortunate.

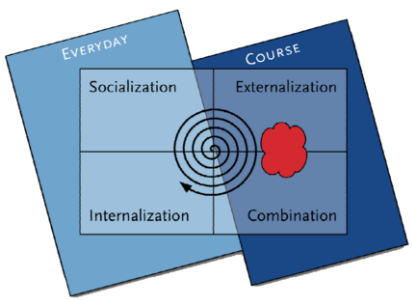

Figure 5- Forum

Supervisors can post messages from the forum onto the group page. Even though the course leaders themselves decide what is to be posted on the front page, the incorporating of the messages into the group pages has been delegated to the technology.

Discussion

In developing the online version the choice was made to emphasize those areas in which the Internet can provide added quality, while feeling free to tone down those parts where classroom sessions offer their special qualities. One example is supervisor-guided dialogues whose strength lies in immediate responses, body language and the opportunity for explanatory follow-up questions. Tools and methods more appropriate to online communication have replaced some of these dialogues.

Using the four main features group, action plan, course items and forum, it has been possible to create a number of arenas for interaction between individual understanding and social

practice, and to locate these in various parts of Nonaka's SECI model [16] (Figure 6). This contributes to what has been experienced to be a successful project. In the diagram below the four features have been put together to form one single model.

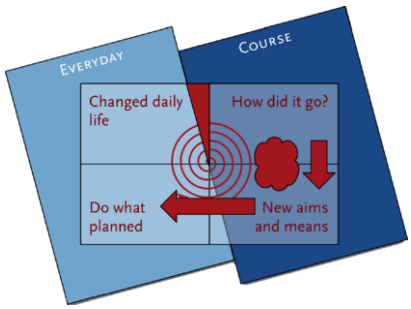

Figure 6-Single model combining the four features

Being able to claim that the development of the programme has been successful is due to a large extent to the high degree of correspondence between the course in the classroom version and the technology that has been applied. Chronic Disease Self-Management Program is by nature rigid and based on a cognitive understanding of knowledge and learning.

By delegating parts of the role of the supervisor in various ways to the e-learning solution, it has been possible to make sure that the participants feel that they are both seen and respected by other participants, at the same time as they are learning from each other. Moreover, this demands knowledge on the part of the supervisors so that they help to increase the effect of the technology and not work against it. Only then will the technology become an integrated part of a well-functioning course team.

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