

KNOWLEDGE CONSTRUCTION IN AN E-DISCUSSION

Marie Mörndal¹ & Péter Révay²

¹M Sc

²Ph D, Professor in Information Systems

^{1,2}*Mälardalen University, School of Business
P O Box 883, S-721 23 Västerås, Sweden*

ABSTRACT

The study is an attempt to describe and discuss knowledge construction on distance and the usage of a web based Learning Management System. The students in the study had no previous experience of academic studies and their attitudes towards their own learning process showed lack of confidence in their capability to contribute to knowledge construction in a student group. In spite of this, the study points towards the possibility for students to support each other in knowledge construction on distance. The study furthermore indicates the necessity of the teacher's intervention in the discussion and that a Learning Management System can be a relevant tool for developing learning and constructing knowledge on distance.

Keywords: Collaboration, Distance Education, E-discussion, Learning Management System, Learning Process

INTRODUCTION

The dialogue has always been a way to learn and share experiences and knowledge. Almost every university today have implemented distance education through the Internet [1]. These two statements seem to be disparate but even though distance education means learning on distance there is a way to handle the important dialogue. With a Learning Management System (LMS) it is possible to manage the dialogue between students as well as between students and teachers. There are several LMS:s used today as "virtual classrooms" or web based tools for communication and learning in distance education. They provide tools for course production, course administration and communication. One essential tool for communication is a discussion forum which can be used for group discussions. This tool is especially important for collaboration issues [2].

In a discussion forum the students and teachers can meet virtually and discuss issues concerning their studies. An increased use of discussion forums has been noticed in higher education [3]. Social interaction, for example discussions, has a great impact on the learning process [4, 5, 6] and it is important to study how to use a LMS adequately from an educational point of view. In order to do that it is necessary to understand how knowledge is constructed and how learning processes can be handled.

In this paper a study of the learning process and knowledge construction by the usage of a LMS in a distance course is described and discussed. Focus is on two issues:

1. Is it possible for students without any previous experience from academic studies to support each other in knowledge construction on distance?
2. Is a Learning Management System a relevant tool in this context?

THE LEARNING PROCESS

The classic idea of a dialogue goes back to Platon who emphasized that the purpose of a dialogue is searching for the truth [7]. According to Bakhtin knowledge can not be transferred from one person to another. Knowledge is constructed in a dialogue between the person talking or writing and the person listening or reading [8].

If we accept learning as a social process, communication and collaboration are essential for learning situations [1, 9, 10, 11]. The socio cultural perspective on learning is mainly based on Dewey's and Vygotskij's theories [10]. They argued that collaboration is an important part in the knowledge construction process in association with the physical and social context. The collaboration and participation in discussions provide ideas, concepts and theories which the student adopts and uses to make sense of the world and to develop an identity [1, 10, 11].

According to Soong et al [1] one of the critical factors that needs to be considered when using a LMS is *the mindset about learning*. This factor deals with what tutors and students perceive learning to be (construction or absorption) and has a great impact on how they act in teaching and learning situations. Dysthe [8] has established some fundamentals for a well functioning discussion on distance. One important example is *the creation of need for communication through intellectual challenges*. Dewey stressed the fact that interest is vital in the learning process. Dysthe [8] also argues that *the design of the task* is important to stimulate the students to feel the need for communication and to create interest for the participants' different views. Furthermore Dysthe [8] has found *the teacher's role in discussions on distance to be dependent on the context*. The need for intervention of the teacher varies for different student groups.

THE DISTANCE COURSE

The course in question was a web based distance course titled *Introduction to Academic Studies*. Eleven students began the course but two dropped out a few days after the course start. None of the students had any previous experience of university studies, but some of them had studied on distance on a lower educational level. The course was part of a one year college program for students interested in university studies but not fully qualified for studies on an academic level. The objective of the course was to encourage and prepare the students for future academic studies. The course was interdisciplinary and aimed to introduce and provide basic knowledge about scientific and critical thinking. A LMS called WebCT was used in the course.

THE LEARNING MANAGEMENT SYSTEM – WEBCT

The definition of a Learning Management System (LMS) used in this paper is defined by Paulsen [12:30] as a “*broad term that is used for a wide range of systems that organize and provide access to online learning services for students, teachers, and administrators. These services usually include access control, provision of learning content, communication tools, and administration of user groups.*”

The LMS used in the course was WebCT (Web Course Tool). In the course *Introduction to Academic Studies* the main communication tool was a forum for discussions. The forum was used by all teachers and students through the whole course. None of the participants indicated any difficulties using the discussion forum. The students were obliged to take an active part in the different discussions and their participation was part of the course examination.

The discussions were used in an asynchronous mode. The participants were independent of time as a contrast to synchronous communication like chats which take place in real time. In order to avoid confusion among the students threaded discussions were used in WebCT. Threaded discussions are asynchronous online discussion environments where conversations can occur between two or more people. The threads allow the reader to follow the various contributions to a discussion and respond to specific messages. In this paper the term *e-discussion* is used to describe one thread in a discussion.

THE STUDY

The study was carried out by interviews with participating teachers and students and observations of the e-discussions on WebCT. An initial questionnaire aimed to explore the students' attitudes towards their own learning process indicated that the students did not expect much support from each other. The interviews also showed lack of the students' confidence in their own capability to contribute to knowledge construction in a group of students. The e-discussion described and discussed in this paper is selected among 19 e-discussions during the first two weeks as a characteristic e-discussion of the course. It contains a mixture of social “small talk” and task related issues. The study of the knowledge construction in the student group is analyzed by examining the content of each message searching for knowledge construction i.e. progression of the e-discussion based on knowledge creating. The e-discussion was carried out in Swedish and translated to English for the purpose of this paper.

THE E-DISCUSSION

The e-discussion with the subject “*Why science?*” took place between the 15th and the 16th of November 2005. The participants were nine students and one teacher. As one of the first tasks at the beginning of the course the students were supposed to read the first two chapters in the textbook and thereafter discuss and reflect upon the research process and why it is important for a researcher to motivate his or her standpoint. While discussing these issues they had to refer to the textbook.

Exploring the e-discussion

Table 1 below shows the e-discussion with the messages in order. Table 2 shows the order of the messages sent by the students and teacher and the students' activity in the e-discussion.

Table 1

An overview of the e-discussion M= numbered messages, S/T= students and teacher

M	S/T	The messages
1	D	reveals her doubts about her participation in a university course and question the importance of researching in general
2	T	encourages the group to reflect and contribute with their thoughts on the questions of the task
3	C	contributes with encouraging student D to continue with her studies and stresses the importance to help each other
4	E	agrees to message 3
<i>This far they have not constructed any explicit meaning or knowledge associated with the task.</i>		
5	A	responds to message 1 and the question if everything must be researched. She discusses the importance of having answers to phenomenon we do not know about today
6	E	agrees to message 5
7	D	disagrees and questions research on animals
8	E	comments on the previous message
9	C	responds on message 7 and agrees with her
<i>M 10 – 14 The discussion continues with these kinds of messages</i>		
15	F	refers to the book and puts a question about hypothesis
16	T	explains the previous question about hypothesis
17 18	E, F	call attention to the fact that they are beginning to understand the difficult parts in the textbook
19	T	points out that she had noticed an ongoing learning process among the e-discussion participants
20	E	replies by expressing a positive feeling of being in a learning process

Table 2

Messages numbered in chronological order

Students/Teacher	Messages							
A	5							
B								
C	3	9	11	13				
D	1	7						
E	4	6	8	10	12	14	18	20
F	15	17						
G								
H								
I								
Teacher	2	16	19					

DISCUSSION

As will be seen from the table 2 above student E was the most active and replied on almost every second message. Four of the students did not make any contributions at all to the e-discussion. Unfortunately there is no information about their activity during these two days of silence.

One of the students, student D who started the discussion, expressed her negative view on her own capability to university studies and also on the task. Dewey stressed the fact that the interest is important for the learning process. This is very obvious in this case; the student shows a lack of interest. The other students' supportive approach does not seem to change her attitude.

The students were not used to read and discuss academic issues. The e-discussion *Why science?* ended up in a lot of "small talk". Four of the nine students were silent and did not contribute to the group's construction of knowledge. Due to the findings of Soong et al the students' mindset about learning is a critical factor worth considering when using a LMS. The initial questionnaire and the interviews indicated the students' attitudes towards knowledge construction and learning processes. They expressed their scepticism about their own capability to contribute to knowledge construction in a group of students. Dysthe argues that the design of the task is important for stimulating the students to feel the need of communication. The reasons for the students' silence and "small talk" could have been several; for instance an effect of the students' mindset about learning, a too complex task to handle or lack of interest. This is an obstacle worth taking into consideration when designing tasks for an e-discussion.

The analysis of the e-discussion shows that it is possible for inexperienced students to contribute to each other's learning construction, but it is not an apparent outcome. The fact that the teacher was present and encouraged the students to continue discussing seems to have been of great importance here. It is clear from the analysis that she brought them back to the original question when they were discussing irrelevant issues. She also helped them notice their own learning process in the end of the discussion. This corresponds to Dysthe's findings about the teacher's role in e-discussions being dependent on the context.

TO CONCLUDE

The conclusion is that students without any previous experience of university studies are able to support each other in knowledge construction on distance. The LMS with its threaded discussion forum has proven to be a relevant tool for developing learning and constructing knowledge, but it does not exclude the teacher's contribution. It is clarified that the student group of this study was in need of the teacher's intervention. A possible assumption could be that the less study experienced students the more intervention from a teacher is needed.

It has not been possible to evaluate the silent students' development in their learning process in this study. An extensive investigation based on interviews is therefore needed before any conclusions regarding the issue about the silent students and their knowledge construction can be drawn.

REFERENCES

- [1] SOONG, M. H. B., CHAN, H. C., CHUA, B. C., LOH, K. F.: **Critical success factors for on-line course resources.** - Computers & Education 36, 2001. p. 101-120.
- [2] VOLERY, T., & LORD, D.: **Critical success factors in on-line education.** - The International Journal of Educational Management, 14(5), 2000. p. 216-223.
- [3] MEYER, K.: **Evaluating online discussions: four different frames of analysis.** - Journal of Asynchronous Learning Networks, 8(2), 2004. p. 101-114.
- [4] BARRON, B.: **Achieving Coordination in Collaborative Problem-Solving Groups.** - The Journal of the Learning Sciences, 9(4), 2000. p. 403-436.
- [5] SCHELLENS, T., & VALCKE, M.: **Collaborative learning in asynchronous discussion groups: What about the impact on cognitive processing?** - Computers in Human Behavior, 21, 2005. p. 957-975.
- [6] CLARK, J.: **Stimulating collaboration and discussion in online learning environments.** - Internet and Higher Education, 4, 2001. p. 119-124.
- [7] DYSTHE, O.: **Om sambandet mellan dialog, samspel och lärande.** In Dysthe (Ed.) Dialog, samspel och lärande. - Sweden, Lund: Studentlitteratur, 2003. p. 7-27.
- [8] DYSTHE, O.: **Dialogperspektiv på elektroniska diskussioner.** In Dysthe (Ed.) Dialog, samspel och lärande. - Sweden, Lund: Studentlitteratur, 2003. p. 295-320.
- [9] MÖRNDAL, M., & RÉVAY, P.: **Distance education – social interaction in a learning environment.** MicroCAD 2005. - Hungary, Miskolc, 10-11 March 2005.
- [10] FÅHRAEUS, E.: **A triple helix of learning processes.** - Sweden, Edsbruk, Akademitryck AB, 2003.
- [11] SÄLJÖ, R.: **Lärande i praktiken – ett sociokulturellt perspektiv.** - Sweden, Stockholm, Prisma, 2000.
- [12] PAULSEN, F.P.: **Online Education and Learning Management Systems.** - Norge: NKI Forlaget, 2003.