LEARNING TEXT TALK ONLINE

Collaborative learning in asynchronous text based discussion forums

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Abstract

The desire to translate constructivist and sociocultural approaches to learning in specific learning activities is evident in most forms of training at current, not least in online education. Teachers worldwide struggle with questions of how to create conditions in this fairly new realm of education so students can contribute to the quality of each other's learning. Collaboration in forms of text talk in asynchronous, text based forums (ADF) is often used to make participation possible at the location and time that suits the students best given other aspects of their life situation. But previous research indicate that collaboration in forms of text talk not always evolve in expected quality, and that participation sometimes can be so low that no discussions at all take place. Maybe it is time to move on and make use of the variety of user-friendly audio-visible technologies that offers conditions for collaboration similar to those in the physical environment instead? Is there any point to use ADF for collaboration, beyond the flexible opportunity for participation it allows? If so, why, how and under what conditions is it worthwhile to use ADF for tasks meant to be worked collaboratively on? This was the starting point of the studies in this compilation thesis which consist of a thesis for the Licentiate degree, three articles, an unpublished study and the “kappa” that serves the purpose to provide the frame for the overall results. The research was conducted in forms of two case studies involving different techniques and data samples, as the aim was to understand collaborative text talk in-dept. The research approach differs from the vast majority of studies in the research field of Computer Supported Collaborative Learning (CSCL) where many studies before are conducted by analysis of quantifiable data. The first study was performed in the context of non-formal learning in Swedish Liberal Adult Education online, and the second in the context of higher education online in Sweden. Both studies were performed on basis of socio-cultural theory. Empirical data was collected from questionnaires, interviews and texts created by students when participating in tasks that they jointly resolved through text talk. Some results were brought back to the students for further explanation of the results. Findings from data analysis were triangulated with other results and with sociocultural theory. The results indicate that students can create knowledge relevant to their studies through text talk, but may feel restrained or dismiss the activity as irrelevant if important conditions are lacking. Collaboration through text talk makes individual resources accessible in a specific place where it can be observed, and its validity for the purpose of the task evaluated by others. Students with good insight in the ideas behind what they are meant to accomplish seem able to consult relevant guidance for this evaluation, from teachers, textbooks, scientific articles and valid experiences important to their studies. This can contribute to learning of the intended quality. Text talk increases teachers' possibilities to identify what type of guidance the study group needs when evaluating the gathered resources and can, through their own active participation, provide support in the students “zone of proximal development”. Contributions offered to the CSCL research field is the identifications of important issues related to learning collaboratively through text talk, and the use of case study methodology as inspiration for others to try also these kinds of strategies to capture online learning.

Keywords: Online learning, CSCL, online assessment, collaborative learning, peer assessment, peer review, Swedish folkbildning, Swedish liberal adult education online, higher education online, socio-cultural theory, asynchronous discussion forums, ADF, evaluation.
Sammanfattning
Utgångspunkten för denna avhandling är intresset för de senare årens närmast explosionsartade utveckling av nätdelvisning inom snart sagt alla utbildningsområden i en tid sociokonstruktivistiska och sociokulturella teorier synsätt på kunskap, lärande och undervisning blir allt vanligare. Synsättet innebär att kunskap och lärande sker när människor konstruerar och distribuerar kunskap genom deltagande i historiska, kulturella och sociala processer. Detta innebär att kunskap inte är något som överförs mellan en individ till en annan som ska lära sig något. Istället är den som lär medskapar i processer som formar såväl kunskapen som den som lär sig något. Detta synsätt på kunskap och lärande är vanligt i mycket av den forskning som berör undervisning på nätet.

Aktiviteter som stimulerar till samarbetslärande är ett viktigt inslag i undervisning som bygger på dessa synsätt. I nätdelvisning erbjuds studenterna ofta samarbete i form av asynkrona textsamtal i nätkonferenser (ADF) för att deltagarna skall kunna medverka när övriga livsåtaganden medger detta. Men går det verkligen att samarbeta när detta ska ske asynkron och i textform på nätet? Går det att skapa förutsättningar för ett djupt och meningsfullt samarbetslärande i med dessa medel, och i så fall - finns hur kan lära stödja att detta samarbeta blir av?

Detta var några av de frågeställningar som var utgångspunkten för denna sammanläggning avhandlingen som bygger på två fallstudier. Resultaten av dessa fallstudier redovisas i avhandlingen i form av en Licentiatuppsats, tre publicerade artiklar, en opublicerad studie och en kappa som bildar en ram för resultaten av studierna i sin helhet. Enkätdata, intervjuedata och de texter studenterna skrev i sina ADF samlades in och bearbetades med såväl kvantitativa och kvalitativa ansatser. Resultaten triangulerades med varandra, tidigare forskning och sociokulturell teori. Några resultat återfördes även till studenterna för hjälp med att förklara de mönster som visade sig.

Huvudresultatet tyder på att studenter kan och vill samarbeta genom asynkrona text samtal på nätet om vissa viktiga villkor är uppfyllda. Till sådana förutsättningar hör att sociala band utvecklas i gruppen, men också att de som ska delta i samarbetslärande i form av textsamtal har invigts i de synsätt på kunskap och lärande som finns i den verksamhet där de bedriver sina studier. Detta kan bidra till förståelsen för vad samarbete i text går ut på och på vilket sätt detta har betydelse för deras lärande. Studenter som inte vet vad som förväntas eller förstår på vilket sätt deras samarbete i text kan vara lärorikt kan lätt bli omotiverade att delta. Även den som tycker att det är svårt att uttrycka sig i ord kan ha svårt att delta i samarbete som sker i form av skrivsamtal. Motivationen kan dock öka när studenterna förstår vad de ska göra, hur det ska göra detta och varför inklusive vilka kvaliter som eftersträvas i just detta
sammanhang. Under sådana förutsättningar tycks bidragen till samarbetslärandet vara av god kvalitet eftersom studenter som vet vad de ska uppnå tycks söka relevant vägledning för ändamålet, till exempel genom att läsa kursböcker, tolka tidigare erfarenheter under utbildningen, konsultera läraren med mera.

När studenterna i det textbaserade samarbetet synliggörs vad var och en av gruppmedlemmarna bär med sig för att bidra till att lösa uppgiften uppstår möjlighet att observera de grunder bidraget vilar på och därmed en chans att avgöra vilket värde bidraget har i just det här sammanhanget. På så sätt kan textsamtal bidra till ett kritiskt och reflektivt tänkande som stödjer att kvalitén på den kunskap som genereras och distribueras via samtalen motsvarar förväntade studieresultat. I studien dras dock slutsatsen att lärare måste vara aktiva i textsamtalen. Detta kan vara särskilt viktigt i kursens tidiga skede, för vägleda studenterna så att de får tillräcklig förståelse för vad uppgiften går ut på, vilket kan säkerställa att bidragen som gruppens lärande bygger på är lämpliga i sammanhanget. Uppgifter som stödjer att gruppen får större kännsnedom om vad kunskap och lärande i just det här sammanhanget innebär tycks förstå vad de kan bidra med för att samarbetslärandet skall bli av den kvalité som eftersträvas.

Aktiva lärare kan få goda möjligheter till inblick i var studenterna behöver mer ledtrådar för att kunna rikta sina studier mot förväntade studieresultat. Eftersom studenternas förståelse gestaltas i text kan bidragen till textsamtalen avslöja när och vilka typer av stöd och vägledning studenterna kan behöva för att deras studieanspråkningar skall baseras på det som är avsett att bidra till den förväntade studiekvalitén.

Avhandlingens bidrag till kunskap inom forskningsfältet Computer Supported Collaborative Learning (CSCL) är bland annat användningen av fallstudiemetodologin och den blandning av undersökningsstrategier detta medgav, då mycket av forskningen som för närvarande bedrivs inom fältet bygger på kvantifierbar data. Granskningen av relationen mellan uppgiftens natur, den vägledning studenterna återopade för sitt samarbete och kvalitén på den kunskap som skapades och distribueras är också ett viktigt bidrag. Studierna bidrog därmed till konkreta förslag på hur lärare kan iscensätta och vägleda samarbetslärande av god kvalitet i form av textsamtal på nätet.
FÖRORD

Ibland undrar jag hur det skulle vara om jag vaknade på morgonen och tänkte på att jag ingår i ett grupparbete som pågår genom tid och rum och med människor på alla kontinenter. Tänk att jag dricker mitt morgonkaffe tack vare de där första människorna som kom på sätt att dela med sig av sina erfarenheter och synsätt på livet, och de strategier de brukade använda för att lösa problemen i sin tillvaro… Kanske skulle jag uppskatta den vägledning den sura gubben gav. Han som tutade på mig när jag nästan körde mot rött. Jag borde faktiskt tala honom för att han så handfast påminde mig om att inte göra sådant som kan skada andra. Kanske skulle tacket bli till en slags vägledning för honom också. Till exempel i frågor om det faktiskt är okay att lägga sig i när någon håller på att göra något dumt eller ej? För det är ju faktiskt av ren omtanke och inte alls menat som något plomt.


Så här står vi nu med just den här produkten av vårt grupparbete som jag fått äran att förvara. Jag hoppas att den kan bli ett redskap årminstone för några av er så jag får ge lite tillbaka av all den vägledning jag fått. Jag borde tala alla som bistått i dess
produktion - men eftersom vi är så många deltagare kan jag inte räkna upp oss alla på dessa begränsade sidor. De flesta av oss är ju också sådana jag inte ens känner eller vet om att ni en gång funnits. Så vi får väl nöja oss med de av er som allra intensivast engagerat er i den vägledning jag behövt!

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I. INTRODUCTION

The interest and scope of this thesis is related to the massive growth of online education in a time when the role of education and previous leading ideas about knowledge and learning are challenged (Lapdat, 2002). Reynolds, Schallert, and Alexander (2009) identified a turn toward a dominance of constructivist, socio-constructivist, and sociocultural approaches and methodologies in many areas of psychological and educational research. Central within these theories are the ideas that knowledge and learning are historically and socially situated in human practices, and that learning is an active process of constructing rather than acquiring knowledge. Accordingly, education based on these outlooks often includes tasks to be worked on collaboratively.

It is easy to picture educational situations in a traditional physical environment with a group of students working together on a task, constantly challenging each other’s thoughts and ideas through disagreements, explanations, and negotiations while using all sorts of strategies, the tone of the voice, choice of words, body language, pen and paper, and other cultural tools at hand, when trying to come to a consensus. However, recent developments in information and communication technology (ICT) have created new ways for humans to work on tasks collaboratively without the need of a physical environment. This has in turn enhanced the opportunities to organize collaborative learning activities for groups of citizens who previously had problems attending classes if they had to be at a certain place on a certain day and hour (Olofsson, 2008).

The possibilities of facilitating education online attract educators all over the world, whether the underlying motive of offering access to education through these means is of democratic or economical origin. Students also seem to find online education attractive judging by the steadily growing number of students all over the world (e.g. Schirle, 2006) including Sweden (Statistics Sweden, 2008) that attend their studies through these means. But what does it mean to learn online in an environment in which the traditional classroom is replaced by course forums and teachers and fellow students are miles away? What happens when students are asked to work collaboratively on learning tasks in asynchronous, text-based discussion forums, which so commonly are used to

1 Statistiska Centralbyrån
enable flexible participation? Can collaborative activities like the one described above be realized when students are asked to work together through text online?

Interest in such questions was the starting point for the research studies that this thesis builds on. The interpretations of these questions resulted in two empirical studies, each with its own aim and focus. The first study (Liljeström, 2006) was conducted on data gathered from a governmentally funded project that started in 2002. The aim of this project was to implement online courses and study circles underpinned by the ideology of Swedish Liberal Adult Education (SLAE). At this time, the Swedish government made expensive investments to support the evolution of more flexible opportunities to attend education. This project was one of many other governmental investments aimed at supporting the development of SLAE online. This particular educational institution is made up of a large variety of educational practices that are linked to different organizations. Each has its own ideological identity of, for example, religious or political origin. Simultaneously, they also confess to the shared, overarching ideals formulated as the core ideas in SLAE as a whole. There was a strong emphasis on some of these ideals in the educational discourse concerning SLAE during the time the study was conducted. For example, the idea that SLAE should build on the participants' needs and desires and be characterized by a culture in which active participation, democratic conversation, tolerance for dissidents, and respect for justified arguments and decisions (e.g., Andersson, 2001; SOU 2003, p. 94) was highly visible in SLAE documents and scientific research. Another important theme was that SLAE should be available to a larger proportion of the population. This would be accomplished through online study circles and courses to create more flexible opportunities for citizens to participate in such activities (e.g., Andersson, 2001; Fähræus, 2001). Accordingly, central ideas in the implementation project were to generate courses and study circles that could stimulate active learning based on learners' needs and desires realized as democratic conversations in Asynchronous discussion forums, ADF.

The opportunity to study collaborative learning in forms of asynchronous text-based discussion in this implementation project emerged through the need to evaluate how the courses and study circles turned out in practice, and I was

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2 The term is here used to capture Swedish Folkbildning.

3 In the dissertation on the licentiate degree, I used the terms "leader" and "participant" instead of "teacher" and "student," since this is how these roles are expressed within SLAE.
charged with this task by Centre for Flexible Learning (CFL). The idea of learning through democratic conversation in ADF was intriguing and lead to the focus in the study of how this idea worked out in practice. What could be learned from the students’ approaches when they carried out discussions through text? Would it really work to collaborate and exchange thoughts and ideas in a “meaningful” way through asynchronous “text talk”? Accordingly, questions about the possibilities and restraints of participation in collaborative learning activities through text-based discussions were targeted. Related issues, such as how the courses was organized and carried out and the participants’ personal conditions for partaking in courses and study circles online, were also investigated.

Data for the empirical study were collected through interviews and questionnaires; so that the project course and study circle leaders and participants’ courses generated by 17 contributing organizations could share their views on their experiences. However, data from the actual activities in ADF was not available, which meant that the study captured the general patterns in how the participants and leaders in these courses and study circles described their experiences of the course activities. This study generated the platform for the second study, the Peer Review Study (PRS) that took place in the context of higher education in Sweden and was carried out between 2008 and 2010.

The project funded by The Swedish Agency for Networks and Cooperation in Higher Education (NSHU) and from which data for the PRS was collected, had a different origin. It could perhaps be described as a product of current educational discourses within higher education worldwide. It was developed in higher education during a period of growth in online education, at a time when the role of the university was under debate with questions regarding “academic freedom” versus the expectations raised by wider society (Degerblad & Hägglund, 2001; Sundgren, 2008). Should universities be autonomous instances based on their own ideas about what role to fill, or should universities meet specific needs in society, for example becoming an instrument for changes in society and economics by fostering qualified labor?

The latter view seems to have gained strength during the past 20 years. Fransson (2002) discussed how higher education in the beginning of the 1990s became one of government’s most important instruments for changing societal

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4 Centrum för Flexibelt Lärande

5 Myndigheten för Nätverk och Samarbete I Högre Utbildning
conditions and supporting the turn toward a knowledge-based economy. This was realized through costly governmental investments, including efforts to recruit non-traditional students, persons with disabilities, immigrants, mature students with work and family commitments, and so on. A visible result these investments is a dramatic growth of higher education and the large heterogeneity of university students populating higher education today.

Simultaneously, the resources invested in higher education have decreased, which means that every teacher now has the responsibility for more students than before the current mass-education system was formed (Fransson, 2002). Lately, significant efforts within the European Union (EU) have been put into activities to calibrate the standards in higher education between the member countries in the Bologna process. This has raised strong external demands on the quality of university education. One example is a recent governmental proposition called “Focus on knowledge—quality in higher education” (Proposition 2009-2010, p. 139) [translation mine]. This proposition suggests a new system for distributing resources to universities. The idea is that resources should be distributed according to how well each university scores during a quality measurement of the education provided by their research strategies, cooperation strategies, and quality work.

This mixture of expectations for university education is not the only challenge in this educational realm. The rapid growth of ICT has generated much more flexible means for providing education. It was in this context that the implementation project from which data for the peer review study (PRS) was collected became a purposeful action, an attempt to meet the expectations identified in the current discourse about higher education. The central idea was to explore whether engaging online students in criteria discussions and peer review activities online could help them understand the nature of the knowledge and skills stipulated in overarching steering documents and course curriculum, so that their possibilities for successful study outcomes of high quality would increase. A specific element, hereafter called “the peer review element,” was developed on the basis on ideas derived from theory and scientific research on formative assessment.

The peer review element contained instructions for criteria discussions, scaffolding in the form of questions aimed at triggering further interpretations, documents aimed at providing more information about the nature of the knowledge and skills the students were expected to learn, and instructions for

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6 See for example the official Bologna process website: http://www.ond.vlaanderen.be/hogeronderwijs/Bologna/
participation in peer review activities. Participation in activities related to the peer review element was meant to be carried out through postings in ADF. My involvement, as described and discussed later, created an opportunity to further the understanding of collaboration in the form of written postings in ADF—"text talk." The conditions for the SLAE study gave access to data from actual activities in ADF, and also the opportunity to capture the students’ views about how they experienced ADF activities in relationship to specific tasks.

The purpose of both these studies summarize is to contribute to the growing understanding of the conditions for collaboration in ADF in the context of education. Certain themes related to this topic were explored both theoretically and through empirical studies to different degree in both studies. These themes are expressed in these questions:

- What could justify the use of ADF in online courses, besides the flexible possibilities for participation it enables?
- What strengths and limitations for collaborative participation in collaborative learning activities emerges when carried out as text-based conversation in ADF?
- What learning activities could give online learners reason to become engaged participants in joint efforts to contribute to the growth of knowledge and skills in a study group?

Disposition

This is a compilation thesis for the doctoral degree. The thesis is based on research conducted as two case studies. This “kappa” is meant to be the frame for the overall results that have been generated in the studies. The first, the SLAE study, was previously published as a dissertation on the Licentiate degree (Liljestroem, 2006). Results from the second study, the PRS-study, are presented in the three articles, two of them published and one accepted for publication. In addition, data that not yet has been published is added to this “kappa” since it provided valuable information. The different publications that make up the study are presented in chronological order. Accordingly, the results from the SLAE study are presented in a summarized form next. Thereafter, the PRS study is introduced, followed by the theoretical framework and literature reviews that have been used to bridge the two studies. After that, the three articles are presented and discussed in summarized form, followed by the content analysis of data that not has yet been reported. In the last part of the thesis, the results from both studies are discussed to draw overall conclusions and discuss what this compilation thesis has contributed to the growing
understanding of collaborative learning online in asynchronous text-based forums.
II. THE SWEDISH LIBERAL ADULT EDUCATION STUDY

Introduction

Swedish liberal adult education (SLAE) is a concept that includes a wide range of educational activities offered by an equally broad collection of organizations of political, religious, or other ideological origin. Some of these organizations offer education on the compulsory school and college level with credits for further studies, including at the university level. This offers a possibility to those who for one reason or another did not graduate at a certain educational level in the compulsory school system and those who need to complement or upgrade their credits from previous studies before they can access further education. SLAE offers accredited programs and vocational training courses. SLAE also offers educational activities in the form of study circles. Participation in study circles is not rewarded by credits for access to further studies within the formal education system, and the large variety of activities is designed to attract participants ranging from very young children to senior citizens. A study circle can investigate almost anything, from political discussions to language studies to crafting. The organizations linked to SLAE have their own ideological identities of political, religious, or other nature, but are simultaneously linked to the shared ideological profile of SLAE. From a historical perspective, some of the central ideas of SLAE are based on the work of Rousseau, Pestalozzi, Dewey, and Vygotsky, with an emphasis on the social origin of learning.

I had been working for a few years as a junior lecturer in the department of education in Umeå when in 2003 I enrolled as the evaluator of the project from which the data for the SLAE study was gathered. At this point, my contact with online education was limited to a few distance courses at my department in which ICT was used very sparsely. Basically, it used the platform FirstClass™ to deliver instruction, answer questions from students, and provide a space in which the students could communicate through postings in case they wanted to stay in contact with each other. But interest in the new opportunities to connect persons all over the world that the advances in ICT had enabled, as well as the interest in what this could mean in an educational context, was high. Could ICT be used for learning activities that would encourage students to participate in joint efforts to contribute to the growing knowledge and skills of the study group? The offer to evaluate the SLAE project created a good opportunity to explore what the potential and restraints ICT could mean when
it is used for educational purposes. The results of these research studies are based on the thesis for the Licentiate degree, which makes up the first half of this thesis.

Summary

The thesis for the Licentiate degree begins with an argumentative introduction in which the research interest was outlined and what a study of the implementation of SLAE could contribute to was discussed. The introduction ends with the specified goals for the study: the aim to contribute to the growing understanding of online education, with a focus on text-based educational activities that are approached collaboratively. Related questions, such as possible implications of participation on joint efforts to co-construct knowledge when such activities are postings in asynchronous text-based forums (ADF), are also outlined. This is further discussed in relationship to issues related to course structure and instructions, the impact that the participants’ previous experiences from, for example, text production and computer usage could have on their approach to the ADF activities, and to why ADF should be considered at all for learning activities meant to be approached collaboratively.

The background presented in the Licentiate degree thesis is a first attempt to enter the central ideas in sociocultural theory. It resulted in an initial discussion of why use of ICT would be of interest for learning purposes when the educational ideas are derived from sociocultural theory. The central ideas of this theory are that the world, our knowledge of the world, and how we learn, are situated in social processes that exist in the meetings between humans, and in which our ability to communicate is central. This is interpreted through an examination of the history of the various cultural tools the humans have invented throughout history for communication. This includes the invention of example words, written language, printing, television, and, in recent years, ICT, which makes it possible to connect humans all over the world. The conclusion drawn is that ICT may have a quite logical to use in education, as it is founded on the human desire to negotiate and distribute knowledge.

The next theme is an exploration of what impact shifts in the dominance of ideas about what knowledge and learning are all about could have on how education is organized. Additional questions are linked to what this could mean for the learners’ approaches to educational activities. This issue is interpreted through a discussion about how knowledge and learning has been understood throughout history, in relationship to such conditions in society that could have had an impact on why a particular view was more or less dominant during that period. The shifts in ideas about the nature of knowledge and learning on an individual level are also discussed. What could this mean for the expectations the learner has for education and the approaches used when participating in
educational activities? Previous studies of SLAE in traditional contexts show that the SLAE ideology not always are realized in courses and study circles during face-to-face conditions (e.g., Byström, 1978). This suggests that the dominance of other outlooks on learning than those visible in the official SLAE ideology perhaps can have a stronger influence over how education is carried out in practice than the official ideas that are supposed to underpin these arrangements.

The third theme is an interpretation of the ideology mirrored in SLAE documents at the time when this study was conducted. For instance, it was declared in their official documents that a democratic conversation culture has developed within SLAE, which was founded on tolerance for dissidents and respect for justified reason and decision-making. How this culture was visualized in everyday practice was also described. Central ideas in the descriptions of the SLAE philosophy was emphasizing group orientated learning building on dialogue, reciprocity, and a variety of pedagogical working methods. The strong emphasis on dialogue in the SLAE philosophy leads to a theoretical exploration of the nature of a dialogue. The conclusion drawn from this interpretation is that all human activities can be regarded as being dialogic, if the view that human understandings of the world are founded in historical, cultural, and social processes is applied. The voices of others who oppose this point of view always are present in our interpretations of matters in the world and in the way we think and take action; this issue is also discussed.

From this point of view, everything from thoughts, gestures, use of physical objects, and oral and written utterances can be understood as created by and responding to the voices of others that have contributed to our cognition. This means that even remaining silent can be understood as a dialogic activity. But I also examine the concept dialogue, which could be used on an analytic level to distinguish a specific linguistic activity from other linguistic activities. Examples of how these two concepts have been put to use in previous studies of conversation in online education with the goal to determine the overall nature of the activities in ADF are discussed. The category “dialogic” was used in these studies to capture units of meanings in ADF postings in which the author responded to contributions made by others, for example, by answering questions. Also, units of meaning in which the author addressed the other participants in the ADF activities, for example, by raising questions of their own, were sorted into this category. The category “univocal” was used to capture units of meaning that were created in a more general, informative, or refereeing style. The strength to classify data in this way is discussed in terms of how it can reveal patterns that can us inform about the overall nature of the activities in ADF. Unfortunately, it turned out to be impossible to put this tool into use in the SLAE study, since the process data from actual ADF activities was not available.
However, the results presented in the referred studies, in which this tool was used to capture the nature of ADF discussions, indicated that the idea of stimulating activities in the shape of conversations perhaps did not work as well as intended. Much of the ADF conversations studied were characterized by postings reflecting monologue. These previous findings is discussed via linguistic theories as an attempt to identify what may be needed when formulating a text of a dialogic nature as a contribution to a ADF discussion. A dialogic approach to ADF activities can be rather complicated. It may necessitate some creativity to picture how the receivers of a message will understand it, so that the written utterance can be formulated to make sure that the receivers understand it as it is intended. The author may also need certain ideas about how to work on a text, for example, in the course literature, to draw experiences from this reading that can further the group’s growing understanding of the topic. Ideas about how to formulate the contribution in text in a way that makes it valuable by others also seems critical. It was also considered that dialogue in text form perhaps can be regarded as a speech genre of its own, with certain “codes” that have to be applied in this type of linguistic activity.

It is also suggested that it may take some experience of text-based communication before a participant can grasp what to do and how to formulate his or her responses to engage in a conversation in an ADF. Hindrances related to the fact that computers were fairly new tools in society at the time when the study was conducted are also briefly examined. Those participants in ADF discussions who are unfamiliar with the computer tool might not use it in the way it is intended, as they instead can become preoccupied with understanding the functions of the tool and its potential for communicative activities.

The empirical studies were based on data collected through three questionnaires. The first was aimed at the project leaders, the second for the course and study circle leaders, and the third for the participants. All three questionnaires were distributed to the all of the 17 participating organizations. All questionnaires contained both multiple choice questions and open questions. When data were gathered, some of the responses showed that not all the organizations had come to the point to generate courses at the time when this study was conducted. Questionnaires collected from the project leaders, course- or study circle leaders and participants related to these organizations were therefore removed from the data analysis. The final set of questionnaire data consisted of answers from 85 participants, 16 project leaders, and 20 course or study circle leaders. The research approach was case-study based, in which the project as a whole was treated as “the case” and the courses and study circles the project generated was regarded as subordinate cases. Additional data was collected through interviews with course and study circle leaders from three of the 17 subordinate cases, and through interviews with nine participants in
II. THE SWEDISH LIBERAL ADULT EDUCATION STUDY

courses and study circles facilitated by the same three organizations. These three subordinate cases for which the interviews were conducted were chosen based on two important criteria: a) they had created a course or study circle that was in progress, and b) their learning activities were meant to be carried out in ADF. Complementary gathering of data was performed through document studies.

Quantitative and qualitative data were triangulated and used to capture and describe the nature of the overall case, focusing on general patterns in the project leaders, course and study circle leaders, and participants’ views of their experiences. Some of the questions to the project leaders and course and study circle leaders were used to develop an understanding of the conditions during the start of the courses, including the motive to participate in the project, previous experiences from online teaching and learning. Some questions were used to gain an overall picture of these participants’ motives for partaking in the course or study circle they were assigned to, but also their previous experiences with online learning, their study background, their computer skills, and related issues. Data from questionnaires interviews and document studies were triangulated to gain understanding of the patterns that emerged during the data analysis. Additional interview data collected from SLAE courses online from a previous project were used to establish more significant patterns in an analysis of interview data in which the eventual relationship between the participants’ expectations for learning activities in the course or study circle and their approach to the ADF activities was investigated.

The results were reported in a narrative, starting with the motive to implement SLAE online. The patterns the analysis of the data revealed indicated that an important reason to partake in the project was related to the demands of society, not the least of a financial nature. The will to make SLAE education accessible to a larger proportion of the population was also apparent. Patterns regarding eventual pedagogical motives, for example what the use of asynchronous text can contribute to the development of democratic dialogues, did not emerge. The questionnaire data also revealed that a majority of the course and study circle leaders lacked experiences with online education. Some had assigned themselves to this role due to their interest in the possibilities that online learning could offer. Others were put into this role by their employers. The majority mentioned that they had been undertaking training on a subject they described as “distance pedagogy,” or were undertaking such training along with their course or study circle leading in this project.

Data collected through the questionnaires to the participants revealed that a majority of those 85 who answered these questions had previous experiences in courses facilitated by SLAE. However, only 8% of them had experienced SLAE online. Most of the participants were full-time workers or students. A few was pensioners or on parental leave. The majority of them were university educated,
and most were using computers in their everyday life, which explained why almost all of them believed they could handle the technology needed in the course activities. However, this was a contradictory result when triangulated with data collected from the questionnaires directed to the project leaders and the course and study circles leaders. An important lesson learned was that future courses and study circles online should include more technological support, since they found that the participants had struggled with it. This contradictory result suggested that the technology itself may not have been so unfamiliar to the participants, or perhaps they had less experience in using it for the types of activities initiated in the course or study circle they participated in.

The background data also revealed that a majority of the participants said they were highly motivated to participate in the online course or study circle. About 50% said that their motive for participating was an interest in the course topic. An additional 30% said that they participated because they were interested in how SLAE would work online, and the rest offered reasons such as the credits they would gain or that they were encouraged by others to participate. A few also expressed that they were ordered to participate by their employer. The majority of the course and study circle leaders remarked that the course was both meant to support learning of the specific subject and aimed at generating valuable experience in online learning as a basis for further development of SLAE online.

The fact that about 30% of the participants did not enter the course or study circle because they were interested in the subject was discussed in terms of what impact this could have on their motivation to engage in activities related to the subject. Could a lack of interest cause less engagement in the learning activities? The results were also analyzed in relationship to previous studies targeting motives to participate in traditional SLAE environments, in which a bit over 30% stated that they wanted to learn more about the subject while almost an equal proportion said they participated for social reasons. This raised the question of whether SLAE online attracts more participants with a focus on learning the subject than socializing than in traditional SLAE, and if so, what could that mean for how this learning should be carried out. Or could it be that the participants did not expect the online environment to support the development of a social climate?

The course and study circle leaders were asked questions about their role. They were presented with descriptions of possible roles and asked to choose the one they thought they represented. The majority of them selected two roles: the role to inspire and the role to lead discussions. Only two said that their role was to transmit knowledge. This was further explored via interview data from the three subordinate cases. Strong similar patterns emerged in two of these cases regarding the rituals in the course in which the leader played an important role. The common way to start a discussion in ADF was that the leader gave
instructions regarding what literature the participants should read before the ADF discussion and what questions they should focus on. The leader initiated the ADF activities when the time was due by posting questions for the group to discuss. The leader in the third case used a different strategy, not setting any standard through directive questions or preparing before the discussions apart from instructing the participants to read certain texts.

The data indicate that the absence of more detailed instruction caused frustration among the participants, and this was the reason to the low rate of postings in their ADF. They experienced a lack of interest in partaking in the course due to the absence of direction. The participants said that they wanted much more explicit instructions for how the whole activity should be performed, including how many postings they were expected to make and when to post. Some stated that the leader had abdicated this role, despite the fact that the leader actively posted in the ADF. However, the participants found these postings provoking rather than guiding and thought that the issues this leader tried to highlight were formulated in ways too advanced for the understanding they had at their beginners’ level. The participants in this course explained how the frustration they felt eventually resulted in one of them taking on the role of an unofficial leader. This participant structured the activities in the course in accordance with what the group identified to be the proper way to do it. As a result, the rituals in this course reflected similar patterns in the two other subordinate cases. The unofficial leader proposed texts to read, topics to focus on, and started each discussion by posting a few questions. It was rather clear in these participants’ descriptions that they expected a leader to be capable of teaching them something, since they had not studied the topic before. This indicates that participants’ expectations of how learning should be organized can cause problems for a leader with other intentions, such as realizing the ideals within SLAE by delegating responsibility to the participants and by trying to stimulate less leader-centered approaches to learning.

Data were also analyzed to reveal how leaders and participants described the ADF activities. The emerging patterns painted by interview data and questionnaire data generated a very contradictory picture. Some said the ADF discussions had been of a dialogic nature with lively conversation, while others said that engagement in the ADF activities in their course was low. The analysis of the quantitative data provided information that could partly explain this result. It seemed there were significant differences in individual activity levels. Some said that they logged in and visited the ADF at least once per day to read other participants’ contributions or to contribute themselves. Others only visited the ADF a couple of times per week, and there was also those who had accessed the forum once per month or less. About 34% of those who answered the questionnaire said that they received comments on their own postings by others. About 40% said that they had commented on postings by others. It is
possible that those who were very active also were those who found that the
ADF activities in their course were of a dialogic nature characterized by lively
discussions. However, the questionnaire data also revealed that over 70% found
other participants passive in the ADF communication, and 70% said that they
also had been passive in the forums. This rather contradictory result was hard to
explain via the available data.

Further interpretations of data revealed patterns that indicated that the
intended dialogue in the ADF with few exceptions was limited to the leader’s
questions, which the participants responded to without furthering each other’s
contributions. Possible explanations were issues such as that some participants
found it too impersonal to talk through text, due to the anonymity that the
technology created. Other reasons given were that it is not easy to formulate
text talk so that it becomes meaningful to others. Some expressed how unsure
they felt about the purpose of the ADF activities, and said this had lowered
their interest in participating in them. They could not understand what to
accomplish by participating in these activities. Those who expressed this
uncertainty about the purpose of the ADF activities also seemed to expect the
course or study circle leader to take on a more traditional teacher role. The link
between participants’ expectation of the teacher role and their reaction to the
ADF activities was followed up. Additional data collected in interviews with
previous participants in SLAE online were added to augment the possibility of
revealing general patterns. This analysis is reported in the form of a conference
paper titled “I Expected Useful Knowledge, Not Just to Socialize”—An Analysis
of Students’ Views on Online Collaborative Learning (Liljeström & Hult,
2006), which is included in thesis for the Licentiate degree.

The patterns that emerged in this analysis indicated that the participants’
views on what learning is and how it should be organized could have an impact
on their motivation to participate in ADF discussions.

Participants who viewed knowledge as something fixed that can be
transferred from a more knowledgeable individual to one who is less
knowledgeable did not see much point in participating in ADF discussions with
peers. However, it is worth mentioning that some found it valuable for social
reasons. They expected the leaders to be knowledgeable and able to share their
knowledge with the participants, and to monitor their progress through course
assignments and assessments. These participants differed from another
participant type, those who said that they participated in a course to learn from
the teacher, but who also thought that their peers could help enhance their
learning through group work, to help them understand instruction and by
contributing when reading and commenting on their coursework.

Neither of these two categories of participants found that the experiences of
others concerning the topic of learning were relevant to their learning process.
A third view was also identified though it represented only a small percentage of the participants. These participants did not say that they participated in a course or study circle with the expectation of being taught a subject by the teacher. Instead, they described learning as gaining new perspectives on the course topic. They also found it valuable to interact and discuss with their peers to develop these new perspectives. They found both ideas generated by readings and discussions aimed at penetrating the course literature as well as experiences related to the topic relevant to the learning process.

While the two first categories of participants expected a well-structured course with defined learning goals and a leader in a traditional role in charge of what to learn and how, the third group had other ideas about the role of the course or study circle leader. In their version, the leader should stay in the background and give the participants the power of how and what to learn, but stand ready to take action, inspire, and challenge them with questions when needed.

This raised questions about whether the participants would have had a more positive approach to the ADF discussions if they had been more initiated in the ideas underpinning SLAE. Perhaps they also would have had a more active approach to the ADF if they had been invited to discuss and determine specific goals to be accomplished during the course.

Some of the results generated when data were analyzed indicated strong financial motives and demands from society to provide education for all rather than pedagogical motives. In fact, much of the SLAE ideology was more visible in documents than in the project leaders’, course and study circle leaders’, and participants’ descriptions of their experiences of actual activities in the project. These results may be related to views on learning and how learning activities should be organized. It can be hard for a course or study circle to break the traditional teacher and student patterns when the participants expect their studies to be organized thus. This matter is discussed in the thesis for the Licentiate degree in light of the possible need for stronger framing of the ADF activities mentioned by leaders and participants. For example, rules about how many postings each participant is obliged to do and other related issues could be established at the outset.

Another discussion concerns the problems the participants expressed about how to express themselves in text. This could indicate that it might be important for students’ to know the reason for and purpose of participation in these activities to feel motivated or confident enough to contribute to ADF discussions. Raising interest for sociocultural theories in an educational context could also make it easier to realize pedagogical ideas based on this outlook in the future.
Discussion
The SLAE study was carried out at a time when ideals such as education based on knowledge construction through democratic conversation founded in the participants own interests and needs were emphasized. The overall result of the study indicated that it was a struggle to create courses and activities online through which these ideals could be put into practice and realized through the participants' active engagement in ADF activities. However, some data in the study indicated that some participants had experienced lively dialogues and a high level of activity in the ADF discussions. This could suggest that the problem to stimulate dialogue in these forums was not caused by the technical obstacles. Perhaps it had to do with other issues, such as the possibility that the participants were unfamiliar with the ideas behind this way of learning. It could also be because they did not understand what they were supposed to accomplish through participating in the ADF activities, and perhaps did not know how they were meant to participate, either. Data gathered for the SLAE study did not enable a closer look at the relationship between how the participants were introduced to an ADF discussion and their approaches to this particular activity. This made it somewhat problematic to interpret the topic in depth. The project that generated the peer review study (PRS) introduced in the next part of the thesis did, however, enable the possibility for further studies of online learning in ADF.
III. INTRODUCTION TO THE PEER REVIEW STUDY

The peer review study was conducted at a time when higher education is challenged by growing demands to produce qualified labor with certain knowledge and skills. This also means it is subject to stronger demands for valid and reliable measurements to ensure the expected study outcomes. Making sure that students are completing their studies is important. The current financial system in higher education in Sweden means that the resources for education are distributed on the basis of the number of students that passed their exams, rather than on the number of students enrolled. At the same time, more students choose to conduct their studies online, where the conditions for learning are different from those in traditional educational environments. The teachers and students seldom meet face to face. The communication is often asynchronous, text-based, and delayed if the course is meant to enable flexible participation.

Accordingly, the question educators have to wrestle with is how to support learning during these conditions, to enhance the possibilities for their students to develop the knowledge and skills they are expected to gain through their online studies. Related questions include how to make sure that the students develop the quality of knowledge and skills they are meant to develop from partaking in the course and how to reliably evaluate the quality of the students’ achievements. The project from which data for the PRS were collected was developed in this context and can be described as an attempt to meet these challenges.

The starting point for this project was results from a recent Swedish study of assessment in 50 courses within Swedish Net University (Hult, 2005; 2007). These results showed that a popular strategy for organizing higher education online was to process the course content through numerous assessments that the teacher provided feedback on. The results indicated that this strategy was adopted for multiple purposes so as to discipline, monitor, and guide the students’ learning (formative purposes) and for evaluative purposes (summative assessment). The educators proved this strategy of processing the course content bit by bit a good one. It was found to prevent student from dropping out of the course and to enhance their chances of passing it.

Previous studies also indicated that frequent and various assessment tasks that teachers offer detailed feedback on can contribute to student success (see, for example, Westerberg & Märald, 2006). This could be considered
scaffolding if Shepard’s position that instructional scaffolding and formative assessment is basically the same thing is applied:

...a dynamic process in which supportive adults and classmates helps learners move from what they already know to what they are able to do next, using their zone of proximal development (2005, p. 66).

However, a central concern was that the assessment strategy could support the online students in a way that in the worst cases could restrain learning. As Sadler pointed out:

For many teachers, the scaffolding has become so elaborate, and the level of assistance so comprehensive, that the learner cannot help but ‘succeed’ (2007, p. 390).

The concern that the assessment patterns in online courses could have a negative impact on the quality of online students’ learning outcomes, and the notion of how important this structure seemed to be for students’ motivation and activity levels in their courses, were important for the project development. As will be more thoroughly discussed in the articles included and also presented in summarized form in this thesis, the project was developed on the basis of current research and theory in the field of formative assessment.

One of the results of the project was the development, implementation, and evaluation of the peer review element that was central to the activities studied in this thesis. It was created to be implemented in courses in which the final assessment product was an academic text, for example, a report or an essay. The peer review element consisted of various activities that the students were asked to participate in online through postings in ADF, as illustrated in Figure 1 below.

Figure 1. The Peer Review element.

The students were expected to prepare for the first ADF activity by reading and reflecting on course criteria in the light of the Swedish Higher Education Act, the Higher Education Ordinance, and their own experiences of university education. The Higher Education Act was a source of information about generic skills that all university students are intended to develop during their studies. The Higher Education Ordinance was used to inform about the goals in particular programs in vocational training, and the course curriculum was attempted to capture what the students were meant to learn by participating in tasks in this particular course. The instruction to recall previous experiences on the process to interpret these documents was aimed at reminding the students of the understanding already generated.
After this preparation, the students were asked to engage collaboratively in a task to determine what qualities their course work was expected to reflect, and to decide what criteria to apply in their peer reviews. The results of the discussion were then summarized as a description of the criteria the group had decided to use for peer reviews. Scaffolding was provided in the form of suggestive questions during the discussion. In addition, a document meant to be posted in the ADF at the end of the activity was created. This document contained questions that could be asked during an evaluation of assessment products, and was collected from experienced teachers.

The preparation for the next activity was aimed at giving students practical experience of evaluation. The students were told to individually apply the criteria the group had chosen to two example texts. The texts were deliberately created to reflect work on these students’ experience level, which means that none of them could be described as “best practice.” However, one text was written with a more distinctive author voice and a more systematic use of literature than the other. After the students had reviewed these texts, they were expected to post their reviews in the ADF and engage in a discussion about the different contributions. The goal was to come to a shared opinion about what qualities and weaknesses were represented in the two texts, and also to identify differences in the way members of the group understood and applied the chosen criteria. Scaffolding was provided in the form of suggestive comments and questions during the activity.

The next activity was meant to end in eventual refinement of the first description of the criteria the group had developed in their peer reviews. The students were supposed to summarize the differences in how they had understood and applied criteria during their review of the example texts and to negotiate these understandings to come to a shared idea about how to conduct the peer reviews. No scaffolding was provided.

In the last activity, the students were asked to apply their chosen criteria. The peer reviews were to be conducted twice, once in the planning stage of a field study and once on the final drafts of their reports, before they were handed in to the teacher for marking. No scaffolding was provided.

The peer review element was intended to run in parallel with the regular course activities. To avoid that causing the regular teachers extra work, they would not be asked to carry out the activities during this implementation stage. Another reason to not engage the teachers in the peer review activities was to make sure that the students approached the process without fear that their contributions could harm their chances of gaining good grades.

The creation of the peer review element and the research studies of the activities at the center of attention in this thesis were based on ideas within sociocultural theory. The next part of this thesis, IV. Theoretical Outlook, is
learning text talk online

an attempt to further understanding of central ideas in this theory that were generated during the SLAE-study and to identify tools for analysis and understanding of the empirical data collected. This is followed by a review of current theory and research related to collaborative activities in ADF, V. Computer Supported Collaborative Learning, before the research strategies and results of the studies are reported.
IV. THEORETICAL OUTLOOK

Mattson (2008) described sociocultural theory as a framework constructed on the foundation of a sizeable variety of theories of knowledge and learning. This is sometimes labeled socio-constructivism, socio-historicalism, and cultural-historicalism, but the meanings differ. Sociocultural theory is underpinned by the belief that reality is multidimensional and constructed through social processes (e.g., Cole, 1993; Wertsch & Cole, 1996).

Many scholars with a sociocultural outlook on knowledge and learning argue that knowledge is the product of “communities of practices” (COP) (e.g., Lave & Wenger, 1991; Rogoff, 1990; 1993; 1995; Wenger, 1988, p. 2004). As Wenger (1988) pointed out, these COPs exist everywhere, at work, in school, at home and so forth, and most of us belong to more than one. Wenger distinguished COP from other communities, such as geographical communities. The difference is that a peripheral or core member in a COP shares a practice in which members are informally bound to each other by doing things together, which is not necessarily the case among members of a geographical community. Wenger defined the concept of COP along three dimensions: what it is about, how it functions, and what it has produced. Wenger’s view in this matter was that COPs are joint enterprises that bind members in a social entity in which a shared repertoire of communal resources such as routines, sensibilities, artifacts, and vocabulary are developed over time.

Such communal resources, which in sociocultural theory are referred to as tools, are regarded as important in the processes of creating and distributing knowledge and also are vital to how experiences are shaped. This concept captures all the cultural tools, or artifacts, that humans have developed and put in use, from physical objects such as machines and mailboxes to tools such as gestures, signs, words, concepts, and theories. These tools are generated in historical, social, and cultural processes and can be described as simultaneously material and ideal or conceptual in that they preserve and mediate human knowledge, thinking, and action. The ideas that knowledge is socially created and mediated through tools and is important to the development of cognition are obvious in the thinking of Vygotsky (e.g., 1962) and his followers, as illustrated by Wertsch’s and Tulviste’s interpretations of Vygotsky:

Instead, human mental functioning, even when carried out by an individual acting in isolation, is inherently social, or sociocultural, in that it incorporates socially evolved and socially organized cultural tools (1992, p. 551).
Dewey also expressed how important tools are for cognition, though in different terms:

   Every individual has grown up, and always must grow up, in a social medium. His responses grow intelligent, or gain meaning, simply because he lives and acts in a medium of accepted meanings and values (1916, p. 344).

Knowledge from this point of view could be perhaps suggested to be a product not entirely objective but somewhat biased, since it is produced on the basis of particular ideas and ideals through active participation in a certain COP. A newcomer to a COP would have to participate in the communities' activities to grasp the COP's ideas and ideals, including how to understand the use of the cultural tools, and how to act in an appropriate way (Wenger, 2004). Learning could then be understood as the process through which people come to use cultural tools for thinking with the help of others more experienced at using such tools. The process develops cognitive changes of ways to think, notice, view, classify, identify, reflect, and so forth. This means that individuals are created in the process of participating with others. From this point of view, the individual cannot be regarded as a natural entity, but the result of social and historical makings.

   Human cognition could then be understood as what Pea (2004) described as “distributed intelligence,” an intelligence spread across people, environments, situations, artifacts, and situations rather than intelligence as a possession of the individual embodied in the mind. This indicates that learning can never be regarded as a simple transmission of knowledge. Newcomers to a COP do not only learn the ways of the community, they also contribute to the growing knowledge and practices in the community through their participation and the views and experiences that they bring to the activity. The situated nature of knowledge and learning, in that it is produced by the dynamic interactions among humans, thus simultaneously shapes knowledge and those who come to know. This could mean, as Packer and Goicoechea proposed, that learning must be understood as more than simply becoming a member of a community or constructing knowledge at various levels of expertise as a participant:

   ...but also taking a stand on the culture of one’s community, in an effort to take up and overcome the estrangement and division that are consequences of participation (2000, p. 228).

Rogoff (1995) offers three metaphors as tools to enable a discussion of how learning occurs through participation in sociocultural activities: apprenticeship, guided participation, and participatory appropriation. These metaphors makes it possible to discuss the relationship between individual development, social
interaction, and the cultural activity in which personal and interpersonal actions take place, but should be regarded as inseparable concepts reflecting different planes of focus in a whole sociocultural activity.

Apprenticeship captures participation in activities that partly have the purpose of supporting the development of skilled participation in the activity by less experienced persons, which could be understood as activities at work, in schools, in the family, and so forth. The specific nature of the activity is at the center of the apprenticeship metaphor and its relation to the practices and institutions of the community in which it occurs.

Guided participation captures the processes and systems of involvement between people as they communicate and coordinate efforts while participating in a culturally valued activity. The directions offered by cultural and social values through observation or involvement in activities and the communication between members in a COP when trying to create common ground stretches the understanding of all participants. However, guided participation is not meant to be used to define when a particular situation is or is not guided participation.

Participatory appropriation captures how individuals change through their involvement in activities and thus become prepared for future activities. Rogoff pointed out that the appropriation metaphor here should be understood as a process of transformation, not a precondition for transformation. This term should thereby be understood as the change resulting from a person’s own participating in an activity and not as internalization of some external event or technique. Rogoff also suggested that participatory appropriation is an ongoing process. Past experiences, the experiences during the activity, and participation in future situations similar to the particular activity are affected, as the individuals change their ways of thinking, viewing, organizing, and noticing.

When these ideas of how humans learn are applied to an educational context, it seems clear that the aim and nature of educational activities must have a strong impact on the learning that will take place. It can be proposed that schooling is about producing persons rather than a forum for transmitting certain knowledge between individuals. The participants in a study group in an educational context can thus be regarded as peripheral members of the COP the teacher represents. The learning activities they are offered are meant to shape their ways to think, view, notice, organize, and so on, so that they will become more like the core members in this COP. But while the teacher may have a clear goal for what skills and abilities certain activities are meant to shape and how these activities are to take form, the students may not automatically share the same understanding of the meaning of the activity. It could be easier for students to grasp how to act purposefully in this context if the nature of the meaning of the learning tasks was open for communication, coordination, and
negotiation between students and their teachers. This could support the
construction of common ground for what the activity is all about and a shared
understanding about how to participate in activities initiated for this purpose.

The teacher’s role must be important, not just to provide directions about
how activities should take form. After all, teachers can be regarded as core
members of the COP the students enter, and therefore the most knowledgeable
about the ideas, ideals, and tools within this particular COP. The term
“scaffolding” is often used by scholars with a sociocultural outlook on
knowledge and learning to describe the teachers’ role in learning activities. The
concept was introduced by Wood, Bruner, and Ross in an article published in
1976, and built on Vygotsky’s notion of the zone of proximal development
(ZPD), the zone in which the individual can, with assistance, perform
something they cannot perform alone—or at least cannot perform it alone
without great difficulty.

Scaffolding has traditionally referred to what a teacher or a more
knowledgeable peer contributes to that process, but was not originally limited
to formal learning settings and/or intentions to make a learner perform a task
more effectively (Pea, 2004). However, it is often used to describe the teachers’
role and function in assisting learners succeed at specific tasks that otherwise
would be too difficult for them. The aim of scaffolding is that the learner
through this experience can improve in process skills and/or content
understanding. Sadler (2007) proposed that:

Properly understood, it means providing appropriate supports during
learning so that learners are better able to bridge the gap between what
they bring to the learning task, and where they need to be to achieve a
depth level of learning (p 390).

A central idea to the scaffolding concept is that it is supposed to be a temporary
arrangement that supports the building process, and fades once the learner have
grasped the target skill (Pea, 2004). This seems logical if the individual is
supposed to change through apprenticeship in a learning activity in a way that
prepares him or her for future activities of similar nature. It also seems
reasonable to think that the abilities to grasp such target skills would increase
greatly if the learning activities they are asked to participate in are open for
negotiation and discussion (guided participation), with the aim to come to
shared views about the purpose of a certain activity and what it means for how
to participate.

The interest in the fairly new educational context that the development of
ICT has enabled is central to this thesis. Of special concern are what strengths
and limits the use of Asynchronous Discussion Forums (ADF) can offer in
educational activities in which the students are meant to work together on a
task. The question explored is about what written conversation, “text talk,” has
to offer when used for collaborative learning purposes, and if it at all is useful to employ ADF for collaborative learning activities when it is possible to use more face-to-face technology, such as audio-visual means, for synchronous communication. The theoretical framework is meant to provide some guidance as to what processes can provide information about how asynchronous text talk can contribute to or restrain students’ participation in collaborative learning activities. Important questions raised on the basis of what has been discussed in the theoretical framework are whether text talks support or hinder engagement in activities that can support the development of a shared practice. Can text talk support such development? If that is the case, how can it enable students to engage in negotiating meaning with such depth that they manage to create common grounds? Related questions are whether if it is text talk in itself that may hinder or support such processes, or if conditions such as the nature of the activity and the guidance the students receive are more important than the medium used for communication.

The studies of ADF communication in courses and study circles in a project within Swedish Liberal Adult Education (SLAE) were based on data collected through questionnaires and interviews and facilitated interesting discoveries about how text talk for collaboration purposes functioned in these particular practices. Some patterns that emerged indicated that text talk indeed seemed to hinder some participants from expressing their thoughts in the way they wanted to, while other participants had no such problem. The hindering aspect of text talk could perhaps be related to the fact that many participants had little previous experience in using this tool to discuss and collaborate with others. Another interesting discovery was that some participants became frustrated when the leader of the course or study circle they attended tried to delegate the responsibility of deciding what to learn and how to learn it. This frustration was mostly expressed by students who believed the leader was expected to transmit knowledge and measure to what degree this transmission was successful. When the responsibility to decide what to learn was delegated to these learners, they experienced such a strong uncertainty about the purpose of the activities in the course that their motivation to participate in the ADF dropped dramatically. However, even if these and many other interesting results could be discovered in the data collected for the SLAE study, it did not facilitate any scrutinizing of the nature of the task and process data from actual ADF activities. The circumstances of the implementation project from which data for the Peer Review Study (PRS) were drawn made it possible to study the use of text talk in ADF as it related to activities of a specific nature, which gave the option to refine and extend the understanding of the hindrances and possibilities text talk can offer in collaborative learning activities. As a starting point for the new study, the PRS, it was necessary to update, broaden, and deepen the knowledge of what findings had already been discovered in other studies of collaborative
learning online. My hope was that this would contribute ideas to explain patterns that would emerge in this study.

The search for tools to understand the role and function of text talk in online collaborative activities and related issues resulted in a venture into the theories and studies in the research field of computer-supported collaborative learning (CSCL). This research field has many applicable studies and theoretically generated ideas concerning collaborative learning online. The findings and ideas that shed light on collaboration through text-based discussion in ADF are referred to in the next part of this thesis.
V. COMPUTER SUPPORTED COLLABORATIVE LEARNING

Computer-supported collaborative learning (CSCL) has been a research field since the late 1980s (Mattson, 2008). It investigates how people can learn together with the help of computers. CSCL is closely concerned with formal education on all levels from kindergarten through graduate study as well as informal education, such as that offered through museums. Collaboration among students is important in CSCL, with emphasis on how learning can be enhanced through the opportunity to ask questions, pursue lines of inquiry together, teach each other, and see how others learn. CSCL is concerned with all types of collaborative learning in which computers is involved, from online learning to how humans collaborate when they use computers together in face to face settings (Stahl, Koschmann, & Suthers, 2006).

The PRS study could on the one hand be categorized as a study within the research field of assessment, since it concerns ADF processes related to implementing a peer review element in higher online education. On the other hand, this study also focuses on questions of if and how students’ participation in the ADF activities contributed to their learning. Were these means that were used for joint endeavors really suitable for the purpose of participating in constructing knowledge and negating meaning to develop common grounds? These aspects of the study make it relevant to the growing research in the CSCL field.

The literature review of previous studies of online learning in this part of the thesis focuses on theories and studies with relevance for collaborative learning in ADF.

Collaboration in ADF – A topic with actuality

There are many good arguments for why a study of collaborative learning processes in ADF is relevant even when technological advances offer other means for communication, such as audio-visual techniques that enable the students to see and hear each other in real time. But ADF is still for various reasons a commonly used tool for enabling student interaction in online education.

A very practical reason for using ADF is that it does not demand that tutors and participants invest in expensive hardware or use complex software. It
enables flexible participation (Lewinson, 2005) since postings can be made at any hour and from any computer with access to the Internet, thus offering students who cannot come to campus a chance to study. However, ADF could be chosen for other reasons as well. For instance, using ADF can offer greater possibilities for students to express their thoughts than in a classroom situation, since no one has to wait for someone else to finish talking before contributing with his or her own views (e.g., Abrams, 2005). It allows more room for different points of views to become visible than in situations in which oral conversations are carried out, since the conversation can take place over a longer time than a meeting in a physical environment usually allows.

Other results from studies of CSCL online indicate that ADF interaction can offer the participants more equal chances to contribute to the growing knowledge of the group than a face-to-face discussion allows, not at least because students who often are shut out from face-to-face discussions have more possibilities to express their meaning (Warschauer, 1997). There are also examples of how students who are too shy to participate and collaborate in a classroom setting sometimes changes their participation behavior in the online environment and become very active and engaged (e.g., Harasim, 1990). The possibilities to reflect during the conversation can also be enhanced compared to what the often fast tempo in oral conversation allows for (Dillenbourg, Baker, Blaye & O’Malley 1996; Launrillard, 2008).

The act of creating a text can also stimulate reflection. In contrast to participants in a face-to-face or audio-visual discussion, the author of a text cannot use gestures, mimic, and/or tone of voice to clarify his or her meaning. The lack of such attributes to clarify meaning trigger a text writer’s reflection while working on a text so that it is sure to be understood in the intended way (e.g., Ong, 1985; Olson, 1994; Wertsch, 1991).

To be able to clarify the meaning behind the text, the author first must understand what he or she wants to contribute with and in what way this view can be justified. Wells (1999, p. 268) summarized, with references to Vygotsky, the difference between oral and written speech:

Put very simply, then, it could be said that the primary function of speech is to mediate action, whereas the primary function of writing is to mediate recall and reflection.

Since the readers of the text cannot see or hear the author, he or she may have to select the words more carefully than in oral conversation, so that the receiver understands the content in the posting as it was intended. This body of theory and research indicate that activities that stimulate collaboration and conversation in ADF could support students’ reflection and thereby enhance their learning. Activities of collaborative nature, in combination with the
primary function of writing to mediate recall and reflection, seem to hold the potential to contribute to the “awareness of the ground or the basis of belief” (Dewey, 1910, p. 7).

Malmberg (2006) suggested that the act of creating a contribution to a discussion in ADF can be understood as an activity in which the text author is engaged in a double dialogue. One dialogue is aimed for the audience, and one dialogue is with the self throughout the act of composing of the text. Black’s (2005, p. 9) conclusion is that:

Asynchronous discussion allows for reflective thought and “talk,” components valued ineffective discussion. These same components make asynchronous discussion more viable than synchronous discussion in fostering higher order thinking, social construction of meaning, and reflection.

However, the intended learning will not take place no matter how well asynchronous, text-based communication seems to work unless the students are motivated to participate. The next chapter is an attempt to find out what observations already been made in the research field of CSCL on this topic. Do students truly engage in tasks meant to be worked on collaboratively in ADF, or not? If they do engage in such activities, what indications are there that it has an impact on their learning?

Current findings in research on student approaches to ADF discussions

Plenty of findings in many previous research studies in the CSCL field support the idea that working together on a task in ADF can stimulate, and thereby further, critical and reflective processes (e.g., Perkins, C., & Murphy, E. 2006; Erkens, Jaspers, & Kanselaar, 2005; Stahl, 2006; Simoneau, 2007). Tasks intended to be worked on collaboratively through text also seem to encourage students to direct their efforts toward the purpose of the course better than do tasks meant to be worked individually on. Reneland-Forsman (2009) for example found such indications in her study of ADF communication in web-based teacher training. She observed that the students reflected to a higher degree upon theory and its link to steering documents during group work than during individual course work.

However, results from other studies show that such patterns do not always emerge. Rourke and Anderson (2002) and Östlund (2008) referred to numerous research studies in which learner interaction was so low that collaboration never occurred, and findings showed how exploration of information more often occupies the learners rather than collaborative efforts to
construct deep levels of understanding through synthesis of different perspectives. Maurino (2007) examined 37 research articles based on data from ADF focusing on the occurrence of critical inquiry, deep learning, social presence, and interaction. Her conclusion was that the results in these studies did not indicate significant signs of any of these practices.

Many researchers in the CSCL field have searched for explanations of why some students do not contribute to the ADF activities in the way intended. Thompson and Coover (2003) found that some learners can find discussions in ADF confusing due to the lack of shared context and lack of mimicry, gestures, and tone of voice. Rydberg Fåhræus (2003) noticed that the delayed nature of responses received via asynchronous communication can cause difficulties. Nevgi, Virtanen, Niemi (2006) discovered that students sometimes lack the capacity to work together. Sometimes this problem may be related to the fact that many online learners mainly study part-time or in addition to work and can have difficulties combining their studies with other commitments such as family and work life, which can in turn limit their opportunities to engage in ADF activities.

But Nevgi, et al., also observed that some students seem to lack the skills to acquire, comprehend, and act on the feedback that is meant to stimulate their communication practices. Some students do not feel comfortable with criticizing their peers. They may also find it hard to express their feelings to distant peers, for example about problems they experience in the group’s communication. Nevgi, et al. also addressed the fact that some online learners can feel isolated and lonely since they lack the skills to decode the social cues made in text in the way they can read a contribution in a situation in which face and body expressions and the tone of a voice can guide their understanding of the contributor and what he or she means to express.

The hope that using ADF for collaborative learning activities could create better opportunity for all to participate in equal ways does not always work out in the intended way. Johnsson (2009) observed, in a recent study of power structures in a teacher training course in which the students were meant to collaborate in ADF, how learners with Swedish backgrounds, older students, and students with parents with high educational attainments occupied more communication space than students who were not born in Sweden, younger learners, and those with parents with low educational attainments.

The conclusions drawn from the results presented are:

- Using ADF for activities meant to be worked on collaboratively can stimulate reflective processes and encourage the students to interpret the grounds for their reasoning before they send a contribution. This could support the development of critical thinking skills.
• The use of ADF in online courses for activities meant to be worked on collaboratively can but do not always work well for learning purposes
• The uses of ADF can but do not always enhance all group members’ equal opportunity to contribute to the collaborative learning process.

This raised the question: What is known about such circumstances that can encourage learners to actively engage in conversation and collaboration in ADF? I will now review literature on CSCL online to find out what inquiries have been made into this matter so far.

Supporting collaborative learning processes online

Much of the research in the field of CSCL has concluded that online students, just like students in campus settings, need to get to know each other and gain the feeling of belonging to a group of people before they will participate in collaborative learning activities purposefully together. In other words, they need to feel the social presence of others and gain a sense of belonging to a community (e.g., Anderson and Garrison, 1997; Bandalaria, 2009; Desai, Hart, & Richards, 2008; Kurhila, Miettinen, Nokelainen, & Tirri, 2002; Rae, Taylor, & Roberts, 2006) in which they and their contributions are recognized by the other members of the community (Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000) so they can develop a shared history (Svensson, 2002). Haythornthwaite (2002) found that such relationships can lead to the exchange of more kinds of information and an increased sense of belonging. Kriens, Kirschner, and Jochems (2002) and Kriens, Kirschner, Jochems, and Van Buuren, (2007) have observed that the feelings of belonging, warmth, and trust must be present before students will engage fully in collaboration and appreciate it as a valuable experience. Kriens (2007, p. 178) argued:

… what we actually need are sociable CSCL environments, that is, CSCL environments with both educational functionality and social functionality. Such sociable CSCL environments not only fulfill the learning needs of the students, but also fulfill their social (psychological) needs, thereby making a complete learning experience.

Previous research on this topic also show that it is important that online students have access to a common meeting place, that they develop a shared commitment to a common purpose, and that they participate in processes through which they develop normative standards of behavior, including identifying the roles to play (e.g., Anderson, 2008).

It seems that exchange of social information is vital during the process to develop the important sense of belonging to a group, just as when students work together in campus settings. Reneland-Forsman (2009) did draw this conclusion from observations made during her studies of communication and
meaning-making in online teacher training. She noticed that the students’ social conversations at first seemed irrelevant to the learning process, but she determined that such conversations actually had substantial value. Students who shared issues such as problems in their private lives seemed to use more successful strategies than those who kept quiet about such distress. For instance, it seemed that the peers based their appraisals of others’ contributions on what they knew about the group members’ life situations. Another interesting observation Reneland-Forsman made was that the students’ background as part-time workers in childcare helped them contextualize the theories they were reading, and their similar backgrounds made the experiences they brought to the group interesting to exchange. The social conversation seemed to contribute to contextualization and negotiation of identity and roles, created trust between peers, and helped bridge theory and practice.

However, while learners may find interaction with peers valuable for their well-being, they might not always automatically find these interactions important for learning. Lindberg and Olofsson (2006) found in their study of an online teacher training course that many of the trainees regarded learning as an individual process for which the individual learner alone was responsible. Another observation was that many of these students felt that they had to be in control of the learning process and feel motivated to learn. The study also showed that the motivation to support a fellow student depended on whether the helper found that this peer had showed certain attitudes, a willingness to adapt or himself in accordance with the student who was meant to help. Lindberg’s and Olofsson’s conclusion was that this attitude provided some form of assurance that the help would be of use and therefore not a complete waste of time. It is possible that these students’ views on learning could explain the result of this study, which was that the computerized learning environment used in the program did not really fulfill its purpose and provide an online arena for social meetings.

However, providing online students with the possibility to interact through text can be of great value if the conversation is of a sort that allows the students to also contribute in a more informal style. Svensson (2002) concludes from the observations he made during his study of “IT-mediated communities of distance education” that the course ADF provided a shared arena for the students. Here the community history could be exposed as an interaction repertoire through which common ground could be negotiated. Svensson showed that “small talk” in which the students’ conversation is social and joking rather than directed towards the studies filled an important role:

…what motivates the students to participate in the discourse is not only directed towards individual goals of learning, but is also to a high extent directed towards creating and maintaining a social community (p. 70).
V. Computer Supported Collaborative Learning

Many other researchers also have noticed how important it is that online learners, through this type of interaction, gain perceptions of social presence, because this will have a beneficial impact on their learning. Richardson and Swan (2003) for example found that students’ degree of awareness of the other persons involved in a communication interaction is highly correlated with perceived learning and satisfaction with instructors. Picciano (2002) identified a relationship between students’ perceptions of social presence and their learning and interactions in the course discussions.

The conclusion that can be drawn from these research results is that it seems likely learners need to gain at least some understanding of who the other learners are and to develop some level of “positive interdependency” (Strijbos, Kirschner, & Martens, 2004) before they will be motivated to work collaboratively on learning tasks.

But the purpose of supporting development of a warm social climate for the students’ well-being and motivation to work together is not for general reasons, but as a starting point for a learning process that often has pre-defined goals. The expected study outcomes formulated in the steering documents could be considered artifacts capturing the ideas and values cherished in the COP that facilitates the course in which the collaborative activities are meant to take place. Many researchers in the CSCL field emphasized that students must gain a sense of what they are meant to learn and perform because this increases the chances that they will be actively participating when asked to work collaboratively on a task in ADF. Many of these researchers linked this to sociocultural theory and the idea that learning is situational. Therefore, the students, the newcomers to a COP, need to be initiated into the ideas and tools that exist in this context. Anderson’s (2008, p. 49) conclusion was that students need:

...to experience this discourse and the knowledge structures that undergird disciplined thinking. They also need opportunities to reflect upon their own thinking; autonomy is a useful and necessary skill for expert thinking, but autonomy without reflective capacity greatly limits learners’ capacity to transfer their knowledge to unfamiliar contexts or to develop new knowledge.

Online learners may also need to know what they are supposed to gain through their participation in collaborative activities in ADF. Simoneau (2007, p. 260) concluded that adult learners are:

... motivated to learn when they understand why something is important for them to learn and when they are allowed to be self-directed. Learners
who are self-directed are more motivated to seek self-improvement based on honest and accurate self-assessment, which leads to insights into their own competencies and capabilities.

Many researchers in CSCL emphasized the importance of scaffolding online students’ learning to help them understand what they are supposed to learn and expected to perform. This is a central theme in Anderson’s and Garrison’s et al.’s research (Anderson & Garrison, 1997; Garrison & Cleveland-Innes, 2005). It seems, however, that online teachers do not always provide sufficient support for their online students. Mattson (2006) noticed in her study of online education that the teacher mostly monitored the students to work by reading their comments instead of by making his or her own comments. Östlund (2006b) described the tutors’ role as primarily informative and encouraging. If the teachers’ roles that these two studies considered are transformed to a course in a traditional setting, it would mean that the teacher would instruct the students about what to do, give them some encouraging comments, but never interfere with what they were learning until they handed in their assignments. As Östlund showed in her study, some of the learners expressed concerns about how to approach the course literature and how to formulate their writing to pass their examinations, which could indicated that they needed a bit more guidance.

Anderson, Rourke, Garrison and Archer (2001) shed some light on why teachers in online education seem to interact so little with students in their discussions. It can simply be the fact that the course often is processed by frequent course assessments as the main activity, so that the teacher is forced to prioritize the task to provide individual feedback before engaging in ADF discussions. This could perhaps explain the observation Desai, Hart and Richards (2005) made of teachers opinion that online learning often are more labor-intensive than comparable traditional learning.

An additional explanation could be that not all online teachers know how to scaffold collaborative learning online and therefore lack ideas about how to make this happen. Angeli and Valanides (2009) showed that experienced teachers who lacked training in how to teach online did not perform significantly better in this environment than teachers with less teaching experience and good computer skills who also lacked training in how to teach online. However, the experienced teachers outperformed less experienced teachers after both categories of teachers received training about how to teach with computers.

Next, I will report the results of the PRS study, beginning with a summary of three articles produced on data from the course in special-needs teacher training program.
VI. ARTICLE SUMMARIES

Introduction
The PRS was conducted as a case study based on data collected from one of the courses in which the peer review element was implemented. The dual role as a member of a project that was in need of evaluation and the role of the researcher for this thesis could be combined by this strategy. This makes the research approach partly what Stake (1995, p. 3ff) defined as an intrinsic case study; the case was already decided due to the need to understand this particular case to be able to contribute to the evaluation required to receive the fundings of the project. However, the particular interest in text-based conversation in this study makes it possible to classify it as an instrumental case study, which Stake described as a study conducted to learn more about something besides the specific case.

The case for the PRS was a ten-week course with 60 students in a program for special needs teacher training. This case was selected partly because it was one of the first online courses in which the peer review element was implemented. Since the PHD studies were meant to be conducted over the course of two years, it was important to gain access to data relatively fast to be able to start the research. Another reason for choosing this case was that these students were available during a relatively long period of time, which would enable the possibility of gaining feedback from them on the first data analysis. A third reason to select this course was that it included a rather large population. The assumption was that the mixture of students of different ages, backgrounds, and experiences would offer better opportunities to identify a larger variety of issues related participation in collaborative learning activities in ADF than a small, heterogeneous population could. Various aspects of this case were studied via different methods, so a rich understanding of the case could be generated.

These students gathered on campus on three occasions during the course, once for course introduction and lectures, once for lectures and seminars in mid-process, and once at the end of the course for seminars and course summaries. The peer review element was introduced at the first on-campus gathering, when they were informed about the background of the project and the ideas behind implementing the peer review element. A primary ethical obligation when performing research was to not “put participants at risk”. (Creswell, 2003, 63).

The students were informed that data would be collected for evaluative and scientific purpose to further the understanding of how this type of activity could support learning, so they could agree to the arrangement. They were also
made aware that the study was going to be reported in accordance with the good ethical standards of Swedish Research Council (2005), so that no sensitive data such as names or private quotations would be published.

The students knew who I was before the peer review element was implemented because I had lectured in a previous course. They were informed that their contributions to the conferences in FirstClass™ would not be used to assess their learning, apart from a reflection they would contribute about how they had help other learners and vice versa in their self evaluation. In other words, those who did not want to contribute much to the study could participate in these activities with a minimum of engagement without being afraid that it would have a negative impact on their grade. Data were analysed in various ways to answer the research questions in this thesis, but also to provide information for evaluate whether the peer review element contributed to the students’ learning. The overall conditions for reporting the results from data analysis are described in the next chapter.

The research approaches

The analysis of data resulted in two conference papers and the three articles that are part of this thesis and that are summarized in chapter VII. The first data analysis resulted in the article “Peer Review for Learning in Online and Distance Learning” (Liljestrom, Hult, & Stodberg, 2008), which was produced early in the research process as a contribution to a special edition of the Swedish Journal of Research in Teacher Education on the topic of ICT and learning.

This peer-reviewed journal is directed toward an audience that is interested in teacher education. The aim of the article was to share the rationale behind the construction and implementation of a peer review element for learning and some of the experiences this implementation generated with other educators and researchers who were interested in online learning. As the title of the journal indicates, it targets teacher education. This contributed to the reasons for selecting this specific case as the center of the PRS, since it was a course within teacher training education. This was not the case with some of the other courses in which the peer review element was implemented. It was important to provide the journal audience with information about the origin of the project and to show how it was anchored in previous studies of online and on-campus assessment, to illustrate the rationale behind investigating what a peer review element could mean in the context of higher education online. My role in providing this background was to report findings and ideas in current research of formative peer assessment.

This highlighted how formative assessment in the form of frequent course assignments and teacher feedback seems to be a widespread strategy, not the least in online education, but the current research in this field warns that
formative assessment of this kind risks promoting instrumental approaches to learning. Another of my contributions is in the background research of current ideas and findings in studies of peer review, which was used to outline and discuss constructing and implementing the peer review element. I also contributed to the joint effort to analyze and discuss the results. The research interest in this thesis is present in the analysis of how the students described their experiences of participating in the ADF discussions.

“Enhancing University Students’ Interaction and Learning through Formative Peer-assessment Online” (Liljestöm, 2009) was the second article produced on basis of data from the project. It was a contribution to a book titled *Collaborative Technologies and Applications for Interactive Information Design*. This book is made up of peer-reviewed articles from cross-disciplinary contributors with interests in CSCL. The editors describe the book as directed toward those who have encountered either the theoretical or practical aspects of collaboration and wanted a grounding, framework, unified theory or set of best practices. The peer-reviewed article contributed with a thick description of the rationale of the peer review element and the context in which it was implemented, since the readers might not be familiar with the conditions for higher education online in Sweden, and to capture the overall nature of the students’ approaches to the ADF activities and their views about these experiences.

The last article, “Formative Assessment in Peer Review Settings Online” (Hult & Liljestöm, 2010), is based on a study that was reported at the ICICTE conference in Greece during July 2009, but that has been since been furthered through deeper data analysis and more additions to the theoretical framework. The conference organizers offered the authors the opportunity to contribute to a journal produced by the University of Fraser Valley titled *Research Review—A Special Topics Journal from the University of Fraser Valley*. The editors said the purpose of this journal is to make available to scholars, interested readers, academics, practitioners, students, and community members research, findings, and other similar material on the selected topics. This article focused on the activities during the last stages of the peer review element when the students were peer reviewing each others’ drafts. The topic was the nature of the feedback the students provided each other, but related data also shed light on the processes in the ADF activities when the peer reviews were conducted.

These articles shed important light on the research questions when the results of the study as a whole were summarized. However, the conclusion was that a complementary study in which the nature of a specific task in relationship to the approaches used when working collaboratively would further the understanding generated through these three studies. My hope is that this narrow look at specific processes could yield more understanding about questions of the strengths and restraints for participation in collaborative
learning activities in ADF. The results of this study are presented in a separate chapter, chapter VII, before the results of the study as a whole are summarized and discussed in chapter VIII.

Article 1: “Peer Review for Learning in Online and Distance Education”

The first article, “Peer Review for Learning in Online and Distance Education” (Liljeström, Hult, & Stödberg, 2008), begins by exploring challenges in current discourse in higher education about online education to contextualize the creation of the peer review element. Recent research and theoretical developments in formative assessment are applied to outline the problem that the creation of the peer review element responded to, and also is meant to provide background about how the peer review element was constructed. Two research questions are the focus of the article. The first targets the strengths and obstacles of peer review, and the other concerns participation in ICT and the use of text-based communication.

The first research question reflects the idea to implement a peer review element to scaffold online learners, through activities aimed at furthering their understanding of the skills and qualities they were expected to develop and demonstrate in their coursework. The question of how well the use of ADF had worked was interpreted on the basis of data collected via a questionnaire that the students answered at the end of the course. The questionnaire was answered by 51 students (n=92% of the student group). Those who did not answer were students who did not participate in the on-campus meeting. Data analysis was conducted using descriptive statistics for the closed questions and content analysis of the answers of the open questions.

The data analysis revealed that a majority of the students said they had found great value in participating in the peer review activities, even though some of them said they initially were frustrated because they did not fully understand the purpose of the activities. However, they also reported that this frustration disappeared when they started to grasp how the process was meant to support their learning. Nine students found that participation in the peer review activities was too time-consuming, but only three of the 51 agreed with the statement that it was a complete waste of time. Nevertheless, only four out of the 51 marked thought that the peer review activities were an unnecessary element in the course, and 40 of the 51 agreed to the statement that this element in the course provided valuable guidance for how to direct their learning toward the expected learning outcomes. Eighty-four percent of the 51 students indicated that their participation in the peer review activities had a positive effect on their independent and critical thinking skills, and the majority also stated that it had helped them understand the principles for knowledge
building in an academic context. Forty-three of the students indicated that their participation in the collaborative peer review activities contributed substantially to their learning, while only one student thought that concentrating on his or her own learning process instead would have made him or her learn more. The question of how the students had experienced peer feedback about their drafts was also interpreted, and the result showed that only 18 stated that they thought that teacher feedback would have provided better support. Some students reported via the open questions that reading and reviewing the texts their peers had written had made them aware of weaknesses in their own text. These results indicate that a majority of the students experienced the peer review activities as purposeful actions to support their learning in this course and that it therefore was a valuable experience.

The second research question was directed toward how the students’ experiences of how participation in the peer review activities through text talk in ADF work. The result of the data analysis shows that a majority of them had not experienced much restraint in communicating this way. Some of them took the opportunity to share more of their views by adding comments to the closed questions. In these comments, some pointed out that the benefit with text talk in ADF is the time it gives for reflection before an utterance is made, and how the process to formulate thoughts in words can give a clearer view of personal standpoints and thereby trigger a higher level of abstraction. Still, others reported that they found it easier to express themselves in text rather than in speech, and there were also some comments about the value of flexibility the method offered for participatory collaborating. The analysis, though, also revealed that nine students did not find it easy to create texts that transmitted their meanings in a way that would not risk to be misunderstood. Comments on this topic show that some of them also found it hard to fully understand what their peers meant to contribute through their postings, and others explained that they found it hard to express feelings through text. Others thought that text-based participation in these activities was more time-consuming than participating in a face-to-face environment would have been. One student also pointed out that she found written communication flat by nature and that it lacks nuance.

The conclusions drawn in this article is that these results indicate that the peer review element offered beneficial support for the students’ learning process. Many of the students found that participating in the peer review activities was time-consuming. Nevertheless, they spent time and effort to engage in the activities, and many also expressed that their participation had supported their learning. These are strong indications that the students managed to use asynchronous text talk in a way that their participation in the activities became meaningful.
Article 2. “Enhancing University Students’ Interaction and Learning through Formative Peer Assessment Online”

This article, “Enhancing University Students’ Interaction and Learning through Formative Peer-Assessment Online,” provides a dense description of the rationale behind the creation of the peer review element in light of sociocultural theory and the conditions for higher education in general in an international context, and, more particularly, the conditions in higher online education in Sweden. The point of the article is captured in two questions about how the scaffolding of the peer review element filled this purpose, while the last question concerned the students’ views of how they had experienced participation in the peer review activities through text.

- Are there any signs that the interaction with other students had any impact on the students’ understanding of criteria?
- Did the students value the peer assessment element and consider it important for their learning process?
- How did the students believe that the text-based communication worked for negotiating meaning? What strengths and limitations can be identified?

These questions are similar to those addressed by the first article, “Peer Review for Learning in Online and Distance Learning.” Some of the data from the answers the 51 students (n=92% of the student group) provided to the questionnaire they received at the end of the course are used also in this article, but additional data was collected from the ADF activities. The principle for data collection and analysis was based on the analytic framework created by Henri (1992). In this framework, the categories participative, social, interactive, cognitive, and metacognitive (p 125 ff) can be purposeful tools for capturing the nature of the ADF activities. These categories were used in this study to identify the variety of characters represented in the students’ postings rather than to establish the proportions between postings of different type. Data were gathered with a focus on postings in which the students expressed issues that concerned the impact that others’ postings had on their understanding of steering documents and criteria and knowledge building in general. Utterances related to the peer review element were also collected as were postings in which the students explicitly commented about how the contributions from peers or the teacher’s comments in the ADF made them change their minds about something. Samples in which students reflected on text-based communication were also collected. The variety of content in these postings was central when data were gathered, rather than an attempt to evaluate to what amount these type of comments comprised.
The results presented in this article show that the students’ engagement in these activities was high. The greatest amount of postings in a study group was 432 and the lowest amount of postings a group made was 173. The difference was partially revealed during the data analysis, which showed that the group with more numerous postings made more off-topic comments, and some groups used physical meetings as a complement to the ADF discussions. The analysis revealed that the four dimensions suggested by Henri (1992) were present in the contributions in the ADF in all groups. The dimension “participative” was present in that all students seemed to receive at least one comment on on-topic postings and that the activity seems rather stable over time. The “social dimension” was identified as present in all of the groups through remarks of personal nature, and the “interactive dimension” in how some contributions explicitly referred to messages made by others as a starting point for a student’s own argument. There were also “metacognitive” dimensions in the postings as some of students made spontaneous reflections about their learning process, and in comments about how intriguing the peer review element was because it challenged the contributors’ understanding. The overall patterns in the first two ADF activities, the workshops, is also identified and described in this article.

In the first workshop, the students discussed different types of steering documents in terms of what it means to be “critical,” “independent,” and “reflective” in a scientific context. Some students proposed that it meant that they had to trust their own judgments, while others suggested that it was a result of reading, interpreting, and viewing a text or a situation with critical eyes before drawing a conclusion. Few of the students questioned the ideas that their peers contributed in the first workshop.

The second workshop was devoted to the task of performing reviews of texts and discussing the results of these evaluations. The differences in the students’ reviews of these texts identified and described in this article. This is presented in relation to results based on the sampled comments the students made about how the contributions of others made them change their minds. These results show how differences in opinion about the qualities of these two texts was discovered and interpreted by the students. Some of the students made spontaneous comments during this process about how someone else’s contribution made them change their original opinions about the quality of the texts. The tutoring they received in which they were asked to have a closer look at the text and encouraged to try to identify an author voice in the example texts and so on was also followed by such comments. Some results from the analysis of questionnaire data is also reported in relationship to how besides comments from peers and the tutor seemed to help the students’ understanding of the qualities that are expected to be represented in an academic text. This data indicate that many of the students actually found higher value for learning
in reviewing their peers’ texts than in the comments they received on their own. It was for example pointed out by several students that reading different drafts made them aware of how the examination tasks could be tackled in a variety of ways.

The results of the analysis of the questionnaire had been reported back to the students for comments. Their comments revealed even more about the value the students found in participating in the peer review activities. When they were asked to explain why they participated even if they thought it was time-consuming, many said that it was time well spent. They believed that this had helped them direct their learning and guided their work with the assessment tasks. One student even stated that he believed he had saved time through participating in these activities. He said that it made him understand what was meant to be performed, so less time had to be spent figuring that out.

There are strongly emerging signs that a large proportion of the students managed to use text talk in a meaningful way when they worked on the peer review tasks, if the results drawn from collected data are triangulated with the comments the students made to these results.

The question of how the students found text talk meaningful in the peer review activities is also examined in this article. Data from the questionnaire are applied to illustrate the benefits the students reported with working in ADF, such as it enabled flexible participation, time for reflection, and the possibility for all to express their thoughts. It is also reported that indications in the analysis reflect that the students’ contributions to the ADF activities was preceded by a thorough reflection on the content of peer contributions.

However, the results of this study also show that it may not have been completely uncomplicated to participate in the peer review activities through asynchronous utterings in text. The analysis of the process data revealed that some participants in study groups who lived close range to each other chose to perform some of their discussions face-to face. Students in groups in which participants lived further away from each other made plans to further the discussions they had performed in the ADF during upcoming campus meetings. The analysis of the questionnaire data also revealed that some of the students thought their text-based participation in the ADF activities to be restraining.

Furthermore, these results indicate that text talk can be meaningful for the type of activities the peer review element was meant to stimulate. The sampled data cannot provide any assurance that the students through participation in these activities gained full understanding of the implicit meaning imbed in criteria, but the overall results indicate that it can provide a valuable experience for students. The results also indicate that tutoring and adding challenges can provide valuable support during these activities. The overall conclusion of this article is that the type of activities that the implementation of the peer review
tried to stimulate seemed to encourage students to engage in deep collaboration in ADF.

**Article 3. “Formative Assessment in Peer Review Settings Online”**

The article “Formative Assessment in Peer Review Settings Online” begins, just as the other two articles do, with a section about the origin of the project that generated the peer review element. The research questions at the center of this article concern the nature of the feedback that the students provided for each other and how relevant that feedback was for supporting learning. Related topics such as the activities in the ADF when the students posted their contributions in this forum are also explored. The theoretical framework provided for data analysis derives from research on the function and nature of feedback found in research literature within the field of formative assessment. Some of the framework was used to capture the nature of the feedback, while other parts of it were used to examine how this type of feedback could function as support for learning. The four categories, reinforcing, suggestive, corrective, and didactic, suggested by Tseng and Tsai (2007) and based on the framework by Chi (1996) were to capturing the feedback the students gave each other. These categories were used to identify the balance between the different types of feedback. The principle for classifying coding units was that each time the topic changed, a new coding unit started, since the same feedback comment could contain more than one type of feedback. We calibrated out coding principles several times before and during the analysis by selecting concrete samples from the collected data and discussing how to categorize them.

Data was collected from four study groups, two with a high number of postings during this period: 133 and 126 postings, respectively, and two groups with a lower rate of postings: 69 each. These postings did not entirely contain peer review comments on course work, but also among other things, social “talk,” practical course matters, and some comments by the teacher.

In addition, the comments were analyzed in a more qualitative way by paying attention to how feedback was formulated and received. The result of the analysis of the feedback revealed a higher presence of reinforcing and suggestive comments, which means that the students in many cases identified the strengths in the texts written by their peers and pointed out areas their peers could focus on to improve without explaining in more detail how to do this. Corrective feedback as well as didactic feedback was used very sparsely. This means that the students to little a degree pointed out that something in their peers’ productions was not completely wrong, nor did they provide detailed instructions about how to revise the drafts very much. The conclusions drawn when these results are considered in the light of previous research on feedback
were that these types of peer comments can support students’ learning as they both receive information about the strengths in their work, but they also need information about what they should work on to raise its quality.

The low presence of corrective and reinforcing comments are considered good because these types of comments have a negative effect on students’ learning. The corrective feedback provided was often related to formula, such as how to correctly use a reference system and similar issues. The authors suggest that this type of corrective feedback may not have a negative impact on the students’ learning and could instead be a welcome support.

The analysis of the ADF activities related to when the students posted their reviews revealed that the students engaged in discussions on the basis on topics generated by the comments.

**Discussion**

The results of the studies presented in these articles provide a good ground for the conclusion that it is purposeful to use ADF for the type of activities that were central in the peer review element. However, it is possible that part of the explanation of why these students seemed to find these activities useful could be because of other beneficial conditions. For example, the conclusions drawn from many studies in the field of CSCL have been that online students, just like students in the traditional campus environment, need to know each other somewhat to find collaborative learning activities meaningful (e.g., Anderson & Garrisons, 1997; Bandalaria, 2009; Kreijns, Kirschner, Jochems, & Van Buuren, 2007; Ray et al., 2006; Svensson, 2002). The students who participated in this particular course with the peer review element had met many times during previous on-campus gatherings. This means that they probably did not have to invest much effort in establishing the social relationships in the group and instead could concentrate on the tasks they were meant to collaborative on.

The students’ engagement in the peer reviews activities could also be beneficial, as it gave them reason to keep in contact with peers during periods when they students did not have activities on campus. The ADF activities could provide a chance to further deepen their social bonds. Results from previous studies of online learning have shown the importance of member recognition (Kazmer, Robins, & Shoemaker, 2000). The peer review element was constructed so that all participants in these ADF activities would at least receive feedback on their contributions when the drafts for their coursework were reviewed, which could strengthen the feeling of belonging and being recognized by the peers (e.g., Anderson & Garrison, 1997; Bandalaria, 2009; Desai, Hart, & Richards, 2008).
The majority of these students found their experiences in participating in ADF relevant for their learning and also expressed that it encouraged them to reflect on their own standpoints. These results are well in line with theory and research on the processes of action when creating a text (e.g., Ong, 1985; Olson, 1994). The conclusion is that the students’ active participation in the ADF activities could have had a good impact on their learning, when these results are triangulated with conclusions drawn in theory and research on collaboration through text. This can have good effects on reflective and critical thinking (e.g., Abrams, 2005; Dillenbourg et. al, 1996; Harasim, 1990; Lauririlard, 2008).

The conclusion about the results in the articles related to the research questions in this thesis is that it has provided strong indications that it is possible to collaborate in a deep, meaningful way through text talk in ADF. The results also indicate that the students may have to know why they are supposed to engage in the ADF activities. They probably also need some guidance regarding how participation in these activities are meant to contribute to their learning to find it meaningful. Furthermore, these findings can be triangulated with ideas presented in the sociocultural framework that underpin this thesis. This would mean that the ADF activities can be regarded a case of guided participation by apprentices in an activity that changed their ways of thinking, acting, writing, and so on, and thus became prepared for future involvement in similar activities (Rogoff, 1995). The students’ participation in the ADF activities can be assumed to have affected their future approaches to online tasks meant to be worked on collaboratively in ADF. Their future approaches when conducting coursework could also be affected, given that the criteria discussion and peer reviews contributed to an understanding similar to the community of practice in which they were peripheral members.

The experience from the group work in ADF in which the majority found the actions useful for learning could perhaps help those who felt restrained by text talk start to grasp how to formulate or read a textual utterance in a way that mediates the intended meaning. The experience could of course also mean that they learned that text talk does not work at all for them. Perhaps it would be worth considering what would happen if such students were offered complementary means for communication, such as audio-visual techniques, to make collaboration more closely resemble work in a physical environment. Perhaps those who felt that their own and others’ contributions to the growing knowledge in the group suffered in quality because they were made in the form of text talk can find audio-visual tools more useful for participation in collaborative activities online. However, the type of reflective processes that text talk can trigger, and the flexible participation, would not be supported if the ADF activities were replaced fully by synchronous activities in audio-visual discussion forums. Perhaps the most effective use of such techniques could be
to add these at the end of an ADF activity, for summarizing the text-based discussion and drawing some final conclusions.

The PRS study could have ended here, since the results in this study have shed light on all the research questions for this thesis. However, the data amassed from the ADF activities during the period when the students worked on the task to negotiate criteria had not been analyzed. This task was central in the peer review element concept since it was thought to contribute to the students’ understanding of what they were meant to learn. Therefore, it did seem the thesis would not be complete before data from this initial stage of the peer review process were analyzed. How did the students approach tasks of this specific nature, and what could this mean for their learning in the course? However, this question emerged during the summary of the results from the three studies when my two years of Ph.D. studies had ended. There was no time left to produce an article. Therefore the last study is reported as part of this “kappa” so the last piece in the puzzle could be put in place.
VII. INSIDE THE BLACK BOX

The title “Inside the Black Box” was chosen for this part of the thesis aimed to complement the study of the activities that was related to the peer review element. This part was aimed more narrow observation of what knowledge the students were constructing during their participation in the initial criteria discussions and the discussions they performed after their practice reviews. These activities were central to the peer review element. The idea was that they should be guided by previous experiences in the program, information in steering documents, tutoring, and guiding documents, to create common ground for understanding that reflected the ideas within the COP they were peripheral members of during their studies. In what way did their participation in these first two activities contribute to the development of such understanding? Accordingly, the aim of the black box study was to determine if and in what way these specific activities contributed to the students’ appropriation of ideas related to the COP that created the course criteria and used that criteria to evaluate students’ coursework.

It was not easy to find tools to capture this information. The tools and strategies used to collect and analyze data that already are developed in the CSCL research field (e.g., Garrison, Anderson, & Archer, 2001; Henri, 1992; Webb & Cochrane, 1995; Weinberger, Fisher & Mandl, 2005) are often used to capture the nature of ADF discussions in a quantitative way, for example through identification of signs of meta-cognitive processes, critical inquiry, social presence, and so on. But all of them were too blunt to capture the processes in the ADF activities in the way that seemed to be needed for the black box study. The metaphors apprenticeship, guided participation and participatory appropriation offered by Rogoff (1990; 1995) and presented in part IV seemed more useful.

The apprenticeship metaphor can capture the nature of the sociocultural activities the students participated in to become able to perform peer reviews with a similar understanding as their teachers would apply while evaluating the students’ course works. The central idea in the peer review element was that the students, through criteria discussions, tutoring, and experiences in which they applied criteria, would learn to know how their teachers used these criteria. The guided participation metaphor creates an understanding about the processes and systems of involvement that took place when the students were communicating and coordinating their efforts. The participatory appropriation
metaphor can capture if and how these students changed their ways of thinking, noticing, and acting.

However, it is important to note that using these tools reveals some problems with capturing learning by analyzing ADF postings. First, the peer review activities in this case must be regarded as a segment of a sociocultural activity rather than the sociocultural activity itself. It had the same purpose as the rest of the activities in the course, to support and stimulate learning so that the students’ coursework would reflect the qualities and skills needed to pass. The activities in the course were in themselves a continuation of previous similar encounters because they were teachers furthering their studies. It was also part of what they were meant to become in their future workplaces, where they were meant to apply the cognitive tools developed through their studies. The activities related to the peer-review element thus have to be understood as part of the specific sociocultural activity needed to make them special needs teachers with certain qualifications, rather than the sociocultural activity itself.

The metaphor guided participation is not something that only concerns direct interaction during a sociocultural activity and does not define when a particular situation is or is not guided participation. Instead, it offers at a way to look at all interpersonal interactions and arrangements. Guided participation is composed of all the events of everyday life. It can involve face-to-face interaction with others or a phone conversation. The interaction can be with peers or experts, ancestors, or distance heroes, in a joint activity, through observations, or by following directions. In other words, it covers all types of interactions in which people manage their own and other’s roles by indicating the direction people are meant to go or avoid going (Rogoff, 1995).

This means that the collectable data from the ADF conferences cannot tell the whole story about what processes that may have guided the students during their knowledge construction. Perhaps they wrote an email to their teacher or asked them questions at a campus meeting before posting in the ADF. Maybe someone had a neighbor or partner to consult. Some of them perhaps looked for guidance by interpreting the ideas formulated by an author of their course literature. Some or another of them may have consulted a peer over the phone or chatted about this subject with persons in a discussion forum on the Internet. Their previous experiences from similar activities at the university or at their work place could be what guided them. Some of these comments could also have been made because of guidance on other issues than the understanding of the criteria. Perhaps this could express how valuable a contribution from a peer to be nice to them, instead of saying what they think which could be that they in fact did not find it a valuable contribution at all. Unless they wrote an explicit remark about such subjects, none of this could be captured. In other words, much of what guided student participation is invisible. But some of the contributions to the ADF activities could perhaps
expose the guidance participation that these activities offered. The collection of data therefore was conducted with a focus on postings in which:

- the students explicitly explained how their contribution was guided, e.g., an opinion or a conclusion drawn by referring to something uttered by a peer, interpretations of a text, an observation, previous similar experiences, and so on.
- The students remarks regarding changes in ways to think, act, and perceive that explicitly were linked to the guidance that the analysis of the ADF postings could make visible, e.g., “When you said that, I started to see things differently,” “When I was reading the course literature, I realized that I was wrong,” “This experience made me see things completely differently,” “I see that experience in a different light now.”

Data analysis

The postings in the two first ADF conferences were analyzed without the intention to establish the amounts and in what proportion course literature, ideas of peers, previous experiences and so on were used when the students created and distributed knowledge. Nor was the intention to compare different groups. The analysis was not intended to cover all aspects of what guided these students’ construction of knowledge. Instead, it is a first test of how the chosen instrument could be used. Consequently, all contributions in all conferences were read through to capture the overall structure and content. Thereafter, a few posts that gave some hints about how the contribution was guided were identified and selected as examples of variations of guidance produced during workshops I and II.

In addition, the way a contribution was made was captured through the metaphors “dialogic” and “univocal” used by Dahlgren et al. (2004) and described in the thesis for the Licentiate degree. Dialogic captures postings that reflected questions directed to others or responses addressing someone else’s utterance, while univocal capture postings in which the contributor made a statement rather than opened up a dialogue. In that way, some of the form and nature of different contributions could be captured and described.

The names of the groups and the students were altered to preserve the students’ anonymity while at the same time making it easier to picture which group a student belonged to. Accordingly, students in group Alpaca was given names beginning with A, and so forth. I translated the quotes.
Results

Workshop I

The task during Workshop I was to come to shared ground on how to understand and apply criteria to evaluate the quality of two texts. This activity is made up by a mixture of univocal and dialogic utterances. The first two postings in group Alpaca are made as postings with attachments. The actual postings inform the contributors about how to participate in the activity. Both the attachments are written in a univocal fashion. Both have used the text in the Higher Education Ordinance Act to which they have added their comments. This statement by Anna is a typical explanation of what it means to be able to make independent and critical judgments:

... to be able to learn from literature without buying everything. To be critical and see where the text comes from, and if it is scientifically anchored. We have received some knowledge about different theoretical perspectives during our previous studies in this program, but there is much left to learn. I feel that I need to develop better scientific grounds and confidence to master this. It is important to keep updated about current research in the field, where things happen all the time. I also feel that I have to learn to master theoretical concepts better.

As further analysis of the ADF postings revealed, almost all students in all study groups contributed with postings in which they sometimes expressed their insecurity or asked others to challenge their thoughts, which could be said to be dialogic style. Others simply said, “Here is my contribution,” in a univocal style. The contributions to the attachments had a strikingly similar structure. They were written in a univocal style as comments to the Higher Education Act, with few exceptions. This indicates that the instruction given for this task may have guided them to contribute in a way in which social comments and task-oriented contributions were kept separate, or at least served as a hint about what approach they should take. However, the empirical material does not allow any support for such conclusion, as no one commented about why he or she contributed the way he or she did in the beginning of workshop I. Anna’s statement in group Alpaca does not explicitly express anything about in what ways this statement was guided, although her reference to previous experiences in the course could suggest that she was indirectly guided by previous experiences in the program. Perhaps these types of postings in which the guidance is unspecified could be labeled as a contribution that was “guided by unspecified lived experience.”

But in other posts, the authors also explicitly mentioned something that had guided their opinions. Diana in group Dolphin contributed with a post before
the students had received more detailed instructions about what they were to focus on in the ADF activities. She wrote that she had read an interview with someone with an interest in critical thinking in the “world of science.” Thereafter, she explained her reason for sharing the link to this interview. It was because she found critical thinking in the scientific sense an important tool for them all. She mentioned how reading this interview generated new thoughts on this subject, and referred to ideas expressed by the author. She described how the content in the article investigated whether critical thinking only concerned the art of think rationally and logical when reading a text, or whether it also involved social responsibility, such as the ability to scrutinize the consequences of different actions. Finally, she also remarked that this reading made her recognize issues in previous activities in the program.

This type of contribution could perhaps be labeled as something indicating that the contribution was “guided by a more knowledgeable other.”

Some students also stated that they had heard a teacher saying this or that in a previous course. This perhaps also could be regarded as being guided by more knowledgeable others. However, many of the contributions to the attachments were statements that did not reveal why they had come to the conclusion they had. In other words, these types of contributions mostly seemed to be “guided by lived experience.” The Higher Education Ordinance of the outcomes of the program they were participating in also suggested methods of dealing with the material. Could this be a contribution “guided by artifacts in the COP”?

The students used different strategies to give feedback. Some simply wrote “response to Alfred” and posted a copy of their peer’s contribution to which they had added their response. Sometimes this became a document that in its turn was copied by someone else who then posted it again, with his or her own comments to the author and the peer. Others wrote a general comment in a post without adding an attachment, while yet others copied something from a statement someone else had made and used that quotation as a starting point for their comment. A majority of the comments to the original statements were dialogic in that they explicitly were addressed to the peer the comment was directed to. Furthermore, it sometimes contained a question directed toward either the peer or the student group as a whole.

The topics the students found valuable to concentrate on in their comments can also be regarded as a form of guidance, since it gives the receiver a hint about what the others found important in his or her contribution. Sometimes a contribution that, perhaps, was guided by unspecified lived experience could receive comments from a peer who had the same opinion but whom more explicitly referred to received guidance to strengthen the conclusion they both seemed to share. One example is when Cecilia in group Cougar wrote that she thought that the ability to make critical judgments in the “world of science”
should be understood as being able to present “evidence” to prove that the issue at hand had been scrutinized and that the knowledge this has process generated had been thoroughly thought over. Charles addressed this idea in his comment to her contribution by saying this issue had been emphasized by a teacher during a previous course. He also added that this was important to note as something their reports would have to respond to. Thus Cecilia’s contribution to the growing knowledge of the group may have gained more value through Charles’ reply that seemed to have been guided by a more experienced other.

Some students did not explicitly write that a teacher or reading in a book had shown them what was expected of them, but exemplified their understanding of a topic rather than explaining it. This discussion between two students in group Dolphins starts with a reflection by Diana on the topic of what it means to independently identify, describe, and solve problems:

In this course, but also previous courses, we are trained to work both in groups and independently. We don’t get everything “put on the plate” when it comes to activities in this program. When we first started we received a study guide with hints on what to read and when. Now we are planning everything ourselves. We have the group in which we can search for answers to our questions, and we ourselves are practicing learning to trust our own ability, identify different tasks, and what the work situation might mean.

This type of contribution could perhaps be labeled as guided by specified lived experience, since she described how they are treated as participants in the program when trying to explaining what it means to independently identify, describe and solve problems. Simultaneously, the tone of this contribution indicates that the way the students have been treated is justified since it is a consequence of what they are supposed to become. This contribution was quoted by De-De, who added a comment of her own that extends the idea to expectations of her in her future work:

And how I protest against this within myself! What resistance one feel when taking new, shivering “independent” steps, hehe. Well, me at least. I also reflected on independence, how important it is to follow your own conviction and not fall because of group pressure or pressure from colleagues when they say that this is the way we do it at this school. Instead we have to think and act in accordance to current research and steering documents and are able to answer: “I do it this way because... and according to...”
What that eventually guided this contribution is a bit unclear; perhaps it could be labeled as unspecified guidance by the future work field.

In many contributions, it is hard to tell if the contribution has been guided by unspecified or specified lived experience. Charles in group Cougar for example described how he had developed an understanding of what it means to identify, describe, and solve problems through his studies:

My knowledge of different theories within the special needs teaching field have increased during my study time. It helps me identify the theoretical perspective that is underpinning a scientific text. By this I have hopefully increased my ability to critically scrutinizing texts.

The mentioning of “during my study time” provides a rather vague hint of what helped him increase this knowledge. Also the response Charles received from Camilla offers the same vagueness about what guidance brought about the skills she says she is mastering:

It is a bit peculiar how this way of thinking almost has become automatic for me... When I think back to the first meeting with perspectives within the field of special needs education, I recognize that I have adopted something that initially seemed so complex and complicated... It was all so new to me.

However, Camilla also added that she had more to learn, but without specifying how:

The perspectives I hope to acquire should give me a totally new option to get an overview over possible explanations to a problem.

Cilla’s comment to this exchange of thoughts indicates that discussions like this became a form of guidance for the course work:

Truly broadening our horizons, which are something we will benefit from when we are performing our analysis in our reports.

Cilla had already made a comment of her own. The post was an attempt to describe what it means to critically read a text. The post indicates that the contribution was guided by specified lived experience and captures what she found she had started to become:

When I read a text written by another scientist, I have learned that you for example can use different theoretical perspectives to view the text from different angles. I can compare with similar theoretical concepts when I have understood a theoretical concept mean. When authoring a scientific text I am to a high degree using my knowledge of how to formulate myself to describe actions and to outline problems. I feel like I have gained the tools for this through writing previous reports and have
started to understand that when I am writing in these reports, I start to find some paths in the wood...

There were also explicit remarks about how valuable discussions with peers in the past had been, but also postings in which students emphasized the hope that they through participation in the peer review activities would gain support for their learning. This example is collected in group Dolphins, in which Diana wrote:

It is likely that we perceive the different parts in the books we read, and the lectures we listen to, in diverse ways, as we all are different. That is why it is good to have a round, where we get to listen to everyone’s angle of approach, and we are sensitive to what they say, so we can gain what we may have missed.

This sentence was quoted by another member of the study group who then replied:

I find it very interesting that you brought this up! One could think that everyone hears the same thing, but one becomes astonished when discussing what one heard at for example a lecture. We can have the absolute opposed meaning of what was said, and who is right then? Is there something such as right or wrong? How is it the interpretation of different theoretical perspectives meant to be conducted then, is there some standard for how to interpret or do I have the right to interpret it from my own point of view? Can I pick a theory and “make it mine” out of how I understand it? Surely it is good to discuss one’s thoughts and how one understand issues to clarify and deepen one’s own and others’ thinking, and that is what I guess we are supposed to do in this course.

While the post on one hand reflects that the author believes in the guidance the peers have to offer, it could at the same time be seen as recognition of the members on a social level, a sign of “taking a stand on the culture of one’s community” (Packer & Goicoechea, 2000, p. 228) by justifying the implementation of the peer review element.

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7 A round is a procedure in which each student is given the opportunity to, without interruption from others, present his or her view on a given topic or question. Thereafter a discussion takes place. The round is a discussion method practiced in some courses within the teacher training program at the university where these students studied, which makes it likely that this is what this student is referring to.
There are not many traces in any of the groups that the students questioned each other’s contributions. One exception is when Deborah from group Dolphins referred to a dictionary to define the word independent. Perhaps this contribution could be labeled as guided by official agreements in society. However, David strongly objected to the definition Deborah presented because he did not think that the answer in the dictionary was correct:

David: I have some difficulty buying that explanation of independent. One can take an independent decision even while considering others after one has deliberated why one want to do it this way carefully.

In summary, the ADF seems to have provided these students with a place in which they could store the communal resources gathered through individual or shared endeavors through the various types of guidance they had experienced. It seems the contributions they found relevant mostly became something for others to observe or further comment on. All the postings from all groups during workshop 1, including the quoted examples, indicate that the students did not question these contributions to a very high degree. Instead, there are plenty of comments about how wise a comment is or how valuable it is to work together online with these tasks. It is therefore very hard to find signs that suggest that anything of what was brought on the table stimulated any changes in the individual’s way to view, think, act, and so on. But there are some remarks in which the student thanks one of the peers because the contribution helped her or him to put things into place.

Workshop II

Workshop II was the peer review activity in which the students were instructed to evaluate two example texts as a starting point for discussion. The texts were authored as drafts for the first part of a research plan in which they were to introduce the research interest and present concrete research questions. The topic in both examples was the access to animals serving as part of the treatment for older patients in health-care, “health care animals.” This topic was chosen because it did not concern things these students were studying. The idea was that this could prevent them from directing their interest toward questions raised by the content, so they better could concentrate on how the texts were constructed. The author of text 1 introduced the study by refereeing results from scientific studies that indicated that animals are useful in health care for elderly persons with dementia. The author proceeded to point out that some persons may be allergic or afraid of certain animals and that the cost of keeping animals also can vary among species, and argues that it therefore is important to pick the right animal before implementing this into health care for dementia
patients. The conclusion drawn was that it is important to investigate what animal could be most suitable as a “health care animal,” and the research questions were then directed to investigating this issue.

The author of text 2 introduced the topic in a slightly different way, showing a newspaper article that stated it seems to be of interest in society to use animals in health care. The author proceeds to discuss why this interest could have emerged, referring to figures on how the number of staff has been cut during the past years in this sector, and research that shows how the view of animals has changed toward the idea that they are “almost human.” This ends in research questions aimed at investigating the rationale for introducing animals in health care for dementia patients and finding out what consequences and benefits the implementation of ‘health care animals’ could have.

As was the case in workshop 1, the first contributions were to a high degree made as messages with an attachment. Most of the messages were dialogic with a clear address to the members of the group, while the attachment with the results of their review in general was written in a univocal style. There were not many visible signs in the first postings about what may have guided the contributions, which means that most of these comments could be labeled unspecified lived knowledge. Some of the students used grids that they had composed on the basis on statements made during workshop 1, which indicate that at least some of the communal resources they gathered during that activity may have provided some guidance for their reviews.

The analysis of the overall discussion patterns revealed that the same issues mainly became central in the discussions in all groups. For example, all groups had members that expressed opposed meanings of the scientific value of text 1 and 2, but to different degree. Some students argued that the text with many references to scientific studies on health care animals 1 was of higher quality, since these references showed that the author had been reading a lot on the topic. Text 2 was described as theoretically “thin” by some students. Some said the choice of references was a sign that the author had not put enough energy into reading current research on health care animals. The use of a newspaper article in text 2 was found very irrelevant by some students. However, there were also members in all study groups who wrote that they did not see anything wrong with this, as the article content was not presented as “facts.” Fiona wrote:

I believe that text 2 is deeper and explores whether there really are any valid arguments for the conclusion that animals have a positive impact on human health. The text is questioning this issue more than text 1. I understand that the author of text 1 has bought the scientific research she
refers to without any questions and now is focused on determining what animal that would be best for the purpose of becoming a health care animal.

Felicia quoted her and added:

I agree totally. I think the author of text 1 lacks a bit in critical analysis of the referred literature. Everything seems to be “bought” by this author.

However, later in the same comment, Felicia added a reflection about the reference to the newspaper article in article 2:

But then, what kind of source is a newspaper? What scientific ground does it rest on?

The analysis of the discussion on the same topic in group Cougar revealed more diverse meanings. Charles explained that he was of an opposite opinion than the others in his group who thought the opposite and saw the use of a newspaper article as a weakness in text 2. Their conclusion therby became that text 1 therefore was of higher scientific quality. In Charles’ opinion, there was nothing wrong with using the newspaper article. He pointed out that the author did not use the article to present facts, but as a way to show the reasoning behind the research interest. Charles’ opinion in this matter was almost immediately adopted by the peers. More than one stated that he or she had changed his or her mind. Consider, for example, Casey’s comment:

But now we have learned from Charles that such a reference can fill other functions!

Charlotte’s comment on the same topic also reflects how the students’ original thinking had been challenged:

Charles, you have completely changed my thoughts, I was immediately attacking the newspaper reference as a bad example of non-scientific studies, but your explanation justified the use of it, thank you!

Few signs of what may have guided the contributions are visible in these later postings in which the students started to challenge each other’s opinions by expressing opposite meanings. Even so, this type of discussions spurred remarks in all groups, and some posts indicate that one or a few students changed their opinions and suddenly found that text 2 more closely resembled a scientific text than text 1. There are however a few examples that can give some information about where students looked for guidance besides their previous experiences. One of these exceptions is exemplified by a posting Barbara made in group Bear:
I have been sitting here, talking loud to myself, expressing arguments for and against. I grabbed Backman [book about academic reporting] to try to straighten this out. As I understand it, the introduction should contain a minimum of irrelevant and loosely connected information. So, if I review text 1, I am now of the opinion that this author at 2-3 occasions has expressed her own thoughts, which should be eliminated from the text...

Brigitte replied to this post. She first stated that she wanted to add something new to the debate, but could not find anything more to say at the moment. However, she went on to say that according to her understanding of the teacher feedback they had received, nothing was wrong with using a reference to a newspaper article in the fashion the author of text 2 had used it. However, she added that the valuable contribution Barbara now had made based on her consultation of the course literature had made her feel unsure again. At first, she had thought that text 1 had more scientific qualities than text 2. During the discussions in the group, she had changed her mind and saw that text 2 had more scientific qualities. Thereafter, she started to see some qualities in text 1 and some in text 2, until Barbara’s remark brought her to a point at which she did not really know what she thought at all!

It seems that the tutoring guided this group to the conclusion that text 2 was of a higher scientific quality than text 1. But the guidance this provided was subtle, so Barbara’s contribution based on consultation of another more knowledgeable source made Brigitte confused and insecure. However, in most groups, the tutoring seemed to guide the students toward an understanding of text 2 as of higher quality than text 1. In some cases, these instructions was followed by a remark from someone who wrote that he or she had completely changed his or her mind about which article that was of higher quality. It also seemed to stimulate some students to take a closer look at how the authors of these texts expressed themselves. One student remarked that the author of text 2 had used words such as “examine” and “judge” in contrast to the author of text 1, and drew the conclusion that text 2 was written in a more scientific style.

Discussion
There are much more that could be made explicit from the peer review activities during these two events, but what has been reported provides enough signs that indicate that participation in these workshop supported the students overall learning in the course. The tools used captured at least some of what the students used when constructing knowledge. For example signs of various forms of guidance made up by teacher remarks, readings of text of texts reflecting scientific points of views, recall of previous study related issues and so
on, seems relevant for the purpose to learn to know more of the ideas within the COP they were peripheral members of during their studies. To capture a sociocultural activity as a whole as these tools seem to make possible, could help the understanding of how the students’ through their participation in the ADF activities created and distributed knowledge in relation to the purpose of the activity and the guidance that partly was made visible in their contributions. This could for example give a hint about if the students perhaps could need more guidance or not. The tutoring these students received was for example mostly through instructions about what they should look for when evaluating text (1) and (2) which both was written to reflect student work on the similar level as these students were thought to perform. Perhaps a third text reflecting “best practice” would have provided the students with something to observe and learn even more from when they compared it to the other two texts.

In summary, the variety of communal resources that the students put forth in the ADF during workshop I indicates that this activity both provided a reason for the students to gather up these resources and an opportunity to store them in one place. Throughout this process, all students could observe what their peers used to understand what they were supposed to learn, such as books, teachers, reflections on experiences, and so on. It seems quite relevant to consult other sources to gain an understanding of the ideas within this particular community of practice. For example, it gave everyone the chance to borrow a strategy or an idea from a peer. Workshop II also seems like a good idea. The postings revealed that the consensus the students seemingly had was not as solid as that forged during workshop I. The debate within the groups made more than one of them change his or her mind completely about the issue being discussed. These results reinforce the results generated in the studies reported in the three articles as well as the overall conclusion that use of asynchronous text-based discussion in online learning can contribute to students’ learning. But what they learn in the ADF depends on to what degree they understand the purpose of the activity and the guidance of their participation.
VIII. CONCLUSIONS

The results in this thesis show many convincing signs that it can be valuable to organize learning in terms of tasks for students to work on collaboratively through asynchronous conversation in ADF. Some results show compelling signs that the students, through their contributions to the ADF, gathered resources that could provide powerful supports for learning for all members in the group. For instance, the act of formulating thoughts and ideas in text as contributions to the growing knowledge of the study group can stimulate reflection and the need to clarify the basis for a particular opinion. Some participants in the SLAE activities and students in the course that was explored in the PRS both talked about this.

Conversation through text in ADF can also give students means and a place to gather all the communal recourses that the sum of individuals carries and to distribute these resources to the whole study group. This makes it possible for peers to observe and evaluate the validity and reliability of a particular contribution when the contribution is made with references to what made to how the individuals think this issue should be understood. They can assess this in the light of what they have understood from guided participation in the past and the guidance that are available at current course literature, teachers, articles, the neighbors, and so forth. A sign of that contributions like this really seemed to be evaluated and questioned did for example emerge in the black box study, when Deborah proposed an explanation of the concept the group discussed by referring to a Swedish dictionary. As suggested this action could perhaps be understood as guided by official agreements. But David questioned this definition, because he understood that the dictionary captured a general definition that was not entirely valid to this particular context.

The guidance the students in the PRS exposed in their written conversations seems overall quite relevant for the task to understanding the ideas and values in the COP they belonged to during their studies. As Rogoff (1995) proposed, people participate in shared endeavors to accomplish something. This means that their actions are not random or lacking in purpose. The guidance suggested by what was made visible in the postings indicates that their contributions were guided by experiences, observations, and consultations with more knowledgeable others that very clearly had high relevance in identifying these values. Thus they clearly were rather well informed about what they were meant to accomplish through these discussions. Another sign of this is that so many separated their social remarks from their contributions about the issues they
were discussing by adding the task-related contributions in attached documents. Most group work in a physical environment also starts with some social exchanges during which the participants chitchat a little before they start working on the task at hand. However, it can be suggested that the conditions during text-based discussion can be a better support to help students stay on track and focus on the task than conditions in a face-to-face discussion. The latter type of collaborative task work can easily be disrupted. Something can trigger someone to think about something that is not relevant to the task even if it is interesting in other ways. When such a subject is brought up, the whole group might begin to discuss this interesting topic instead of working on the task. Since joint endeavors in a face-to-face situation normally are planned to take place within a certain timeframe, such digressions can have a negative impact on the effort to accomplish the task. In this aspect, the online text form of discussion can offer students conditions in which they can concentrate with fewer disruptions than in synchronous face-to-face situations. The structuring of contributions, in which task-related and socially related contributions are separated, as shown in the PRS study, can be quite purposeful. The posting itself gave room for that valuable chitchat that every COP needs to make the participants feel they belong and are appreciated. In addition, the attachments were their contributions to the work they were doing together, were very task related and free of irrelevant issues that might have distracted them.

However, it seems likely that the peer review activities could have become different than what was visible in the PRS if the students had not grasped the purpose of the activity as it was meant by those who had constructed it. One of the interviews in the SLAE study bears witness to this; the interviewee stated, that is how learners can be discouraged from participating in ADF discussions when they do not understand what this type of activities are supposed to be good for. Therefore it seems quite useful to start a course with tasks that are similar to those the students in the PRS were offered.

The course curricula and the overarching steering documents are important artifacts that captured the central ideas in this type of COP and thereby were valuable guides to what knowledge and learning in this particular context were all about. Facilitators of non-formal education, as in the SLAE case, could probably also benefit from activities in which their participants have the chance to understand the central ideas in this particular COP.

The results from the SLAE study clearly indicate that there is a risk that the participants will not consider time engaging in ADF discussions to be well spent unless the ideas for and the purpose of such activities are accepted by them. They need to understand the purpose of these activities. This conclusion is also supported by results that suggested that participants with different views
about knowledge and learning than the ideas underpinning SLAE expected something else from their leaders than what they were offered.

It seems clear that the high activity in the ADF by the students in the PRS and the high value they said they found in these activities can be linked to what they were informed about and had accepted the as purpose of the peer review activities. However, some of the students in the PRS study saw little value in the activities related to the peer review element, though they were fewer in number than those in the SLAE study who expressed the same opinion. There is not much analytic focus on these students in the PRS study. Perhaps they should have been picked out and interviewed so this problematic issue could be explained. One of them explained when the answers to the questionnaire was summarized and the results brought back to her that she simply could not devote the time needed to such tasks. This provided one type of explanation. Another more speculative explanation is that not everyone is interested in reading and writing and therefore prefers to be in situations in which they can speak out loud. The guidance these students found in previous experiences of asynchronous text-based communication could also differ from the guidance of those who found this a sufficient way to collaborate. Perhaps they had learned in previous similar situations that text talk offered them nothing? Another possibility could be that text talk was so new to them that they did not understand the point of it, since they had not had much guidance about it in the past. This could mean that the guided participation in this course could prepare them to find value in this way to collaborate.

The students’ postings verbalized how guidance in the past and during current course also was related to what they were becoming. The collected data mirror their discussions of why they were supposed to learn certain skills and abilities, which was because they were to become special needs teachers. Even if the material was not analyzed in depth, it is clear that their discussions did not often focus on what they were meant to become apart from special needs teachers—for example, citizens capable of contributing to a democratic dialogue. In other words, the different views of what education at university level should be about seemed to have produced a winner, the idea that it should support society with qualified labor of a special kind.

It is not revolutionary to give the students an opportunity to evaluate each other’s coursework. The students in the SLAE and many other online courses are instructed to give feedback to their peers. The value of such activities was clear when the students’ comments about this were analyzed alongside with their activities in the ADF. Seeing how others put the understanding they had gained through the sociocultural activity and their studies in to action was possible through these peer reviews. In other words, they had the chance to
learn to understand that two products do not have to look exactly the same to be of the same quality. In this sense, these results indicate that conducting peer reviews can contribute to the students’ understanding. The reinforcing and suggestive comments they made when presenting their reviews could also be regarded as guidance. Appraisal comments could function as guidance about what they should hold onto, while the suggestive comments helped them understand where they needed to make a better effort. Such comments could indicate that there are good reasons to further interpretations of what qualities that were lacking in their coursework. This could contribute more to their learning than more hands-on directions of corrective or didactic nature since it could stimulate more reflection than if they just had to accept someone else’s way of doing things without question.

The students in the PRS study seemed capable of gathering sufficient resources to guide their studies during the ADF discussions. However, the analysis of the material also shows that sometimes this guidance was not enough. The tutoring during the discussions of the reviews helped illustrate how one student first had one opinion that then changed throughout the discussion and the guidance she gained from the discussions and the tutoring. But then all this changed, when a peer remarked that she had interpreted a text with relevance in this matter, which left the first student more unsure than she was to begin with. This indicates that the tutor may have to interfere more with the students, at least during the first workshops. Perhaps this confused student would have benefited from a contribution by the tutor about a piece of a scientific work of high quality in which the author voice’s was present. The tutor could ask the group to compare it with the sample texts and then return to the ideas the author of the course book to see how this text could be understood in a different way. Strong guidance during activities about the quality and the meaning of and use of tools in this COP could form the students’ approaches to future collaborative tasks. The tutor could actively comment in ways that helps the students scrutinize the value of different contributions. This could be done by asking them to explain how they justify this contribution and how their resources are related to the task. One way to make room for more active tutoring could be to cut down on the amount of assessment tasks in favor of group activities, with the teacher as an active participant. This may also only be needed initially and could gradually fade away as the students start to grasp what they are meant to do and how they can guide one another.

Based on the conclusions drawn from these two studies, the answers to the research questions in this thesis are:
• Using ADF for learning purposes is justified because it can become a powerful tool to scaffold learning. It provides the opportunity for students to gather communal resources at the same place to be distributed among the members in the study group. Putting these resources on the table for everyone in the study group enables better possibilities for evaluation of the foundations of these contributions and their value. It also provides information to the teachers so they can direct their support to fit the students’ need of guidance in the zone of proximal development. It can also prevent students from being distracted by interesting, but not task-related, issues if they develop rituals when posting their contributions, so that small talk and task-oriented talk are kept apart.

• Text talk can restrain participation when students do not share the ideas that help them understand the purpose of these types of activities. Typing and reading takes time, and some students may not have enough room in their life to participate in collaborative work through text talk. It may take some practice and guidance before students understand how to use text talk to work collaboratively. But when students learn how to collaborate through text talk, many of the issues that restrained them initially may disappear.

• Activities that help students understand better what they are expected to carry out and in what way it will benefit them can give them reason to engage in ADF activities and the joint efforts to contribute to the growth of knowledge and skills in their study group. Such activities at the beginning of a course or a program can provide online students with guidance that can be useful in future discussions in ADF.

Contributions to the research field

This thesis contributes to the research field of CSCL. This raises the question: What did it really contribute with? After all, this is a research field that at current is populated by many researchers, which means that the number of studies in this field is high. Was there really anything new that could be discovered?

The answer to this question is both yes and no. Some of these results are strengthened by similar observations already made in the field. Consider, for example, the results that show how students through the act of creating texts are stimulated to reflect on the basis of their beliefs before they post their contribution to the ADF discussion. It can be suggested that this means that writing a text for the ADF can stimulate cognitive processes that are regarded as “critical thinking.” Some results also support previous findings in the CSCL
field that show how small talk and other issues that contribute to a social climate are important for online learners.

However, at present, some researchers in the CSCL field criticize the research strategies used. One example is Wever, Schellens, Valckle, and Van Keer (2006), who conducted an analysis of current research in this field. Their analysis of 15 instruments commonly used in this field resulted in a call to improve the theoretical and empirical base of the existing instruments to promote the overall quality of CSCL research. Strijbos, Martens, Prins and Jochems added to this critique. They reviewed 60 conference proceedings between 2001 and 2003 to assess the state of the art in this research field. They concentrated on conference papers because “a conference is the primary forum where innovative methods are discussed and reflection on current practice stimulated” (p. 31). The analysis showed that many papers provided information about the reliability of the coding categories (most of the content analyses presented in this paper were performed on quantified data), but little information was provided on segmentation. They also noticed how little attention was devoted to the process involved in developing a content analysis procedure; one exception, according to these authors, is Chi (1997). These researchers raised valid issues and pointed out how difficult it is to segment a text into units so that it is applicable in another context. Issues such as the collaborative setting and the technological tool can also influence a unit’s applicability. In addition to the criticisms these researchers raised, it can also be argued that the overwhelming amount of quantitative approaches to content analysis of activities in the CSCL field indicates a lack of studies of the kind that have been conducted for this thesis.

The case study methodology used in this thesis in which both qualitative and quantitative analysis strategies were used captured complex aspects of collaborative learning online in ADF, for example the relation between the task, available guidance and knowledge construction. Merriam (1995) pointed to important tools that can help capture the nature of a case and provide some assurance that the results are trustworthy, such as data and theory triangulation, peer review and “member check.” Many of the strategies suggested by Merriam have been used in this thesis. Both data and theory have for example been triangulated to confirm emerging results or to understand emerging results. Many of the findings were observed through the use of different instruments. Some of the results derived from collected data, and the tentative interpretations have been brought back to those who experienced the event for “member check,” colleagues have been invited to co-examine data and tentative results and to comment on the plausibility of the emerging data, and the researcher’s outlook and research interest have been outlined and discussed. These procedures have made it possible for a rather clear picture emerge that
has shed light on many important issues in the CSCL field. For example, the question of whether it is possible to collaborate through text has been answered with a yes. The question that concerns how students can become motivated to participate in solving tasks through asynchronous text talk has also been answered. In addition, the case study strategy has enabled a close view of what knowledge students can produce through text talking. Issues that can contribute to or restrain the possibilities of stimulating collaborative learning online by the means of asynchronous text talk were also explored and possible explanations suggested. These explanations resulted in concrete advice which hopefully can provide struggling teacher with guidance regarding how to create tasks that can stimulate deep learning processes through asynchronous, text talk online. These ideas are about how to make collaboration in ADF work while still giving room for flexible participation.
APPENDIX

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