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Differences and Similarities in Approach Between Classroom and Distance Learning

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1. Introduction

This chapter will focus on differences and similarities between classroom and distance learning. What should count as learning and knowledge when information is available for everybody all the time? What are the consequences of these questions for teachers? These are questions that will be dealt with throughout the chapter. The aim of this Norwegian study is to single out what characterises productive interactions in ICT- (Information and communication technology) supported communities of learners, based on research from three different case studies. The study is based on the assumption that when teachers are designing and guiding learning communities there are some common features across age-groups and learning environments. Common for the three communities is that educational technology is supposed to serve as a space for collaborative writing activities. Across classrooms and distance learning there are some basic differences and similarities that will be discussed and illustrated through three different studies carried out between pupils in a classroom, on-campus students and distance learning students. The first study is carried out in 2nd grade in primary school where the students were supposed to write common texts by means of stand-alone-computers in the class-room. The next study deals with the experiences of 10 campus students in a blended environment. The students met every day, but were also supposed to collaborate online. The third study deals with distance learning. A group of five students called themselves the "*magic group*." They were student teachers who were supposed to publish portfolios and give feedback to each other. The research methods that are used are observations of the activities in the classroom, interviews and analysis of written texts. The conversation taking place when the pupils were writing common texts by means of the computers were recorded and analysed. The written online material is based on portfolios, feedback processes and online discussions. Further pupils, students and teachers in all three studies are interviewed. The aim of this chapter is to look across the borders of distance- and classroom learning in search of differences and similarities.

2. Why organized teaching and learning?

Schools as we have known them for hundreds of years have gathered people for the purpose of learning. Educational institutions are organized social societies. Currently it is relevant to raise the question of how to legitimize organized teaching and learning in a

society that is surrounded by technology. If the main objective of going to school is to collect information it is reasonable to question if this is still a state of reasons for going to school. People have access to artefacts that can give immediate answers to all kinds of questions. Human beings are connected through social networks and media. Gee (2005) raises the question of *why* schools in future when students are more computer literate and learn better from the Internet-world than their teachers. Has the traditional school and organized learning situations as we have known them for generations outlived their purpose? According to Säljö (2000) computers represent the most serious challenge to the traditional classroom as we have known it for hundreds of years. The computer as an artefact in the classroom has changed the rules of the game. The traditional communication pattern between teachers and pupils is altered. The teacher is not necessarily the one who knows the correct answer. On the contrary information technology is much more familiar for the young generation than the older ones. The concept communication has two different meanings. The first refers to *communicare* as *transfer* or *hand over*. The second is *communico* which means to *make something a common property* (Erstad, 2010). The traditional classroom is characterized by the pattern of communication known as IRE (initiative, response, evaluation), or transfer. The teacher asks a question. The pupils answer and the teachers evaluate the answer. The role of the computer is to hand over information, to give instructions, to ask for correct answers and to care for as much control as possible. Communication understood as making something a common property means that the teacher should contribute to build a learning community. The term *community of learners* refers to communities where the main purpose is advancement of learning. A community of learners is independent of age. The learners may be any kind of group that is gathered for the purpose of learning; pupils in a classroom, students or visitors in a museum. This means that a community of learners might as well be an online community as a face to face meeting-place. (Brown, 1994; Brown & Campione, 1994; Matusov & Rogoff, 1995; Wubbels 2007; Helleve, 2009b). But what is learning?

3. Learning understood as *productive interactions*

Greeno, Collins and Resnic in their influential chapter on Cognition and Learning in Handbook of Educational Psychology (1996) refer to three traditions when it comes to conceptualisation of knowledge: In a behavioristic/empiristic perspective learning is seen as acquiring and applying associations. In a cognitive/rationalist view learning means to be able to acquire and use conceptual and cognitive structures. Finally the situative/pragmatist-socio-historic perspective understands learning as a means to become attuned to constraints and affordances through participation. The computer can support all these ways of understanding learning. In the first case the computer is understood as a tutor or an instructor. In the second as a tool for individual knowledge building, and in the third the technology is seen as a mediating artefact for learning. Koschman (1996) uses the concept paradigm to explain the difference in perspectives on learning. The situative/pragmatist perspective claims that collaborative activities, creativity and argumentation are fundamental for learning through participants' sharing and constructing new knowledge. Through collaborative activities students are able to solve problems that are beyond the limits of what they would possibly have managed on their own. *Productive interactions* are depending on interaction between social aspects and the technology. Educational technology has the possibility for building new spaces inside the physical space. *Productive*

interactions are the combination of the students' willingness to collaboration, assignments that open for creativity and argumentation and the technology. There are no correct answers. Opposite one question opens new questions in a creative dialogue. Creativity, reflection and imagination as well as argumentation and reasoning are valued in the understanding of the concept *productive interactions* (Helleve, 2009b).

4. Productive interactions in a 2nd grade classroom

The following is an example of *productive interactions* illustrated by children in a 2nd grade classroom in primary school (Helleve, 2003). The class in which this research was conducted participated in a national action research project called "Collaborative writing by means of ICT" (Trageton, 2000). An articulated aim for the project was that students were to write collaborative texts supported by educational technology. Altogether 14 Norwegian schools participated in this project. I was curious to know more about collaboration and learning strategies in communities of learners supported by ICT, so I decided to choose one of these classes for my fieldwork. The class consisted of 24 eight year old pupils, and the teacher. There were two computers available. Two pairs of pupils wrote collaborative texts by means of educational technology on each of the days that I made my observations. The other pupils wrote collaborative texts by means of pencil and paper. The fieldwork was conducted within six months. During this period I spent one day, consisting of four lessons, each week together with the pupils and the teacher in the classroom. Each school day started with a meeting. During this meeting which I called the *reflection hour*, the teacher encouraged the pupils to share some personal experiences either from leisure time or from school. Also at this time she shared the goals for the learning activities she had designed for the day with the pupils. The pupils were asking questions and discussing these plans. The teacher then continued by telling a story to the class. After she had finished the story the pupils were supposed to do some activities in a workshop based on what she had told, or they were going to continue on her story. The pupils in the 2nd grade were observed through two different kinds of collaborative writing activities by means of a computer. The research questions were: What kind of learning strategies do the pupils develop, and what kind of interaction is created between pupils and between pupils and the teacher when the computer is the third collaborator? The first is called *experience story*, and the second *creative story*. In the *experience story* the pupils were asked to give an account and write a report from their collaborative activities in the workshop. The *creative story* asked the pupils to continue writing the story the teacher had initiated. She suddenly stopped when the story was most exiting and left to the pupils to compose the rest of the story together. The fact that they had a common aim through the text they were supposed to write made it more meaningful to compose this text together than writing alone. Through interviews most of the pupils claimed that they preferred collaborative to individual writing. One of the arguments the pupils had was that they shared a *common aim.* The pupils also experienced to be more creative and innovative when they wrote together. One of the girls said: "You become more imaginative. You become more like an innovator. It is like having two imaginations".

4.1 The performance of the assignments

The results of this study showed that it was possible to divide the children's oral communication into three different categories depending on the performance of the

exercises (Mercer & Fischer, 1997; Helleve, 2003). The three categories are called *discussional talk, cumulative talk* and *explorative talk. Discussional talk* means that the co-operation between the members breaks down, or that no real communication takes place. Some pupils never managed to compose a story. In *cumulative* and *explorative talk*, on the other hand, the group members share a basic confidence and there is a willingness to co-operate. When this willingness to collaborate exists the further division into additional categories depends on the actual performance of the exercises. What were the pupils asked to write about? Cumulative talk means that the participants gained knowledge through accumulating shared knowledge. They described what they had done in the workshop. There was no room for disagreement, creativity or imagination. A statement from one of the members was confirmed by the other. In cumulative talk the dialogue is based on confirmations and repetitions. There is little room for the participants' own opinions, and therefore also limited learning potential. Explorative talk is also based on confidence and positive attitudes between the group members, but in contradiction to cumulative talk, the explorative talk opens for discussions, dialogue and different opinions. When the teacher had started a thrilling story and suddenly stopped she opened for imagination, creativity and disagreement. One example was about a cat which was alone at home. Two pupils continued on the story where the cat fell down from the shelf and into the soup. They wrote a story where the cat managed to enter the room where there was a cake on a shelf close to the ceiling and a bowl of soup on the floor. A question for discussion was if the cat was going to drown in the soup or not. The argumentation or conflict was based on trust and confidence. The pupils used their creativity and imagination. *Explorative talk* has therefore a greater learning potential, the potential of creating new knowledge. The challenge for the teacher is to perform assignments the students can solve by giving each other this kind of mutual support. Every day the teacher in 2nd grade started with an initial meeting where she shared her aims and plans with the pupils. Furthermore, her concern was how to prepare for learning activities the pupils could write about later. More then ever the teacher has to be able to foresee the consequences and to know his or her pupils' abilities and qualifications. "When the pupils go to the computer my job is done" said the teacher in this 2nd grade. As a researcher I discovered a pattern where the teacher had planned for *basic confidence*, *sharing aims* and *common experiences*. The learning process was characterised by the pupils' willingness to collaboration, assignments that opened for creativity and argumentation and the technology which are basic for *productive interactions*.

5. A study of campus students in a blended environment

Bridget Somekh (2007) raises the question: Why ICT? Are collaborative activities that enhance open dialogues, creativity, reflection and argumentation depending on computers? Educational technology can offer collaborative spaces that are qualitatively different from physical rooms. The example from the primary classroom shows that a text that is composed by two authors is qualitatively different from an individual text written by one person by means of pen and paper. The product of the writing process was a shared honour for both pupils. The final text was always referred to as "our" text. The pupils were proudly showing their product saying: "Look what *we* have written".

Another example that can answer the question: Why technology? is from teacher education. Data collection is made within the local part of the national teacher education programme;

PLUTO (Program for teacher education, technology and change) (ITU, 2000- 2003a) INVITIS (2000-2003) (Innovation by means of ICT in education of language teachers) at the University of Bergen in Norway (ITU, 2000-2003b). The students were on campus and did not understand why they had to do all the online activities. Parliamentary Proposition no. 27; (2001-2002) the so-called "Quality reform" (MER, 2001) concerning higher education in general, and the National Law for Teacher Education (MER, 2002) initiated great changes in formative assessment, a closer follow up of the individual student, and learning activities supported by ICT. The aim of the INVITIS project was to develop an alternative model for the education of language teachers. This model was to create a platform for language teachers' abilities to become creative and innovative in the traditional classroom. The different themes in pedagogy like classroom management were dealt with in lectures for the entire group of 80 students, in face-to-face discussions in seminar groups, and in digital portfolios where the students gave feedback to each other. The semester started with an Introduction week for the seminar groups. During the theoretical part of the study the students met face-to-face once or twice a week. The aim was to establish confidence, to become familiar with the main goals of teacher education and the INVITIS- project, and to learn how to use the technology. In order to prepare for the online collaboration, students in the basic groups had to write texts and give feedback to each other face-to-face. Participation in seminar groups as well as on-line activities was compulsory. Based on a procedure decided by the teacher educator, each student gave feedback to two peers on each assignment in the portfolio. Face-to-face as well as on-line discussions took place either between the members of the seminar groups or in the subject- related groups. The research questions of this study was *if*, and eventually *how*, the educational technology had been a support for the students' learning process.

The students' motivation for using ICT was low by the beginning of the study. By the end of teacher education however, some of the students saw that there were qualitative differences making ICT and LMS (Learning Management Systems) suitable for productive learning processes not just for distance learning, but also for campus students. The activities they mention are portfolios with feedback from peers and asynchronous discussions. According to the students these activities opened for collaboration and deeper reflection. Through the reflective process the students became more open-minded for other students' ideas and also to get new ideas. Concerning the asynchronous discussions one student said:

> "I have become much more positive to the ICT supported activities even though I still think it should be used with intelligence. To share texts and thoughts has been very nice. I used to be very negative. It was impossible for me to understand why we could not sit around a table and discuss. But now I see that a virtual discussion is something quite different from a face to face discussion".

An important reason was that the online discussions and feedback processes opened for a deeper reflection because there was a distance in time and space. The students did not have to respond immediately, but could wait and think before they pressed the button. Other groups of students were favoured than in ordinary rooms. In face-to-face discussions one or two students often dominate the discussion. Online discussions offer time for reflection before the students have to react to the other students' utterances. One student said:

> "It is another kind of process. You get more time for reflection when you participate in the asynchronous discussions. It is something else to write. You have to think more. I often write my answers to the discussion immediately, but I wait a while before I send it. In the meantime I do some housework before I press the button".

The distance in space also meant that they had to form the other person without actually seeing her. This means that the students experienced the computer to have transparent abilities, making it easier to understand the other students' opinions. The utterances were not isolated, but linked together over time like a chain of thoughts, possible to trace backwards. This gave them an opportunity to go deeper into the text, grasping the other student's thoughts and feelings. The fact that they first had to read the other students' texts or statements before responding was an important distinction between face-to-face and online feedback. Reading and writing meant that they had to go deeper into the essence of utterances. Another argument was that what is written into an online context is impossible to erase. The text leaves the writer and becomes the group's property. One student says: "You stress your words more because you know they will be standing there for ever". Because the students knew each other well, online collaboration seemed to contribute to an extra dimension in their understanding. In pedagogy the starting point for the virtual discussions was a topic related to pedagogical theory and practice initiated by the teacher educator. This could either be an open question, or an article everybody had to read. One student mentioned the question "What is learning in your opinion"? as an example of a suitable discussion topic. She argued that there was no correct answer to this question, but still everybody had their own theories and opinions. Another fact mentioned by one of the students, was that everybody had to participate in the online discussions. In face-to-face discussions one or two students often dominate. Gradually, the students realized that the closed space or room in the LMS became a sort of "treasure chest". All the texts and feedback from others were stored within the computer. But, as one of the students said, this was something she had to experience when she was compiling her own presentation portfolio. She concluded:

> "It is very nice to have this archive there. It is there inside like a property chest. You can enter the "room" whenever you want and the archive expands all the time. Perhaps the teacher educators told us when we started as student teachers, but I did not understand it. We thought it was silly, but gradually we understood that we could find something there".

Summing up, some students saw that asynchronous text based activities had a potential for productive learning supporting face-to-face collaboration. Discussions and feedback from peers opened for reflective processes that made them more conscious of their own opinions and beliefs, and for other students' points of view. The process of writing and reading other students' texts opened for a deeper reflection than speech and could not possibly have taken place in an ordinary classroom without technology (Helleve & Krumsvik, 2009).

6. Differences between classroom learning and distance learning

The previous paragraph showed that the campus students in a blended environment were unable to understand why they had to use ICT when they could speak to each-other instead.

In a classroom the teacher has to create a need for using the technology as a means of communication. In distance learning there is no need for adjustment or motivation. Actually the distance makes the difference. Technology is the media that makes communication and learning possible. Communication understood as *transfer* as well as *making something a common property* is necessary. The Norwegian educational context is characterised by an increasing focus from politicians on goal achievement, accountability and market orientation. Results from tests like PISA and TIMMS have created an international educational competition of which Norway does not come out at the top. There is a strong belief in ICT as a support for learning. The political program for digital competence (MER, 2003) underlined that within 2008 Norway should be ranked on top of the world list when it comes to technology as a tool for learning. That goal is reached. All Norwegian pupils in upper secondary school are given a computer from the political authorities since 2007. The National Curriculum plan in 2006 (MER, 2006) states that digital competence is one of five basic competences together with reading, oral expression, writing and mathematics. The fact that all pupils have their own computer on their desk every day is a great challenge for the teachers. When teachers enter the classroom for a new lesson they are met by a row of backs of pupils who are deeply concentrated with computer supported activities mainly in form of social media. Some teachers have managed to change their way of teaching and adjust it to the new artefact while most teachers continue the way they have done before. Research shows that the pattern of IRE (information, response, evaluation) is still dominant in many classrooms. Teachers are passing information to the pupils, they ask questions, and evaluate the answers. In line with Greeno, et al (1996) the computer is understood as a tutor or an instructor. LMS is mainly used for messages and instructions. ITU monitor (Arnseth, et al 2007) revealed that there is still no depth in pedagogical reflection on the use of ICT among teachers in Norwegian schools. For teachers it is easy to send messages to pupils and parents through learning management platforms. In Norway *It's learning* is most commonly used. The system is constructed to support individual communication. Research shows that for some schools acquiring an LMS combined with use of e-mail seems to be the only aim of digitalized school development (Kløvstad, et al 2005; Krumsvik 2006, 2007). Learning management systems (LMS) open for possibilities for control. Plans for longer or shorter periods are stored and distributed from the teacher. Pupils receive instructions about their homework. Perhaps the greatest challenge for teachers as well as pupils when the IRE pattern is practiced in the classroom is the temptation of using social media. Continuing there is a struggle going on in classrooms between teachers and pupils when it comes to open screens and use of social medium. Student teachers describe from practicum that some pupils are online all the time. This happens in spite of the teacher's continuing requests to stop. When the teacher approaches the pupils change screen picture for a moment, but when he returns to his desk they immediately return to Facebook. Their social relations are more and more connected through the virtual world. Virtual friends join them in the classroom and they are only one click away. This is a constant problem for teachers who are presenting structured information (Erstad, 2010). The entrance of the computer on each desk has altered the communication pattern within the classroom. The old pattern of individual communication based on transfer and reproduction is kept alive, while the computer has strengthened a sense of suspicion, possibilities for control and crossing interests between pupils and teachers. The computer is supporting and strengthening an authoritarian pedagogy. Educational technology as part of a learning community changes nothing in

itself. In fact the opposite can be true. The technology has qualities that can revitalise the most rigid learning activities from pedagogy of the past. Larsen (1998) is concerned with the same problem. He argues that if educational technology is adjusted to the traditional way of teaching or what he calls to "put electric power" on traditional methods this is going to conserve old ways of teaching and stop necessary pedagogical development.

Another important difference is the body-less communication in distance learning. There are possibilities for visualization through solutions like i.e. Skype. However, the immediate effect of eye contact, the possibility for reading body language, and for immediate reaction on behaviour is absent in virtual communication. Vetlesen (2003) makes a distinction between strong and weak mutuality and claims that there are some important differences between face-to-face meetings and virtual meetings. According to him face-to-face meetings are characterized by *strong mutuality* and virtual written communication by *week*. When people meet face-to-face they react upon each other not only based on the words that are said, but also on the nonverbal expressions and the way the other person acts. Normally all these levels act in harmony and one level tend to support the other in a way that helps us to understand the other person. Lack of confidence is aroused if there is a discrepancy between the three levels. When people meet the perception of concurrence or discrepancy comes immediately without any hesitation. The immediate interpretation is impossible in written online communication. Another concern according to Vetlesen is that the ethical appeal of caretaking is much less strong and powerful in virtual communication. When people meet face-to-face the degree of vulnerability and exposure is high. There are some basic ethical and relational principles in education like i.e. respect and obligation that are fundamental for teaching and learning. What about the relational aspects of education when it comes to distance learning?

7. Distance learning experienced as a magic process

In this paragraph I want to return to the question of what learning is like, and to the understanding of the concept *community of learners.* Learning understood as *productive interactions* builds on some basic principles of what a learning community is. These principles are similar across the borders of classrooms and distance learning. Inter-subjectivity understood as *having something in common*, *arena for respectful disagreement* and *human agency* are concepts that are useful in order to illustrate the foundation and maintenance of a learning community (Matusov, 2001; Rommetveit, 2008; Helleve, 2009b). I want to illustrate the similarities between distance learning and classroom learning through the study of a group of student teachers who called themselves the "magic group" (Helleve, 2007). The concept *magic* refers to the reflective and productive learning process five student teachers experienced. This study was conducted among 20 distance learning student teachers who lived geographically spread over a large area. They had finished their master studies and were working as unqualified teachers. During this period as PGCE students they were supposed to study pedagogy and didactics in two subjects combined with practicum. The students started with a seminar where they stayed together for three days. The aim of the seminar was to get to know the other students and to become aware of the aims of the project. The data-material in the study of "the magic group" is concerned with pedagogy. Most of the study programme was based on collaboration by means of the computer. The 20 students were divided into four groups and each group had their own

closed space within an LMS for collaboration. Within this closed space they were expected to publish 15 texts for their portfolio and to give and receive feedback on these texts from their peers. The teacher and the five students in the group were the only ones who had access to the closed area. The portfolios they created were based on their texts and on critical feedback from the other group members. The portfolio was compiled from assignments given by the teacher educators. Since all the students were working as teachers, it was possible to relate the exercises to their own practice in the classroom, as well as to the pedagogical theory they were supposed to read. The students were asked to respond critically to texts written by two other students in their group. After a few weeks one of the groups claimed that they experienced the learning process to be more productive than any of them had experienced earlier. By the end of the year one of the students described the learning process as magic. This made me as a researcher curious to understand more. My research questions were: What are the most important assumptions for the productive learning process that the "magic group" experienced? And: What are the most important consequences for teacher educators in future planning of net-based study-programmes for distance learning student teachers? Through interviews the students were asked to describe why they experienced the learning process so meaningful. They all mentioned as very important that they had a basic confidence before they started their net-based work. The initial meeting was important. One of the students said when they met face-to-face after some months: "I had a strong feeling of coming home. This was *my* group. Or rather this was *our* group". Moreover, they had two strong members who defined the benchmarks and set positive standards for the work. Those who were probably less dedicated from the beginning developed a strong obligation like another student: "Knowing that the other members spent a lot of time on my text I just had to do the same, otherwise I would never have done it." The group experienced that similarity as well as difference, was important for successful collaboration. Similarity related to mutual respect, engagement, obligation and sensitivity, difference related to age, gender, geographical location, schools, age of pupils, subjects they were teaching, and nationality. But most of all they seem to appreciate the fruitful and productive learning process they experienced when they were discussing with people who had different opinions when it came to beliefs, attitudes and values.

7.1 The performance of the assignments

What I as a researcher found was that the same conditions were present as I had seen in the 2nd grade. This made me curious to see if this also concerned the performance of the assignments made by the teacher. When I analyzed the students' texts and feedback process I noticed that there were several similarities. First, it was possible to divide the material into two different categories; informative and creative assignments. The informative assignments asked the students to collect information. An example is: "*Choose one of the educationalists from our curriculum. Please make a brief survey of what he represents and discuss the practical consequences of his theories. You may include your own experiences in your survey.*" For this assignment, the student repeats or reconstructs what he has read. The creative assignments also ask the students for information, but additionally they challenge the students' personal opinions and values. An example of a creative assignment is: "*Is teaching a vocation for which you do not need any formal education? In your opinion, what is a professional teacher? Please give theoretical reasons for your answers.*" The students have to reflect and argue. Second, the

performance of the assignments has immediate consequences for what kind of feedback the other students are going to give. The informative assignments lead to cumulative feedback. Cumulative feedback gives limited room for disagreement and reflection because it does not challenge the students' personal attitudes or values. One of the students said:

> "You had to agree and repeat what the others said or just stop the whole conversation. There was no room for dialogue. It had to be a monologue. And I thought, 'Where is my place in this?' It was confusing."

The creative assignments on the other hand open for explorative feedback. Explorative feedback, which results from creative assignments such as the one above, gives rise to and opens up for critical questions and objective disagreement, and leads to new, common knowledge. The students disagreed with each other and discussed their deepest beliefs, professional identity, and mission. The nature of the net-based discussion, as compared to real life discussion, was visualized by the student who expressed that he had to sharpen his thoughts and opinions on what the other students had written. He experienced much deeper conversations than if they had been sitting around a table because they could read long rows of thoughts that others had ruminated. In classroom teaching as well as distance learning the teacher has to be conscious of the influence the performance of the assignments has on the students' choice of learning strategies (Helleve, 2007).

8. The three case studies

The case studies are rooted in three very different contexts. Based on an idle glance you would believe that there were few if any similarities between a classroom for 2nd grade children and a group of grown up student teachers living geographically far away. And of course there are apparent differences. Still, the main impression of the research is that there are more similarities than differences. In this study learning is understood as meaning created in the tension between different voices, learning is not only accomplished through interaction; it consists of these interactions. Thus the term *productive* embraces the process as well as the product of learning (Lillejord & Dysthe, 2008). So what does the term *productive interactions* mean in this study? The common background for all the three case studies was that students were supposed to collaborate on text-writing. In the study of the pupils through composing collaborative texts and in the studies of the student teachers through composing portfolios, giving feedback to each other and online discussions. The underlying expectations were that through collaboration the students should learn to argue and reflect. The study of the pupils in the classroom and the study of the distance learners show that whether the interactions are going to be productive or not, is partially dependant on the way that the assignments are performed. Productive interactions in the study of the pupils are visualised through the *creative story* that enhance *explorative talk*. These assignments encourage the students into a dialogue characterised by disagreement, argumentation and imagination. They are sharing understanding through a co-construction of knowledge. The students are also interacting when they are composing the *experience stories*. Still the interaction expressed through *cumulative talk* is limited because the students are only asked to collect information about what they have done. They are simply sharing the information about their common experience. There is no challenge or encouragement to argumentation and

creativity. *Cumulative* as well as *explorative* talk are characterised by interaction. However, cumulative talk is limited because the students have to repeat and reproduce information. Explorative talk, on the other hand, enhance *productive interactions*; the possibility for argumentation and creativity. Another question is what characterises the opposite situation when there is no interaction between the members? When the communication between the members broke down as described through the *discussional talk*, I chose to call this *counteraction*. In the study of the distance learners the students gave feedback to each other on texts written for their portfolio. Of fundamental importance to the "magic group" success is their *interaction*. However, the difference in the way the assignments are constructed decides if the students are going to collect common information or if they are challenged to engage in productive interactions. When the students are challenged on their values and attitudes as professional teachers they meet in the inter-subjective space that Rommetveit (1979) calls a *temporarily shared social world*. What makes the interaction productive is that they are challenged to a reflective dialogue with people they trust, but with whom they still disagree. Sara, one of the distance learners said that she thought of the other members' different opinions as guests. And then she thought: "What do the guests want from me? Will they be staying in my head for ever or will they disappear"? And from that point of view she gave feedback to the other members' texts, like guests. The concept *reflective dialogue* expressed through *explorative talk* and *explorative feedback* is used as an equivalent to what I have described as *productive interaction*. Thus the performance of the assignments is one element that characterizes productive interactions. The study of the students in the blended environment is only based on interviews with the student teachers, not on observations of the collaborative activities. What the students claim is that the productive learning or *productive interactions* that are important for them as future teachers are asynchronous discussion and feedback from peers. Summing up there seems to be some basic implications for development of productive interactions that are similar across classroom learning and distance learning in the three case studies.

9. Important preconditions for productive interactions

Experiences from the three different studies show how the computer can be used as a tool for collaborative writing activities for students of different age groups; for students who meet every day as well as students who are distance learners. The fact that the groups and the activities in this study are so different makes the findings more general (Wegerif, 2007). Educational technology offers a new kind of room or an inter-subjective space for collaboration. The space might be compared to what (Engeström, 1998) calls a *zone of possibilities* that can help learners to renew existing knowledge and where both the individual's personal zone and the group's common zone develop according to the process of interaction (Wasser & Bresler, 1996; Hoel 2001). The fact that the texts become a common and not an individual property is discussed by Wegerif (2007). Referring to societies where oral, rather than written communication has been the norm, he claims that these cultures possess a kind of common wisdom that is absent in cultures where individual writing is more common. Educational technology by its nature offers a common space for sharing texts that makes common reflection possible. The computer has the ability of storing collaborative texts, in what one of the informants in one of the studies called a "treasure chest". Another fact is that these collaborative texts might be there for ever. Consequently

there is a continuous possibility for re-working of the texts. Independent of time students and teachers can visit these texts and respond to them. Again this illustrates how, in online collaboration, students have more time for reflection before they respond to other students' utterances than in oral collaboration. Accordingly the notion time and space differ from face-to-face meetings. Wegerif claims that online discussions and collaborative activities might be more egalitarian than face-to-face collaboration. The same fact is stated by students in the study of the blended environment who claim that it is easier to respond to other students' utterances in a virtual discussion.

What the study also shows is that confidence is fundamental for collaborative writing activities supported by educational technology. Whether the students are placed in front of a stand-alone computer in a class-room, or are collaborating through their computer at home, trust and faith in peers seems to be essential. This finding corresponds to other researchers results (Hoel, 2003; Sjøhelle, 2007; Wegerif, 2007). The willingness to be honest and open up, which again is a precondition for productive interactions, should be based in confidence. Other research shows that online collaboration often is characterized by anxiety, mainly because online collaborators lack the possibility of "reading" body-language (Burbules & Callister, 2000). Consequently the willingness to share and invest the inner thoughts is more limited than in face-to-face collaboration. An important precondition for online collaboration seems to be that the space within the LMS is closed for everyone other than the included members and the teacher. The most important issue for students in this study seems to be to get know each other and to have established a sense of common faith and obligation that makes collaborative writing worthwhile. The fact that the collaborative activities should be limited to the selected group seems to be a common feature throughout the studies. The way the educational technology is used as a collaborative artefact in the primary classroom ensures that nobody else than the teacher and the students are participating. Students and the teacher, who share the basic notions of inter-subjectivity, should be the only participants. Research shows that in many situations students want to avoid difficulties and conflicts and choose not to be involved in dialogues (Burbules & Callister, 2000; Andriessen et al 2003; Koschmann, 2004).

When the students start the ICT-supported collaborative activities they enter a world of their own. In the study of the young pupils I used the metaphor "*a helmet made of glass*" to illustrate that the students went into their own world. The teacher regarded her job as fulfilled when the pupils went to the computer. They left her influence in a way. The most important finding from the SLANT-project (The Spoken Language and New Technology) also revealed that the communication taking place in front of the computer-screen was the result of a long process consisting of teachers' designing the programme, then communicating and sharing plans and ideas with the students (Wegerif & Mercer, 1997; Wegerif, 2007). In traditional face-to-face education in a classroom the teacher has the possibility of intervening and stopping the activities. When students are collaborating by means of educational technology their orientation is towards the computer-screen either they are in the same classroom or they are at home with their own computer.

Summing up, this study shows that educational technology is suited for collaborative writing; composing texts, giving feedback to other students' texts, as well as discussions. Due to its interactive abilities the computer offers an arena for collaborative reflection. The texts become independent of time and space because they are always available,

something which might make it easier for students to contribute. Still the findings underline the importance of fundamental confidence and responsibility between students in ICT supported collaboration. Finally the study shows that designing for communities of learners supported by ICT, raises challenges for teachers that are common across all areas whether these represent the stand-alone computers in the classroom, or online collaboration as well as across different age groups. Some of these challenges are discussed in the next paragraph.

10. Challenges for the teacher

In all the three studies the students had the opportunity to meet face-to-face before they were expected to collaborate by means of the computer. This meeting seems to function as a melting pot where they got to know each other and gained confidence. When the three different studies are compared some general findings concerning the teachers' design of communities of learners supported by ICT seem to emerge. The findings show themselves in different ways throughout the three studies. However, there are some general principles. Before the teacher meets the students he or she has normally made a plan or a design for the activities. The crucial moment for creating a learning community is what I choose to call the *initial meeting*. The teacher may either take the full responsibility for the activities or abdicate. The alternative is to create a learning community with shared responsibility between students and teacher. If the students are to learn through respectful disagreement and common creativity the collaborative writing seems to be depending on a chain of activities. The preconditions are grounded on a stepwise development. When designing the teacher should be aware of the fact that the establishment of the community is fundamental for how the learning process is going to turn out. I have decided to call this the *initial meeting*. The initial meeting might be the start of the "writing-day" as in the study of the pupils' classroom or the initial meeting for student teachers in the other two studies. In the study of the distance learners the students also stressed the importance of confidence: ". You have to know each other because you cannot read body language when you are online" according to one of them. Two main concerns seem to be important in the initial part of group establishment. The first is to establish confidence between the members of the society. The second is to share a concern for development of common activities and aims. These basic concerns are rooted in the initial meeting and appear to influence the collaborative activities the students are participating in later. During these meetings the students across the studies had to show some of their personal attitudes. They were either playing together or they were talking about their experiences from their leisure time or family life. What happened during these first meetings was that students and teachers had to open up and learn to know each other as human beings. The foundation for the development of common agency (Matusov, 2001) seems to lie in the initial meeting. Students and teacher come to share a personal concern for each other. According to the experiences of the students in this study, basic trust and confidence seem to be decisive for the further collaboration. The concepts *interaction* and *counteraction* are used to illustrate the difference concerning human relations. This moment is crucial for faith and confidence and the establishment of inter-subjectivity (Rommetveit, 1985, 2008).

The second concern is the development of common aims and for sharing responsibility for the learning activities or the subject. In the study of the campus students they missed the

opportunity of sharing the aims and responsibility for the ICT supported activities. One student says:

> "What I reacted to most was that we heard a lot from the teacher educators about pupil's autonomy and pupils' interests and how important it was to speak to them, take them seriously and listen to them. But as students we experienced quite the opposite. So I felt no kind of motivation".

The teacher left the students without telling them why they had to do all the different ICT supported activities. They were left on their own. In the other two studies the initial meeting was used as a meeting arena where the students and the teacher were sharing goals. This does not mean that the teacher met without any plans for the activities. What it means is that the teacher through the design had made a plan. Through the initial meeting, the teacher shared his or her plans with the students permitting the students access and potential ownership to the aims. They got a shared focus for the activities (Matusov, 2001). The students in the blended environment missed the opportunity to share the aims of the activity. This turned out to be a significant problem for many of them. They simply did not understand why they had to do all the ICT-supported activities.

According to the findings the initial meeting between teacher and students is decisive for the development of the further collaborative process. The term initial is here understood as the moment when the teacher initiates the activities for the group. This might be every day or during a longer period of time. The initial meeting is critical for establishing a common basis or platform for further collaboration. The initial meeting has a double purpose. It serves as a foundation for development of common human agency as well as a basis for development of common aims for the learning activities. The shared responsibility and mutual obligation seems to be important. Tom in the distance-learning study says:

> "Knowing that the other members spent a lot of time on my text I just had to do the same. Otherwise I would never have done it".

Three different notions of inter-subjectivity are relevant in order to explain the concept; as *having in common,* as an *arena for respectful disagreement* and as *human agency* (Matusov, 2001). The notions of inter-subjectivity as *having in common* and as *human agency* are relevant for understanding the importance of the activities in an educational context understood as a community of learners in all three studies. The third analytical concept is *respectful disagreement* as a reflective tool for understanding a community of learners. Referring to Bakhtin (1981) there seems to be an agreement underpinning the fact that different perspectives drive dialogues (Mercer, 1995; Engle & Conant, 2002; Hattie & Timperley, 2007). Based on an article of Lillejord & Dysthe (2008) the question on whether a conflict or a dispute is productive or unproductive is raised. A common finding for all the three studies is that it seems to be important to have a confident basis for collaboration. Otherwise *counteraction* and no collaboration is the result. If this sense of trust is present the students seem to develop productive interactions from disagreement as well as agreement. In the study of distance learning the students explicitly claim that they appreciate difference and different opinions. The pupils in 2nd grade might well disagree, but what seems to be just as important is the possibility of using creativity and imagination. Students in the study seem to develop *productive interactions* from arguing

with peers they disagree with but still have confidence to. Creativity and imagination is also important when students are challenged beyond the limits of what they could possibly have managed on their own. Another important finding is that the assignments the students are going to answer or the tasks they are going to solve are performed in a way that enhance the possibility for creativity and different opinions. The students in the blended environment asked for assignments without any correct answers. They had discovered the productivity of being creative together.

10.1 Where should the teacher be?

Designing and conducting group activities has always been a challenge for teachers. When should she leave the students to work on their own, and when should she intervene or just be available? The challenge of designing for collaborative activities supported by ICT is no less complicated. According to Webb & Cox (2004) teachers in ICT supported education should be able to plan activities that enable students to exercise control over their learning and to provide appropriate support or scaffolding when students need it. When the students are collaborating in these three case studies, it is the result of a long process. Still in the design of the programme the teacher should be aware and conscious of how the performance of the assignments should facilitate or block the aim of the teaching and learning programme. If the aim is to support creativity and argumentation then this has to be built into the activities and the expected outcome in terms of the way the assignments are performed as in the *creative story* and the *creative assignment*. This is important in all kinds of group activities, but even more in ICT supported activities where students are left alone with the computer.

Throughout the three studies, findings show that the students want the teacher to be an active part of the collaborative process. The small pupils clearly stated that they wanted the teacher to read and comment their texts and to be available when they needed her. The campus-students express that they want the teacher to read their texts, to make comments and to be there. The teacher should be the only person outside the group with admittance to the closed space within the LMS. The study shows that the students missed the teacher who was absent.

> "I missed the teacher who could conduct the process. We were fumbling. We thought maybe we had misunderstood the articles, and when we gave feedback it was perhaps not so fruitful as it might have been.

They missed the teacher's participation. The students claim that even though the teacher has another position when students are collaborating online and in distance, he or she should still be watching the learning activity and the process going on, and be a "visible" participant in the groups. The theory of a community of learners is based on the fact that the teacher should have a double responsibility. As well as carrying responsibility for the design, the teacher should be oriented towards the students' activities (Matusov & Rogoff, 1995; Rogoff & Gardener, 1999). This means that the teacher should not take control of all the activities taking place. Nor should the teacher abdicate and leave the responsibility to the pupils alone. In a community of learners teacher and students have a shared responsibility for learning. The first is for the teacher to contribute to building a confident learning society. Second, the teacher needs to take into account that the collaborating

confident group should be similar in relation to mutual respect and obligations, but different when it comes to experiences and values. Third, that the assignments connected to the portfolio are decisive for the learning process. If the students are asked to collect information, as in the informative assignments, there is limited or no room at all for disagreement, argumentation, creativity and reflection. The students should be exploring the zone of possibilities (Engeström, 1998) and creating new knowledge (Paavola, Lipponen & Hakkarainen, 2005). Fourth, the students should know that the teacher is watching the process and is closely involved and cares, even if the students are doing most of the work on their own.

11. Future research

The fact that there is a discrepancy between visionary policy initiatives and change in classroom practice concerning educational technology means that there is a strong need for further research in the field of ICT and learning within education contexts on different levels. Further research as classroom observations, observations of conversations in front of stand-alone-computers and online learning conversations is necessary. This study shows that designing for *productive interactions* in ICT supported learning communities, means that teachers have to undertake more complex pedagogical reasoning than in face-to-face contexts. In the studies described in this chapter the teacher is designing and guiding learning communities where the aim of the activity is collaborative writing. Obviously there is a need for further research on the teacher's position in other kinds of ICT supported learning activities and subjects. Another finding concerning the position of the teacher is that when students collaborate by means of educational technology the teacher has a more peripheral position than in ordinary classrooms. Still the students want the teacher to be present even in distance learning. A question for further research should be what this presence means in different situations. When should the teacher leave the students to work on their own and when should she intervene or be available?

The study also shows that as a parallel to teachers' change in teachers' position the position of the students change as well. The focus of this study is on what characterises productive interactions. Other research shows that students often avoid conflicts and discussions and choose not to be involved in online dialogues (Taylor, 1991; Burbules & Callister, 2000; Andriessen et al 2003; Koschmann, 2004). Given the extensive and increasing use of online communication in education I think there is a strong need for further research in why intended collaboration often ends in *counteraction* or *discussional talk*.

12. Conclusion

Through this chapter I have argued for learning understood as *productive interactions* built into *learning communities* that might as well be inside classrooms as far away. Why should students need a teacher when they are more digitally literate themselves and are able to collect all kinds of information in one second? My answer is that the ethical and inter-subjective aspects that a learning community is built on perhaps are more important in the digital age than ever before. How should children and young people learn to take care, to feel obliged or to have respect for others if there were no teachers to organize and prepare the learning conditions? The body-less communication that ICT is based on may promote

cheating and lack of confidence. This chapter has shown that educational technology may open for new possibilities but also for great challenges. If the computer is used as an instructor it is more authoritarian than any human being. If it is used for making knowledge a common property it has great possibilities. My conclusion is that there are more similarities between classroom learning and distance learning than there are differences. The challenge is the consciousness of how to utilize the technology.

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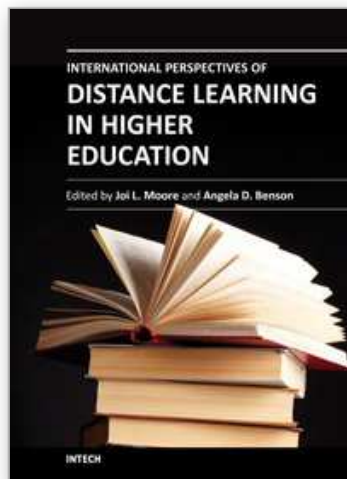
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Edited by Dr. Joi L. Moore

This book, written by authors representing 12 countries and five continents, is a collection of international perspectives on distance learning and distance learning implementations in higher education. The perspectives are presented in the form of practical case studies of distance learning implementations, research studies on teaching and learning in distance learning environments, and conceptual and theoretical frameworks for designing and developing distance learning tools, courses and programs. The book will appeal to distance learning practitioners, researchers, and higher education administrators. To address the different needs and interests of audience members, the book is organized into five sections: Distance Education Management, Distance Education and Teacher Development, Distance Learning Pedagogy, Distance Learning Students, and Distance Learning Educational Tools.

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