

CLIENT

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CLIENT – Collaborative Learning in an International Environment

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Abstract: This paper presents the findings of a two-year project 2001-2003 funded by the European Commission under the Socrates-Minerva program. In the CLIENT project students from different universities of 4 countries work collaboratively on a problem based assignment in an international, virtual setting where all contact between the students, tutors and the company involved, takes place through ICT technologies. The project addresses collaborative learning on the basis of a problem based approach and specifically focuses on the impact of the international context of the learning process.

The project consists of two experiments, a pilot project from February 2002 until May 2002 and the main project from September 2002 until December 2003, where 27 students of four different countries (Denmark, England, Norway and the Netherlands) collaborated in three groups on an assignment developed by the company Océ (www.oce.com). Focus was on how the participating students in the three groups managed to work together with participants from different countries representing diverse educational cultures and different disciplines.

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Introduction

The most profound change of the new millennium is in the way we are organized. As more people interconnect online, we increase our capacity for both independence and interdependence. We have decentralized our work, distributing into perpetually reforming groups. (Lipnack & Stamps 2000, xxiv) The technical, economic and social changes taking place in today's world require high-skilled individuals.

In the past years, education in Europe has undergone a large transformation in order to meet the needs of the European economy and the modern society, but also those of the individual. Several new methods of acquiring knowledge and skills have been widely introduced. The common characteristic they share is the focus on a project organized, problem based approach. Collaborative learning becomes more and more important in this respect.

Information and communication technology also offers new possibilities for

education. However, the integration of these new solutions is yet an unknown process with many questions to be solved. At present, information and communication technologies are often used in parallel to classroom-based education.

Although collaborative learning is widely known in Europe, its scope has almost always been limited to a national level. Although new ICT means facilitate intercultural virtual exchanges in education and learning, these exchanges are at present just complementary to local classroom education. Because of intercultural and linguistic differences between students, the collaborative learning approach has hardly been tested at an international level.

This was the background for the CLIENT project involving participants from four universities in Europe: University of Salford, Manchester, UK, University of Maastricht, The Netherlands, University of Roskilde, Denmark, and University of Tromsø, Norway. Our objective was: *To study problems and opportunities of students from different countries working collaboratively together solely virtually on a common project.* The project thus has three main aspects:

- The problem based learning (PBL) approach to learning.
- The technological aspect, i.e. using Internet as the only platform for communicating.
- The linguistic and cultural differences of the students.

The use of ICT technologies not only means a new manner of communication, computer mediated communication, but also a new way of working, virtual collaborative work. Therefore the question arises, how that new way of collaborative work functions and by which factors it is influenced.

The participating students should be involved in a social learning context and at the same time were to produce a web based manual for the Océ printing company, based in Maastricht, the Netherlands. We as teachers and organizers considered it to be important that this task was real life organized, involving challenges of communication, programming and design. But the foremost important aim was to construct a framework, within which the students could experience net-based collaborative learning. “The most important aspect was not the product itself, but how we worked towards the product”, the Norwegian students declare in their process report.

Inspired by Etienne Wenger (1998) the aim was to investigate whether students not knowing each other could establish meaningful mutual engagement, embark on a joint enterprise and develop a shared repertoire.

The Study

The CLIENT project consists of two experiments. The pilot project, CLIENT I, ran from February 2002 until May 2002 and was followed by CLIENT II the main project, which ran from September 2002 until December 2002. 9 students from the

involved universities participated in CLIENT I and CLIENT II consisted of 27 students. Participants were communicating through the Internet using the virtual learning environment Classfrontier for synchronous and asynchronous communication.

The main differences between CLIENT I and CLIENT II is that the students in CLIENT II were split up into three parallel groups. Each group consisted of participants from a cross section of the four countries. They all had to solve the same assignment: *Develop an Internet manual for the Dutch printer producing company Océ that can guide and help their customers to obtain the information they want. The manual should be flexible, but the students were not asked to fill the manual with technical contents.* During the project the groups had a contact person at the company with whom they were to communicate about the details of the task. Also the student had a local and an overall tutor. The overall tutor was responsible for the project statement in general. The local tutors were the primary contacts for the students. Besides the assignment the student were obliged to produce a report reflecting on the process of project: the communication, the collaboration, technological problems etc.

The backgrounds of the students were very different. In the Netherlands they were studying Knowledge Engineering, in Denmark Media, Communication, Computer Science, and Psychology, in UK Business Information Systems and in Norway Physics and Computer Science. The recruiting of students was not easy, and we were not in the situation where we could choose students with the appropriate background. More students might have wished to be part of the project if it also had been possible to visit the students in the other countries. Because of the heterogonous character of the students' background, the participants had to involve themselves in coordination in order to organize the different aspects of the assignment. An interesting aspect of the study was to see whether these students could help each other to solve the problems and to make decisions jointly and be mutually accountable.

In focus for the project was:

- How did the students in the three groups manage to work together with participants from different countries and cultures and of different disciplines whom they did not know before?
- What kinds of activities did the students accomplish to do the assignment collaboratively?
- What are their opinions about the project?

In project organized studies students are working in groups in a self-directed manner. The groups typically consist of 2-8 persons and are formed on the basis of common interest in a problem or a topic that may be defined rather freely within the framework of an interdisciplinary theme. Project work deals with real life problems, and the nature and development of the project is determined in a continuing dialogue and discussion within the group under the supervision and guidance of a teacher. Roskilde students have developed great competencies in performing project studies since the

founding of the university back in 1972. Students in Tromsø and Salford do not have the same experience since teaching here is more traditionally organized.

As a result of the recommendations of CLIENT I, in CLIENT II material was given to the students to help them structuring the first part of the project better. A manual was offered to the students to ease their work with Classfrontier, the groupware system. Also four workshops were developed to help the students to come to know each other and thus enable them to get the feeling of belonging to a group and to help them organizing their groups. However the groups in the different countries were not formed at the same time and as a result the material did not give the expected effect.

The virtual learning system Classfrontier has been designed to support e-learning. This means that the tool to an extensive degree facilitates learning on the student's own term. Every student has a personal start page, which includes all information relevant to the student. Learning and collaboration takes place in virtual rooms, where students and teachers have access to selected tools and resources. Some of the most important tools in Classfrontier that could be used during the project are **Discussions** and **Archive**, in which the students can exchange documents and/or react on the specific documents a-synchronously. For synchronic communication Classfrontier offers **Chat** and **Whiteboard**, in which the students are able to 'talk' and to work with each other real time.

Findings

In general participating in CLIENT was an exciting experience, both for the students and the tutors. The project fulfilled its main purpose as the students got to meet and collaborate over the Internet with fellow students of different disciplines and from different nations on an assignment that were challenging in many respects. The participating students managed to collaborate on the given task to produce products and reports.

The students all think they learned something of the project. The positive aspects of the project were getting to know students from other countries representing diverse educational cultures. Furthermore all communication took place in English, which gave the non-English students a good opportunity to practice English. Because of the lack of teacher steering, the students felt the need of fostering self-discipline in order to get things organized and done.

Three students from group 1 come up with these remarks in their process report:

We think that participating in this project has given us some interesting experiences concerning co-operating over Internet. And the fact that the people we worked with were from other countries made it more challenging because everything had to be done in English. Therefore this was a good opportunity to practice our English. (Process Report Group 1 p.10)

These students clearly recognize their participation in the project as a type of self-directed work:

There was no one hanging over our shoulders to make sure we did what we were supposed to do during this project. We could choose to do nothing at all if we wanted to, just let the others do everything. Thus we had to have some self-discipline in order to get things done. We feel that we managed this part just fine, and we feel that all members of the group have shown interest and contributed to the final result. (Group 1 Process Report p.10)

And they concluded their evaluation in this way: “All in all, this project has been a fun experience and we would gladly recommend it to other students.” Quite a few students mentioned likewise that they considered the project as very hard but unique and all in all a fun experience that could be recommended to other students.

In the Product Report by group 3 it is said:

This project has been a new and challenging experience to all involved. The positive aspect of collaborative working has been having the opportunity to work in an international environment with different cultures. Progress and development of the assignment has been an interesting factor especially with the delegating of tasks within such a short space of time. (Group 3 p.15)

And in continuance they add:

To conclude, the project that has been undertaken although difficult and challenging has enabled the team to gain an insight into the nature of collaborative working in an international environment with different cultures. Valid knowledge has been gained on the dedication required to complete a project in such an environment. (Group 3 p.15)

The students learned that Internet has its weaknesses but also its strengths. One cannot yet rely completely on Internet technology, but it makes distance learning possible. One of the students mentioned that it felt strange to be watched and analysed by the tutors, not for the product the group was making but for the collaboration. However the function of the tutor in the group meetings was very positive. The presence of one or two tutors with the meetings seemed to have a good effect on the meetings though it is important that the tutor does not dominate or control the chat. Group 3 has in their Product Report these observations regarding the tutors:

We would like to thank all the tutors who gave us the opportunity to undertake a new experience of collaborative working in an international environment and the team tutors that have guided us through development. (Group 3 p. 3)

In their Process Report the Tromsø students tell this about their relations to their local tutors:

When the project got started, we learned that the concept behind this project was for tutors to observe how students reacted to an assignment like the one we got. The most important aspect was not the product itself, but how we worked towards the product. We as a group had no limitations, we were free to do, as we liked. (Process Report Group 1 p.2)

And further ahead in this Process Report they note:

After a few days we had a meeting with our local tutors, Torbjørn Eltoft and Jan Alexandersen. We got to know that the process is more important than the final product, and discussed how we could contribute to the project. We got to know that we were supposed to make a two-faced interface on the Internet. One to help people who are having problems with printers bought from OCE, and one to enable the engineers at OCE to upgrade the user-page. As far as contribution is concerned, Torstein could help with the programming part, while Heidi and Bianca would be helping with design and making sure that the product became understandable for people with no computer skills. Torstein has some experience in project working, but Bianca and Heidi are new in the game!

We also talked about how free we were in this project, and the difficulties involved. From that meeting we decided frequent meetings with our tutors and we felt much more confident about our possibility to contribute with something for the project. (Ibid. p. 4f)

However it is clear to us that a more frequent contact among the local tutors would have made the overall coordination easier.

In spite of the positive results the project also unveiled a lot of the problems that is connected to the virtual settings and to collaborating on a problem based project in an international setting.

In the following we will focus on the challenges and shortcomings that showed up during the project and on the different solutions that have been suggested to answer these.

Communication

Communication was regarded as a difficult aspect in the project, as could be expected with students from four different countries with different backgrounds. However the students managed to find solutions to work together in a virtual way. Classfronter was used as the primary workspace for collaboration and communication but also other tools as e-mail and MSN Messenger was used.

The students considered the chat tool in Classfronter as an important and useful tool for virtual collaboration, to make appointments, to divide tasks, take decisions, and to solve problems together. Hence they tried to keep chat sessions once or sometimes twice a week. They considered the positive point of the chat the immediate response to suggestions and questions. However during a chat session some of the non-English participants could find it difficult to express themselves in English and to write exactly what they meant. These are the observations by the Norwegian students:

In the chat we got the possibility to “talk” directly to each other. This way of communication were great in the way that we could get an immediate response to suggestions and eventual questions we might have. It was not so great regarding other issues: For one thing there were the difficulties of

expressing oneself in English. We would need some time to find the right words, and then sometimes the others had moved on to a different subject. Another issue came with regard to writing down comprehensibly what you meant. It was also difficult to keep order in the meetings; it is hard to tell who's talking to whom. An important part of communicating with another person is your body language, and since we can't see each other's body language, some misunderstandings will occur. (Process Report Group 1 p.8)

It showed to be difficult to keep order and structure in the meetings of the chat sessions. In a chat room a lot parallel discussions can take place at the same time. It can be very difficult to address several people at the same time so there always is a tendency to start dialogs. Furthermore some are slower to react and formulate answers than others, which courses subjects that had already been discussed to turn up again. Additionally the chat is very time consuming compared to a face-to-face discussion. As a last negative point of this way of synchronous communication the students were the missing non-verbal acting (the body language).

Another aspect that affected the communication during the chat was that students could have a different perspective on what was agreed. In face-to-face collaboration some disagreement might extend a meeting for a few hours. However in a virtual collaboration when every member of the group wants comment on something that was written, it would take almost weeks.

In such a virtually mediated group work everyone has to do efforts to be understood. One of the students wrote in the process report

We learned from this project that communication is never easy above all between people with different backgrounds. Everyone has to do efforts to be understood by explaining or using simple words. (Process Report Anne Pactet Group 3 p.11)

Besides chat problems there were also other communication problems that hindered the communication between group members.

Because not all the students had a technical background or had different technical backgrounds there were different ways of saying things. Although everyone in the group wanted to say the same, students got confused about the way of transcribing it. Several terms were understood differently. At times it took a long time to make them understood.

Not only communication tools of Classfronter (chat tool, discussion and archive) were used for communication. Also MSN Messenger and email are tools that were used but the use of these other tools was not judged positive with all the group members. The drawback was that students who did not receive emails or MSN messages did not know what was talked about.

Collaboration

In the process reports all the groups mentioned the collaboration aspect of the group.

The students found the assignment unclear, and spent some time in figuring out what they really were supposed to do. From the outside, this however, demanded communication and discussion among the students, and as such challenged both the students and Classfronter, the Internet communication tool. The initial phase of the student work seems to be the most challenging for the students. They had problems in putting up meetings where everybody could attend; they were challenged on how to get organized, and on how to make decisions. An additional problem was, that not all students were ready to start when the project started which coursed confusion in some of the groups during the first month.

Here are some impressions from the Process Report of group 1:

We were actually quite nervous before the first meeting. All of us were unsure what to do in the beginning, and nobody wanted to take control over the project. So the only things we got done, were the introductions and jokes about the weather. We were left with a good impression of the other students. After this first meeting we agreed that the students from Denmark would contact OCE to get more information. Because of the limitation we had in time with the project, we decided that the manual should not be too advanced. From this meeting the group decided that the members should check the discussion board for new posts on a daily basis, but this did not happen as frequent as intended. We did get a reply from OCE, where the person responsible there basically said we were free to do what we wanted. Not much help from there. (Process Report of group 1 p.4)

The collaboration problems increased when the students got more concrete. It turned out to be a problem that the students had different educational backgrounds. Some students were more technical than others. As the groups were very focused on the product, more than on the process, it was difficult to be listened to and to understand the other students.

The flexible and self directed learning opportunities in a collaborative computer supported setting proved it worth – despite uncertainty and frustration for the students during long periods. Some of the students managed to work independently. However since there exist interdependence among the various participants the students are in need of good support. Even though you are working on your own directed by motivation and interest, you need a stable structure.

Group 3 in their final report touches upon this complex of problems:

Commencing project development roles within the project was hard to establish because of the absentees of team members. This was because the members that attended had to define tasks so that the project would be on track within its given timescale. Meetings should clearly be defined and tasks delegated evenly to eliminate confusion within the team for future reference. (Final Product Report Group 3 p. 16)

In this setting the assigned task and the Blockbook, a handbook describing the purpose, the organisation and the required results from the groups was intended to

resolve this need.

A student from group 2 has the following to say regarding collaboration challenges:

How people firstly co-ordinate with one another we have learnt is also through personality. Technology acted as a good tool but is obviously nowhere near as good as one to one discussions.

In one situation group members had conflicts as to who will do which tasks. This problem had gone on for a couple of weeks, but regular meetings took place after this, and later all issues were resolved. In this respect the team did co-operate well and I feel even though the linking part was not agreed to be done by those who could do it effectively, later on it had been completed successfully.

Some times individuals would not turn up to group discussions consequently, issues piled up and things were being repeated therefore time being wasted. In addition, tasks which were intended to be done by an individual, could not be completed in time, so therefore the responsibility of some the tasks was passed on to another others, who didn't have efficient knowledge and skills to complete the task. However the way the team developed this strategy, I feel this was a strength in itself.

For many of our group team member's team working alone had been a whole new experience, let alone the fact we had team members from universities abroad.

We think the group did find it difficult to talk about personal issues, this may have been because of many reasons including, time constraints or some people may not have thought it was at all relevant. However I feel this issue was highly relevant as this would build a better team spirit and therefore motivated us further to a successful project. (Final Report Group 2 p. 31).

From the starting point the students were highly motivated, wondering how the collaboration was going to work out. However after a month they felt frustration because they nearly had done nothing. During the project the students became concerned about the time that was left to do the assignment. In addition due to exams some students had limits in participation. Some of the students had the feeling the project would fail. They also experienced communication problems that they had difficulties solving. In the end genuine collaboration was not really visible in the final product, since the tasks were divided between the group members. In this way the procedure of the students may be seen as closer to that of cooperation in contrast to genuine collaboration. Though the participating students did undertake a joint planning and goal setting.

The Structure / Organization of the Project

When students from different universities have to collaborate on problem-based projects in a virtual environment the needs and requirements are different from when the students are collaborating on problem based projects in common on-campus

settings. The virtual settings emphasize the need for firm planning, clear assignments and a good introduction to start the project and form the groups. The students have to know what is expected and how the organization is structured.

If the collaboration as here is based on a predefined assignment it has to be clear and complete and not has to be a source of discussion. Although the educational and social background of the students is different (e.g. different expertise, educational model, education level) the assignment has to be suited and challenging for all participating students.

The assignment chosen was well suited for evaluating the group forming process, and the process of collaborating over Internet on a common problem. The product that the students should produce is in some sense concrete, whereas the learning task of the assignment is more diffuse. What should the students learn during the project, and was the assignment appropriate for assessing this aspect of CLIENT. In our mind, the learning process is more difficult to evaluate.

The tutors have to speak with a common voice. Therefore the tutors have to keep each other informed about the process and discuss possible problems. Like the students they also have to use a virtual environment and not only e-mail.

The project has to start at the same time for all of the participants. If a group of students enter the project after the rest of the students, they are already behind and this does not benefit the collaboration and group forming in the project. For CLIENT II workshops were developed to improve team building, but they could not be executed, because not all students started the project at the same time.

There has to be an equal number of students per university in a group. Too much difference between the number of students from a certain university in a group can and probably will cause problems (e.g. lack of motivation or domination).

Another possibility that could better the collaboration is to let the students in a self directed way form their groups and choose their own tasks so that they are led by their own motivation and interest for a personally meaningful problem area. In such a case as we have good experience with at University of Roskilde students will make a decision and be able to relate it to their own subjective horizon of experience and at the same time take into account the academic requirements and also often reach out to the surrounding world. In regards to the CLIENT experience students were to grasp with some kind of real life challenge in relation to the company Océ. But it seems that this task besides the students having difficulties understanding the core of it not for them constituted a genuine challenging problem, which they with mutual responsibility wanted to invest full energy in.

Didactic of Learning

Some of the difficulties during the project are as far as we see it related to the fact that the students comes from countries with different educational systems. The students of Maastricht and Roskilde are familiar with problem and project based

learning, whereas the Salford students and the Tromsø students do not have the same experience. The students of Tromsø have the following comments regarding this aspect:

At the university of Tromsø, project working as an educational method is not commonly used. We know that the other universities involved have a more project-related way of working. We thought that the other students would understand the task easier, and this could have led to us not being an active part of the group. Lucky for us, this did not happen. We saw ourselves as equals with them with respect to work amount and participation. (Process Report Tromsø students p.3)

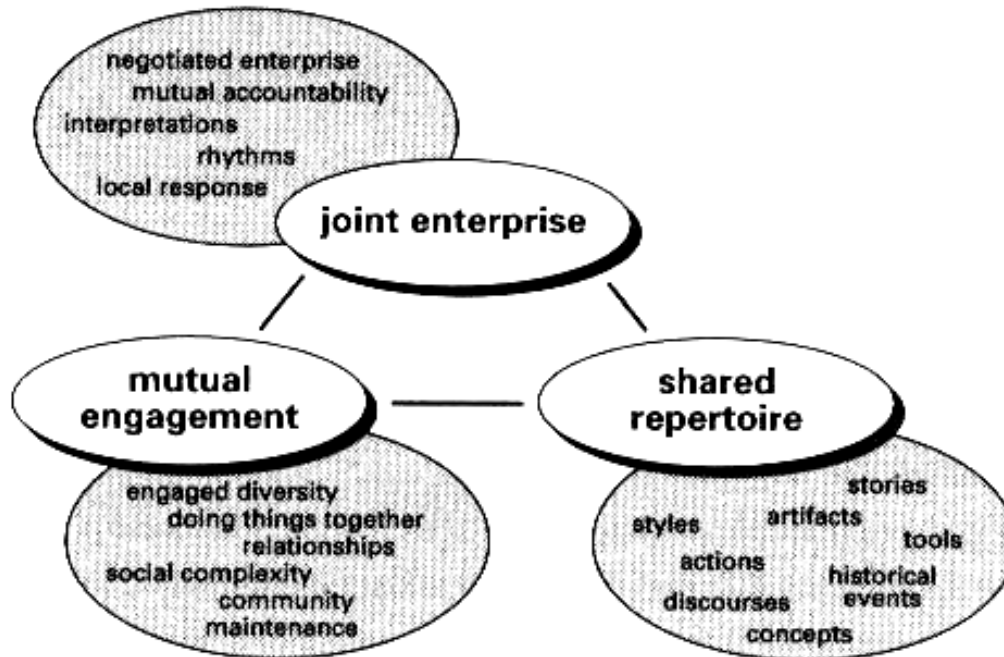
However it is worthwhile in such a collaborative endeavour to help the involved students getting a common understanding of the didactic implied. Thus succeeding in getting a common understanding of what problem and project based learning implies for them.

For us at Roskilde *problem based learning* takes its point of departure in the solution in a pre-defined task or problem set by the teacher/tutor. This method has its merit but for us the *problem oriented learning* – self directed discovery based and driven implies a process of transformation and such a process is full of challenges, unknown problems, but since the students in the last instance are the ones in collaboration making the decisions, the process is filled with energy and has its ups and downs periods. The learner is moving from the known to the unknown in a movement that hopefully can transform the unknown terrain to a more clarified situation. The didactic process covers going from problem formulation to inquiry of exemplary problems, in a frame of participant control, joined project work and often inspired by interdisciplinary input. Such a problem has to constitute a real genuine problem for the participants and they have to feel in a deep sense of ownership to it. Starting with the problem setting, negotiations, dialogues and inquiries around this thematic oriented problem takes place. During this process students can reach out for support from lectures, seminars and materials and other resources, which will be at hand for their collaborative investigation.

Inspired by Etienne Wenger¹ we can describe this effort as joint enterprise, mutual engagement and shared repertoire. Students do have a mutual responsibility for creating and constructing the project here and our experience tell us that an impressive mutual engagement will be fostered. Such a mutual responsibility applies not only among the participating students but also for the student-tutor relationship. As teachers/tutors we should take responsibility for establishing a stimulating learning environment. In relation to the shared repertoire the virtual learning resources and environment are crucial. Here our students had the possibility to work within the virtual learning environment Classfronter.

¹ Wenger, E. *Communities of Practice - Learning, Meaning and Identity*. Cambridge University Press, 1998.

Table 1 Wenger Model of Learning in a Community of Practice:



Wenger 1998 p. 73

It is now obvious that the background of the students were so varied and we did not manage to secure a necessary transparency, so that the students quickly enough could form a picture of the kind of competencies each of them came with and could provide for the collaborative effort. Paradoxically the two guest students at Roskilde, coming from University of Kassel (part of group one) managed to engage on such a genuine, demanding but for them highly successful project feeling mutually responsible for their project report which they during the period from September until December managed to create². For these students this endeavour seemed of genuine and valuable nature.

The Environment / Technological Aspects

The environment used for the project Classfronter showed up to be sufficient even if there was a good deal of complaints from the students. Enhancement of the environment however could have bettered the communication, asynchronous as well as synchronous, and the collaboration between the students.

Possibilities are enhancement of existing communication tools (e.g. improved chat, offer concurrent versions system in archive, instant messaging). Enhanced

² Gonnermann, Uta and Nadine Vicentini: *Possibilities and Problems in Virtual Collaborative Work Based on Experience in the CLIENT Project*. Project report Roskilde University, Department of Communication, 2002

communications channels such as videoconferencing and use of web cam are other suggestions for improving the communication between the students.

During the project the students did not make use of all the possibilities Classfronter offers. They chose the chat function as the primary tool for communicating, and in some cases the Discussion function. Their process reports reveal that they suffered from this *narrow* communication channel, it was difficult to keep a thread in the discussions, exchanging opinions was slow, etc. The students did not seek other means of communicating, for example using the web-cameras they had at hand.

A better introduction to Classfronter may have resulted in a better use of the existing communications tools in the environment. Also it is obvious that the students need far more support if they are going to use tools they are not familiar with. The technological barrier cannot be neglected.

The Importance of Awareness

A major complaint among the students was the lack of awareness in the system. Awareness in connection with ICT can be divided in social awareness and activity related awareness. When the students are collaborating solely virtually they have a great need for knowing who is online when they enter the system (social awareness) and what the rest of the group members have been doing (activity awareness).

Social awareness in virtual collaboration supports the group members with the kind of information they would usually get while walking along the office floor or what Wenger characterizes as the ‘the latest gossip’. Activity awareness visualize and monitor activities the group members have been doing in the system; for instance who have written, read or revised which documents and contributions in discussions. Different groupware systems support the users with the awareness information in different ways. Some systems are very obtrusive while the users have to be very active searching for the awareness information in other.

The reaction from the students to the weak or missing awareness-functions in Classfronter was to choose the chat function as their primary communication channel and to use MSN Messenger to detect when fellow students were online. More active awareness functions that immediately showed the presence and activities of the other group members might have resulted in the use of more suitable tools in Classfronter.

Cultural aspects

The third objective of CLIENT was the linguistic and cultural aspect of collaborating and communicating over the Internet. From the process reports of the students there is little that points to this as a problem. The fact is that many of the national student groups consisted of students from several countries, and hence the cultural aspects were met at this level. English was the common language, and Norwegian, Danish and Dutch students often speak and write English well. All the participating countries are western, well developed countries, the youth of today travels a lot, so we do not think

cultural and linguistic differences were a major problem.

On the other hand, the students have their education from countries with different educational systems. The students of Maastricht and Roskilde are familiar with problem and project-based learning, whereas the Salford students and the Norwegian students are educated in a traditional education system. The students have been socialized differently at their home universities. Some students have a tendency to be sitting back, waiting to be told what to do and when to act and to get annoyed because of fellow students interfering in “their domain” and taking actions without the approval of the teachers while other students are more self-managed and proactive. This, we think, is potentially a more important problem, than language and national culture.

Conclusions

The students learned that working together means: to agree altogether, to take decisions, to share work, to be involved from beginning till end, to participate as actively as possible, but also be patient and diplomatic. It is a good experience that every student has to be aware of his responsibility of working for a team.

The students suggested that it would have been a good idea to hold a videoconference in the beginning of the project to see the persons you are going to work with. It can be concluded that distance learning typically demands a higher level of student motivation and organization than the normal face-to-face course. Since you in the virtual environment never meet in person, it is up to individual students to manage their own time in such a way as to visit and participate regularly in the virtual environment. Thus, the communications aspects of the virtual work are crucial to creating student agency and the success of this type of learning.

It has become clear to us that it for tutors/supervisors are crucial to be aware of the difference when students are collaborating project organized in an on-campus setting in contrast to operating within net-based environment. The virtual settings emphasize the need for firm planning, clear assignments and a good introduction to start the project and form the groups. The students have to know what is expected and how the organization is structured.

We also have realized the need of the participating tutors to communicate – just as the students - mutually. The tutors have to take time to inform each other about the process and discuss how to handle possible problems. Also teachers should be encouraged to make use of the same learning management system as the students are using instead of only sending e-mails to one another.

Concluding, the main challenges for the participating students were neither linguistic – having to communicate in English – nor technological. The most serious difficulties seemed to arise due to the different cultural backgrounds and here the differences in the university cultures are the most significant.

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