UNIVERSITY OF JYVÄSKYLÄ

INTEGRATING EDUCATIONAL TECHNOLOGY INTO ENGLISH TEACHER EDUCATION:

A descriptive study on the experiences of Finnish student teachers of English after participation in a web-conferencing project

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Tutkielman tarkoituksena on selvittää 17 aineenopettajaharjoittelijan kokemuksia heidän osallistumisestaan tietoverkkovälitteiseen tietokonekonferenssikokeiluun, jossa tutustuttiin opetusteknologisiin sovelluksiin osana aineenopettajakoulutusta. Tietokonekonferenssi pidettiin syksyllä 1998. Kokeiluprojekti kuului osana Jyväskylän, Oulun ja Indianan yliopistojen yhteiseen NINTER-tutkimusprojektiin, jossa etsittiin pedagogisia käytänteitä verkko-oppimiselle. Projektissa opiskelijat kävivät keskustelua verkkovälitteisesti Conferencing On the Web - ohjelmiston välityksellä. Konferenssikeskusteluissa oli mukana suomalaisia, amerikkalaisia ja korealaisia opiskelijoita sekä suomalaisia ja amerikkalaisia opettajia ja tutkijoita. Keskustelut liittyivät oppimisen ja opettamisen ongelmiin ja keskustelut pohjasivat opiskelijoiden valitsemiin aiheisiin. Verkkovuorovaikutus pyrittiin rakentamaan soveltamalla kognitiivisen oppipoikaoppimisen mallia. Konferenssikeskustelujen pohjana oli case-pohjainen työskentely, jossa opiskelijat yksin tai pienryhmissä muodostivat oman keskustelunaloituksensa ilmaisemalla ongelmansa autenttisen oppimiskontekstiin liittyvän tilanteen tai ongelman kautta, pyrkien yhdistämään ongelmanasetteluunsa myös pedagogista teoriaa. Case-pohjaisten keskustelujen lisäksi osallistujat olivat yhteydessä myös kolmipistevideoneuvottelun kautta sekä kävivät verkkoympäristössä myös vapaamuotoista keskustelua keskenään. Oppimisympäristö pyrittiin luomaan siten että siinä tehostettaisiin oppimista ja yhteistoiminnan sekä sosio-konstruktivisen käsityksen mukaisesti vuorovaikutuksen avulla.

Tutkimuksen materiaali koostui 17 aineenopettajaharjoittelijoilta kerätystä aineistosta, jossa käytettiin aineistonkeruumenetelmänä sekä kvantitatiivisia että kvalitatiivisia menetelmiä. Aineenopettajaharjoittelijoiden kokemuksien kuvailu tapahtuu esi- ja jälkikyselyaineiston, haastatteluaineiston sekä konferenssiviesteistä muodostetun määrällisen aineiston avulla. Esi- ja jälkikyselyissä selvitettiin osallistujien tietokonetaitoja, asenteita opetusteknologiaan sekä odotuksia ja niiden toteutumista projektin jälkeen. Haastatteluissa keskityttiin selvittämään osallistujien mielipiteitä ja kokemuksia käytännön järjestelyjen, oppimisympäristön viitekehyksen, verkkokeskustelujen ja koko projektin merkitystä ja onnistumista. Konferenssiohjelmasta lisäksi kerättiin määrällisiä tietoja konferenssin osallistujien kirjoittamista viesteistä konferenssin eri osissa, jotka kuvaavat keskustelujen laajuutta ja volyymia kunkin osallistujan kohdalla.

Aineiston analysointi osoitti että osallistujat kokivat verkkokeskustelut mielekkäiksi ja projektin hyödylliseksi, joskin aikaa vieväksi toiminnaksi harjoittelun ohella. Erityisesti verkkokonferenssi hyödytti heitä neljän seikan suhteen: keskusteluista sai 1) pedagogisia neuvoja, näkökulmia ja tietoa, 2) emotionaalista tukea jakamalla erityisesti opettamisessa koettuja ongelmia, 3) tietokoneen ja tietoverkkojen käyttövarmuutta myös omaa opetusuraa silmälläpitäen sekä 4) arvokasta kulttuurienvälistä viestintää ja vuorovaikutusta. Yleisesti todettiin tämäntyyppisen työskentelyn sopivan hyvin osaksi opettajankoulutusta korvaamaan

massaluentoja ja lisäämään harjoittelijoiden ja ohjaajien välistä vuorovaikutusta. Käytännön järjestelyjen suunnittelun kautta ajankäytön tehostaminen ja henkilökohtaisen kontaktin lisääminen esim. videoneuvottelun ja sähköpostin avulla edistäisi sitoutumista kansainväliseenkin konferenssiin. Projekti tarjosi opiskelijoille käytännön kokemuksen kautta selkeämmän näkemyksen teknologian tuomille mahdollisuuksille opetusalalla.

Asiasanat: computer conferencing, web-conferencing, educational technology, EFL/ESL teacher education, cognitive apprenticeship, electronic community of learning

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1. INTRODUCTION

Foreign language teaching has currently started to move emphasis from form to content and from learning structures to learning through meaningful communication. Modern foreign language teaching seeks new resources from inter-cultural communication, developing inter-cultural understanding and making use of authentic, rich and meaningful communication contexts. Nowadays the development of educational technology offers the language teacher new opportunities for operating with these elements in the language classroom. Learning environments which are supported by information networks enable authentic communication and interaction between students of different cultures with relatively small resources. Language learners could be travelling without moving; communication networks could help extend the foreign language classroom beyond the school walls.

Educational technology has offered new tools for learning that provide access to authentic communication with people from another culture. However, these learning tools have seldom been originally designed from the pedagogical perspective but rather from the perspective of using them for communication in general. Therefore, teachers may face problems when starting to use them in the classroom. Getting some experience of these tools beforehand, as a part of the teacher training, would make young teachers more prepared for these situations. Learning how to use these tools requires countless hours of devoted practising, and the workload will increase if the concept and tools of educational technology are entirely unfamiliar to the teacher. Especially teachers just starting their career might face stress from trying to establish their own professional identity and at the same time trying to learn "the tricks of the trade" and form the basic routines for organising the physical reality of a classroom. In particular, young teachers are expected to keep up with the latest trends and novelties in teaching and learning; the growth of distance learning and teaching could be mentioned as a recent example.

One solution to this problem would be to address these issues already in foreign language teacher education. Currently very few student teachers are guided to these resources while in subject teacher training. Student teachers should be offered appropriate basic skills and knowledge about utilising

modern technological applications in the classroom. The problem here is that the curricula of teacher education programs cannot abandon the current contents altogether and replace them with new ones. Instead, the current contents could be conveyed through the tools of educational technology.

Combining content and technology would serve both educators and those educated: teaching resources would not be spent on merely learning how to use technology. The pedagogical content could be distributed electronically to a community of student teachers and their educators, who then would operate on that content through the medium that best served their purposes. The community could also go beyond classroom limits; especially student teachers of foreign languages are capable and confident to interact with foreign peers and educators on any level of communication.

This study presents an experiment in which this kind of a community or a pedagogical network was constructed. The study is a part of the *Networked Interaction: Theory Based Cases in Teaching and Learning*-project (hereafter NINTER), which is a joint research project of the universities of Oulu and Jyväskylä in Finland. The project also involved partners in Indiana University, USA. The project's main research interest is the interaction in technologically enhanced learning environments and developing pedagogical practices for these environments (Saarenkunnas et al 2000). NINTER has been the basis for various individual experimental projects and this study presents one of them, which was conducted in the context of English teacher education.

This thesis includes the analysis of an experimental project in which seventeen student teachers participated in a pedagogical forum of discussion through the Internet with other university students from Finland, United States and Korea. In the project, the group of student teachers of English became acquainted with a technologically enhanced learning environment and the project's emphasis was on building professional dialogue and finding a useful way of utilising technology for it. The discussions were fostered using principles of cognitive apprenticeship (Collins, Brown & Newman 1989). In addition to the student teachers, also experienced teachers and researchers from different parts of education were involved in the discussions as mentors for the students. The computer conferencing activity formed a pedagogical network, connecting both pedagogical experts and "novices" from the field of teaching

and learning. The present author was herself involved as a student participant in the pilot of this experimental project and later in the project as a member of the research group. The author is currently working as an English teacher dealing with educational technology in practice through distance and multi-mode teaching.

This study aims to estimate the significance of this experiment to the student teachers' professional development and to find out what were the benefits and challenges in using technology for this purpose. First, the background and theoretical approaches of this study are introduced through literature. Next, the research data and methodology are described and data are questionnaire and interview data from seventeen student teachers. Data is analysed using both quantitative and qualitative approaches. Finally, the last chapter discusses the results of the data analysis and the further implications of this study.

2. BACKGROUND

In the following chapters the essential theoretical and pedagogical concepts and models and the technological applications used in this study will be reviewed through literature. The background section will be divided into three parts. The first part will address the challenges that the information society sets for teacher education. The second part will discuss the traditional and new learning environments and the design of the learning environment in this study. The third part will deal with the pedagogical approaches of this study.

2.1 New challenges for teacher education

The Finnish education system, including teacher education, is facing many demands related to technologically enhanced education. The Ministry of Education's Information Strategy for Education and Research[1] has paid special attention to developing new ways and methods for learning and teaching (OPM 1995, OPM 1999). The strategy states that universities and educational institutions are responsible for developing teaching and teaching methods. The teacher education departments in particular have a key role in finding pedagogical practices that best support the use of technology in education. Teacher education should provide teachers with basic skills for applying information technology in their teaching. Once a teacher enters working life, s/he should already be equipped with skills that help acquiring new practices with technology-enhanced learning environments.

The current emphasis on lifelong learning has fostered the development of more independent forms of study in the educational system. Nowadays a growing number of people are occupied with learning in several phases of their lives, and therefore novel forms of learning have been designed. Study forms such as distance and multimode teaching are currently recognised as equal forms of learning among the traditional forms, and should be included in the curricula of teacher education (OPM 1995).

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[1] *Opetusministeriön Koulutuksen ja tutkimuksen tietostrategia*

Many of these study forms are usually carried out with the assistance of technology, thus setting more demands for the teacher's skills. The strategy also points out the significant fact that the main goal in developing the use of information technology in education should be shifting attention from equipment to pedagogical reformation (OPM 1999). The technological applications already exist, but the appropriate practices in using them are not yet fully established.

The Ministry of Education's OPEPRO-project[1)] investigated the areas in which basic and further teacher education development were needed (OPM 1998). According to the project report on the teachers' needs for further education, the knowledge of the subject to be taught and the abilities for using computer technology and communicating through information networks were regarded as areas which require the most attention in further education (Jakku-Sihvonen & Rusanen 1999:66). The teachers need to develop and update their subject knowledge since knowledge is no longer viewed as something static. Further education in this area is hardly considered a burden, but rather a privilege. However, the other major area of further education, technology, currently causes anxiety for many foreign language teachers. The massive workload resulting from getting in touch with computers should be seen only as a temporary troublemaker. The next generation of teachers is likely to have more time and resources to focus on developing their subject knowledge since they already know some basics of computer skills. However, a vast amount of further education currently offered for teachers in Finland is aimed at improving technological skills, not subject knowledge or pedagogical practices.

There have been attempts to integrate educational technology into the curricula of teacher education, but it is still mainly up to the teachers' and student teachers' as individuals to explore what the new technology has to offer for education and for their own teaching, in particular. It has also been noted by for example Harasim and Johnston that the success of utilising any kind of computer-mediated communication (hereafter CMC) depends as much on the attitudes of the communicators and the purpose and structure of the communication as on the technology itself (McDonald 1997).

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[1] *Opettajien perus- ja täydennyskoulutukseen osallistuminen vuosina 1996-1998*

The chosen technology alone does not trigger learning but it should be supported with positive attitudes. Technology should not be forced on teachers, neither on the learners. Still, the teaching profession is connected with the development of the society, and the teachers should not ignore the changes in the society. The teacher's role includes being an agent for change, too.

Learning through technology helps to see how you could teach through technology. When introducing technology to student teachers, the most common problems have been to overcome the negative attitudes towards technology and to improve the students' poor computer skills (e.g. Campbell & Yong 1996, Ross 1996). However, research and experience have shown that possible anxiety or frustration caused by technical problems or insecurities in computer usage can be solved. Some means have shown to erase the feeling of threat, i.e. offering adequate and appropriate technical support and letting the beginners have enough time to learn before they start the technologically-enhanced activity (Berge 1995, Ross 1996). New technology should be introduced in a way that does not lay emphasis on the technology itself, but rather on demonstrating how technology can be used successfully for learning purposes. Instead of teaching technology, the student teachers should have a reason to use it.

2.2 Technological and pedagogical aspects of the learning environment

In the following, the technological and pedagogical elements of this study will be described. The features of the learning environment in this study are also defined. Concrete details on the arrangements of the experimental project will be given in section '3. Research design'. The features of new learning environments and the terminology related will be introduced together with the pedagogical design of this study.

2.2.1 Nature of new learning environments

The new learning environments are difficult to outline and categorise, because they often consist of elements that are intertwined in a complex way. They are usually a multifaceted mixture of technological components and applications

used alongside a pedagogical model of teaching. A couple of decades ago a "technologically enhanced learning environment" meant just bringing an overhead projector to the classroom. Nowadays the terms "new" or "technologically enhanced" learning environment are used when referring to the usage of some novel pedagogical and/or technological component which has not yet been established as a permanent practice for teaching purposes. Just as in the classic case of the overhead projector, we need to find out what are the best ways of using these novelties. When choosing what best serves the process of teaching and learning, careful pedagogical planning is necessary. Neither the pedagogical view nor modern technology should be used just for the sake of using them, but we should be concerned with what can be gained through using them.

One way of reviewing new learning environments is to start looking at the learning environment from a traditional perspective of time and place, as the following model does. The four-dimensioned model illustrates how easily the complexity of the learning situation is neglected and how difficult it is therefore to establish any general framework for a learning environments.

	SAME PLACE	DIFFERENT PLACE
SAME TIME	classroom model	simultaneously-distributed learning model
DIFFERENT TIME	technology-based study-centre model	time-independent learning model (independent study model)

(Looms 1994; Nieminen 1994)

The model only defines the location of the teacher and learner and the distribution of communication and learning materials. The only association with technology is inside one dimension, the technology-based study centre, although the utilization of technology is definitely possible with the other three dimensions, as well. It must also be remembered that even though technology may remove the physical limitations of the four classroom walls, we still cannot exist in more than one place at the same time. Removing the restrictions

of time and place through the use of technology has been considered to make the learning environment more "open". Information restoration and retrieval is possible through technology and the message can be stored for its participants to read at a time and place that is more convenient for them. However, the learners' increased freedom and control over some conditions of the learning situation does not necessarily mean that the same thing applies to the teacher. If the learning environment is available to the learners 24 hours a day, it should not require that the teachers are available and alert all that time.

The concept of an "open learning environment" should be more understood as the learner's increased self-control in the learning situation; the teacher gives more room to the learners' various learning styles and strategies, which greatly differ among individuals. In addition to the physical, technological and pedagogical conditions, also the complexity of the mental conditions should be included. Every person taking part has his/her own personal emotions, attitudes and values. Further, as people's mood and motivation tend to change at different times, the mental conditions are never quite similar in two separate learning situations.

2.2.2 Types of new learning environments

Some basic types of technologically-enhanced learning environments could be roughly outlined through the aspects of communication structure, material distribution and learner management. All the communication and learning materials are usually mediated via information networks (Internet or Intranets) or some other route (e.g. a telephone line). The software designed for learning purposes enable information and communication to be transferred in many different forms (audio, video, text, images, data files etc.) and they offer shared learning and communication facilities for participants geographically far apart from each other.

These learning environments might include for example text-, video- or audio-based conferencing applications to build increased interaction between the teacher and learners. Communication can also be enhanced by E-mail, IRC or BBS systems. These applications for communication can be either asynchronous (non-real time) or synchronous (real-time), depending on the

pedagogical planning of the learning environment. The data, such as communication, can also be stored in and databases and file archives from which they can later be retrieved. It also must not be forgotten that the learning environment can include some traditional classroom teaching, as well. The learning situation does not have to be entirely based on virtual connections through technology, although that is also an option.

To name a few examples of the software used for technologically-enhanced learning in Finland, there are WebCT, Lotus Learning Space, TELSIpro, Sonera eXperience (former FLE), CSILE and ProTo, some of these reviewed by Salovaara (1999). Most of them are designed in North America but also Finnish ones are found, such as TELSIpro, ProTo and Sonera eXperience. The Finnish learning environments have usually been designed for educational purposes from the start but for instance LLS has long traditions as a corporate communication system. Using these environments for educational purposes can cause problems if their original purpose was for something else. However, this can be alleviated when updated versions are made paying attention to the needs of different user groups.

The structure of communication in the above mentioned software is usually designed either as linear or threaded. In the linear structure the written responses are added at the end of each discussion (Figure 1).

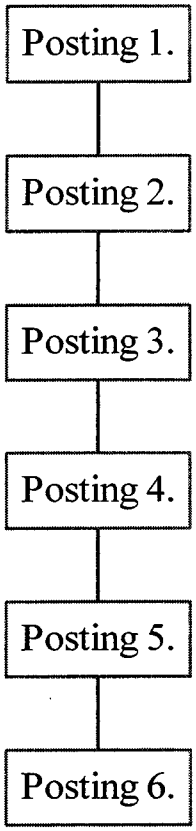

Figure 1. Linear structure of communication in a CC.

This system enables replies only to the chronologically last response in the chain of postings. In a linear-structured discussion a problem might occur if someone wanted to comment an issue mentioned in Posting 2 and there were already three postings sent after it. Assuming that the writer of Posting 6 would comment only Posting 2, would cause Postings 3, 4 and 5 to be ignored or forgotten by the writer of Posting 7 and onwards. On the other hand, everyone has a chance to read the discussion from the first posting to the last and then comment the discussion. There can also be several linear discussions within a conference and an entirely new discussion can be initiated if there is an issue that needs more attention.

The other structure, the threaded tree structure, shows discussion comments attached to the chosen thread (Figure 2).

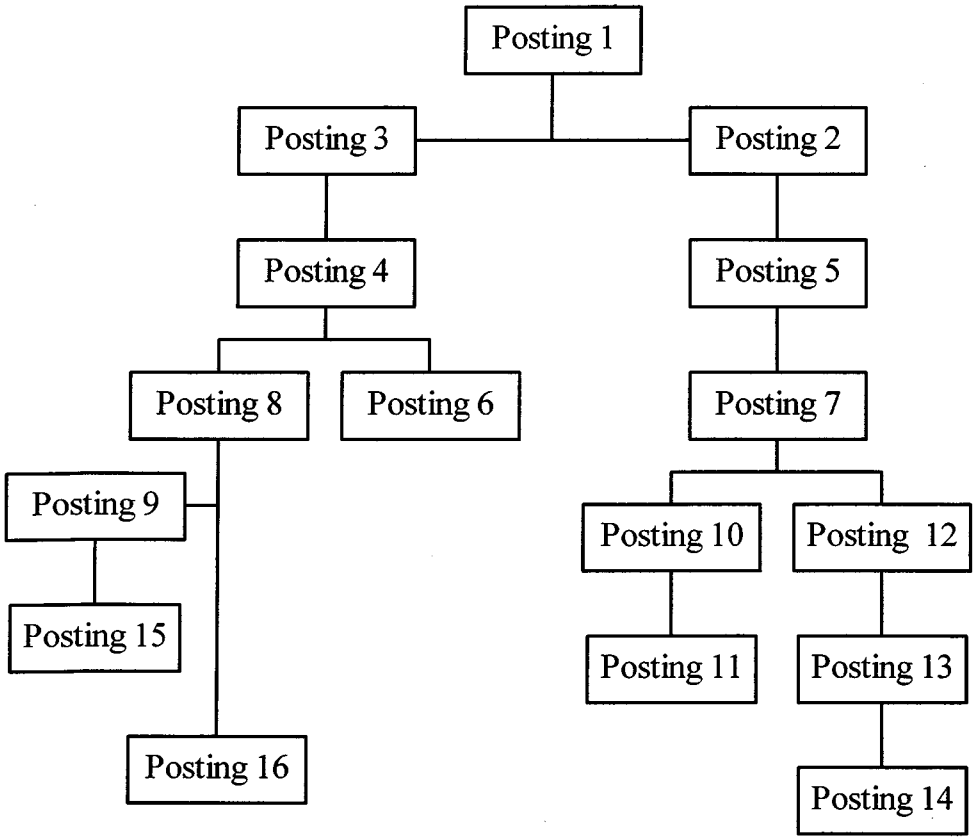

Figure 2. Threaded structure of communication in a CC.

The postings in Figure 2 are numbered according to the chronological order of publication in the conference. This structure makes it possible to comment on any of the responses of the discussion, not just the latest. The discussion can be split into separate directions or "branches". An example of a threaded discussion could be that Postings 2 and 3 are answers to a question presented in Posting 1. There are now two separate branches for two different viewpoints and if somebody wanted to comment both viewpoints it would be possible: s/he would then write Postings 4 and 5. This gives the conference participant a chance to expand some part of the discussion even though the discussion was developing into several different directions.

Choosing between these two communication structures is not simple. There are personal differences among the users' preferences and also in the nature and

purpose of the discussions affect the appropriateness of a certain communication structure. If it is important to allow free flow of discussion, then the threaded structure might be more appropriate than the linear structure, whereas the linear structure might be important for keeping the discussion chain intact and on the right track. The discussion would always proceed from only one direction and there would not appear multiple branches of discussion.

Since the communication is mostly text-based, the structure of communication cannot offer the learner a sense of place in a similar fashion as face-to-face-communication does with its verbal and non-verbal cues. The lack of these cues makes the learners more responsible of their wording of the communication in order to avoid misinterpretations. This might make the writing process tedious and time-consuming for some writers. Nevertheless, writing has not remained all that "dull"; also creative and fun new types of cues have been invented, originating from email, chat and mobile text message culture. Some researchers have noticed that in written CMC punctuation and lexical symbols, the so-called "smileys" such as :-) ;-) or :-(, were used to express emotional tones (e.g. McDonald 1997). Some CC systems are HTML-language-supported or even contain an HTML-editor, which makes it possible to enrich the text-based presentation of the posting with graphic features. Ways of enhancing text are being invented by the hour and they may replace some of the communication cues typical of spoken discourse.

Management of the learning environment also requires some thought when choosing which software to use, since there are many practices used. The access restriction is one crucial matter. The system administrator usually provides the users with personal login names and passwords. The login names can be aliases, nicknames or real names (such as "lissu", "Thin Lizzy" or "Liisa_Pinta"), depending on the anonymity policy of the administrator. Also how the author identity is shown in the communication depends on the software. Personal profiles, homepages or personal e-mail communication can be used to help participants identify each other better and to get a more personal contact with the participants. Also the latest 3-D computer graphics allows CC participants to appear virtually as an avatar; an animated figure that represents the physical existence of a participant in a discussion forum. The forum can be designed and visualised, for example, in the shape of a

classroom. The avatar can even have the face of participant if a digital image is linked to it.

Using true identities might prevent writers from using offensive or obscene language. However, some are likely to prefer anonymity in order to deal with the more personal or private matters. Unless the access is restricted, it can be almost impossible to estimate the exact quantity of your audience; there might even be 10 or more readers or "lurkers" for every active writer (e.g. Tella 1997, Berge 1995). Talking about private or public issues to complete strangers from the other side of the world using the poorly secured Internet, might turn out to be difficult for some; yet, for others it might be even a cathartic experience when no social pressure is involved.

2.2.3 Pedagogical framework for computer conferencing

The main focus in the learning environment of this study was on computer conferencing (hereafter CC). CC is one way of communicating through the information networks. The predecessor of CC was a more simple form of text-based conferencing via sending e-mail messages between conference participants (e-mail conferencing) but later separate text-based conferencing systems and software have been developed. CC is usually carried out using an application with text-based, time and place independent group discussions through the computer networks (Rouselle 1995:108). CC software is usually web-based and the conferencing systems are located on a certain URL-location on the Internet. Information networks do not only make connections but also the information conveyed via these connections can be restored on local servers and later retrieved, which opens more possibilities for accessing the CC communication materials.

E-mail communication is sometimes seen as the basic means of telematic communication. E-mail and CC have been compared and some research has found CC more beneficial because of its organisation of communication (e.g. Marttunen 1995). In CC it is easier to follow the entire discussion from beginning to end. Some researchers have also argued that the communication is too spontaneous and poorly structured in e-mail conferencing and therefore CC would be a more appropriate environment for a

deeper level of discussion (e.g. Admiraal et al. 1997). CC systems also restore the discussions for further use and therefore the postings do not take up space in the participant's personal e-mail post box. The CC system is therefore both a forum for communication as well as an extensive archive for all the postings of separate discussions.

In the following, the potential of CC will be discussed based on Wiesenberg & Hutton's review of CC studies (1996). A general conclusion from the studies reviewed was that asynchronous CC was convenient to the learners and allowed them to access a number of different resources online. This convenience was said to result from the learner's freedom to choose when to participate. It must, however, be remembered that CC participation is always regulated by access to a network-connected computer. Unless students have Internet access at home, their participation is restricted by the availability of a computer access in the school, library or some other place. This also restricts the availability of accessing any other online resources.

It has also been argued that CC promotes a higher level of student-to-student and student-to-instructor interaction and fosters a higher quality of learning than traditional classroom teaching. This is supported by the fact that students "typically experience the learning environment as 'democratic' and 'less intimidating' and the access to the instructor is easy" (Wiesenberg & Hutton 1996). The instructor has more time to focus on one student through CC than in the classroom, where there are often 20-30 or more students and only one instructor present. However, this could also be a result of instructors' using more time to CC than was intended. Asynchronous communication also allows conference participants more time to think (critically) before contributing their thoughts to the conference discussion. Some researchers have found CC to foster a greater depth of dialogue and peer interaction and to enhance the learner's critical thinking skills (e.g. Bonk et al 1998, Ojanen 1997, Marttunen 1997).

Wiesenberg and Hutton (1996) have also listed some of the key challenges of CC. The most evident is dealing with technical difficulties; inadequate computer skills are generally thought to be the most common obstacle for participation. However, Ross's study on the effect of computer communication skills on participation in a CC course (1996) shows that the participants'

computer communication skills have only a modest impact on participation. Prior knowledge of cooperative learning was said to be a more crucial factor for participation than the computer communication skills and technical support was essential to some, but not required by all students (Ross 1996). This supports the view that social interaction has a strong impact on learning (see 2.3). The issues mentioned above are most likely overcome with extensive experience of using CC systems. Most of the existing CC studies are concerned with experiments of first-time users, and therefore these difficulties are very prevalent. After the technology becomes familiar, more attention should be paid to evaluating the discourse in the CC and to finding the most beneficial ways of planning and managing the CC.

Foreign language teachers have also just begun testing and forming practices for using the Internet in teaching. Warschauer & Whittaker (1997) have presented several justifications for this: the linguistic nature and the broad range of linguistic functions of online communication, having an authentic audience, increased learner motivation and the "side-effect" of learning computer skills. If foreign language teachers recognise the Internet as a tool for teaching, then foreign language teacher education should do so, too.

The studies of CC in foreign language teaching and foreign language teacher education have focused mainly on the use of e-mail and e-mail conferencing in foreign language teaching and learning. CC has been studied more extensively from the perspective of teaching other subjects, such as history, geography or mathematics. Some early Finnish examples of these are e-mail studies; exchange with foreign students Finnish students' awareness of cultural and social differences between different nationalities (Tella 1991, 1992). Also communication skills needed in discussing could develop through CC; the findings with Finnish university students by Kalaja & Leppänen (1995) suggested that CC could be a useful training environment for practising argumentation skills and text-processing in a foreign language.

One major objective in university studies (especially in teacher education) has been to enhance the students' skills of critical thinking and reflection. It has been suggested that CC holds potential for opening professional dialogue amongst student teachers (e.g. Harrington & Hathaway 1994, McDonalds

1997). Categories of discussion content have been formed from CC studies with student teachers (Table 1).

Table 1. CC discussion content categories.

SOCIAL ACTIVITY	e.g. providing support, encouragement, collaboration
ADMINISTRATIVE DETAILS	e.g. times of tutor visits, submission of assignments
PLANNING	e.g. advice on materials and activities, class management
PROBLEM SOLVING	e.g. critical reflection, evaluation, identification of areas for development

(McDonald 1997)

This CC activity was mainly designed for problem-solving and social interaction rather than management and administration. The pedagogical framework was influenced by the socio-constructivist learning theories, especially the principles of situated learning and the idea of apprenticeship in thinking (Järvelä et al 2000). Based on previous research by the same research team, the learning environment was designed to encourage the students to set their own goals, gather meaningful information actively, monitor and evaluate their own learning and reflect on their personal learning experiences in different authentic environments and social contexts (e.g. Kuure et al 2000, Taalas et al 2000). The view of knowledge was built on the constructivist views to learning as an active process of filtering new information through previous knowledge, rather than just acquiring new knowledge (Resnick et al 1991, Rauste-Von Wright 1991, Duffy & Cunningham 1996). The instructors' roles were more related to supporting the knowledge construction rather than just transferring knowledge. According to socio-cultural views to learning, effective learning takes place in a community of people interacting and negotiating with each other (e.g. Vygotsky 1978). Therefore, the CC activity

was regarded as a web-based, virtual community of learning through interacting. Also the studies of collaborative learning support the idea that active exchange of ideas in small groups increases interest among learners and also promotes critical thinking and makes the learners achieve a higher level of thought and maintain information longer than individually working learners (e.g. Johnson & Johnson 1986, Totten et al 1991, Gokhale 1995). The social interaction was initiated and maintained in the CC through case-based discussions. In order to describe how this was done in this CC project, the software must be introduced.

2.2.4 Pedagogical framework for conferencing with COW

The learning environment of this experimental project was a combination of several separate elements and applications. The communication was mostly based on the use of a web-based computer conferencing software, which the student teachers and their teachers accessed through the Internet. The conference participants from different parts of the world also discussed through an ISDN-videoconference (hereafter VC) and there was some occasional email-communication between them as well. There was also some face-to-face-communication involved since some of the participants often gathered in the same computer lab and met their tutor there. The main focus of this study is on the CC system, since it was the forum where most communication took place and where it could be restored for research purposes.

The software used in this study was Conferencing On the Web (hereafter COW) which was originally designed in the University of San Francisco (Klavins 1996). The latest version COW 3.0 is available free from the University of Michigan website at http://calypso.rs.itd.umich.edu/COW. This latest version of the software was not available at the time of the experimental project and a previous version was used. Figure 3 shows an image of the "Hotlist page" which was opening view to COW.

Personal Conference Page for Liisa Pinta
Last Login: May. 12 5:55 AM 1999

Use the *Edit HotList* button to add conferences to your HotList

Finland_Cases_Fall98 . . .	0
Indiana_Cases_Fall98 . . .	2
Korean_Cases_Fall98 . . .	0
South_Carolina_Cases . . .	5
TITLE . . .	2210

[COWScan] [COWSearch] [Read New]

Help | About | HotList | Profile | HotList Editor

Figure 3. A view of the COW opening page.

The NINTER-project team chose to use COW software for various reasons, both practical and pedagogical; the software had a free license and it was rather uncomplicated which made it less dependent on the type of network connection or computer. Also the linear structure of communication in COW suited the framework of the project. The students were instructed to design case-based discussions which would create the basis for communication in COW.

Case-based learning is a pedagogical model traditionally used in medicine, law and business schools but recently it has been found to be an effective method in other areas of education, as well. The case method has been described as "... anchoring classroom activities in complex situations wherein students can reflect on the utility of knowledge..." (Bonk et al 1998). Case-based learning method is usually problem-oriented and case studies emphasise the use of realistic or authentic settings. Instruction is centred on a description of some event that took place and is relevant to the professional activities of the learners. In teacher education a case-based learning approach is appropriate,

learners. In teacher education a case-based learning approach is appropriate, because the classroom context is generally very problem-oriented for a student teacher with little teaching experience. Problems emerge from various different areas from choosing the teaching and group organisation methods, giving instructions and forming rules and policies in the classroom, to name a few examples. Firsthand experience has shown that student teachers tend discuss these issues on and off the campus site for endless hours. E.g. Jonassen (1994) claims that this kind of learning environment would foster reflective practice through social negotiation and collaborative construction of knowledge. The multiple perspectives and approaches gained through collaboration and interaction with other people were anticipated to intensify the learning experience.

The problem-based case discussions created by the student teachers were mostly in the form suggested by strategies 3-5 in Table 2.

Table 2. The strategies for using case-based problems.

STRATEGY	LEARNING OUTCOME
1. The problem as a guide.	a concrete reference point to focus the learner's attention
2. The problem as an integrator or test.	problems presented after assigned readings are completed and discussed
3. The problem as an example	problem illustrates some particular point
4. The problem as a vehicle for process.	focus on training critical thinking skills
5. The problem as a stimulus for authentic activity.	focus on developing skills related to solving the problem type; skills developed through working on the problem for authentic activity

(Duffy & Cunningham 1996)

The case problem was used as an example, a vehicle for process and stimuli for authentic activity. The cases in the conference represented the diverse area of themes related to teaching and learning through reflecting on student teachers'

classroom experiences and/or pedagogical models and theories. The discussion topics and case discussion titles that were created by the Finnish student teachers give some view on the content of communication in the CC conference. Table 3 shows the full list of Finnish student teachers' case discussion titles in each topic.

Table 3. Case level - topics and case discussion titles.

TOPIC	**Title of case discussion**
1. Socio-constructivist views to learning and teaching	-
2. Motivation	"I'll never learn this..."
	Teaching grammar
3. Problems and challenges in school context	Discipline disturbances - only a teacher trainee's nightmare?
	Gender and classroom
	Discipline in the elementary school
	Homework - love it or leave it?
	Influence of climate of the society
	The students are always positive and enthusiastic??????
	Problems of differentiation
	What do we really learn in school - the concept of hidden curriculum
	Learner autonomy
4. Learning interaction	Do we communicate?
5. Creating a supportive learning environment	Help! There's no air!
	Looooong lessons...
	Dynamic duo, problem pair
	Kings of the class - how to deal with them?
6. Assessment and evaluation	Assessment - a burden to pupils?
7. Technology and learning	The use of the Internet in the classroom
8. Intercultural communication	Non-native speaker teaching mathematics in English
9. Foreign language teaching and learning	Are English teachers just puppets in a multinational, non-colonialist brainwash?
	A perfect teacher
	How should we use foreign languages in classroom?
	Teaching culture in the classroom
	Teaching oral language skills
10. Rethinking language teaching/ language learning methodologies	-

There were no case discussions created under topics 1 and 10 and the most popular choices for topic areas were topic 3, 9 and 5. Topics 1 and 10 were the related to theoretical concepts and 3, 9 and 5 were related to the more practical side of teaching and its problems, as can be seen from the titles. The titles were rather informal but the case problems they reflect are probably familiar question and concerns for any teacher.

COW was hierarchically divided into three levels: conference, topic and case level. On the first level, the Hotlist page (see Figure 3), the participant could enter a specific conference and find out about the time and date of his/her last conference login and to see the amount of new, unread conference postings in each separate conference. The conferences were titled in this project as "Finland Cases", "Indiana Cases", "Korean Cases" and "South Carolina Cases". After choosing, for instance, "Finland Cases Fall98" conference, a hyperlink took the participant to another page of conference discussion topics (Appendix 1). The topic list was designed by the research team and the topics aimed to focus on theoretical and practical problems and challenges in education. There were also hyperlinks to universities' and teachers' homepages and to the International Cafe. The International Cafe was basically just one topic area reserved for free, informal discussion and introductory postings. On this topic level the case discussion titles and the number of new postings in each discussion were shown. This way the conference participants could easily check whether there were any new responses to the discussions they had read or commented upon under each separate topic.

The final level was the case level. In order to describe in more detail the general atmosphere in COW and the nature of communication, a sample case illustration is included in Appendix 2. Some alterations have been made to protect the conference participants' identity. The case discussion was created under the main topic 9. Foreign language teaching and learning and it deals with teaching culture in the language classroom. The case discussion was opened by two student teachers and their case discussion is an ideal example of authors' taking control of and looking after the discussion; there are frequent postings by the authors not only in the beginning and end of the discussion but also throughout the chain of 21 postings.

The structure of interaction between the conference participants (student-to-teacher and student-to-student interaction) in the CC activity was designed using some ideas from the concept of "cognitive apprenticeship" (Collins, Brown & Newman 1989). The key terms of the model are borrowed from traditional apprenticeship. Unlike in traditional crafts-apprenticeship, cognitive apprenticeship does not take place in the actual concrete working environment. As the name of the model implies, it does not mean the physical or practical skills but the kinds of cognitive skills more conventionally associated with educational contexts. In cognitive apprenticeship, the learner's decontextualisation of knowledge is emphasised, meaning that the same knowledge should be applicable in different domains. Learners' conceptual and problem-solving knowledge demand higher problem-solving activities; in these activities the students are required to actively integrate and appropriately apply their conceptual knowledge (Collins, Brown & Newman 1989). The starting point is to pay more attention to the cognitive processes that the expert engages in using or acquiring knowledge while carrying out the tasks at hand. These processes serve as resources and models for the novices' (learners) use of conceptual and factual knowledge in solving problems and carrying out similar tasks.

Following the principles of situated learning, the learning is thought to advance through collaborative social interaction and the social construction of knowledge (Brown, Collins & Duguid, 1989; Lave & Wenger 1994). In situated learning, knowledge and learning are linked with the learning situation and with the context of the knowledge, context referring here to the social and cultural environment in which learning takes place (Lave & Wenger, 1994). Knowledge needs to be presented and learned in an authentic context, meaning the settings that would normally involve that knowledge.

In traditional crafts' apprenticeship it is not uncommon for apprentices to have access to several masters and thus to a variety of models of expertise. Therefore, also in cognitive apprenticeship the use of several experts is justified, because it helps the students to understand that there may be multiple ways of carrying out a task and that no individual embodies all knowledge or expertise. In the CC activity of this project, the presence of several mentors brought several different expert practices within the reach of the students. In

this study, the learner community in COW created a wide range of authentic problems related to the teaching profession and the classroom context and these problems were dealt with in the CC activity. The topics for the case discussions and the outlines of case-work were designed to reflect the changing needs in the field of the teaching and learning. The learning process was placed in a real-world community of people from various parts of the pedagogical field (student teachers, students of educational psychology, teachers and researchers). The WWW can also be seen as a relevant environment for such case-based reasoning activity, because the constructor of the case discussion can receive multiple perspectives (Häkkinen & Järvelä, 1998). A web-based learning environment offered the discussion a wider audience than normal classroom work could and also the possibility of observing several different expert practices.

The discussions in the CC involved students and teachers or researchers. In this project the mentors were acting as "experts" (the experienced teachers and researchers) and the student teachers were the "novices". Still, the "expertise" was not equivalent to only the level of education, but also personal experience and knowledge on the problem at hand mattered. The participants could be experts in one situation and novices in another. The ideal situation would be if the experts' relevant cognitive processes could be made visible to the novices. There are certain types of methods and techniques that the "experts" should use to make this happen. These techniques are described in Table 4.

Table 4. Mentoring techniques.

Technique	Description of the process
1. modelling	expert performs the task and learners can observe and construct a model for solving the task
2. coaching	learners are given cues, support, feedback, models and new tasks that direct them further towards their goals
3. scaffolding and fading	learner support is gradually reduced in the process when the learner starts to cope on his/her own
4. articulation	the means that make the learner express his/her own knowledge, deductions or problem-solving processes
5. reflection	reflection of problem-solving processes between the learner, the experts, the other learners and finally with the learner's own internalised model of expertise
6. exploration	encouragement given to the learner to apply his/her own skills in problem-solving in the different stages of the process

(Collins, Brown & Newman 1989)

The techniques encourage reflection on the differences between novice and expert performance: what are the reasons and justifications why people choose different solutions? The novices could learn and adjust their own performance with the knowledge and techniques they learn from the expert performance and vice versa: learning from the master and, in this case, also learning from the apprentice might take place. Studies on building electronic learning apprenticeship with electronic learning tools have created learning communities that facilitate interaction between student teachers, working teachers and researchers of the same field (Bonk 1998). The significance and further development for this type of learning communities is not yet fully investigated. In addition to delivering information related to class management and administration, CC has been used for collaborative purposes and problem solving. This electronic community of sharing ideas and teaching and learning materials via computers offers teacher education an opportunity to cover a

wider range of issues than a traditionally carried out teacher education program. The communication and professional dialogue between student teachers and their supervising teachers or tutors would be less dependent on time and place and it could be increased through the use of technological application(s). This would naturally serve also foreign language teacher education, especially through intercultural communication in an international forum.

Asynchronous computer-mediated communication in foreign language teaching via e-mail, newsgroups or web-based conferencing systems has enabled authentic long-distance communication with native speakers or other learners of the foreign language (Warschauer & Healey 1998). Student teachers of foreign languages could discuss with native speakers; this would increase the student teachers' experience and knowledge of the target language and its culture. Once the foreign language teachers have become acquainted with this means of communication, a new way of adding authenticity enters the foreign language classrooms. This study presents an experimental project that introduces student teachers of English one type of learning environment supported by technology and a pedagogical model of interaction. The study also aims to evaluate the process through the experiences of the student teacher participants.

2.3 Research questions

The purpose of the present study is to introduce a web-based conferencing system and the pedagogical framework that was used for this conferencing activity. This study also examines the potential and problems of the learning environment used in this project through the experiences of these student teachers. A further aim is also to seek possibilities for further development of teacher education for the student teachers of English.

The main research questions are:

1) What did the student teachers perceive to gain from participating in this web-conferencing project and what were their major problems?

2) How did the pedagogical arrangements support the learning environment?

3) What was the significance of project participation to the student teachers' teacher training period?

3. RESEARCH DESIGN

This section describes the contents and quantity of the conferencing activity, concentrating on the Finnish student teachers' conference participation. First, the primary research subjects of this study are described. Secondly, the other conference participants are described. Thirdly, the framework for the conferencing activity and the key concepts are determined. Also some quantitative data is given to provide information on the quantity of the conferencing activity, also on the research subjects' conference participation. The data collection methods for gathering both quantitative and qualitative data are introduced and the data analysis processes are described.

3.1 Description of the research subjects

The main focus of this study is to analyse quantitative and qualitative data gathered from the student teacher participants in an experimental web-based computer conferencing project conducted as a part of the NINTER-research project. Through this data also the project's pedagogical arrangements and the project's significance to the subjects' English teacher education are evaluated.

The participants were seventeen pre-service teachers of English from a Finnish university. They were all majoring in English for the fourth or later year. The participants in the student teacher group were aged from 23 to 30 years. The group consisted of 16 female student teachers and one male student teacher. The experimental project took place in the autumn semester 1998. The optional participation in the CC project replaced a one-credit lecture course in the participants' teacher training studies in the department of Teacher Education.

3.2 Description of the conferencing participants

The Finnish conference participants came from the universities of Jyväskylä and Oulu. The student participants were all major students of English who participated in this project while doing their subject teacher studies. There were seventeen student teachers from Jyväskylä and 16 student teachers from Oulu.

The Finnish group of mentors in the conference consisted of 6 members of the research group and over 40 members of working teachers who were participating in this conference as a part of their further education course. The massive amount of teacher participants in relation to the student participants did not, however cause any imbalance, since most of the teacher participants remained "silent participants"; only few of them wrote written responses in the conference discussions. The foreign participants of the conference were American and Korean university students, teachers and researchers. The foreign students' exact educational and personal background was not clearly defined. Most of the American students were studying education-related subjects, such as educational psychology. The Korean students were studying to become teachers of different subjects. The age of the other student participants was estimated to be roughly around 20 years.

The total number of participants from all the partners of the project (Finland, USA and Korea) can only be estimated. There were participants from three different countries and five different universities and no shared record of student accounts was kept. The COW system's record of accounts could not be used, since it showed all the regular, visitor and extra accounts (for some login errors there were several accounts for some participants). Also some of the COW users might hold a registered account but there was no way of knowing how random or regular their participation as a reader of the conference was. The record of messages enabled only the calculation of those participants, who had participated through writing. A rough estimation is that during autumn 1998 there were over 200 participants altogether in the conference.

3.3 Framework for the computer conferencing activity

The CC activity lasted altogether 8-10 weeks. In the first week the participants were given reading materials and the COW-environment was introduced to them. The reading materials consisted of articles listed in Appendix 2. The articles were related to contemporary pedagogical approaches to learning, such as autonomous language learning and the role of technology in learning. The reading material was intended as orientation to the conferencing activity and the educational technology, but it was intended to be a resource from which

some theoretical background for the conference discussions could be gained. Student teachers were also encouraged to refer to any other literature or resource material in the conference discussions.

The student teachers filled in a pre-questionnaire (Appendix 3) in which they were asked about their previous experiences with the WWW and their expectations and experiences about the project, as well as their attitudes to using the WWW for learning purposes before and after the conferencing activity. A computer lab was reserved for the group for altogether 8 hours' time a week, consisting of one two-hour session and two four-hour sessions. The student teachers were also able to attend the conference from any computer that had a suitable Internet-browser connection to the WWW. This made the COW environment less dependent on the computer lab, time of day or weekday.

Each participant was supposed to initiate a new discussion thread or "a case" as they were called during the CC by writing an opening message. The case opening messages were short written descriptions of situations or problems involving learning and teaching. The case openings could be either theory-based or experience-based and they were expected to present a problem or a question that the conference participants could then start discussing. Each student teacher was supposed to write at least one case either by him/herself or in pairs or small teams. The case discussions continued from the case opening when the conference participants started responding to each other's postings. An example of a case discussion is found in Appendix 1.

In the first week of the project the Indiana, Oulu and Jyväskylä participants were also introduced to each other through a VC session. The conference participants were only "virtually" present as login accounts in the text-based COW conference and therefore the VC contact was expected to motivate the conference participants to interact through COW. On the same week, after the VC session, the student teachers started work in COW in the computer lab sessions. The first tasks were to make a profile page of themselves and practise posting a message in COW system through interacting in the International Cafe, the section in COW reserved for informal chat.

After this, the student teachers started working on their case openings and reading and commenting on other student teachers' case discussions. The Jyväskylä project mentors were in contact with the student teachers in the

weekly sessions in the computer lab and through email if necessary, providing technical and any other kind of support that was needed or requested.

In the last two or three weeks the student teachers wrote a conclusion on the discussion in the end of the case discussion they had initiated. The purpose of the conclusion was to summarise and close the discussion and also to consider what were the outcomes of the discussions or the solutions to the case opening problem. After most of the conclusions were in COW, there was a conclusive video conference in which the conference participants shared some of their thoughts about the case discussions and commented or made more questions on the topics or problems of the cases. After the conferencing activity ended, the student teachers were handed out a post-questionnaire (Appendix 4) and a date for a personal interview was set with each student teacher. Most of the student teachers did not return their filled-in post-questionnaire until they arrived at the interview session.

3.4 Description of the conference quantity

Some numerical data was retrieved from the COW software's archives of the conference postings. By the end of December 1998 there were altogether 357 postings in the Finland Cases-conference. The average amount of postings per discussion was 15.2. The total number of discussions written by the Finnish student teachers was 23 discussions, 11 written by the Jyväskylä students and 12 by the Oulu students. There were also 10 discussions written by American students in the Finland Cases-conference, apparently due to a misunderstanding in the placement of the case opening.

5 % of the postings were so called "hidden postings". The COW system did not enable the deletion of any message by the participants, not even by the author of the message. Some messages were sent unfinished or two or more times, due to network problems with the web-browser, or simply user mistakes during the composition of the message. The author could only "hide" the body of the text of these postings from the other participants, but the messages still remained in the COW message archive.

The case discussions created by all Finnish student teachers are listed in Table 5 to give the reader some view on the atmosphere of the conference. Both Finnish universities were included to portray the whole Finnish conference; the student groups also shared a similar enough background as student teacher majoring in English. Table 5 also shows the total amount of postings sent to each discussion and also indicates from which university the student(s) who started the case discussion came from.

Table 5. Case topics, titles and amount of postings in each case.

N= number of postings in the case discussion O= Oulu J= Jyväskylä

Case discussions by topic	location	N	%
2. Motivation			
"I'll never learn this..."	O	20	5.6
Teaching grammar	O	17	4.7
3. Problems and challenges in school context			
Discipline disturbances - only a teacher trainee's nightmare?	O	21	5.9
Gender and classroom	O	22	6.2
Discipline in the elementary school	J	20	5.6
Homework - love it or leave it?	J	26	7.2
Influence of climate of the society	O	5	1.4
The students are always positive and enthusiastic??????	O	21	5.9
Problems of differentiation	J	12	3.4
What do we really learn in school - the concept of hidden curriculum	J	18	5.0
Learner autonomy	J	11	3.1
4. Learning interaction			
Do we communicate?	O	16	4.5
5. Creating a supportive learning environment			
Help! There's no air!	J	9	2.5
Looooong lessons...	O	11	3.1
Dynamic duo, problem pair	O	7	2.0
Kings of the class - how to deal with them?	J	13	3.6
6. Assessment and evaluation			
Assessment - a burden to pupils?	J	15	4.2
7. Technology and learning			
The use of the Internet in the classroom	J	18	5.0
8. Intercultural communication			
Non-native speaker teaching mathematics in English	O	9	2.5
9. Foreign language teaching and learning			
Are English teachers just puppets in a multi-national, non-colonialist brainwash?	O	12	3.4
A perfect teacher	O	10	2.8
How should we use foreign languages in classroom?	J	16	4.5
Teaching culture in the classroom	J	21	5.9
Teaching oral language skills	O	7	2.0
Total amount of postings		357	100

As Table 5 shows, the topics that contained significantly more cases (created by Finnish students) and postings (by all conference participants) were

topics 3, 9 and 5. The popularity order was similar also with the Jyväskylä student group. The reasons why these topics were the most popular ones might be related to the (Jyväskylä) student teachers' backgrounds. The student teachers had not yet taught their first lessons in the training school when the conferencing started and many them spoke about their insecurities because of their lack of teaching experience. Therefore it is understandable that the topic 3. *Problems and challenges in school context* was the most interesting to them; after all, the title already suggests that the topic deals with "problems". For the same reason no case discussions were started in topics 1. *Socio-constructivist views to learning and teaching* and 10. *Rethinking language teaching/language learning methodologies*. These represented the theoretical aspect of teaching and learning, which did not seem to interest students.

3.5 Conference participation data

The numerical data received from the COW-software's own Search-tool allows some characterisation of the Jyväskylä group, as far as the postings are concerned. The COW Search-tool made it possible to count the postings written by certain account name (login name) and thereby each student teacher. Also searching postings in each conference (Finland, Indiana, South Carolina and Korean Cases) was possible. The student teachers' individual communication quantity was not analysed further in order to maintain the focus of this study. However, some characterisation was made to illustrate the quantity of participation in this conferencing activity. Student teacher login names have been coded as ST 1, ST 2 etc. These codes are the same ones that were used in Table 14.

The purpose of the next two tables 6 and 7 is only to provide a general picture on the quantity of the conference postings. Table 6 tells the amount of postings each student wrote in the case discussion they themselves opened and in the case discussions opened by their peers. "Case author" is here used to refer to the student teacher who opened a case discussion. Case authors were instructed to write at least an opening posting to start a discussion and a conclusion posting to finish the discussion. Any student teacher who had

written more than two author postings had, therefore, done some commenting in the middle of the discussion, as well.

Table 6. Amount of student teacher postings.
N= number of postings

Student teacher code	Total COW postings N	Postings in peer cases N	Total case postings N	Author postings N
ST 3	29	9	18	6
ST 10	27	10	26	5
ST 11	12	4	15	2
ST 7	9	1	16	3
ST 17	8	5	20	2
ST 13	8	3	9	3
ST 8	8	1	11	3
ST 6	8	2	12	4
ST 14	6	2	11	3
ST 1	6	1	12	4
ST 4	6	0	21	5
ST 2	6	2	13	3
ST 5	6	1	15	2
ST 9	5	0	21	5
ST 16	4	0	18	2
ST 15	4	1	11	3
ST 12	3	1	18	2
total	155	43	267	57

The first column from the left, "Total COW postings", gives the total amount of postings in the conference by each student teacher. Two student teachers, ST3 and ST10, were clearly more active than the other students. They wrote over twice as many postings as the others. As a comparison, the three least active writers ST16, ST15 and ST12 wrote altogether 3-4 postings in COW.

The second column from the left, "Postings in peer cases", shows that the same active student teachers also responded their peers' case discussions the most. Three student teachers responded to none of their pees and six responded to only one peer.

The second column from the right, "Total case postings", gives the total amount of postings in the case discussion that was started by the student teacher him/herself. The case length varied from 9 to 26 postings.

The first column from the right, "Author postings", refers to the amount of postings written by the student teacher in his/her own case discussion (the opening, comments and the summary). This amount varied from 2 to 6 postings. Five student teachers wrote only the opening and the summary and did not join in the discussion in the middle.

The distribution of conference participant postings in different parts of the conference were also recorded (Table 7). As in Table 6, the data is not further analysed statistically because the purpose of these figures is again to describe the quantity of the student teacher postings. As noted earlier, the total amount of postings in the conference was 357 postings. Table 7 illustrates the conference posting distribution of those seventeen Jyväskylä participants.

Table 7. Postings by student teachers in the different parts of COW.

N= number of postings

Student teacher code	Total postings in COW N	Finland Cases N	Indiana Cases N	South Carolina Cases N	Korean Cases N	International Cafe N
ST 3	29	15	5	4	0	5
ST 10	27	15	3	0	3	6
ST 11	12	6	2	2	1	1
ST 7	9	3	3	1	1	1
ST 17	8	7	1	0	0	0
ST 13	8	6	0	0	1	1
ST 8	8	4	0	0	0	4
ST 6	8	6	0	0	0	2
ST 14	6	5	0	0	0	1
ST 1	6	5	0	0	0	1
ST 4	5	5	0	0	0	1
ST 2	6	3	1	1	1	0
ST 5	5	5	0	0	0	0
ST 9	4	2	0	0	0	2
ST 16	4	4	0	0	0	0
ST 15	3	3	0	0	0	0
ST12	3	3	0	0	0	0
total	151	94	15	8	7	25

Table 7 shows that the same active participants, ST 3 and ST10 participated in four out of the five separate parts of the conferencing system. Only ST11 and ST7 participated all five parts of COW, though only with 1-6 postings per each part. All seventeen student teachers participated at least in the Finland Cases conference but 5 student teachers did not have postings in any other conference. Eleven student teachers participated in the International Cafe and six student teachers participated in the Indiana Cases conference. Only five student teacher participated in the Korean Cases conference and even as few as four student teachers participated in the South Carolina Cases conference.

At this point, certain observations must be made about the conference. The results indicate some division between active and passive participants. Also the Jyväskylä peers' conference discussions were those that the student teachers clearly commented the most. It must be remembered that these figures only show the participation through writing, not through reading. The interviews will offer information on how the student teachers themselves felt about their conference participation and what reasons could be found behind their choices. The ideal situation would have been to complete this statistical analysis and then start asking questions about conference participation based on concrete facts. Unfortunately, the interviews were held before the quantitative analysis was finished. Still, having also qualitative data will give a more extensive view on the conference and help find explanations and support to at least some of the results found in the quantitative analysis.

3.6 Description of the data collection methods

The quantitative data were gathered through using a pre- and post-questionnaire and COW software search tool statistics. The student teacher group was small (17) and the results of the quantitative analysis were not meant for making generalisations. The purpose of the quantitative data was to give descriptive background data on the participants and, to some extent, also on the conference experiences.

Pre- and post-questionnaires were designed by the research group from Indiana (Bonk et al 1997). The pre-questionnaire questions were related to four themes: personal information, familiarity with technology, attitudes towards

technology and learning and expectations for the project. The post-questionnaire questions were related to four themes: the amount of experience with technology, experiences and attitudes with the conferencing activity and giving feedback concerning the project and the conferencing activity. The COW software also kept a record of the number of postings sent to each topic and to each discussion and it was possible to run word-searches that covered all the conference discussions. The searches were executed according to the conference participant login accounts and discussion topics. These data made it possible to generate a statistical overview of the quantity of the contributions by the participants of this study.

The qualitative part of this study consists of a structured interview, which aimed to give information on the participants' learning outcomes. The main focus of this study is on the data gained from the personal interviews. The questions of the interview are listed in Appendix 5. In addition to using the themes dealt with in the questionnaire by Bonk et al, the interview design also adopted some features from Webb, Newman & Cochrane's (1995) study on the university student teachers' CC activity outcomes. In this study they used a post-experience questionnaire to examine the quality of student teacher learning. They also posed additional questions to explore the student teacher's experience of using CC in the context of their course of study. The design of the interview structure in this study made use of this model because of a resemblance in the research's aim to examine the student teacher outcomes. The questionnaire Webb et al used was designed on the basis of Garrison's five-stage "Critical thinking model" (1997). The purpose of the present study was not to test Garrison's thinking model but find out data on similar themes as Webb et al did in their study. Table 8 illustrates how Webb et al related their areas of interest in the five stages of dealing with the investigated problem.

Table 8. Garrison's Critical thinking model.

1) *problem identification*	the capacity of the (learning) environment to arouse & sustain interest and to increase awareness of important issues
2) *problem definition*	how much the CC clarified course objectives and made relevant personal experience
3) *problem exploration*	the capacity the CC had to help the student teachers develop new ideas and solutions, understand issues, including these contained within study texts
4) *problem applicability*	focus on critical assessment of course content, possible solutions, ideas for others
5) *problem integration*	how much the CC helped the student teacher to understand by applying course content to his/her own life situation

The interview questions in this study could also be divided into five separate groups, but these groups did not follow the order of the stages in table 4, only the content of Webb et al's study in some measure. The interview structure is presented in Table 9.

Table 9. The interview structure used in this study.

1) the technical aspects of the learning environment (COW software, auxiliary activities)
2) the collaborative aspects of the learning environment (peer presence, peer cooperation)
3) pedagogical aspects of the learning environment (problem-orientation, collaborative case-based work, the community of shared expertise)
4) CC activity experiences (reading and commenting conference discussions, objects of interest in the discussion contents)
5) feedback on and evaluation of the learning outcomes and the project outcomes

Some alterations were necessary for laying emphasis on certain themes to make the interview structure relevant to this study. Firstly, the interview in this study aimed to discover more about the things that affected the student teachers' conference participation and also more about their experiences of the pedagogical arrangements of this CC activity and the benefits to their teacher studies and professional growth. The student teacher outcomes were not examined by offering ready-made sets of alternatives for the interviewees but rather by allowing them to tell themselves about their own perceptions and experiences. The interview was also used for getting feedback on the practical arrangements of the project. The interview questions were designed to generate further information on how the pedagogical arrangements supported the learning environment and what the student teachers' experiences were in participating the conference activity. The participants were interviewed individually in their native tongue, Finnish, in order to prevent possible misinterpretations and to make the interview situation as comfortable as possible for the student teachers. The interviews were recorded and then transcribed for the analysis.

3.7 Description of the data analysis

The quantitative analysis of the questionnaire data used percentages and means to examine the alternatives chosen by the student teachers in the rating scale questions and in the multiple choice questions. The statistical data from the COW search tool was calculated to show frequencies and percentages of the Jyväskylä student teacher contributions and of the overall distribution of the discussion topics. The transcribed interviews were sorted and rearranged so that the answers to each question were grouped and their main points categorised. The grouping and categorisation was made on the basis of content variance. During this process information on each participant was indicated in the answer insert. This way it was easier to keep track of who said what, if any interesting differences in opinions or experiences rose from the data. The interview data together with my personal field observations during the project were also a basis for characterising some recurring feature of the group of participants after having detected similar patterns of behaviour or experience.

4. QUANTITATIVE ANALYSIS OF THE QUESTIONNAIRE DATA

The purpose of this part of the study is to give more insight into the characteristics of the seventeen student teachers that were interviewed. This data serves as background information for the interview data, which is the main focus of this study.

4.1 Pre-questionnaire data

The student teachers were given a pre-questionnaire (Appendix 3) to fill in before the project started. The pre-questionnaire contained one question related to being familiar with technological applications, eleven ratings for statements related to experiences and attitudes with technology and learning and also five open questions related to the student teachers' expectations about the project.

4.1.1 Structured questions

The student teachers were asked about their familiarity with some technological appliances. The first question was "Which of these (network appliances) you are familiar with? Please, tick.".

Table 10 shows which network appliances were familiar and to how many student teachers. E-mail and WWW were familiar to almost all and e-mail discussion groups to about half of the student teachers. Most of the group was less familiar with the other appliances.

Table 10. Familiarity with network appliances.

Application	**N**	**%**
E-mail	17	100
WWW	16	94.1
Electronic, Internet-based videoconferencing	2	11.8
Chat, BBS	0	0
E-mail discussion groups	9	52.9
ISDN videoconferences	2	11.8

It must also be noted that the meaning of the word "familiarity" can vary, so perhaps better wording of the question would have given more accurate information. In the post-questionnaire the students' were asked to describe to

what extent these information network appliances were familiar to them, i.e. how much experience they had with these appliances, which gave an accurate description of the student teachers' skills with using information networks.

The student teachers' attitudes towards using WWW for educational purposes was viewed through eleven statements, which the student teachers rated from 1 to 5 according to their disagreement or agreement with the statement. The student teachers' rating means for each statement are listed in Table 11. The ratings were not further analysed due to the small size of the student teacher group.

Table 11. Using the WWW for educational purposes

(1 strongly disagree - 5 strongly disagree)	**Group mean**
1. The Web is useful for learning purposes	3.9
2. I find the web easy to use.	3.8
3. It is easy to find good sites for language learning.	2.7
4. It is important to integrate educational technology in the schools.	4
5. The web is not much help in learning.	1.4
6. In my work as a teacher, I will make extensive use of the web.	2.8
7. I am interested in language learning.	4.4
8. I am interested in educational technology.	3.8
9. I am interested in computers.	3
10. I am interested in teaching and learning (pedagogical aspects) in general.	4.2
11. I have a lot of experience of using the web.	2.2

The statements that were most agreed with were 4, 7 and 10 (rating 4 or higher). They were related to the student teachers' interest in language learning, in teaching and learning in general and in integrating educational technology with school. Since all the students were student teachers of English and

currently doing their teacher training, these topics were likely to appear. The statements that were least agreed with were 3, 6, 5 and 11 (rating less than 3). They were related to the student teachers' mistrust in using the WWW for educational purposes in language learning and in general. The fact that the student teachers reported having little experience with using the WWW made it understandable that they had no clear idea of the possible potential that the WWW might offer for teaching and learning their own subject.

4.1.2 Open-ended questions

The pre-questionnaire also included open-ended questions. The student teachers were asked about their expectations and needs of support related to this project. Questions 1 and 2 dealt with similar issues and were therefore analysed together. This procedure is used for similar reasons in some further parts of the quantitative questionnaire data analysis. The first open-ended question was "What kind of expectations do you have about this project?" and the second one was "What do you expect to learn during this process (from for instance the collaboration or the technical point of view)?".

Questions 1 and 2 dealt with the general expectations and expectations regarding the learning outcomes from the project. The student teachers' expectations were mostly related to learning more about teaching and learning via the Web and to using educational technology, possibly even in their own teaching. Another issue that was mentioned was getting in contact with people from other cultures and getting different opinions on educational matters and learning more about intercultural communication. There were five student teachers who reported they did not know at all what to expect from the project. Whether or not their expectations were responded will be discussed in the qualitative analysis of the interview data.

The third open-ended question was "How comfortable are you with educational technology? Describe you previous experiences.". Nine students said they had no experience whatsoever with educational technology and they also mentioned feeling uncertain or uncomfortable when it comes to dealing with computers. Five student teachers reported being comfortable with using a computer but even they did not have any experience with educational technology. Only three student teachers from the group said they had some

experience with educational technology, nevertheless they did not describe themselves as being comfortable with using it in their teaching. The student teacher group was fairly inexperienced with educational technology as well as with teaching and therefore it must be stated that this project was an example of introducing approaches and appliances novel to them. The aspect of technology was one crucial factor in the participants' background data. Although the participants were relatively inexperienced with technology, they still volunteered to the project. Even if they just did it to keep up with the latest trends, it is a sign of taking initiative into developing their computer skills.

The fourth open-ended question was "What kind of assistance do you think you will need with using technology?" and the fifth one was "Do you have any other comments at this point?". Of the 13 student teachers who answered these questions, nine student teachers reported they needed "lots of all kinds of assistance" with technology. Four student teachers anticipated that a brief introduction and basic instructions on entering the conference system would be enough for them. These comments were taken into account when the conferencing activity started. There were no responses to the last question in which the student teachers were asked to make any other comments.

4.2. Post-questionnaire data

After the project ended, the student teachers were given a post-questionnaire to fill in (Appendix 4). Some student teachers received the post-questionnaire at the interview session, so it is likely that there are some overlaps in the answers' content. The student teachers possibly became more aware of their own opinions after the interview. The interview was also designed to give further information on some of the same themes dealt with in the questionnaire. For this reason, too, there may be similar answers in the questionnaire as in the interview. The post-questionnaire consisted of two background questions related to using technology, four questions related to time spent with the conference system, ten sentences for rating and eight open-ended questions related to experiences with the project.

4.2.1 Structured questions

In the structured questions some rating scale information was gathered from the students, considering further questions on information network appliances and the amount of time spent while working in the COW system. The first question was "How much experience did you have on using WWW before this class?" and the second one was "How much experience did you have on using Bulletin Board Systems, chat or electronic conferencing systems before this class?" The student teachers were asked to describe their experiences with the WWW and experiences with BBS, chat or electronic conferencing systems before this project. The set of appliances was not identical to that of the pre-questionnaire, presumably for reasons of laying emphasis on the appliance used in the conferencing activity. The percentages of the student teachers' estimations are listed in Table 12.

Table 12. Experience with information network appliances.

Amount of experience	**WWW** N	%	**BBS, chat, CC** N	%
None	0	0	9	53
Little	9	53	6	35.2
Average	7	41.1	2	11.8
Extensive	1	5.9	0	0
TOTAL	17	100	17	100

This table, as well as Table 10 in pre-questionnaire data analysis, implies that the student teachers' experience was less than average with the WWW and none or little with the other network appliances mentioned. The question should have been reformulated to gain more defined information on the student teachers background and skills with computers. However, since the focus on this study was not on the previous knowledge and skills with networks and computers, this data was combined with the observations and the interviews to give a more accurate general view on the group's experience with network applications. Considering these methods, the group's experience was mostly

with using email and IRC (Internet Relay Chat) and surfing websites on the Internet with a browser for reading purposes.

The next four questions, questions 3-6, were related to the amount of time the student teachers spent with the COW system during the conferencing activity. The third question was "How many hours on average did you spend per week in COW?" and the fourth one was "How many hours on average did you spend creating and responding cases in COW?" The percentages of the student teachers' estimations of the time spent in COW are listed in Table 13.

Table 13. Student teachers' estimation of the time spent in COW

	Hours Weekly		**Hours Total**	
Number of hours	**N**	**%**	**N**	**%**
0-1 h	3	17.6	1	5.9
1-2 h	11	64.8	0	0
2-4 h	3	17.6	0	0
4-8 h	0	0	8	47
8-16 h	0	0	6	35.3
over 17 h	0	0	1	5.9
No answer	0	0	1	5.9
Total	17	100 %	17	100%

Table 13 shows that according to the student teachers' own reports, most of them spent weekly 1-2 hours in conferencing (64.8%), but there were also those who used less or more time than that. It is not likely that the students had exaggerated their use of time, since they chose the alternatives that were three least amounts of hours ("0-1 hours", "1-2 hours", "2-4 hours") although there were also alternatives of more hours offered in the questionnaire ("4-8 hours, 8-16 hours, over 17 hours"). The estimations for the total time spent in the COW system seemed to be more than four hours for almost all the student teachers. However, it must be noted that this was just a rough estimation made by the student teachers themselves weeks after the whole conferencing activity had started and the amounts of time used were not therefore very reliable.

The student teachers were also asked about the time of day on which they usually accessed COW. The fifth question was "On what time of day did you generally work on COW?" and the sixth question was "When were you most active in COW?" The student teachers' estimations of these times are listed in Table 14.

Table 14. Student teachers' estimation of the time of day spent in COW.

N= number of student teachers

Time of day	**N**	**%**
6 AM- Noon	2	11.8
Noon - 6 PM	10	58.8
6 PM - Midnight	0	0
Midnight-6AM	0	0
No regular time	5	29.4
Total	17	100

Most of the student teachers, 58.8% estimated that they usually accessed COW after noon and before six PM. The next frequent reply was to have no regular time 29.4%. The rest, 11.8% usually accessed COW in the mornings before noon. The computer lab sessions were usually after noon and before six PM and the student teachers' estimations possibly correspond to the time of those sessions.

The student teachers were also asked what time of the autumn semester they spent in COW. The student teachers' estimations concerning the time of the semester are listed in Table 15.

Table 15. Student teachers' estimation of
the time of semester they spent in COW.

N= number of student teachers

Time of semester	**N**	**%**
End of September	0	0
Early October	6	35.3
End of October	9	52.9
Early of November	2	11.8
End of November	0	0
Total	17	100

Over half of the student teachers (52.9%) were most active at the end of October and 35.3% were most active in early October. The remaining two student teachers (11.8%) reported they were most active in early November. Again, this information is not very reliable, since it is based on the student teachers' own rough estimation.

The student teachers' experiences with the conferencing activity were also examined through 10 statements that they rated on a scale from 1-10 according to their disagreement or agreement with the opinions stated in the sentences. The ratings were mathematically proportioned to the scale of 1 to 5 used in the pre-questionnaire analysis. The rating means are listed in Table 16. The ratings were not analysed further due to the small size of the group.

Table 16. Statements on experiences with the conferencing activity

(1 strongly disagree - 5 strongly agree)	group mean
1. This conferencing activity was easy to use.	4.6
2. I received extensive mentoring and support in using the conferencing system.	4.2
3. The conferencing system provided extensive peer interaction and dialogue .	3.5
4. I gained an appreciation of other opinions in using the conferencing system.	3.4
5. In using the conferencing tool, I felt less isolated and lonely when in the field.	2.6
6. I'd recommend electronic conferencing for pre-service teachers' professional development.	3.9
7. This conferencing activity influenced my perceptions of effective teaching and learning.	3.1
8. This conferencing activity fostered my generation of ideas and creativity.	2.9
9. This conferencing activity fostered my evaluation of ideas and critical thinking.	3.2
10. This conferencing activity fostered collaborative learning and teamwork.	3.3

The statements that were most agreed with were 1, 2 and 6 (rating 3,9 or higher). They were related to positive attitudes towards using the conferencing system. This seems to indicate that the student teachers felt positive about this conferencing activity and found it easy to use. The statements that were least agreed with were 5, 7 and 8 (rating 3,1 or lower). These statements were related to getting highly positive outcomes from the conferencing activity (fostering their generation of ideas and creativity, influencing their perceptions of effective teaching and learning, removing a sense of isolation in the field). This suggests that the students did not think that this conferencing activity had a deep impact on their personal cognitive abilities or in their views on teaching and learning. It must also be noted that several students reported statement 5 to be "vague and misleading". The idea of the statement did not become quite clear to all and this had an effect on their responses.

4.2.2 Open-ended questions

There were also open-ended questions in the post-questionnaire. Theses were related to the outcomes of the project. As pointed out earlier, the themes of the interview somewhat overlapped with the issues dealt with in these questions and therefore more information related to these questions will be presented later in the qualitative analysis.

The first open-ended question was "What specific experiences of this electronic activity were the most valuable experiences?" and the second one was "What specific experiences of this electronic activity were the least valuable experiences?". These responses are listed in Table 17.

Table 17. A compilation of the responses given as most and least valuable experiences

M= most valuable experience L=least valuable experience

Student teacher	varied communi-cation	'poor' cases	VC	IC	no 'real' contact
ST 1	M		L		
ST 2		L			
ST 3	M				
ST 4	M				
ST 5	M	L			
ST 6	M			L	
ST 7					
ST 8	M		L		
ST 9					
ST 10	M				
ST 11		L	M		
ST 12	M				
ST 13	M		L		
ST 14	M				
ST 15					L
ST 16					
ST 17	M				
TOTAL "M"	11	0	1	0	0
TOTAL "L"	0	3	3	1	1

Student teacher	surfing skills	peer support	computer skills	writing skills	learned to use COW
ST 1					
ST 2		M			
ST 3	M				
ST 4					
ST 5					
ST 6					
ST 7	M				
ST 8					
ST 9			M	M	
ST 10					
ST 11					
ST 12					M
ST 13					
ST 14					
ST 15					
ST 16					
ST 17					
TOTAL "M"	2	2	1	1	1
TOTAL "L"	0	0	0	0	0

Eleven student teachers named communicating with peers from varied backgrounds; the variety and internationality of the conference discussions was considered valuable. As noted earlier, nine student teachers mentioned feeling uncomfortable with computers before conferencing. Out of these nine only three student teachers mentioned gaining more experience with surfing on the Internet and using the computer in general. Emotional support gained from peers pondering over similar questions and problems was also considered valuable.

The least valuable things were the so-called 'poor' cases and VCs. The 'poor' cases were mentioned three times; these answers stated that superficial discussions that did not offer anything useful to the case problem were the least valuable thing they experienced. Three student teachers felt that the VCs were the least valuable experience in this project; they said that the VCs were interesting as such but they should have been arranged differently. One student saw the International Cafe (IC) as useless and one student blamed lack of 'real' contacts and having unfamiliar conference participants from so many different countries for lowering her motivation to participate. Of the seventeen student teachers only seven named anything as a 'least valuable experience'. Since the

majority did not have any strong arguments or complaints, these comments suggest that the conferencing activity itself had been a valuable experience. There several things were mentioned as least valuable by single student teachers. This could be a reminder of the fact that there are always differences in preferences and it is hardly possible to please everyone. Some conclusions can be drawn from these comments: the content of the conferencing activity and the communication itself was appreciated more than learning how to use the technological application that made that communication happen.

The second open-ended question was "What did you gain from reading the ongoing discussions, if anything?". Eleven student teachers mentioned gaining new ideas, perspectives on things as well as practical tips and advice. Two student teachers mentioned getting more information on the US school system. The comments suggest that the content of the interaction was of critical importance. Two student teachers found it comforting that others faced similar problems as they did. This implies that the interaction possibly served also emotional and social, as well as informational purposes.

The third open-ended question was "What types of topics, domain areas or discussion threads spurred the most discussion?". Seven student teachers mentioned discipline problems and seven student teachers mentioned motivation. The student teachers' impression was naturally affected by the discussions each student teacher read and also what they remembered at the time of filling in the questionnaire. Table 5 in section 3 offers more detailed information on the quantity of the conference postings in different topics.

The fourth open-ended question was "What forms of learning assistance and support did you receive (e.g. questioning, hints)?". This question should have been more focused, since the student teachers were not sure to whom this question was referring to: conference participants, peers in the computer lab or the tutors present in Jyväskylä. Therefore the answers were difficult to interpret. The types and examples of comments are listed in Table 17. The percentages were not calculated since some student teachers mentioned several types of assistance.

Table 17. Learning assistance and support.

N= number of made remarks

Type	Examples	N
New viewpoints	"I got support in rethinking my case from a new point of view"	2
Practical suggestions and hints	"for e.g. assessment practices, references to books"	5
Questions	-	2
Opinions	"motivating students is important" "once you start working as a teacher, forget some of the idealistic stuff you learn in the teacher education department"	2
Emotional support	"don't get discouraged"	1
Technical support	"I got all the assistance I needed	2
	Total	14

Table 17 serves best as offering some idea to an outsider on the nature of the discussions. The type of assistance mentioned most was practical suggestions to problems. Next were getting new viewpoints, questions, opinions and technical support. One student mentioned emotional support.

The fifth open-ended question was "What kind of electronic replies (e.g. agreements, opinions, negative feedback, counterexamples, new connections/ideas, off task commenting etc.) did you get to your cases?". This question could also have been structured otherwise in order to gain more precise information from the student teachers. The listing inside the parentheses could have been replaced with a multiple-choice question in which the student teachers could have clearly stated which kind of replies they had gained. Alternatively, if the student teachers had not been given ready-made examples, the characterisation of the types of replies could possibly have been different and less based on the questionnaire designers' own expectations. However, the types of replies mentioned in the question and another named by

two student teachers and the percentages of how many times each type was mentioned are listed in Table 18.

Table 18. Types of replies received to cases

N= number of remarks made

Type	N
Agreements	10
Opinions	13
Negative feedback	1
Counterexamples	4
New connections/ideas	8
Off-task commenting	2
Disagreements	2
All the above types	1

The sixth question was "Did your peers give you much feedback? If so, what was it and how did it help? If not, what could be done to improve it?" This question was also apparently misinterpreted by some of the subjects and therefore the answers are not consistent. The answers were analysed on the level of either positive or negative answers (*enough or not enough feedback*). The result was 11 positive answers, 4 negative answers and 2 who did not answer.

The seventh open-ended question was "Can conferencing tasks and tools foster new expectations for teaching and learning? How? What learning or developmental theory was especially applicable here?". Three student teachers felt that computer- and videoconferencing with a foreign partner class will increase students' motivation to study the language. Another three student teachers stated that collaboration with peers increases co-operative skills and increases standard of learning and professional development. Three student teachers also pointed out that a change of thinking requires increased awareness, as commented by one student teacher:

> "...this results when you reflect your thoughts and prior knowledge through interaction with others and active questioning of ideas and views."

Two more student teachers felt that learning can be involved in conversations and two student teachers mentioned that CC is good for exchanging ideas and opinions.

The eighth and last open-ended question was "How can such a conferencing tool contribute to the professional development of pre-service (AmE for student teachers) and licensed teachers? Feel free to suggest any idea that comes to mind, even if it may sound too expensive or too silly. " Three student teachers said that they now see things in a wider perspective, as one of them pointed out:

> "...increased awareness is a key to changing teaching practices..."

Three student teachers felt this served them as giving resources and confidence with computers, WWW and their learning possibilities. Another three student teachers mentioned gaining new ideas for lessons as a benefit. Eight student teachers mentioned teamwork and the support and extensive information that teamwork provided them with: an example of this is the following student teacher's comment:

> "It's good to have more knowledge about one's future profession through the experiences of others."

4. 3 Summary of the results of the quantitative analysis

The results of the quantitative analysis were mainly useful as giving some background information on the subjects and their attitudes. Before the CC, the group was generally positive towards technology and did not note to have much experience with the Internet, let alone educational technology. Yet, they were also critical of the web, possibly due to their lack of experience in using it for educational purposes in any way. The group's expectations showed that they were eager to learn about the possibilities of teaching through technology. They were also looking forward to getting foreign contacts and getting help with using computers.

After the CC the group's attitudes towards the conferencing system seemed positive but they remained somewhat sceptical of the CC having a deep impact on their learning. The things that they valued most from their experience were the chance to participate in international communication. Other things valued were receiving emotional support from peers and also recovering from a fear of computers for a few participants. There were little complaints about the CC, mostly dealing with the superficial level of commenting in COW or in the VC.

The things that the participants reported to have gained were new ideas and perspectives on things, practical tips for teaching, advice on their problems, information on the American school system and emotional support. The types of replies received in the discussions were mostly reported to be opinions, agreements and new connections or ideas. This would imply that the argumentations were not strong since there were many agreements; objections were not mentioned as a type of replies. Discussions related to discipline matters and motivation were reported to be the most interesting ones. This also showed in the practical nature of most of the case problems.

The opinions on educational technology's significance to teaching were affirmative. Educational technology might help motivate students of English as a foreign language, increase their collaboration skills and interaction, which would further increase awareness. The conferencing system's significance to student teachers' professional development was also considered to be beneficial. The opinions were that conferencing could offer new resources, confidence, lesson ideas and emotional support from colleagues.

5. QUALITATIVE ANALYSIS OF THE INTERVIEW DATA

This chapter will analyse the qualitative data, which consists of the transcribed interviews with the student teachers. The thirteen questions of the interview will be discussed separately. The interview questions have been translated from Finnish into English by the author.

5.1 Question 1

The first question was "Have you previously participated in a learning situation, which has been wholly or partly based on communication or teaching materials that were distributed via information networks? If yes, describe your experiences." The student teachers had very little experience with learning and teaching via information networks, such as networked-based learning environments. Three student teachers reported having some experiences of network-based activity related to education. These experiences included receiving course information (mostly links to websites) through email, composing a web-based learning diary, viewing lectures through videoconferencing and making a personal homepage.

5.2 Question 2

The second question was "Did you feel you had enough instructions, time and technical support in the COW environment as well as the whole project?" This question was related to the accessing of the COW-environment and planning the conferencing activity participation. All the student teachers said that there were basically enough sessions reserved for this project in the computer class. On the other hand, they also mentioned that session times did not always fit in with their normal weekly schedule. The sessions in the computer class sometimes overlapped with other activities related to their teacher education studies, which indicates that if this project had been more integrated with the teacher training studies, this would not have been a problem. The student teachers did not feel that this project was a part of their studies, because this became an extracurricular activity for them. The lecture course that was

replaced with participation in this project was held later in the spring semester and there was no immediate remission in the student teachers' autumn semester schedule. Also the late hours were commented upon (sometimes after 4 pm); two student teachers said they often felt that the session times were too late. One student teacher would have rather accessed COW at home than on campus in the late afternoon or early evening. Another student teacher said she would have wanted to access COW later in the evening, even on campus.

The student teachers' daytime schedule was filled with lectures, observing and giving lessons in the training school, other study-related work and activities. The computer class had already been reserved earlier than anticipated for other teaching purposes, and there were not many possible times left for this project. It would have been ideal if all student teachers had had a computer at home or if a computer class had been available all day for this project only. This way the participation in COW would have been less related to time and place as it now seemed to be for some student teachers. However, they managed to access COW also from other campus computer facilities, home, work place or their parents' home.

The use of COW was generally seen as easy to learn and all the student teachers reported on having all the support needed from the tutors or peers. Some seemed to prefer going to the computer class for group sessions because of the group support; they noted that they felt more at ease with going there than to other computer facilities because they could be sure that there were peers present to help them in the use of COW if needed.

The student teachers marked the session times in their calendars but they did not plan ahead their conference participation, sometimes they just saw an available computer and then accessed COW if they had some spare time. A general aim in the project was to access COW at least once (or for few even twice) a week. The student teachers sometimes had "marathon sessions"; four of them said that they usually spent more time in COW than they had originally planned. The reasons for these were that they said they "got carried away" while reading interesting discussions or wrote comments to discussions and their composition took more time than they had anticipated. Five student teachers reported that the discussion of their own case was an impetus for accessing COW more often.

5.3 Question 3

The third question was "What was the significance of the following auxiliary activities: literature package, International Cafe, COW Profiles, videoconferencing?". This question was related to how the student teachers experienced the activities they participated in this project in addition to the primary CC activity in COW. The secondary activities were: reading the literature package, participating in the International Cafe in COW and using the COW Profiles and participating in the ISDN-videoconferences.

The literature package is described in Appendix 2. The package was seen as an introduction to the whole project. Eleven student teachers read it through at least partly. Generally, they found the articles interesting. Six students left the package untouched for a variety of reasons; one forgot all about it, three student teachers started working on a practice-based case right away, and two student teachers did not read it at all, because it was optional, and they felt they were too occupied with other things. Four student teachers said they got ideas from the literature package or from some other materials. The others said they did not use any references or materials and that they preferred to construct a case that was based on practice, possibly referring to some generally known pedagogical concepts or learning theories.

Five student teachers accessed the International Cafe in COW only to read the on-going conversations, which they described as being "fun" and "a nice opportunity to just chat about things". One student teacher said that "the possibility for personal chatting about other matters than those discussed in the conference was refreshing" and another appreciated the inter-cultural exchange of views. Another student teacher valued "the chance to take discussion further in the Cafe on a topic related to learning that had triggered a lot of debate in the conference". One student teacher also mentioned that the Cafe was a useful place for practising how to use COW.

The reasons why the Cafe was not visited by the rest of the group were various. Two student teachers said that after the beginning of the project they simply did not have time for reading the Cafe discussions. Four student teachers said they wanted to focus more on the case discussions on educational

matters. One student teacher forgot the Cafe altogether but later returned there after she had heard some peers discussing about it. One student teacher said she "did not have anything to ask about from the other conference participants" and another said she did not "bother to have an informal conversation with someone I would never meet anyway".

In the conference system it was possible for each participant to create a "profile", a short description of him/herself. The profiles could be viewed through a hyperlink in the "author:"-row in the conference posting (see Appendix 1). Despite the fact that every student teacher had been advised to create a profile, not all of them did it. Seven student teachers said the profiles were interesting and revealing; they could find out about the participants' gender, status and other background data. Five of these student teachers reported that they had checked a profile especially when someone had expressed a controversial or provocative opinion in the discussions. Five student teachers reported that the lack of all the profiles was disappointing and frustrating, for example, one of them said "At some point I did not even bother to check the profiles anymore". One student teacher could not access the profiles due to technical difficulties. Three student teachers forgot to use them, although they all had composed one for themselves in the beginning of the project. One of them stated that if she had remembered to check them out, it would have brought the conference participants "closer". Another student teacher said she thought the profiles would have revealed more about the participants' character than the cafe conversations. Generally the profiles were seen as relatively useful.

For fifteen student teachers this experiment was their first encounter with VC and generally those who participated in it, regarded it as a positive experience. However, some of them also included suggestions for improving the management of the VC activity. There was some variation in way they perceived the significance of this VC activity. For six participants the value of VC was the fact that they could actively see the COW conference participants. Three participants valued the chance to discuss with people from another culture and one participant considered the opportunity to get to know VC useful. There were also those who had either expected more from VC or did not find it useful at all. The two students with previous VC experience

commented on the turn-taking and structuring, but they also felt that VC was a useful addition to the CC, because it allowed them to actually see the co-participants. The remaining four student teachers saw VC as less useful, as for instance this comment shows:

> "... the situation seemed somehow artificial, I did not feel a need to exchange thoughts about being a teacher...and the setting was teachers on the front and us students in the back row, after all we were the ones who should have been communicating...small groups without any instructor might have been more useful..."

However, the general feeling was positive, but there should have been more personal involvement, which would have made the student teachers participate more actively. The situation made it easy for them to just observe; the discussion was mostly led by the teachers and tutors who had the technical expertise to switch turns in the conference, and since there were more than ten students in each place (Jyväskylä, Oulu and Indiana), the total amount of people became 25-30 people or more. One student teacher described the situation like this:

> "...it probably would have been better as a two-end conference it seemed difficult to share attention with the others, we Finns responded more slowly than the Americans and therefore they were talking all the time...I guess I got the hang of what kind of people were present in the other places...I would have wanted more discussion about the case discussions but there was not enough time..."

The suggestions for improvement were mostly concerned with having more student-to-student communication or small group discussions, which would have helped connecting faces with names and given more chance for real-time communication. However, all the student teachers found it fun and interesting to get "glimpse of the other participants" and to actually see that "they were the same real people who were writing in COW".

Even those student teachers with the most critical and sceptical attitudes did not refuse this type of communication altogether. On the contrary, all of them felt that this worked at least as an interesting introduction to the possibilities of this novel application. One student teacher also pointed out that it would have been interesting to learn how to use the VC-equipment, which implies that the student teacher had an interest in actually organising a VC, and not just in participating in it.

5.4 Question 4

The fourth question was "What was the significance of your peers presence in the computer lab? Did it have any effect on your conference participation and did you feel that a different kind of collaboration should have been arranged for the whole student teacher group?". In general, the student teachers felt that the presence of their peers in the computer class had mostly positive effects. Various different positive aspects were mentioned and only a few things were mentioned as hindering their work in the conference. The company of peer student teachers in the computer classroom was reported to support the conference work in many ways. According to the answers, the support was social, emotional, linguistic or conference-related.

Four student teachers mentioned the chance of meeting peers. The teacher training was mostly individual work at the time of the project (planning and giving lessons, attending lectures etc.) and the only group sessions were those with the didactic supervisor (these sessions were reduced during the project). Four student teachers thought that the presence of the others enhanced the team spirit and atmosphere. One student teacher reported that some kind of peer pressure made her write more in the conference and another reported that she felt she was no longer alone with her thoughts.

Linguistic support in writing or reading the conference postings was mentioned by four student teachers; confirmation checks, assistance with vocabulary, spelling or choice of words. One student said that peers were useful in getting information on the conference discussion contents:

> "...I sometimes heard peers talking over a case that I had not read myself and then I went and looked it up or asked them where they had seen it."

Six student teachers reported the chance of directly asking for and exchanging opinions as positive, as the following citation describes:

> "... we could make comments and counter-comments related to some case discussion and this way we sort of sought our own point of view on the matter..."

In this way the participants could gain more ideas for the conference from their peers than they would have done if they had worked alone (with a computer).

Some negative effects of the peer presence were also mentioned. The main result of peers being around seemed to be an increase in talking and reading about the cases and a decrease in writing in the conference. Four student teachers said they preferred working alone with the computer when they wanted to write postings in the conference. Two student teachers expressed their views to this as follows:

> 1) ".... when there were others we tended to discuss more some other stuff than these cases, but when I was alone at the computer I could focus more on the cases...sometimes it was enough for me that I talked about the cases with my peers and I no longer felt a need to write about them in the conference..."

> 2) "I noticed that when I was composing a posting it was difficult to concentrate, I would have needed silence, especially when you are forming sentences in English... although there was sometimes many people just tapping the computer keys and then it was nice to have some people around for backup..."

On the other hand, one student teacher said she stayed in the computer class until she had finished everything she had intended to do in the conference. There were also three student teachers who said they had felt it difficult to concentrate and "get things done" in the computer class with the peers conversing all the time. However, it must be pointed out that all student teachers reported the conversations to be mostly conference-related, though they also occasionally talked about other issues.

Most students were satisfied with the collaborative activities. In general, the student teachers felt that the freedom that they had in choosing when to participate in the conference was satisfactory, because they were already familiar with each other through the teacher training context. A few student teachers gave suggestions on what should have been done differently with the peer group. The suggestions were related to starting the project. Two student teachers pointed out that there might have been a need for a shared case-planning session for the whole group. Two student teachers also suggested that certain case topics could have been assigned to small groups who would have reported the topics to their peers:

> "... if the topics had been distributed to certain people and we then had reported them to the others, maybe we would have been more responsible over it, although it would have restricted our freedom to come and go as we please..."

5.5.1 Question 5 a

The first part of the fifth question was "Did you work on your case alone or in a team and why? If you worked in a team, did you continue to comment on your own case and the other discussions with your team or by yourself? Why/Why not?". The student teachers constructed eleven case discussions altogether. Six student teachers constructed a case by themselves and eleven student teachers did it in small groups: four in a group of two students and one in a group of three students. All the groups continued to write their responses to their own case discussion together. After starting the discussion together, they felt it was a natural thing to do. Most of the student teachers who had constructed a case with (a) partner(s) replied collectively to the responses to their own case discussions, while the reading of the discussions was mostly done independently. All student teachers read independently the other conference discussions than the ones they themselves started.

There was one pair who only set dates for starting and concluding the case discussion and they did not comment on any of the replies received in their discussion of their case; after launching the case discussions with an opening posting they let the discussion continue without any comments, until they wrote a conclusion at the end of the project. They said that the idea of commenting in the middle had not occurred to them and that the comments also had not stimulated a need to reply. There was also one student teacher who only wrote responses in the case discussion he himself had authored. There seemed to be two character types for conference participants: "the team worker" and "the lone rider".

5.5.2 Team workers and lone riders

The reasons why student teachers chose a certain form of work (pair/team or individual work) did not seem to be based on a strong preference over either form. Two pairs were formed by one student teacher just asking another student to join in, and one pair just ended up working together because they were both without a case and they "happened to be in the computer class at the same time". One pair of student teachers said they had thought that teamwork

was preferred after seeing other student teachers getting into groups. The group of three student teachers consisted of students already working as a team in teacher training.

Some benefits of working in teams were mentioned, for example three student teachers said that through working with a partner they themselves got support and they also felt that starting the discussion was easier this way. Two student teachers also said that working with a partner they got a new perspective on the issue and more ideas for the case problem, as well as assistance in processing and composing the case posting.

Less than half of the group, six student teachers, chose to work on their own. However, the reasons for choosing individual work varied. Three student teachers just felt that they rather worked on their own, without having to agree upon any schedules with other people; two student teachers said that they happened to be by themselves at the computer when they got the idea for the case discussion. One student teacher specifically preferred individual work over group work for personal reasons:

> "...I believe that a person needs to do something on my own for a change... I become anxious if I have to do everything in a group.... "

Two student teachers even mentioned that teamwork was more time-consuming when ideas "have to be" exchanged.

5.5.3 Question 5b

The second part of the fifth question was "Did you find that this problem-oriented and case-based approach to starting the discussions was beneficial to learning? If you had a better approach in mind for this purpose, what is it like?". Generally the students felt that starting the discussions with this case-based, problem-oriented approach was useful. None of the student teachers had any other specific suggestions for setting forth with the discussions.

The explanation to why case-based and problem-oriented approach was appreciated so much by the student teachers might be related to the phase of their studies, i.e. teacher training period. Three student teachers pointed out that they had little or no experience in teaching and that they therefore

anticipated a lot of problems in their teaching lessons. Ten other student teachers' point of view is best described by the following citations:

> 1) "...learning usually occurs when solutions are sought to problematic issues..."
>
> 2) "...theoretical issues are not as interesting as the everyday problems..."
>
> 3) "...problems make you puzzled and spur the most discussion...besides, one seldom needs to talk about the positive things..."
>
> 4) "...you can not question your own views when you are writing on a matter by yourself..."

It seemed that most of the student teachers could start working on a concrete problem more easily than a theoretical one. They also seemed to feel that a practical problem was more useful to them in their current situation, while they are teaching in class. There were also some who suggested that practice was also an effective way to illustrate a larger, general problem which then could be discussed further from a more to theoretical or pedagogical point of view. The following citations describe this in more detail:

> 1) "...it is easier to start a discussion with a concrete example...a practical problem is easy for everyone to conceive, and if it turns out to be a common problem it can be conceptualised..."
>
> 2) "...it was sometimes difficult to respond to a specific, concrete and situation-related problem...in our own case we tried to take the practical problems to a more general level in order to make the discussion easier for others..."

Case-based work was an unfamiliar method for the student teachers. The cases were not defined precisely and the student teachers were not shown an exemplary case as a model. This way the student teachers could compose and construct the cases following their own intuition instead of replicating a ready-made model given by the instructors. Although the student teachers were inexperienced with case-based work, they got the gist of it either through talking about it with their peers or observing what people did in the conference environment.

5.6 Questions 6 and 7

The sixth question was "How did you experience starting to write responses in the conference? What things affected your writing and did your writing change

as the conference moved on?". The seventh question was "Which parts of the conference did you read and comment on the most and least and on what basis did you choose the discussions that you read?" These questions were poorly composed and therefore they were answered in a similar fashion. The question should have been composed as something such as "On what basis did you choose to take part in a discussion". The answers to both questions are combined to avoid repetition.

The COW environment was structured into four different conference parts (Finland, Indiana, South-Carolina and Korean Cases) and therefore the participants had to choose which universities' cases to read, then which topics to read and finally which cases to read. One of the interesting aspects of this CC project was in fact which things affected the student teachers' choice of which discussions to read and comment upon. The students were given a free choice, so possibly the their answers to the question of their choice shed some light on which topics were seen as the most useful ones in this project. Hopefully, these things will also give more insight to further use of CC activity in teacher training.

The student teachers were asked how they experienced reading the discussions and writing responses in the conference and what kind of things affected their writing process. Generally, the student teachers did not have obstacles that would have prevented their participation in the conference. This conference was their first experience of network-based communication through means other than email. Considering that the conference participants outside Jyväskylä were totally unfamiliar and geographically far apart (Oulu, Indiana, South-Carolina, Korea), the group participated surprisingly actively.

Nine student teachers felt that writing in the conference was easy right from the beginning. Seven student teachers said they had felt some insecurity but that they got over it after their first entry or by "rehearsing" writing in the Cafe first. One student teacher even described that being the first person to respond after the case opening "was easy because there was no long chain of postings to read". The difficulties mentioned by some writers varied. Three student teachers reported having been really careful with the language and style in their first responses but who had "loosened it up later on". Completing their entries was time-consuming for them, because they wanted to write faultless or

stylistically appropriate English, due to the pressure of having an audience that partly consisted of native English speakers. Fortunately, the other conference discussions' postings served as exemplary responses for them. They said that later on they noticed that comprehensible English was more important than completely perfect, academic-style English.

There were also participants who found writing difficult during the whole conference. Three student teachers reported that they wrote slowly. Writing responses immediately was not easy because they thought so much about what to write. One of them even spent so much time on composing that she had to send the unfinished postings to herself through e-mail for finishing it later. Sometimes these postings were not sent at all because the discussion had advanced so much that the posting was no longer relevant. They had experienced some kind of emotional obstacles and were self-critical about writing. They stated that it was possibly due to some kind of fear of criticism by the others and their lack of experience in publishing something on a website (on the WWW). These student teachers remained observers in the conference, reading more than writing. One student teacher also analysed that she was a slow learner of new things in general, and that she suspected that maybe over a longer period and with more experience with COW, responding would have possibly become easier for her.

The things that the students mentioned as being the incentive for writing a response were numerous. The student teachers generally felt they did not want to write trivial and meaningless comments, but they always wanted to "make a point". Further, they were not eager to write if the discussion was not interesting and if there was no main point to "grasp" and comment upon. Selecting which case to respond to was said to be strenuous, because there were so many interesting discussions to read in the conference.

One student pointed out an interesting aspect; she said that she chose to comment the foreign students' cases, because she felt "it would be most beneficial to respond to the most distant conference participants". Two students mentioned that they were eager to comment on the discussions that contained opposite opinions to their own view:

1) "outrageous or controversial comments triggered a reaction in me"

2) "I enjoy a good debate"

At this point it must be noted that the American students participating the conference were given more detailed instructions on how to respond to the discussion and they were also urged to play as the "devil's advocate" every once in a while just to spice up the conversation. This was not emphasised in the Finnish participants' instructions and therefore they possibly experienced some comments as highly provocative. Some of these comments seemed prejudiced or naïve and that caused them to respond.

Three student teachers mentioned that in order to avoid repetition they responded only to the short discussions; the students wanted to add something new and not repeat the same things that were already mentioned earlier in the discussions. Three student teachers said they responded only if they could bring a new, different aspect to the discussion. There were also some preferences over certain case-types. Two student teachers said they preferred commenting on practical problems and avoided theoretical case problems, yet another two reported an occasional use of theoretical references in their responses. One student teacher reported avoiding detailed, situation-related problems. One student teacher aimed at replying to every response received in the teams' own case discussion.

Many students said they actively commented on all the discussions they read (see section 3.5 Conference participation data). If they did not automatically respond to all the case discussions they read through, they had some other reasons for commenting, as well. Some student teachers pointed out that they had felt frustrated if the discussion had moved to a different direction from the original problem. They would have rather discussed the original problem but they experienced it difficult to go back to previous parts in the discussion. Therefore they could abandon the entire discussion and seek for a new one, possibly from the same field. This is one major downside to having a linear communication structure in a CC system; the participants are restricted to the chronological order of the chain of postings. One way of preventing this required the original case authors to lead the discussions with comments that kept the discussions on the right track. In this project this phenomenon was referred to as the "case ownership" and it was seen in some cases; the case authors participated frequently in their own case discussion by posing more questions, asking for clarifications or commenting the previous postings etc.

The discussion did not meander without a clear goal and the author was "in control" of the direction of the case discussion.

The students' primary interest seemed to be the Finnish cases, but the students also actively participated in the other parts of the conference. The interview data did not give accurate information on this because the students only estimated their own writing. Student teacher postings are presented in tables 6 and 7 (see section 3.5 Conference participation data). That data does not tell which cases were read but it gives precise information of which case discussions the student teachers took part in.

Nine student teachers reported having read the Finnish cases the most, one of them even reported having read through all of them systematically. Two student teachers reported having read mostly Jyväskylä students' cases. Four student teachers reported having read US cases the most, and two of them said they read mostly cases by Indiana students. One of them said she read mostly foreign cases in general but yet also the cases of her friends from Jyväskylä group. She had responded to some of her Jyväskylä peers' case discussion because of requested to do so; those peers had not received any responses to their case discussions and they asked their peers in the computer lab to respond. One student teacher reported reading mostly the discussion of her own case and one student teacher had read both Finland and Indiana cases carefully.

The answers and the amount of postings in Table 7 imply that Indiana Cases was visited more than the South Carolina Cases. The student teachers mentioned several things that affected their reading of the American students' cases. First of all, it must be taken into account that as university students majoring in English and as future English teachers, they already retained an interest and knowledge of the language and culture of English-speaking countries. Four student teachers sought for discussion topics that particularly gave a chance to compare Finnish and other cultures, for example the differences between the Finnish and American school system or between the solutions that the conference participants from Finland and other countries offered to the classroom problems.

Korean cases got less attention than the other conferences. Five student teachers said they did not read them because the English was often difficult to understand. Three student teachers said they did not have enough time to read

them, one of them also remarked that sometimes when she had had time, there was some problems with the network connections in the Korean end. Three student teachers said it was difficult to comment on those cases, because the problems they were dealing with seemed to be so distinct to their culture. One student teacher said that she just heard enough about those cases from her peers. Also the style of communication was said to be different in Korean cases. One student teacher said she did not dare to comment too strongly, because she was afraid of hurting or insulting them. The nature of the problems was sometimes more political than pedagogical:

> "some Korean cases were related to such delicate topics that it made it difficult to respond from my point of view"

For instance, a Korean case of a male English teacher, who was insecure of his future post teaching in an all-girl- school, seemed a bit foolish for the Finnish students, them being used to mixed-gender classes and male and female teachers. One student teacher said that the Korean students seemed somewhat "shy and insecure", which might result from their attempt to convey politeness in their postings. The American culture of communication was more familiar to Finnish students and therefore they did not hesitate to participate, or even debate. It seemed that although geographical distance could be removed, the cultural distance seemed to complicate the communication to some students. One student teacher also suspected that the Koreans and students from South Carolina remained distant because they were not involved in the VCs, as she put it: "I almost forgot about the other universities' conferences".

In addition to choosing the case discussions based on to the author's nationality, the contents of the discussions were another criterion. Four student teachers said they searched for cases that dealt with practical problems and offered solutions, as well. Another three student teachers said they tried to find discussions that dealt with issues they had found problematic during their teacher training. For three more student teachers, the requirement the same topic as their own case discussion. Still, all readers were not that systematic; two student teachers said they had simply read cases related to topics they felt they had an opinion on or at least "something to say about". One student teacher reported that she had mostly discussed about the Finnish cases with her

peers and the cases she read about in COW were mostly foreign cases. One student teacher said she had wanted to find discussions on the most unconventional or "scandalous" topics; discussions that dealt with issues that resembled or corrected her own notions, like violence or guns in the school context. The actual conference topics that the student teachers named were mostly related to practical problems in the classroom rather than theoretical issues related to teaching and learning. Yet it must be pointed out that the list of topics was very varied, so it cannot be claimed that the discussions remained only on a purely practical level (see Table 5 for the complete topic list). However, it must be noted that when the interviews were made, most of the student teachers no longer participated the CC and only those topics were mentioned that the student teachers themselves could recollect in the interview. If a complete topic list had been shown to them, they might have mentioned some other topics, as well. The best remembered topics in the interview were the following:

Table 20. The most read topics

TOPIC	times mentioned
Discipline Matters	7
Motivation	5
Problems and Challenges in the School Context	5
Classroom Management	2
Foreign Language Learning and Teaching	2
Educatonal Technology	1

The reasons why these particular topics were interesting to the student teachers is obvious; almost everyone stated that these were the same matters that they ponder over in their teacher training studies or the problems that they have faced in the classroom giving or observing lessons. One student teacher also reported having an opposite strategy to choosing the discussions; she first dropped out the most uninteresting ones or those that were unfamiliar to her. For instance, the student teachers did not like to participate in discussions that dealt with too specific problems, or problems related to subjects like teaching mathematics or special education that were not their territory. One student described her choice as "reading about things that I considered would be

beneficial to my teacher training". Still, sometimes merely the case title was for some reason interesting and illustrated a glimpse of what was going on in the discussion.

5.7 Question 8

The eighth question was "Did you think that some conference participants had "expertise" more than others? If you did, what made a conference participant seem like an "expert" to you?". The students were asked about how they experienced the comments they read in the discussions; what made a response valuable and useful for them and what kind of things affected their interpretation of the writer's credibility.

There appeared to be some slight misapprehensions in the interview, which were not noticed until the interviews were transcribed. The concept of expertise as it was used in the question did not become clear to all interviewees; the point was to think of expertise among all conference participants, but some felt automatically that the expertise belonged to the "experts" i.e. the teachers. These misunderstandings should have been corrected right away in the interview in order to get more information on how the interviewee's conceived anyone having expertise or deeper knowledge in the discussions. On the other hand, this might also express a typical view that inexperienced student teachers hold during their training period, that the expertise lies solely in their teachers. Nevertheless, the question could have been reformulated.

Giving suggestions for solutions and viewing things from different perspectives was mentioned six times as an indication of expertise. There were five comments saying that teaching experience and also experiences of experimenting with novel teaching methods and approaches were definitely crucial factors that gave the writer credibility.

Also five comments were related to having thought about the matter before participating the discussion; students felt that this could be seen in the responses. Giving reasons and justifications for one's views was mentioned four times and explaining things by using an example was mentioned three times. Three student teachers pointed out that those with more expertise or "vision" acted in the following manner:

1) "...they got straight to the point and reached the core of the problem.."

2) "...they wrote concise and direct comments full of meaning."

The mentors were compared to students by two student teachers by saying that they were more confident in their comments. Only one student teacher said that, for her, the mentors were automatically the experts when compared to students, whose comments she perceived as "just personal opinions".

One student teacher said she had automatically checked the COW-profile to find out if the writer was a teacher or a student. One student teacher also pointed out that once she recognised which participants were the Finnish mentors in the conference, she noticed that these mentors responded to the discussions frequently. Especially one Finnish mentor was deeply appreciated by the group, and her expertise was said to derive from "having lots of knowledge on both theoretical and practical issues" and from "a perspective that seemed like all that theoretical knowledge was filtered through her persona".

Views on the significance of theoretical knowledge or practical experience divided the group. Three student teachers viewed basing comments on theory rather than on emotion only as a positive thing. Two student teachers reported that practical knowledge was definitely worth more than theoretical knowledge. Another two student teachers felt that, to some extent, teaching experience gave more weight to a comment. Two student teachers felt that knowledge on both theory and experience was important. It seemed that presenting at least some grounds or foundation for one's ideas was seen as very significant. The following comments describe some student teachers' attitudes:

1) "...I suppose references to theory shows one is well-informed on the source of the reference..."

2) "...own experience on the matter counted, not just having read about the matter" .

One student teacher also had a fairly negative view on theoretical knowledge; she called it "mumbo-jumbo" which did not interest her in this conference at all.

Stating just one's own personal and emotion-based opinions, lacking a perspective, or mere repetition of the things that previous writers had expressed

in the discussions made the writer seem somehow less credible. One student teacher had also experienced a patronising attitude from a mentor's comment, which she saw as inappropriate. Cultural differences were also mentioned in the answers to this question. Two student teachers mentioned that spelling or grammar errors or otherwise incomprehensible responses in the conference affected the writers' credibility.

Two exemplary case discussions were brought up; they were also discussed in the computer class during the project, apparently because their topics just seemed too foreign to a Finnish student teacher to grasp. The first case was an American case discussion about improving learning with concrete rewarding of pupils and another was a Korean case discussion on problems of teaching in an all-girl school.

One student teacher mentioned that foolish or naïve comments in the VC made some participants lose their credibility to some extent. This apprehension might result from the age-difference; Finnish participants were 4-5 years or even more older than the American participants. One student teacher even stated that it seemed to her that the Finnish student teachers' case discussions seemed to show more expertise than the other participants' case discussions (American or Korean).

Also throughout the project student teachers often pointed out that cases that were constructed of very simple, detailed situations from the classroom were too minor problems for this kind of a global discussion forum. One simplistic answer to the question of expertise could be the following student teacher view on the conference situation:

> "all mentors referred to theories and used terminology and all students just wrote about the everyday stuff from the classroom".

5.8 Question 9

The ninth question was: "What did you experience you learned from participating the conference, if anything?". This question aimed to find out what the student teachers' perceived as the learning outcomes from the conference discussions were or whether there were any at all. Most student teachers named some issues but there were also some who did not see many outcomes from this activity. Some might argue that this question should have

been formed without a presupposition that the students actually had felt they had learned something. However, in practice this question did not appear to be too suggestive, since the student teachers gave also negative responses.

Some answers focused on what the student teachers saw as the outcomes of the entire project, which implies that the question should have been more confined to focus on the outcomes of only the conferencing activity. Nevertheless, the answers still provide information on the student teachers' experiences, and on what they considered important and useful in the conference, and what was not useful and why. The answers have been divided into seven groups: 1) content gains, 2) emotional support, 3) communication-related issues, 4) culture-related issues, 5) technology-related issues, 6) negative learning outcomes and 7) other (general) comments.

5.8.1 Content gains

Seven student teachers stated having received lots of new points of views to the matters dealt with in the conference in general or in their own cases. Two student teachers also experienced that certain pedagogical concepts or terms had become clearer to them from the discussions. Twelve student teachers said they received lots of practical tips for the classroom, as well as suggestions and solutions for problems and also other topics in the conference. There was one comment that particularly well portrayed the ideal learning experience:

> "...discussions made me think about the matters and through this they enhanced the process of my professional growth..."

5.8.2 Emotional support

Thirteen student teachers also noted that they were relieved to find that there were student teachers/students and also working teachers facing similar problems and questions as they were. For them it was a positive thing to discover that they shared similar views on many issues with the other conference participants. Two student teachers said that once they discovered that there were others who suggested similar ideas in the conference discussions as they themselves had thought of, it encouraged them to act out

these ideas in practice. The fact that all conference participants were connected with the teaching professions seemed to create a sense of "educational community". The following comments illustrate this:

> 1) "It felt good to be able to express my own insecurities, concerning teaching, in this conference."
>
> 2) "... it was useful to get a wider audience to the problems that we deal with during the teacher training..."

5.8.3 Communication-related issues

There were also answers related to communication. One student felt she had learned more about co-operation and making compromises from working together with a partner on the case. Another student said how learning to communicate through this type of activity made her more sensitive to "paying attention to others and to being an active participant". Another comment related to communication skills was:

> "I learned more about not immediately criticising other people's opinions"

One student also said that although she was not an active participant in the conference discussions, she still felt that they were useful:

> "...even though I didn't write a comment in some conference discussion, I still formed some own opinion to the matter at hand..."

Another student commented that she had expected the conference discussions to be more " distant and cold" and she was pleased to find that the style in the conference communication was polite and sensible:

> "...the discussions were fun to follow and not what I had thought they would be...the general style of communicating was polite and civilised and nobody's views were crushed."

The experience of acting and communicating in a VC was generally valued.

5.8.4 Culture-related issues

Five student teachers stated that an international conference broadened their views on the cultural issues. They enjoyed this opportunity to discuss and observe the differences and similarities of different school systems and cultures. The student teachers said they were very curious to see what teachers outside Finland felt about teaching and learning. They also felt they got to see how the foreign conference participants perceived the Finnish participants' ideas and views:

> "...the conference gave a chance for inter-cultural communication and interaction..."

5.8.5 Technology-related issues

Technology-related issues were viewed as far less significant than the content-related issues, which might not always be the situation when novel technological applications are introduced. The conferencing software was experienced as easy to use and therefore the student teachers' primary interest was in the discussions. There were comments like:

> 1) "I valued the chance of getting to know this kind of a system exists"
>
> 2) "it was interesting to see that how the net could be used for educational purposes"

Five student teachers seemed to recover from a sort of "technophobia" and sceptical attitudes towards computers and technology. One of them reported the following:

> "...this conference gave me more routine to using a computer and for once I felt I used the computer for something useful..."

Other comments were related to becoming "more confident with using a browser to access the WWW" and gaining confidence to enter the Internet and "doing some other things there than just surf".

5.8.6 Negative learning experiences

There were also student teachers who found that they had not really learned all that much from the conference. Even as many as seven student teachers mentioned that they did not feel their standpoint of the original case problem

changed after the case discussion was over. One student teacher said that she did not get any useful responses to the case problem. Two student teachers felt that they did not get any practical suggestions for their case problem, although they admitted that their case problem was of a more unpractical, almost philosophical, nature. One student teacher also said that in COW she felt frustrated if the advice given was not always taken; she said that sometimes her suggestions or opinions were not discussed or commented at all in the following postings. There was, however, a general feeling that it was lack of time that prevented them from getting more than they could have out of the conference.

5.8.7 A conclusion of the outcomes

A general impression of the interviews and observations in the conference and the computer classroom is that the student teachers considered three things the most valuable elements of the project and the conference. Firstly, there were student teachers to whom the discussion contents and the interaction itself were the most important experiences. Secondly, some student teachers seemed to appreciate the contact with members of another culture most. In addition to these two groups, there were also student teachers who felt that getting familiar with this type of activity was a "rare opportunity" for being in touch with technology and receiving some support and guidance for using it.

5.9 Question 10

The tenth question was "Did the activity in the COW environment give you any new ideas to using information networks and applying CC in foreign language teaching?" This question aimed at getting information on whether this activity was useful to the student teachers' future teaching profession. As noted before, this project was for most students their first encounter with educational technology and using information networks for educational purposes.

Many student teachers seemed to see this activity more as a personal experience rather than related to their future teaching profession:

> 1) "for me this was just sightseeing, I think I need more confidence with using the Internet for teaching"
>
> 2) "...although I sense some pressure on starting to use these, I am not interested in spending a lot of my spare time on learning about these things..."

Yet, seven student teachers acknowledged the possibilities that modern technology might have for teaching but they said they did not have the required knowledge and skills for utilising technology in their work as English teachers. One student teacher even questioned the necessity of having computers in the classroom at all.

However, five student teachers also reported they would experiment with an electronic learning environment if somebody arranged the appropriate software and co-operation partners. They felt that learning anything new about using computers could not go to waste, because they were bound to face these things in the future:

> 1) "A personal contact with foreign peers would possibly make pupils more willing to use the foreign language".
>
> 2)"...this would be a good way of exchanging opinions on e.g. cultural issues."

However, the following comment and other similar views seem to imply that the technology was here harnessed for teaching purposes and not vice versa:

> "I realised that technology can be a background tool and help enhance teaching and motivating students."

5.10 Question 11

The eleventh question was "Do you think that this type of activity could be used in teacher training in the university? If yes, in what way?". This question aimed to examine the student teachers' views on the value of this kind of activity in the teacher training programmes, especially for language teacher training. Sixteen student teachers responded positively to this question. The one "antagonist" was not entirely against the idea, but that student teachers' view is a reminder of personal preferences and learning styles:

> "I am an anti-computer person and I am not personally drawn to communicating through the net... I admit this was a wonderful opportunity for real-time communication but still I am not interested, although I saw that the others seemed to be..."

This activity did not attempt to be an absolute solution for finding one ultimate method of teaching and learning. As the comment above tells us, when dealing with technology, the human factor must not be ignored; people are always also individuals and their needs and preferences are unique and unpredictable.

The student teachers also presented some suggestions for integrating this kind of activity in teacher training. Five student teachers stated that this type of conferencing activity would be more beneficial with only Finnish participants, because communication in the mother tongue would make it easier for everyone to participate. This kind of activity was seen as contributing to the professional growth of student teachers of all subjects:

> 1) "....learning through network environments is not all that familiar to student teachers in general..."
>
> 2) "This would be necessary for everyone in training because they would know and experience what's going on"
>
> 3) "it would be important to get as many as possible involved in this so they would learn about these possibilities and experience it themselves"
>
> 4) "It is important to see the different sides of your profession and this would be a good for that."

The interaction between training supervisor teachers and student teachers is a significant part of teacher training and it was considered to benefit from this kind of activity, as the following student teacher responses show:

> 1) "this environment would be useful for communication between training supervisors and student teachers"
>
> 2) "this should run during the whole training year, problems keep turning up all the time but there is not enough time to deal with them in the supervision sessions...the broader topics could be discussed here and the more specific and immediate issues in the supervision sessions."
>
> 3) "discussion with an experienced teachers and less experienced students is always more useful than just peers talking to each other."
>
> 4) "This brings more angles to different issues and there is a wider range of experts than just the ones in our own university."

The idea of an electronic community, in which the principles of cognitive apprenticeship could be applied, would have the advantages of increasing the interaction and communication between the "experts" and the "novices". This

activity was also seen as a good way of introducing novel approaches to learning:

> 1) "discussing with others and also foreigners was more sensible than just giving lectures"
>
> 2) "this could be an optional course that would show student teachers that there are other ways of getting information than just libraries and lectures...you can also learn from your peers."
>
> 3) "It is good to have authentic experiences with foreigners, since more and more immigrants are entering the Finnish classrooms. This would increase cultural awareness and help in dealing with prejudices."

5.11 Question 12

The twelfth question was "What did you feel was the most valuable contribution of this project to you?". There is some overlapping with the answers to Question 9, because some students already included their perceived outcomes of the whole project (and not just the conference) in their responses. The answers to question 12 will be nevertheless discussed here as a separate section.

There were five major areas that the student teachers saw as valuable outcomes of the project. These are quite similar to those discovered in the answers to the question of the perceived outcomes: 1) the conference discussions, 2) getting more acquainted with technology, 3) cultural communication and 4) emotional support.

5.11.1 The conference discussions

Reading the discussions was mentioned four times as the most valuable outcome of the whole project. The discussions were said to be interesting and fruitful. One student teacher described her experience:

> " I was never in a hurry to leave."

Another student teacher said the following:

> "The discussions made me really think about these matters and I think it enhanced my professional growth"

Receiving practical tips for the case-problem and other problems was mentioned three times. Three student teachers stated that getting to see lots of

different opinions and getting different views on matters was most valuable. One student also said she had "learned not to immediately criticise others opinions".

5.11.2 Getting more acquainted with technology

Five student teachers noted that seeing that this kind of a system existed, and getting to know how it worked was mind-broadening. Three student teachers also said it was useful to observe how technology was used for teaching purposes:

> 1) "I no longer consider technology and computers just a refreshing "snack" during lessons, I have seen that they can be used all the time as the self-evident tool for teaching... I saw how technology enhanced teaching and motivated learners"
>
> 2) "this project opened my eyes to new opportunities...I guess most of my pupils already know more about these things than I do...."

Three student teachers said that this project lowered or even removed the threshold they had for entering the WWW and producing something that remains there.

5.11.3 Cultural communication and emotional support

Five student teachers said they valued the chance of discussing with foreign participants. They said it was interesting to see what kind of opinions teachers outside Finland have and whether there were any differences with their views. Through this they also reflected on how their own views were valued.

Three student teachers mentioned that they had overcome some of their own uncertainties through this project. Getting a chance to express those uncertainties and dealing with them in the conference was seen as important and the student teachers felt they had received support when they had noticed that there were others encountering similar problems as they themselves. One student teacher also presented one disadvantage of dealing with feelings of uncertainty; she felt that immediate feedback was important with those sensitive matters but in the conference getting a response sometimes took days.

5.12 Question 13

The final question was "What kind of suggestions of improvement would you give if there was a similar project in the future?". The aim of this question was to find out what the student teachers thought should be altered in the arrangements of this project. The student teachers' answers in the previous questions of the interview already touch upon some of these issues. This question was included because its focus is on the whole project and it offers the student teachers a chance to comment on anything they felt had to be done otherwise. The other questions in turn focused on more specific issues.

Three student teachers answered that they had no suggestions for alterations. One student even said that the thought of wanting something done differently did not even cross her mind. One student felt that more time from teacher training could have been used in this activity and all subjects' student teachers should have been involved.

Eight student teachers made some suggestions related to VC. They wanted fewer participants and more frequent VCs that lasted longer than these did. Comments and suggestions were mostly similar to those mentioned in question 3C.

Students also commented on their lack of time in participating the conference and these responses were similar to those dealt with in question 2. Here are some comments to illustrate the student teacher views:

> 1) "...a computer class that would have been available for longer periods would have been ideal, although it would be a waste of resources if there were none or few people using it during the day"
>
> 2) "The topics were a massive bundle and I did not have time to read through all of them, in the instructions it we could have been told that it was pointless to try to master the whole conference content."

Two student teachers also mentioned that a more personal contact with a "pen pal" would have helped them "bond with the people more". This could have occurred through chat or E-mail.

Four student teachers said that freedom to access COW and lack of control by the project supervisors did not turn out to be profitable for them. One student said:

> "...I would have preferred more structure on the project...a lot was on my own responsibility but I was not committed enough to participate actively...I guess I was not a very self-directed learner..."

Three student teachers stated that they would have been more active if the meeting dates had been set for the whole group:

> 1) "I had wanted more group meetings, when I got the freedom to come and go as I please I abused that freedom..."
>
> 2) "some kind of collective stopping point would have kept us more active...when you participated seldom in the conference you did not get much out of the postings because there were always dozens of new postings"
>
> 3) "Some collective opportunity for discussion would have been nice, although I think that this way we came to talk through the web."

These comments suggest that although the main forum of discussion was supposed to be the conference, more group contact was expected by the student teachers. Yet one student teacher specifically thanked the supervisors for "not breathing in my neck all the time" and "letting adult students take care of things themselves". One student teacher stated that she had feared this to be a more isolated computer activity than it actually turned out to be. There were also two student teachers who stated that in the beginning they did not conceive what they would do in COW. Having little experience with computers, they felt it was difficult to anticipate what the CC activity would be like at all. They suggested that the introduction to this project should definitely be made in a computer lab in order to get a clear picture of the web conferencing activity.

One student commented on the lack of anonymity in the conference:

> "Since this is used even globally, it might be easier for some
> people to write about personal problems if they don't have to use their real name"

Only one student teacher mentioned language-barriers:

> "if there had been an all-Finnish conference, there would not have been any problems with translating concepts or having misunderstandings, for instance with the word "*pärstäkerroin*[1]"

The student teachers were EFL learners of a high level, planning on making a profession out of it for themselves; they were not likely to suffer from a fear of using English. The one remark was concerned with a specific word for which an equivalent match could not be found in the English language. It is a common fact that some concepts and terms can cause misunderstandings even to people of the same native language.

In general, most changes were related to time and group contact. The virtual contacts and tutoring were not enough and more human contact was wished for. Virtuality meant relative freedom of time and place but it also meant spending a lot of personal time because this course was not included in the student teachers' weekly study schedule.

5.14 Summary of the main results of the qualitative analysis

The main results of the qualitative analysis were supposed to give more information on how the CC project was experienced by the student teachers and what did they perceive to be the key benefits and challenges of it. The focus on the qualitative data analysis is on the outcomes of the conferencing activity, although there some data is related to the other aspects of the project.

The background information showed that the conference participation was still heavily dependent on time and space. The project was experienced to bean additional activity to the regular study routine. Participation seemed to be highly dependent on the computer lab although COW was accessible from any network-connected computer. It is not surprising that hardly any of the students could access COW at home, considering the financial situation of an average student and the higher prices of sufficient computers and Internet-connections at the time of the project. The student teachers also seemed to prefer participating the conference in the computer lab because the peer support and technical support of the project tutors were available.

The additional activities in the project (IC, VCs, COW Profiles) had one common feature in common, which was most important to the CC: they all added some personality to the conference and offered real-life contacts with the

[1] *author's translation: impression-based judgement*

other participants. This seemed to serve the conferencing well and should have been used more effectively, for instance with email communication or international collaboration between participants from different locations. However, the collaboration with the local group of peers was also considered to be essential. The computer lab sessions were chance to receive emotional, pedagogical or technical assistance from peers. Student teachers also mentioned discussing further the COW cases if they met each other in other context than this project. Working alone was also a personal preference for a few participants.

Practical problems or a combination of practical and theoretical approaches were more preferred than starting a case discussion on merely theoretical grounds. Although the case-based approach was not familiar to the group, they enjoyed working through it because it was a convenient way to deal with problematic situations from teacher training. Most of the student teachers did not hesitate at all to start the CC, some were insecure in the beginning and recovered from it once they started. A few said to be slow writers and some remained worried about writing linguistic mistakes throughout the project.

Choosing which discussions to read was based on various reasons. For most, there was a tendency to read the Finnish cases but some preferred also the American cases because they were foreign and therefore interesting. There Korean cases were somewhat neglected because the culture and educational system were not familiar, like the American culture and educational institutions were. The topics also had an effect, the most interesting topics dealt with practical matters (see Table 5).

Choosing what to write and when was another thing that was investigated. There was again lots of variation. One common feature for the comments was the attempt to avoid repetition. The participants said they chose to comment a discussion if it was short and not yet "chewed up" or if they had a new idea or some other meaningful point to say. Some also chose to write only the most distant participants' discussions. However, there was the same tendency of ignoring Korean cases, for obvious reasons: it was impossible to comment something that you had not read in the first place. Some also mentioned commenting rather the practical discussions than the theoretical ones. The linear communication structure in COW was also problematic to making

comments because the chain of messages went on chronologically in one long, continuing chain. The case author had a significant role here as making comments and keeping the discussion on the right track.

When asked about the concept of "expertise" in the discussions, several features arose: giving suggestions for solutions, having multiple perspectives on things, having teaching experience and having experience of experimenting with novel teaching methods and approaches. Therefore, it can be said that these qualities would apply to the student teachers as well as the in-service teachers or researchers. There were, however, also participants who rated the comments according to the writer's educational and professional status. The Jyväskylä participants were also a couple of years older than the students from Indiana, which might have an effect on the writer's commenting style.

The answers to the question of what was gained through participation could be presented in seven groups: 1) content gains, 2) emotional support, 3) communication-related issues, 4) culture-related issues, 5) technology-related issues, 6) negative learning outcomes and 7) general comments. The student teachers appreciated the discussions because the issues they dealt with in them were currently troubling their minds. Emotional support refers to sharing all those insecurities and unsuccessful experiences from the language classroom with a wide audience of peers, who write about similar experiences and problems that they have had. The importance of emotional support was not anticipated but it surely became an additional benefit to the group. The possibility to communication with people from other cultures was also valued as such. Getting familiar with technology was also one important outcome for some participants. Also some student teachers said they had not learned much from the CC. Many of them said that they had not changed their opinion on their original case problem after the case discussion because nobody could convince them to think otherwise, some also stated they had not received any useful responses at all.

The participants considered this type of activity to be useful in teacher training. It would enable increased interaction between training supervisors and student teachers and student teachers could learn about the use of educational technology through first-hand experience. Restricting the conference to Finnish participants only would make it easier for students of other subjects to

participate because the communication would be in mother tongue. Interaction through the web was considered a good alternative for attending lectures. Although the participants mainly considered this to be of use for them as individuals rather than educators, they still acknowledged the possibilities CC had to offer and were willing to experiment more with educational technology later on, if given the chance.

6. DISCUSSION AND CONCLUSIONS

The final chapter summarises and discusses the main findings of this study and also evaluates this study. The purpose of this study was to describe and also to evaluate an experimental project involving seventeen student teachers of English from the university of Jyväskylä. The experimental project served as an introductory course of educational technology for the student teachers' English teacher education program. The student teachers learned through practice how modern technology could be harnessed to support traditional teaching methods. The main forum of communication for the project participants from different locations was a computer conferencing activity. The seventeen student teachers and the other project participants established a network-based community of educational discourse through web-based computer conferencing. The discourse was based on written discussions over problem-based cases related to teaching and learning.

The student participants from all the locations of the project started one discussion of their own and responded to discussions written by others. In addition to student participants, the discussions involved also in-service teachers and researchers. After the project was over, the seventeen student teachers were interviewed in order to find out what the outcomes and benefits of the discussions were in this joined web-based community. The main research questions of this study focused on the Finnish student teachers' experiences in relation to the pedagogical arrangements, the conference outcomes and support with respect to the teacher education context.

6.1 Evaluation of the data collection methods

The research data of this study was both quantitative and qualitative. The data consisted of the following: 1) statistical facts from the actual conferencing activity, 2) questionnaire data regarding the subjects' expectations and experiences of participating this project and 3) interview data giving more details on the subjects' notions concerning the whole project. This caused some problems in finding answers to the original research questions. The interviews

were the main focus of this study but since there was also other data available, they were analysed to find out more and to describe the project, the conference activity and the participants in more detail. The analysis of the additional data proved out to be problematic since the questionnaires were originally included in this study only to maintain consistency in data collection since they were used already in the pilot phase of this project. The separate sources of the quantitative and qualitative data collection methods also show on the analysis. There were several overlaps in the questions and topics of the questionnaire and the interview. This repetition had to be filtered while listing the main results of the analysis. Most things briefly mentioned in the questionnaire data were later more thoroughly described in the interview data. Still, the questionnaire data was included in total to maintain consistence with the pilot projects. The purpose of the numerical data from the COW system was to describe the quantity of the conference discussions and individual conference participation.

The number of research subjects (17) was too small for making strong generalisations based on the quantitative data and this problem was supposed to be overcome with the descriptive part of the study, the qualitative data. The interviews were designed to give further information related to the questions raised by the questionnaire data. However, this would have required a complete quantitative analysis of the questionnaire data before the interviews. Unfortunately the schedule of gathering data did not allow the interviews to be held after finishing the analysis of all questionnaires. Therefore, this study could not use the full potential of having two different approaches for gathering data.

6.2 Evaluation of the pedagogical arrangements of the project

The student teachers evaluated the pedagogical arrangements of this study, meaning the settings and the pedagogical design of the learning environment. These arrangements were described in section 2.3. Since working with technology seemed to necessitate also real-time "human contact", the videoconferences were mentioned as an important way of getting in touch with the other conference participants. There was a tendency to neglect the case

discussions written by those who participants who were not involved with videoconferencing (South Carolina and Korea). Talking to strangers in the CC or VC could not compete with the familiar "home team". Talking with Finnish peers in Jyväskylä was considered at least as important as reading and writing responses in the conference. The group generally valued taking the CC discussions further and exchanging ideas with peers communicating "live". If the group of students had not known each other at all, they might have been more attached to the web-based community of CC participants.

The aspect of collaboration and cooperation seemed to be of great importance to the group. Working with peers in the computer lab or working in small teams with the case-based discussions seemed to be the essential support that was needed to encourage participation. The student teacher group already knew each other since they had worked together in teacher training studies and were all majoring in the same department. They already got along well and therefore could rely on each other when the project started. When constructing their own case discussion, a majority of student teachers worked in teams. Working alone was not stated as avoidable but yet most students ended up starting their own case discussion in cooperation with some other participants. Out of the independent workers, four specifically chose to work by themselves, the other two just happened to be alone when they came up with an idea to write about. The team workers stated that working with others offered support and a wider perspective to their CC participation. In contrast, the independent workers stated that working with peers would have slowed them down; processing and negotiating the responses would have taken too much time for them. This shows that collaboration can also be restrictive under some circumstances.

Considering the starting points of the CC discussions, the problem-based discussions were regarded as useful, yet there seemed to be a clear preference between theoretical and practical problems. Most student teachers wrote and read about practical case problems, although they stated that they pick only those cases that dealt with issues that were applicable in their own teaching or "universal" problems that weren't bound to specific age, school subject or cultural context. The main reason for preferring practical cases was simply that the students had lots of problems that needed solutions or suggestions. In

addition to practical tips for teaching, they also valued the chance to read about other student teachers' problems. It was relieving to discover that also the others were insecure about the same things as they were, without having to reveal any of their own personal insecurities in the conference. They could read about these experiences and then choose if they wanted to share their own experiences and feelings with others. CC participation gave them support in professional matters but also valuable emotional support as individuals with the same background.

Although the students were encouraged to use theoretical references in their case discussions, very few did so. Most of the group read through the collection of articles that were meant for background or reference material for the CC. Once the discussions were launched, many students practically forgot about the articles and concentrated on the contents of the discussions. This shows that when given liberty to choose, even the most self-directed and autonomous learner might become very selective. There was such a vast amount of discussions from various topics that it took time and effort to read them, let alone any extra material.

The student teacher notions of expertise in the case discussions were related to the following issues:

giving suggestions
viewing things from different perspectives
having general teaching experience
having teaching experience of the specific matter at hand
showing careful pre-thinking on the matter
giving justifications
using examples
getting straight to the core of the problem of the case discussion

These functions that were stated as indicators of expertise in the CC were related to some of the processes and techniques associated with cognitive apprenticeship (Collins, Brown & Newman 1989). The problem-based cases

contained a lot of problem-solving situations, negotiations and weighing different solutions to the problems, which resulted in responses that were connected with the earliest stages of cognitive apprenticeship model. Yet, it was obvious that further discussions would have also taken further the expert process externalisation and faded the scaffolding, giving more room to the beginner's own evaluation of the case problem results.

However, discussing with people from different areas of teaching offered the conference participants a chance to receive multiple perspectives. This was mentioned many times during and after the project as the most valuable experience of the conference. Although the pedagogical arrangements mainly proved successful, one downside was that the motivated student teachers were not all that autonomous and self-directed learners. Their CC participation was rather attached to the local group of peers and the computer lab sessions with the support of peers and supervisors. Some student teachers pointed out themselves that too much freedom did not suit them and that was the reason why they weren't very active in the CC. Although they considered the conferencing tool easy to use, many preferred to access the CC in the computer lab because always technical and linguistic support was always available there. This also means that there was some dependency on the presence of other people while conferencing. The majority of student teachers noted that the interaction between peers that were physically present was more useful than harmful. Collaboration resulted in fruitful discussions and carefully planned and verbalised responses in the conference.

6.3 Evaluation of the significance of the project participation

Two research questions were related to the project outcomes: 1) "What did the student teachers perceive gaining from participating in this web-conferencing project and what were their major problems?" and 3) "What was the significance of project participation to the student teachers' teacher training period?". The expectations before the project were mainly to engage in intercultural communication, to receive opinions on educational matters and to learn more about educational technology. The conference participation outcomes after the CC project mostly emphasised the emotional support and the wide audience for dealing with problems regarding

teaching. The student teachers stated this was an important forum for discussing practical and pedagogical issues with people involved with teaching. Being introduced to using technology for educational purposes also seemed to update the student teachers' general attitude towards technology. The background of the student teachers was relatively similar; they were not very experienced with technology and only a few had come across the concept of educational technology or using technology for teaching purposes. Some student teachers regarded themselves even "technophobic" to some extent or otherwise uncomfortable with computers. Although this project was mainly just "scratching the surface" of the use of educational technology and did not provide extensive practical skills of using technology in teaching, the student teachers gained valuable first-hand experience of the positive and negative sides of using technology in teaching. The idea of conducting a CC or a VC in an EFL classroom became realistic and accessible to them.

6.4 Implications of this study

The final outcomes and the value of this CC project are possibly seen only after the student teachers have faced real situations of utilising educational technology. This pedagogical model for tutoring a group of learners in a web-based learning environment is difficult to outline as being the most meaningful factor in this CC activity. The learning environment is a complex combination of several different ideas and compounds of ideas which are also formed and reformed in each learners own mind. This group of student teachers, at present acting teachers of English, would offer an ideal opportunity for conducting follow-up studies which would give more insight on what was truly the effect of this project in the student teachers' professional identity and skills.

This data did not offer clear-cut answers to the research questions but the focus of the questions was redirected to areas that further investigation would reveal and clarify. The social and cultural aspect proved to be significant in forming opinions and also in digesting the responses from the far ends of the CC. A comparison between the experiences of conference participants from different locations would have showed the rate of culture-dependency of these communication obstacles and the regularity of these features in a web-based community of interaction. Studying only a fraction of the conference participants gives only a fraction of information.

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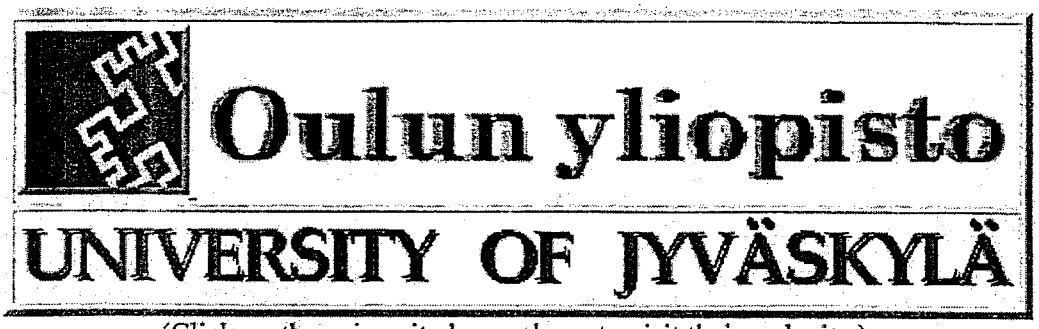
APPENDIX 1: COW Conference Topic Page

Finland_Cases_Fall98

Instructor: **Dr. Curt Bonk** (email: cjbonk@indiana.edu)



(Click on the university logos above to visit their web site.)

Welcome to the Finland Conference! It has been created for you to exchange questions, answers, and ideas with other students, faculty and teachers during your field experience. You can also return to the conferences for Indiana, Korea, South Carolina and the International Cafe.

Some of the topics listed below are RESTRICTED to either students, faculty or teachers. Other topics are PUBLIC and anyone may participate. But Dr. Curt Bonk and Steve Malikowski serve as "fair witnesses" to this conference, and they can read ALL messages.

Note: A practice topic has been created to help you become familiar with this online system and project.

Topics::

Number	New	Topic Name
200	0	Socio Constructivist Views to Learning and Teaching
201	0	Motivation
202	0	Problems and Challenges in School Context
203	0	Learning Interaction
204	0	Creating a Supportive Learning Environment
205	0	Assessment and Evaluation
206	0	Technology and Learning
207	0	Intercultural Communication
208	0	Foreign Language Teaching and Learning
210	0	Rethinking Language Teaching/Learning Methodologies
212	0	ILT- Test Cases

[COWSearch]: Search This Conference

Help | About | HotList | Profile | HotList Editor

APPENDIX 2: Case Discussion Illustration

... next new post >>

Conference: Finland_Cases_Fall98
Topic: 208. Foreign Language Teaching and Learning
Conversation 1

Teaching culture in the classroom

All posts and replies

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1. Author: **Case Author1** (caseauthor1)
Date: Oct. 2 3:21 AM 1998
Hidden by author.

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2. Author: **Case Author1** (caseauthor1)
Date: Oct. 2 3:25 AM 1998

In the course book we're using for the 9th graders in our teacher training there is very little reference to the cultures of English-speaking countries. Only one chapter deals with this issue and all the information about eg. Australia, New Zealand, Canada, Ireland, the USA and the UK is crammed into just a few pages. We've understood that one of the main purposes of teaching languages in general is to familiarize the pupils with the culture of the language in question. We think that just a few pages is not enough for the pupils to learn about the culture(s), especially if the meaning is to guide them to independent and autonomous learning. Of course, one could argue that instead of the book introducing all the aspects of these countries, the teacher has the responsibility to elaborate a more detailed presentation after the short introduction in the book. Should the course book have more information on the culture of the country/countries or do we rely on the teacher to do the job?

Case Author1 and Case Author2

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3. Author: **Korean Student Teacher1** (koreanstudentteacher1)
Date: Oct. 6 4:17 AM 1998
Teaching a language with its culture seems to be necessary.

Korean culture must be very different from English speaking culture, 'cause Korea is far across the distance and we have quite unique history. I think it important to let the students know English speaking countries' culture. It can be helpful in understaning English friendly. Learning not only the language but also the culture means the language can't be separated from thier culture.

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4. Author: **Finnish Student Teacher1** (finnishstudentteacher1)
Date: Oct. 6 8:42 AM 1998
How about bringing up the concept of integration? History and culture of Anglo-Saxon countries is such a vast area that it would not be possible to cover it in the textbooks. At least if you want to cover other important topics as well. In any case, students should learn vocabulary needed in different areas of life.

Integrating languages with subjects such as history and geography more efficiently would be one possibility to increase the pupils' understanding of cultures as a whole. This has been realised in the form of project works or "theme weeks" but it could be extended to cover larger areas of curricular planning.

Anyway, it is true that culture and language are interrelated and neither of them can be understood without the support of the other.

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5. Author: **Case Author1** (caseauthor1)
Date: Oct. 8 9:55 AM 1998
First of all, thanks for the comments! Actually, next week one of the 9th grade classes will start a project, in which they are (working in pairs or small groups) supposed to produce a poster introducing a country. The teacher gave some instructions for the pupils, emphasizing that they should make the posters about English-speaking countries. However, she didn't oppose to the pupils' requests if they could do the project work on those countries where English isn't an official language. In other words, someone could just as well choose to do his or her project on, say, Albania. In such a case, the pupil would use English for the project and learn various aspects of the language during the process, but probably wouldn't learn anything about the English-speaking countries and their cultures.

In our opinion, if the teacher thought that there wouldn't be enough English-speaking countries/cultures for each pair or group to work with, the teacher could've asked the groups to concentrate on a certain aspect of the British culture or the American culture and so on. When working on the American culture, the groups could make the posters on, for instance, Native Americans, the American food culture, their national sporting events, annual holidays etc. This would also give a wider and more varied picture about the cultures. Any thoughts on this? What do you think is relevant in a case like this? What would you do if you were the teacher in a situation like this?

Case Author1 & Case Author2

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6. Author: **Finnish Researcher1** (finnishresearcher1)
Date: Oct. 13 10:31 AM 1998
Author1 and Author2 - I've been extremely interested lately about WHOSE culture we are teaching at schools during language lessons. Especially, an article by Wagner (I'll try to find it and tell you later what it was if you're interested) made me think about the whole paradigm of language teaching and research on language acquisition. He argued for seeing English more as the property of the whole world than of the so called English speaking countries. English is used all over the world as a lingua franca and we are more likely to use English with people whose mother tongue is not English than with native speakers of English. He also claimed that the word 'language learner' is a "loaded" term in that one of the participants in interaction is seen as not having "reached the norm". In this perspective, the idea of 'culture' may look different from what we are used to. What do you think? What would this mean for language teaching? - *Finnish Researcher1*

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7. Author: **Finnish Researcher2** (finnishresearcher2)
Date: Oct. 15 6:25 AM 1998
I am not sure, but I guess *Finnish Researcher1* means this articel: Wagner, J. (1996). Foreign Language Acquisition Through Interaction - A Critical Review of Research on Conversational Adjustments. Journal of Pragmatics 26 (1996), 215-235.

-- *Finnish Researcher2*

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8. Author: **Finnish Researcher1** (finnishresearcher1)
Date: Oct. 20 5:36 AM 1998
Yes, *Finnish Researcher2* - that's the article

- Finnish Researcer1

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9. Author: **Finnish Researcher1** (finnishresearcher1)
Date: Oct. 20 5:41 AM 1998
Hidden by author.

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10. Author: **Finnish Teacher1** (finnishteacher1)
Date: Oct. 21 6:43 AM 1998
It is a lot easier to teach the language than to teach culture. The teacher can tell about the cultures of the target language. But how can you teach culture? One can also learn to speak a foreign language fluently, but may never learn the culture of the native speakers. Culture is something you acquire within your own society, starting when you are born. So, I raise a question: Can you learn a culture or even understand other people's cultures? Should we talk about teaching a culture as language teachers? - *Finnish Teacher1*

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11. Author: **Finnish Researcher1** (finnishresearcher1)
Date: Oct. 21 9:00 AM 1998
That's an interesting question. We were just talking about this theme during our foreign language education workshop. There seem to be "competing" definitions of 'culture' in the air, some narrow, some broad. I think the broad ones are winning at the moment and it makes your question very topical for language teachers, too: old text books, other teaching materials and methods are still very much based on the idea of culture being stereotypical. So, should we also ask, what is the broad definition of 'culture'? - *Finnish Researcher1*

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12. Author: **Case Author2** (caseauthor2)
Date: Oct. 22 8:24 AM 1998

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13. Author: **Case Author2** (caseauthor2)
Date: Oct. 22 9:00 AM 1998
Thanks again for the commentary! Sorry that we haven't answered sooner but we've been so busy, busy, busy!!!

The project work with the 9th graders went really well, the pupils were incredibly enthusiastic about the project that was supervised by *Case Author1*. The posters (at least in *Case Author1*'s opinion) turned out great and the project served its purpose well in introducing the pupils to several English-speaking countries and cultures.

Finnish Researcher1- you made a good point about English being a lingua franca and its connection to other than the native cultures. However, we didn't quite understand your reference to Wagner's ideas. Particularly, the following:

"He also claimed that the word 'language learner' is a "loaded" term in that one of the participants in interaction is seen as not having "reached the norm". In this perspective, the idea of 'culture' may look different from what we are used to."

Could you clarify this a bit, especially the terminology (eg. loaded, reached the norm) in this context?

Finnish Teacher1 - teaching the language is certainly a lot easier than teaching culture. BUT, we think that we shouldn't even talk about "teaching culture", we should rather consider "teaching ABOUT culture". Like you noted, learning another culture is impossible as it's difficult to get to know your own culture entirely (we, for example, feel that understanding all the weird things about our own culture are pretty hard to grasp...). In addition, the way you see your own culture always affects how you aquire others.

Case Author2 & Case Author1

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14. Author: **Finnish Teacher1** (finnishteacher1)
Date: Oct. 26 9:13 AM 1998
Yes, that is exactly what I meant. "Teaching culture" is wrong terminology. Of course, attitude has a big role, too, when trying to learn another culture. Certainly there are people who adapt to different ways quite easily and there are those who do not feel at home anywhere. Travelling around the world forever may be fantastic, but try and become a member of a society other than your own. I bet it's not dancing on roses no matter how many languages you know. Another thing: Think about the culture of the USA, for instance. If you want to tell about it to your students, what do you tell? Do you know about the life of a black family who live on welfare in Alabama? Or should you just mention a rich businessman from N.Y. area, etc. etc. What do these two have in common? What is American culture? Or British, for that matter?

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15. Author: **Finnish Student Teacher2** (finnishstudentteacher2)
Date: Oct. 29 9:38 AM 1998
When learning English, why do we have to learn about Britain or USA or Australia (I have met one Australian in my life)when learning English. Why not Indian culture (I have met scores of Indians)or the Eglish speaking Finnish culture. How much do we get out of learning about some particularity on WASP US ('cos that's what we mainly learn) culture or some particularity on middle claas British culture. I sure do not belive that it helps us to understand the link between language, culture and thinking. The reason I say this is that some people try to use this as an argument for learning about this "original/native English speaking cultures".

Comparative language and cultural studies could be a refreshing shower for the English teaching.

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16. Author: **Case Author2** (caseauthor2)
Date: Nov. 5 10:25 AM 1998
After all your comments, we still think that the language and its culture should be linked tightly to each other. English is a linqua franca, no question about it, but in our opinion the main focus in classroom English should be on the leading English speaking countries. Time and resources are limited in school and therefore it's very difficult to try covering all the situations and countries around the world where English is used. Of course, the extreme ends of things (eg. the life of the poor) are worth mentioning and recognizing but they do not form the basis for classroom teaching.

Case Author2 & Case Author1

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17. Author: **Finnish Researcher1** (finnishresearcher1)
Date: Nov. 10 10:23 AM 1998
Well - *Case Author2* and *Case Author1* asked me to clarify one of my points above which was as follows:

"He (=Wagner) also claimed that the word 'language learner' is a "loaded" term in that one of the participants in interaction is seen as not having "reached the norm". In this perspective, the idea of 'culture' may look different from what we are used to.")

Yes - if I remember right - Wagner said that the fact that somebody is labelled as a "language-learner" or NNS (non-native speaker) in comparison to somebody who is a NS (native-speaker) or masters the "target" language automatically leads the analyst to focus on deviance from "norm" (the language of the NS) of this "learner". This, he thinks, has led most of previous research on second language acquisition, for example, to stereotyping "learner" language as different to native-speaker language. Wagner thinks, and many recent researchers as well, that such a division should be the starting point for study of language - instead, one should be looking at situations of language use with open eyes. Then you might see the "old" learner as having in some situations great powers as a communicator. As this division into the two stereotypes has been basis for most research for decades, Wagner suggests that all these results should be reconsidered. - I don't know - did this clarify this at all? - *Finnish Researcher1*
PS. by norm Wagner means the language spoken by so called "native speakers" and he challenges this because of this idea of whose language as there are quite a variety of English 1st language speakers around the world like many of the comments have been poining out above.

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18. Author: **Case Author1** (caseauthor1)
Date: Nov. 19 12:09 AM 1998
Here's a little round-up of our case: we started with the question whether there is enough cultural coverage of various English-speaking countries in the pupils' text books. In addition, we pondered what's the teacher's role in distributing cultural knowledge. First of all, there was discussion about the importance of not separating the language from its culture. This got people into talking about what culture more specifically is and what it means. There was also discussion about whether culture can be taught in school; as a conclusion it was noted that we should be teaching about culture. Each culture has so many different aspects to it that one must be born into that specific culture in order to learn all of them. Also, since English is a lingua franca and the property of the whole world, there was a question why should we concentrate only on the English-speaking countries and their cultures. However, because of the limited time and resources in school we as teachers are bound to focus on the essential.
Still, this doesn't mean that we should ignore the minor phenomena in the cultures - they should most certainly be recognized. In general, attitude has a big role in teaching as well as in learning language(s) and cultural aspects.
Signing off, Case Author2 and Case Author1

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19. Author: **American Student Teacher1** (americanstudentteacher1)
Date: Nov. 23 0:42 AM 1998
I think that culture is very important for a foreign language. I think that all students need to learn about another countries culture just because everyone has to take a foreign language and what is the point in learning a language if you do not learn about the culture? Besides, it makes the learning of the foreign language a little more interesting.

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20. Author: **Finnish Teacher1** (finnishteacher1)
Date: Nov. 23 3:24 AM 1998
Of course, if you look at the big picture, you run into cultures and their differences when using a language, but there are also situations where culture is irrelevant. For instance, my brother and I as teenagers used to talk in English at home so that our parents wouldn't understand what we were saying. Pretty smart, don't you think.

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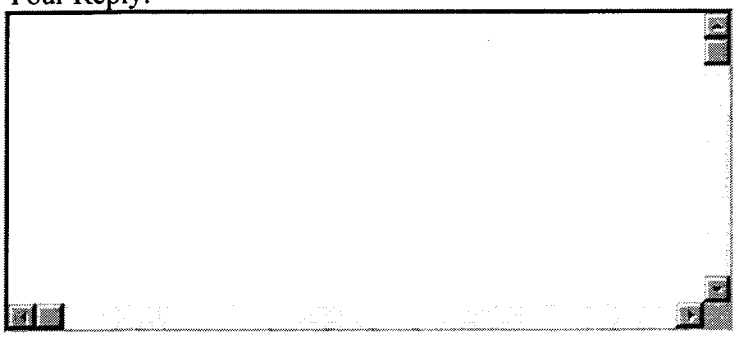
21. Author: **American Student Teacher2** (americanstudentteacher2)
Date: Nov. 24 0:02 AM 1998
I would just like to add a few comments. This has actually been a really interesting conversation to follow. First of all I agree with most of you that learning a language and its culture should be closely related. I think that in order to fully understand a language you must also have a firm grasp of the culture. Understanding the culture can help the student understand where it is that the language they are speaking comes from. I think that it also makes it more interesting for the student learning the language. Connect that to learning in general: if you make learning fun and interesting for the students, then the students are more likely to retain the information (in this case the language). I know that here at the University of South Carolina (in the USA), after taking a language you must take a class about the culture of that language. Thus the language and its culture are connected. I think that it is really important to make that connection, not only to promote further understanding of the language, but to make people/students more aware of the world and its cultures.

... next new post >>

Your Reply:



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submit reply | preview reply | clear typing

APPENDIX 3: Pre-questionnaire

Name: _____ **Age:** _____

Which of these are you familiar with? Please, tick.

_____ E-mail

_____ The Web

_____ Electronic, Internet-based video-conferencing e.g. CuSeeMe, Netmeeting

_____ Chat, Bulletin Board System

_____ E-mail discussion groups

_____ Video conferences (ISDN)

_____ Other

Rate on a scale of 1 (Low/Strongly Disagree) to 5 (High/ Strongly Agree)

_____ 1. The web is useful for learning purposes.

_____ 2. I find the web easy to use.

_____ 3. It is easy to find good sites for language learning.

_____ 4. It is important to integrate educational technology in the schools.

_____ 5. The web is not much help in learning.

_____ 6. In my work as a teacher, I will make extensive use of the web.

_____ 7. I am interested in language learning.

_____ 8. I am interested in educational technology.

_____ 9. I am interested in computers.

_____ 10. I am interested in teaching and learning (pedagogical aspects) in general.

_____ 11. I have a lot experience of using the web.

1. What kind of expectations do you have about this project?

2. What do you expect to learn during this process (from for instance the collaboration of the technical point of view)?

3. How comfortable are you with educational technology? Describe your previous experiences.

4. What kind of assistance do you think you will need with using technology?

5. Do you have any comments at this point?

APPENDIX 4: POST-QUESTIONNAIRE

PART I. Basic Demographic Information

Age: ____ Gender: _____

PART II. Rating Scale Information

Please circle the most appropriate answer:

1. How much experience did you have using the Web before this class?
   None Little Average Extensive

2. How much experience did you have using a Bulletin Board System (BBS), Chat or Electronic Conferencing systems?
   None Little Average Extensive

3. How many hours on average did you spend per week on COW?
   0-1 1-2- 2-4- 6+

4. How many hours in total did you spend creating and responding to cases in COW?
   0-1 1-2- 2-4- 4-8- 8-16 17+

5. On what time of the day did you generally work on COW?
   6 AM- Noon Noon-6 PM 6 PM-Midnight Midnight-6AM No regular time

6. When were you most active in COW?
   Early Feb. End of Feb. Early March End of March Early April

Rate the following on a scale 1 (low) to 10 (high).

1. This conferencing system (COW) was easy to use.
2. I received extensive mentoring and support in using the conferencing system.
3. The conferencing system provided extensive peer interaction and dialogue.
4. I gained an appreciation for other opinions in using the conferencing system.
5. In using the conferencing too, I felt less isolated and lonely when in the field.
6 I'd recommend electronic conferencing for preservice teacher professional development.
7. This conferencing activity influenced my perceptions of effective teaching and learning.
8. This conferencing activity fostered my generation of ideas and creativity.
9. This conferencing activity fostered my evaluation of ideas and critical thinking.
10. This conferencing activity fostered collaborative learning and teamwork.

PART III. Open Ended Questions

1. What specific experiences of this electronic activity were most and least valuable?

2. What did you gain from reading ongoing conversation threads, if anything?

3. What types of topics, domain areas or discussion threads spurred the most discussion?

4. What forms of learning assistance and support did you receive (e.g. questioning, hints)? What were the better types of assistance in COW?

5. What kinds of electronic replies (e.g. agreements, opinions, negative feedback, counterexamples, new connections/ideas, off-task commenting etc.) did you get to your cases?

6. Did your peers give you much feedback? If so, what was it and how did it help? If not, what could be done to improve it?

7. Can conferencing tasks and tools foster new expectations of teaching and learning? How? What learning or developmental theory was especially applicable here?

8. How can such a conferencing tool contribute to the professional development of preservice and licensed teachers? Feel free to suggest any idea that comes to mind, even if it may sound too expensive or very silly.

APPENDIX 5: Interview Questions

Question 1.

Have you previously participated in a learning situation which has been wholly or partly based on communication or teaching materials that were distributed via information networks? If yes, describe your experiences.

Question 2.

Did you feel you had enough instructions, time and technical support in the COW environment as well as the whole project?

Question 3.

What was the significance of the following auxiliary activities: literature package, International Cafe, COW Profiles, videoconferencing?

Question 4.

What was the significance of your peers presence in the computer lab? Did it have any effect on your conference participation and did you feel that a different kind of collaboration should have been arranged for the whole student teacher group?

Questions 5.

a) Did you work on your case alone or in a team and why? If you worked in a team, did you continue to comment your own case and the other discussions with your team or by yourself? Why/Why not?

b) Did you find that this problem-oriented and case-based approach to starting the discussions was beneficial to learning? If you have a better approach in mind what is it like?

Question 6.

How did you experience starting to write responses in the conference? What things affected your writing and did your writing change as the conference moved on?

Question 7.

Which parts of the conference did you read and comment on the most and least and on what basis did you choose the discussions that you read?

Question 8.

Did you think that some conference participants had "expertise" more than others? If you did, what made a conference participant seem like an "expert" to you?

Question 9.

What did you experience you learned from participating the conference, if anything?

Question 10.

Did the activity in the COW environment give you any new ideas to using information networks and applying CC in foreign language teaching?

Question 11.

Do you think that this type of activity could be used in teacher training in the university? If yes, in what way?

Question 12.

What did you feel was the most valuable contribution of this project to you?

Question 13.

What kind of suggestions of improvement would you give if there was a similar project in the future?