

**Bridging the gap: A case study of international student teaching  
and computer mediated communication**

by

**Sara Jane Rinkleff**

A thesis submitted to the graduate faculty  
in partial fulfillment of the requirements for the degree of

**MASTER OF SCIENCE**

Major: Education (Curriculum and Instructional Technology)

Program of Study Committee:  
Niki Davis, Major Professor  
Denise Schmidt  
Victor Udin

Iowa State University

Ames, Iowa

2003

Graduate College  
Iowa State University

This is to certify that the master's thesis of

Sara Jane Rinkleff

has met the thesis requirements of Iowa State University

Signatures have been redacted for privacy

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## CHAPTER 1. INTRODUCTION

International education is not a new concept. In fact, the idea of international education emerged over 50 years ago in the United States with the end of the Second World War (Mestenhauser & Ellingboe, 1998). International education has become a broad term for a type of education that encompasses, but is not limited to studying a foreign language, learning about cultures and global issues, interacting with international students, and participating in study and work abroad programs (American Council on Education, 2002). International education however, is undergoing resurgence in institutions of higher education. This can be credited to a more open and global economy, a changing international environment, and after the events of September 11, 2001, an increase of public awareness, interest in and support for international education (Mestenhauser & Ellingboe, 1998; Siaya, Porcelli & Green, 2002).

This resurgence is not only evident in higher education, but also in teacher education programs. One way to ensure that students may receive an international education is to infuse it into the curriculum for teacher education at the higher education level. By creating an international curriculum, institutions of higher education, specifically colleges of education, are changing their curriculum in hopes of producing citizens and teachers that are well equipped to function and teach in our increasingly inter-cultural world. One way to achieve an international curriculum is to offer cross-cultural experiences for preservice teachers.

In 1992, Stachowski argued, “classroom teachers . . . become the obvious agents responsible for cultural and global education, and experience has shown us that the success of any educational endeavor depends largely on the preparation and knowledge of the

teachers themselves” (p. 348). She goes on to state, “participation in international programs will enable educators to develop the skills, insights, and knowledge needed to be effective, ‘world-minded’ teachers in United States classrooms” (p. 348).

Colleges and universities who seek accreditation by national accrediting agencies or councils are being pushed to provide experiences that will help their preservice teachers gain more international and intercultural perspectives. There are two major agencies that accredit colleges of education: the Teacher Education Accreditation Council (TEAC) and the National Council for Accreditation of Teacher Education (NCATE). TEAC is a national accrediting council, which accredits colleges and universities with teacher education programs. TEAC is recognized by the Council for Higher Education Accreditation (CHEA) and is currently being reviewed for recognition by the U.S. Department of Education. In the TEAC standards for accreditation, TEAC acknowledges the re-emerging international dimension of teacher education. The standards for accreditation set by TEAC focus on knowing and understanding different cultural perspectives. The standards state, “Teachers cannot be said to have acquired teaching skills at the level TEAC envisions . . . if they fail to reach all the pupils in their class owing to their lack of knowledge of individual and cultural differences . . .” (TEAC, 2002).

NCATE also acknowledges the international shift in teacher education. NCATE is a national accrediting agency for colleges and universities, and each year they publish standards for accreditation. In the 2002 edition, NCATE acknowledged the global dimension of teacher education. The 2002 publication stated that education reform must include teacher education programs, “. . . American society is becoming more diverse, with students in the classrooms drawn from many cultures and ethnic groups. Preparing teachers to teach all

students to meet society's demands for higher performance has created a new agenda for educators and policymakers" (NCATE, 2002, p. 3).

The College of Education at Iowa State University acknowledges this dimension in teacher education. In the strategic plan for 2002-2007, the college has outlined five major goals with supporting objectives and strategies. The fifth goal targets culture and environment, with one objective stating the college will, "[i]nfuse global perspectives and internationalization into degree programs and experiences for faculty and students" (Iowa State University, College of Education, 2002b).

In order to attain this goal, the College of Education has developed several opportunities for students to gain international and inter-cultural experience. Students in the College of Education at Iowa State University can choose to spend a week in Australia with the university's Dean of the College of Education for a leadership seminar that is held each summer. During this seminar, College of Education students work with instructors from the Australian Catholic University to develop personal management and leadership skills (Iowa State University, College of Education, 2002a).

While there are courses that focus on international perspectives and multicultural issues at the university, these study and teach abroad programs offer students the experience of being immersed in a different culture; they experience a different culture first hand, not just through one or two courses. Ballantine and Garvey found, "students who participated in exchange programs were more reflective, more prepared to help others, more knowledgeable with respect to international affairs, and more self confident" (1994, as cited by Sowa, 2002, p. 65).

The benefits found for study abroad have been echoed by those who teach abroad. As described by Harbon and McGill (2002), Mahan and Stachowski (1992) and Stachowski (1992), student teachers who participate in an international teaching program are experiencing a different culture first hand and bring those experiences and new perspectives with them into their future classrooms. Students who teach abroad report being more open-minded, more reflective about their teaching, and more aware of meeting the individual needs of their students (Harbon & McGill, 2002; Mahan & Stachowski, 1992; Stachowski, 1992). These are all skills that will help to prepare students for leadership positions in their schools, school districts, and our increasingly intercultural society. According to Gayle Huey, director of field experiences at Iowa State University, it is for these reasons the College of Education “highly endorses” international experiences for their students (G. Huey, personal communication, August 31, 2002).

The Field Experiences office within Iowa State University’s College of Education coordinates all student teaching placements for both elementary and secondary education majors. They offer students the opportunity to complete their student teaching experience at an international location. Traditionally, elementary education students have two eight-week student teaching placements in the United States, and secondary education students have one twelve-week student teaching placement, also in the United States. The international student teaching program allows student teachers to spend their final eight weeks of the student teaching semester at one of seven international locations. This program, the international student teaching program, is the context of this study.

International student teaching placements have been offered to student teachers in the College of Education at Iowa State University for several years. While it has not been



officially documented, it is believed that the College of Education has placed students abroad since 1975 (G. Huey, personal communication, August 31, 2002). Since then, the program has grown from one international placement site to seven, and the numbers have grown from one student to over fifteen student teachers per semester (G. Huey, personal communication, August 31, 2002). Currently students have the option to student teach in Australia, Czech Republic, Italy, New Zealand, Norway, Scotland, or Venezuela (Iowa State University, College of Education, 2002a).

International experience for students within the College of Education has become a primary goal of the college. According to the strategic plan of the College of Education for the years 2002-2007, "Within five years, 20% of College of Education graduates will have significant international experience before they graduate" (Iowa State University, College of Education, 2002b). This is a goal that has almost been realized with participation as high as 17 % in 2002, and that number is on the rise (G. Huey, personal communication, August 31, 2002). Word of mouth, increased student interest, the involvement of the Dean's office, and tuition assistance have all contributed to the growing success of the international student teaching programs.

#### Statement of the Problem

Although the College of Education continues to experience success with the international teaching program, Huey is not aware of any research that has been conducted about the international student teaching program at Iowa State University. Currently, the program is designed so student teachers spend the last eight weeks of their student teaching semester abroad. Small communities of student teachers, student teaching supervisors, and former student teachers are established for each international site.

In these small communities, students spend one semester preparing for their international teaching experience. This preparation includes three orientation sessions with their College of Education faculty supervisor. In the orientation sessions student teachers are introduced to the culture of the country they will be teaching in; the country's currency and exchange rates; the social customs in that culture; the education system; the language of the country; and specifics about the city they will be living in, such as public transportation, local phone service, sights to see, and most importantly, the schools in which they will be teaching. Graduates of the program are also invited to attend one of the orientation sessions to talk with students about their own experiences and to provide "inside" tips.

This author is a graduate of an international student teaching program, having spent four months student teaching in the Czech Republic. Despite the orientation sessions, faculty support, and being able to talk with others who had taught in the Czech Republic previously, she still felt unsure and a bit unprepared to teach in a different culture. While teaching in the Czech Republic, she felt disconnected from the university and her peers, and wished for some type of support from others who may have been going through similar experiences

These experiences led to the development of this study. As outlined by Venn, Moore, and Gunter (2000-01), communication between student teachers and their supervisors, and communication between student teachers and other student teachers is extremely important, especially when students are teaching at a location that is at a great distance from the university. More research is needed to bridge the gap of communication between preservice teachers and their supervisor(s), and other students who are student teaching internationally.

### Purpose of the Case Study

The purpose of this study is to develop a deeper understanding of how computer mediated communication can facilitate communication between student teachers at international locations and their supervisors back in the United States. This study also looks at the communication among student teachers teaching at different international locations.

### Research Questions

The overarching question for this study was as follows:

What are the benefits and challenges of using computer mediated communication (CMC) in international student teaching placements, specifically an integrated on-line environment, WebCT, to facilitate communication between supervisors and student teachers and among student teachers in international placements?

This study was also guided by the following four supporting research questions:

1. Which sites and individuals used WebCT and why were these the sites or individuals to use the environment?
2. Which components of the WebCT environment were used and for what purpose?
3. What were the expectations of the supervisors for using WebCT in their supervision before the student teaching experience?
4. In what ways were these expectations realized or not realized?

### Summary

International education is experiencing a resurgence in higher education. Colleges and universities have come to recognize the need for graduating students who will be competent citizens in today's global community. One way colleges of education are ensuring their students have the skills and knowledge to live and teach in a global society is to provide

international teaching opportunities for its students. The international student teaching program at Iowa State University is one example of such an opportunity.

While student teaching internationally is such an important opportunity for student teachers, we need to ensure that student teachers are gaining the most out of their teaching experiences. It is believed that one way to do this is to use computer mediated communication to enhance the communication of the student teachers with other student teachers who are at other international locations, and also with their supervisors back in the United States.

## CHAPTER II. REVIEW OF THE LITERATURE

The use of computer mediated communication (CMC) can be an effective tool used in teacher preparation courses and in student teaching programs to help students become better reflective thinkers. The literature shows that it may also play an important role in the supervising of student teachers especially when teaching abroad.

The review of the literature begins with a definition of CMC. It continues with an exploration of CMC in teacher education preparation courses and student teaching programs. Next, the use of CMC to promote reflective practice will be reviewed. The review then introduces the purpose for CMC in this study, which is to establish the need for international education and what has been learned about international student teaching. The author recognizes the complexity of this activity--using CMC to link student teachers at different international locations together and with their supervisors back in the United States. Therefore, the final section reviews activity theory, the framework that is used in this study to aid in a better understanding of the case of CMC in international student teaching. The concluding section draws together the literature so as to inform this research study.

### Computer Mediated Communication

Computer mediated communication encompasses all types of communication that is possible through the use of computer technology. Examples of communication encompassed under the term computer mediated communication are synchronous (real-time) and asynchronous (delayed) communication (Palloff & Pratt, 1999). Examples of synchronous communication are chat and video conferencing, while email and threaded discussions are examples of asynchronous communication (Palloff & Pratt, 1999).

In this study, and for this literature review, CMC was explored in different educational settings. Therefore, the definition of CMC in an educational setting will be described as “an application that relies on computer technologies that enable individuals to share information while working and learning together” (Maddux, Johnson, & Willis, 2001, p. 232). What sets this definition apart from others is its recognition of using CMC to work and learn together. The following literature that has been reviewed focuses on the use of CMC to not only communicate, but to learn from the individual or group as well. This concept is key in the literature that has been reviewed.

#### *Computer Mediated Communication in Teacher Education*

CMC has not only been used in teacher prep courses and when students are on practicum (see Carter, 1999; Levin, 1999; Seabrooks, Kenney & LaMontagne, 2000), but it has also been used to connect with student teachers who are away from the university during their student teaching experience.

Table 1 outlines the articles that will be used to review the literature that has been used to support this study. It breaks down the articles into two sections. The first is the type of CMC that was used in the study, while the second is the type of interaction that took place with the use of CMC.

In 1991-1992, the Electronic Education Exchange (EEE) was introduced to the student teaching program at Iowa State University (Hayes, 1992). The EEE system provided student teachers and their supervisors with a bulletin board system to exchange messages. EEE also supported the exchange of email and provided the ability for file transfer (Hayes, 1992). While students had the capability to communicate with any other student teacher and/or their supervisor, results showed that students who used the EEE system, used it

**Table 1: Types of communication and interaction in relation to the literature reviewed**

Article	Type of communication tool used <sup>a</sup>			Type of interaction <sup>b</sup>	
	CC	E	T	ST-ST	ST-S
Evolution of use of an electronic communication network for student teachers <i>Caroline Hayes (1992)</i>		X			X
Email reducing stress for student teachers <i>White and Le Cornu (2002)</i>		X			X
Using unmediated computer conferencing to promote reflective practice and confidence-building in initial teacher education <i>Galanouli and Collins (2000)</i>	X			X	
Putting the 'C' in ICT: using computer conferencing to foster a community of practice among student teachers <i>Clark (2002)</i>	X			X	
Using audio/video conferencing to observe field-based practices of rural teachers <i>Venn, Moore, and Gunter (2000-01)</i>			X		X
Electronic networking in initial teacher education: is a virtual faculty of education possible? <i>Pearson (1999)</i>	X			X	X
Tele-guidance to develop reflective practice: experiences in four teacher education programmes across Europe <i>Admiraal et al. (1999)</i>	X	X	X	X	X

<sup>a</sup>CC = computer conferencing; E = email; T = tele-conferencing<sup>b</sup>ST – ST = Student Teacher to Student Teacher ; ST – S = Student Teacher to Supervisor

primarily for scheduling classroom observations with their university supervisor. The discussion of “teaching strategies, classroom management, or classroom discipline were rarely discussed” (Hayes, 1992, p. 81).

More recently, in 2002, White and Le Cornu reported that the use of email in their student teaching program helped to reduce some of the stress experienced by student teachers. Unlike the EEE system, student teachers in the White and Le Cornu (2002) study were required to use email to communicate with not only their supervisors, but at least one of their colleagues or a “critical friend” as well (White & Le Cornu, 2002). Student teachers emailed their critical friends once per week to discuss various issues relating to their student teaching experience.

The email system, as described by White and Le Cornu (2002), takes the use of CMC in student teaching one-step further than the EEE. Supervisors replaced their face-to-face observations of the student teachers with the email system. Students who participated in a focus group following this study reported they felt the use of email for supervision of their teaching helped to reduce some of the stress caused by observation from a university supervisor.

White and Le Cornu (2002) are not alone in their findings. In another study, Galanouli and Collins (2000) researched student teachers who used a computer conferencing system, which allowed students to exchange email or to post a message publicly to their colleagues who were also student teaching. They discovered that students who used the computer conferencing system reported they felt less anxiety caused by their teaching practices. Students also reported they felt a sense of support from their colleagues that they would not have had without the use CMC (Galanouli and Collins, 2000).



Email and discussion forums are not the only form of CMC that is being used in student teacher supervision. At one university in the southeastern part of the United States, it is not uncommon for supervisors to travel several hundred miles to supervise one student teacher (Venn, Moore, & Gunter, 2000-2001). The solution being explored is the use of CMC to aid in their supervision, specifically, the use of audio/video conferencing. This specific case used the CUSeeMe conferencing software.

Students and supervisors who use the audio/video conferencing system set up an observation time either over the phone or through email. At the prescheduled time, both student and supervisor logged into the CUSeeMe network and the observation would begin. The results of the use of this network were favorably reported. Students who were placed at very remote rural locations were able to be observed more and receive more frequent feedback from university supervisors (Venn, Moore & Gunter, 2000-2001).

The use of CMC for student teaching supervision is an alternative that universities are closely exploring (Venn, Moore & Gunter, 2000-2001). There are several reasons for this alternative form of student teaching supervision. Two that seem to stand out most in the literature are budget difficulties many universities are finding themselves in and also the distance that supervisors must travel in order to supervise their student teachers.

These findings play a major role in this study. The use of CMC in the international student teaching program at Iowa State University has the possibility of reducing the stress and anxiety often felt by students who are learning to adjust not only to a new culture and language, but a new educational system as well. In addition, student teachers who use CMC to communicate with their colleagues and supervisors have the possibility to gain more

feedback and support in their lessons, with classroom management and general teaching practices.

### Computer Mediated Communication and Reflective Practice

It is the goal of any teacher educator to create an awareness in students that will lead them to become reflective thinkers; to have their students be able to think critically and reflectively about their teaching practices (Pearson, 1999). Much research has been done about reflective practice, student teachers and the use of CMC (see Pearson, 1999; Admiraal et al., 1999; Galanouli & Collins, 2000).

Reflective practice as defined by Pearson and as used for this study is two-fold: reflection, and audience and notation (1999). Reflection is defined as “learning from experience” while audience and notation is described as “sharing ideas (Pearson, 1999, p. 224). Therefore, the definition of reflective practice used for this study is the sharing of ideas that have been learned through personal experience.

Both synchronous and asynchronous forms of communication have been used in both teacher education courses and student teaching placements in the hopes of promoting reflective practice in future teachers (see Pearson, 1999; Admiraal et al., 1999; Galanouli & Collins, 2000; Clarke, 2002). There are many factors that seem to determine if the use of CMC helps to promote reflective practice. Supervisor involvement, the CMC tool used, and level of reflection, all play a role in determining the success of CMC promoting reflective practice.

The involvement of a university supervisor, or “tutor” (Galanouli & Collins, 2000), appears to have a sizeable affect on how future teachers used and communicated using a form of CMC. Galanouli and Collins (2000) also studied whether unmonitored CMC could

be used successfully among different peer groups who were all completing a student teaching placement. Results show that although the use of the computer conferencing system was not required, student teachers did in fact use the system to reflect on and share ideas gained in their placements, and to ask their colleagues for help on a variety of topics. When students were asked whether they would use the computer conferencing system with the participation of university supervisors, they responded negatively. One student responded to the question saying, "I would feel a bit self-conscious. I would feel reluctant and I would be worried about what they would be thinking" (Galanouli & Collins, 2000, p. 245).

Pearson (1999) supports this finding. He found students who used a similar computer conferencing system, that also involved university supervisors, were successful in reflecting upon personal ideas and projects that were developed through their teaching experiences. However, students did not reflect on issues that revolved around curriculum issues. Pearson speculates the reasoning for this is because student teachers fear criticism from others, especially university supervisors. As one participant noted, "Better to remain silent and be thought a fool, than to open your mouth and remove all doubt" (Pearson, 1999, p. 233).

Admiraal et al. (1999) have concluded differently. They state their findings of the quality of reflection from student teachers who use CMC in teaching placements is "somewhat disappointing" (p. 84). Their studies, which involved both computer conferencing and tele-conferencing, show that in order for student teachers to achieve a high level of critical reflection of their teaching practices when using CMC to communicate, university supervisors need to structure its use. This can be done in several ways including ending discussions and starting new ones, encouraging participation from student teachers, and prompting students in their responses to certain discussions (Admiraal et al., 1999).

### Computer Mediated Communication and International Contexts

Reflective practice, as described above, focuses on the preservice teacher or the student teacher relating his or her experiences back to peers and/or university supervisors who are from the same university and are teaching in the same type of context. The Galanouli and Collins study (2000), previously described, took a different approach and focused on using CMC to promote reflective practice in student teachers on an international level. The student teachers in their study came from different countries and different educational contexts.

The student teachers involved in this study were from the Republic of Ireland and Northern Ireland. They were assigned to exchange views on teaching practices, their course work, and themselves. Each conference started with a beginning message posted by a “tutor,” and then students were to discuss the issue without input from the tutor. These topics ranged from classroom management to homework. It was hoped that by connecting student teachers from different educational contexts through CMC, that student teachers would not only have an audience with whom to share their experiences, but they would learn about a different culture and educational system as well.

About half of the students interviewed did not feel as if they learned anything new about the culture or educational system. Students did note however, that the use of CMC allowed them to build relationships with their peers. Student teachers reported that the use of computer conferencing was “an excellent system to bring people together” (Galanouli & Collins, 2000, p. 246).

Student teachers who participated in the Galanouli and Collins (2000) study recognized that CMC is in fact a two-way interaction, and in order for such a system to work,

both sides need to be committed to its success. The absence of communication is often frustrating for students. The lack of communication can be credited to several things including: fear of criticism, inadequate access to technology, lack of commitment, and absence of a personal connection to those on the “other end” (Galanouli & Collins, 2000; Pearson, 1999; Admiraal et al., 1999).

The absence of a personal connection plays a large role in the success of using CMC to connect student teachers. As one student noted in the Galanouli and Collins (2000) study, “It would help a lot if you could relate their mannerisms with their written work” (p. 248). Therefore, in the second use of CMC, Galanouli and Collins (2000) arranged for a video conferencing session with the student teachers on both ends. This allowed students to see, hear, and get to know the student teachers who would be at the “other end.”

Clarke (2002) also found that students who know each other are more willing to use CMC to communicate. Student teachers in this study were from the same university and had been in some of the same courses. They began using CMC, specifically asynchronous on-line conferences, when they began student teaching (Clarke, 2002). In this study student teachers were given topics on a weekly basis to discuss in their conferences. Students became very engaged, and used the conferences to discuss not only classroom and teaching related events, but also job openings they had heard about and positions they had taken.

Unlike any of the other studies reviewed in this chapter, the student teachers involved in this study continued to communicate with one another via the asynchronous on-line conferences even after they had completed their student teaching and had found teaching positions. Clarke (2002) credits the overwhelming success of this study to three factors: no

technical failures, clearly structured discussions, and the support of the university “tutor” which encouraged student development.

While much can be learned about the use of CMC in student teaching programs from studies that have occurred abroad, absent from the literature are international student teaching programs at colleges and universities here in the United States. Specifically, there is a need for literature that focus on the use of CMC in international student teaching and the collaboration aspect of reflective practice while student teachers are teaching at their international locations.

### International Student Teaching

With all that has been discussed about linking students through CMC and how they reflect on their experiences, the question still remains, why teach internationally? There are several reasons that one could cite to support teaching internationally. However, there is one that seems to dominate the literature: the preparation of students to become global citizens (see Mahan & Stachowski, 1992; Stachowski, 1992; Wilson, 1993; Willard-Holt, 2001). Teachers are seen as those who will be able to provide intercultural experiences for students. In addition, classrooms are becoming more diverse and it is up to the teacher to be prepared to teach keeping in mind all of the diversity represented in the classroom (Mahan & Strachowski, 1992). If teachers are going to be able to live up to this expectation, then they need to be prepared for this endeavor. One way to prepare teachers is to provide them with opportunities to interact with other cultures and other peoples.

International student teaching does not only prepare teachers to face the challenge of preparing students to become global citizens, but those who teach internationally change and grow as an individual as well. Wilson (1993), who views international student teaching as

only one aspect of an international experience, has categorized the impact of an international experience into two broad categories: gaining a global perspective and developing self and relationships. She then breaks each of those categories down further into two subsections (see Figure 1).

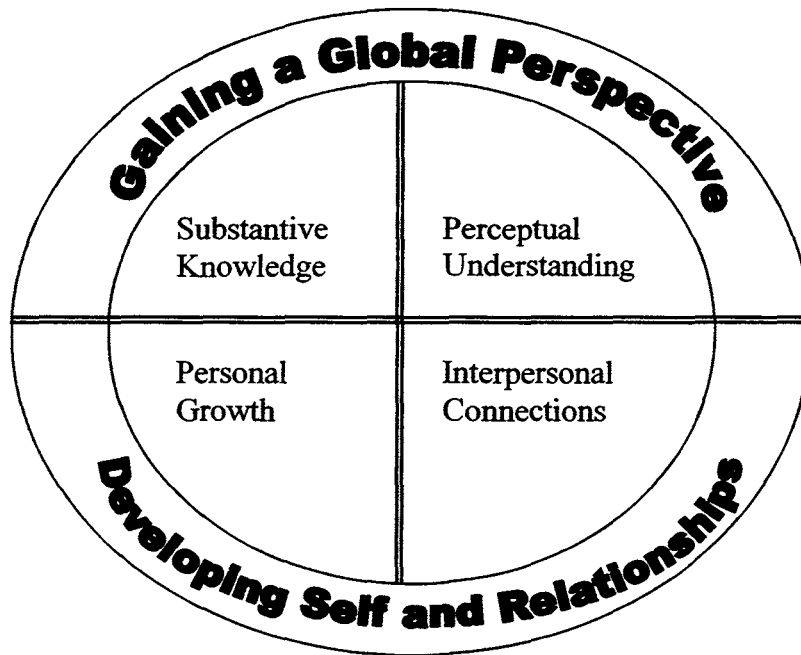


Figure 1: Impact of an international experience (adapted from Wilson, 1993)

Gaining global perspective can be achieved by “substantive knowledge” which is the knowledge of “other cultures and a general awareness of world issues, global dynamics and human choices” while “perceptual understanding” is understanding that is based on “open-mindedness, anticipation of complexity, resistance to stereotyping, and the inclination to empathize . . .” (Wilson, 1993, p. 22). The development of self and other relationships can be attained by personal growth and interpersonal communications.

In order for international experiences to positively impact teachers, as described by Wilson (1993), they need to be well structured. Mahan and Strachowski (1992) outline three

major components that need to be present in any international experiences that are designed for future teachers. The three components include: clearly stated goals and outcomes by both the home university and the cooperating school, a solid academic preparation from the home university, and on-going reflection about the international experience.

The first component is extremely important not only for the expectation of the students, but for the future of the program as well. Clearly stated goals and outcomes also help to attract prospective students and others who may be interested (Mahan & Strachowski, 1992). Solid academic preparation includes not only a strong educational foundation, but also one that includes cultural preparation about the host country's educational system and any current information about the specific country. This preparation includes working closely with the university supervisor. Finally, as previously mentioned in this literature review, students need to be actively reflecting on and "processing their experiences" (Mahan & Strachowski, 1992, p. 350).

When international teaching experiences are well structured, the results are overwhelming. Strachowski (1992) describes over 600 changes that were reported by students who taught in an overseas location for ten weeks. The changes that were reported included, but were not limited to increased self-confidence, self-criticism, growth in tolerance, independence, and the ability to adapt to another culture.

International teaching experiences do not need to be a semester or year long in order to positively impact future teachers. In Willard-Holt's (2001) study, students spent only two weeks teaching abroad, yet they reported much of the same changes as the students did in the Strachowski (1992) study. Willard-Holt concluded, "While certainly not a replacement for



extended cross-cultural experiences, trips of short duration can positively impact pre-service teachers, both personally and professionally” (2001, p. 516).

Whether it is through a year-long, ten-week, or two-week experience, with this growth in confidence and knowledge future teachers who return from their teaching experiences are armed with the tools to help students become global citizens. More importantly, they have more of an ability to reach and be able to understand every student that may cross the threshold of the their classroom.

### The Framework: Activity Theory

The framework for analysis of this study is activity theory. It was used as the underlying framework in this study because the international student teaching program at Iowa State University is very complex with students, university supervisors, cooperating teachers, program coordinators, other faculty and staff at the university, and the international sites all working together to make the program a success. In addition, the introduction of CMC brings in technological tools that are used to communicate between the international sites. Activity theory allows the researcher to categorize all the different pieces of the activity. When all of the different pieces are categorized and analyzed, the researcher then can see where the contradictions in the activity lie. When the contradictions are identified, then recommendations can be made to improve the activity.

Russian Psychologist Vygotsky first developed activity theory in the 1920s and 1930s; it was later extended by Leont’ev, and further developed by Engström. Activity theory, as it is known and studied today, is in its third generation.

Despite its name, activity theory is not really a theory at all. According to Nardi, “Activity Theory is a powerful and clarifying descriptive tool rather than a strongly

predictive theory” (1996, p. 7). Instead of offering a set theory in which to ground research, activity theory offers a framework for categorizing the different components of a specific activity. The framework is used in order to better understand the activity and how different influences (people, cultural or technological, etc) affect that activity.

Figure 2 illustrates an activity system. It is also an example of the type of activity that was examined in this study. There are seven major components of any activity system: instruments, subject(s), object(s), outcomes, rules, community, and division of labor.

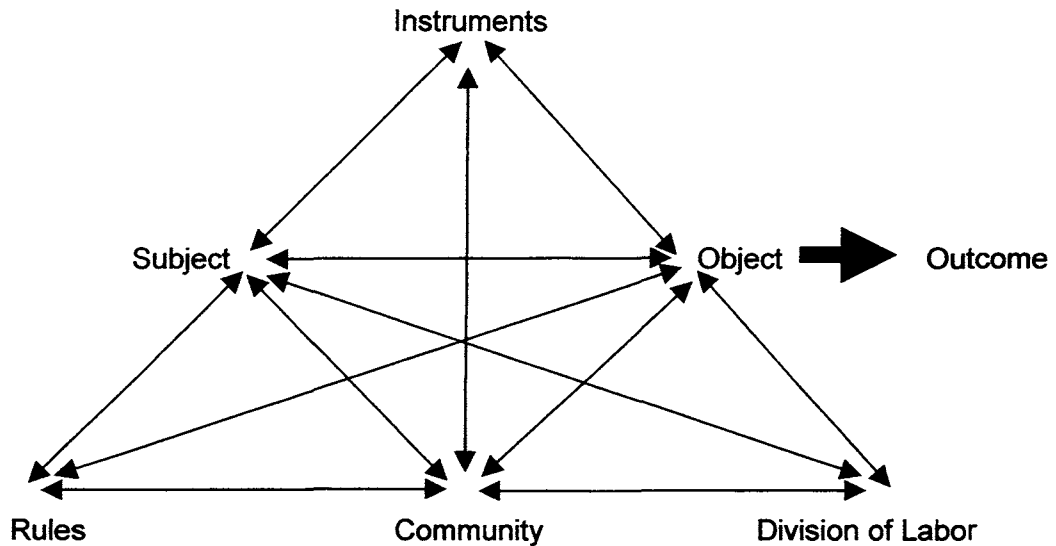


Figure 2: An Activity Structure

In this activity system, the subject refers to the individual or group from whom the activity is being examined. The object or objective is the goal of the activity in the activity system. Objects are then transformed into outcomes of the activity system. The instruments refer to any tools or signs that are used in the activity system that help to achieve the outcome of the activity. The rules are any “regulations, norms, and conventions that constrain actions and interactions within the activity system” (Center for Activity Theory and Developmental

Work Research, 1998, p. 3). The community is made up of individuals or groups who share the object with the subject. Finally, the division of labor consists of tasks that are shared between those in the community.

All of the components of an activity system will not always work in sync with each other. When there are differences or difficulties that arise between the different components in the activity system, these are called contradictions. Much can be learned by the contradictions that arise within an activity system. As noted by Holland and Reeves, “Contradictions . . . are the key to understanding shifts in activity systems” (1996, p. 272).

### Summary

CMC literature suggests that the use of CMC, in any form, in teacher education courses is being used to connect not only student teachers with their supervisors, but also to connect student teachers with other student teachers. Colleges and universities are also reviewing CMC as an alternative to the face-to-face supervision method traditionally used to observe student teachers by university faculty.

Another way CMC is being used in teacher education programs, specifically student teaching programs, is to promote reflective practice in student teachers. According to the literature, there are conflicting results with its use. Some authors have concluded that for students to think reflectively they need to be prompted from a university supervisor or cooperating teacher. Other authors have found that student teachers who use CMC without prompting from a university supervisor or a cooperating teacher did reflect on their classroom experiences and discussed their reflections with other student teachers.

The literature reviewed from the international community supports the finding that student teachers who communicate with each other are able to think reflectively about their

teaching and are willing to share it with other student teachers. The literature also suggests that student teachers who are being connected with each other feel they cannot truly get to know the other student teachers without meeting them and having a personal connection to them. As stated in the literature, students who are connected that do have that personal connection are more willing to discuss a range of issues with each other. They are also more likely to communicate with each other once their student teaching placement is complete.

Activity theory helps to frame and analyze complex activities because it is not a set predictive theory. It is a framework that helps to describe the activities. It also helps to determine where there are contradictions. Identifying these contradictions helps to improve the design of the activity by reducing the contradictions. This could help to make the use of CMC in student teaching placements more effective and successful.

This research study will now look at a specific use of CMC in international student teaching practices. This activity will be viewed through the framework of activity theory to determine where the successes and contradictions lie, and what can be done to make the use of CMC in the international student teaching at Iowa State University more effective and successful.

### CHAPTER III. METHODOLOGY

This chapter contains the case study's methodology in five sections. The first section explains why the case study approach was used in this study. The second section summarizes the selection criteria on which the international student teaching sites were chosen. It also describes how students were chosen to participate in the international student teaching program. The third section outlines the methods used for data collection and the next section describes the methods and framework that were used for analyzing and interpreting the data collected in this study. This chapter ends with a summary.

#### Research Methodology

##### *Case Selection*

The research approach used in this study was a case study and was selected for two reasons. First, this study describes a specific example of computer mediated communication in international student teaching. Secondly, using CMC to supervise student teachers at international locations was a new development in the student teaching program at Iowa State University. Therefore, a close examination of this new development was needed. Using the case study approach permitted a study of this specific case in great depth, and provided for a rich description that could lead to a deeper understanding of how computer mediated communication can be used in international student teaching programs.

The selection of this case follows the guidelines as outlined by Merriam (2002). According to Merriam (2002), when selecting a case to study, the "selections should be done purposefully, not randomly; that is a particular person, site, program, process, community or other bounded system is selected because it exhibits characteristics of interest to the researcher" (p. 179).

### Sample

There were two levels of participants in this study, primary and secondary. The primary participants were the student teachers and their supervisors. However, the international student teaching program would not be possible without the support it receives from other faculty members in the College of Education at Iowa State University. The support from other faculty is crucial to the program. Therefore, two faculty members who directly support the international student teaching program were also included in this study as secondary participants. Table 2 is a representation of the study sample.

Table 2. Overview of the sample in this study

Position	International Sites			Total
	Rome	New Zealand	Scotland	
Supervisor	1	1	1	3
Student	4	4	3	11
Support	N/A	N/A	N/A	2
Total				16

### *Sites and Supervisors*

This study examined a specific program; therefore, the sample was purposeful. The study was limited to three of the seven international student teaching sites offered by the College of Education at Iowa State University in the fall of 2002. The three sites, New Zealand, Rome, and Scotland, were chosen for two reasons. First, sites were selected based on the level of technology that was available in the schools of the chosen sites. As advised by the Instructional Technology Center on the Iowa State University campus, students

needed to have a stable Internet connection that had a speed of at least 56 kilobytes per second (kps) (T. Kramer, personal communication, January 16, 2003). This was essential because in order for WebCT to be adopted by student teachers, it needed to be easily accessible; therefore, the student teachers needed to have a stable Internet connection either in their schools or at another location that was readily available and free of charge. This type of connection and access was not available at other international sites.

Second, the sites were chosen based on the willing participation of the site supervisors. In order to make the use of WebCT in the international student teaching program a natural fit, the supervisors needed to be willing to adopt its use in their supervision. Supervisors who were identified were those who had previous supervision experience and also as those who were willing to participate in the study. The supervisors' comfort level with technology was not part of the selection process. The supervisors were identified with the help of Gayle Huey, director of field experiences in the College of Education at Iowa State University. None of the sites with a suitable Internet connection were excluded from the study due to supervisor participation.

### *Student Teachers*

Eleven of the fourteen participants were College of Education students who were completing their student teaching requirement in the 2002 fall semester. The student teachers were selected for their international placements based on applications, recommendations, and a formal interview. Students in the College of Education who were interested in teaching abroad applied for an international placement one semester before they began their student teaching. While applying, students listed their first, second, and third choices of sites where they would like to teach.

Student teaching placement coordinators and student teaching supervisors interviewed all students who applied for an international placement. The interview committee then selected students for placement. The committee based their decisions on three criteria: (1) an interview with the student; (2) the student's academic record; and (3) one reference from a College of Education faculty member and one reference from either a community member, advisor, cooperating teacher, or former employer. Students who were selected spent the last eight weeks of the semester teaching at their international site. In the fall semester of 2002, four students were chosen to teach in New Zealand, four in Rome, while three students were selected to teach in Scotland (see Table 2).

#### *Other Faculty Support*

Although the supervisors and student teachers were the main focus of this study, there were others who offered vital support not only to the program, but to supervisors and students as well. Gayle Huey, who was mentioned earlier, coordinates field experience opportunities for students in the College of Education at Iowa State University. As director of field experiences, Huey is responsible for maintaining positive relationships with the existing international teaching sites and for exploring new teaching sites. She also recruits College of Education faculty to supervise the international sites and students to teach at those sites. Huey also offers support to both faculty supervisors and their students throughout the semester.

Huey did not act alone. She works closely with her staff to ensure positive field experiences for all involved. International experiences for students in the College of Education at Iowa State University are also supported by the College's Director for International Education, Dr. Victor Udin, and his office. Udin helps to support the



international student teaching program on several levels. He works closely with Huey and the Study Abroad Center to develop new international student teaching sites. Udin and Huey also support each other with recruiting students for participation in the program and collaborate in securing scholarship possibilities for students (G. Huey, personal communication, February 10, 2002).

#### Participant as a Researcher

The author's roles in this study were challenging as the responsibilities were three-fold: researcher, technology developer/support person, and participant. The first role was that of researcher. Time was spent studying the international student teaching program before deciding to introduce the WebCT learning environment in the program. During this time of preliminary research, alumni of the international student teaching program were interviewed, as were the current supervisors, and one support faculty member. From there, the methods and approaches that were used in the study were researched and interviews were conducted and transcribed.

An integral part of this study was the construction and management of the WebCT learning environment to support international student teaching in these three international sites. This construction, moderation, and professional development of supervisors and student teachers was undertaken by the author. The facilitation of communication included the framing and posting of the four initial questions for the student teachers to answer in the discussion forum in the WebCT site. In addition, the author responded to participants' questions and to concerns the student teachers had with the WebCT site throughout the semester.

Along with this role, the author felt it was important that the three international sites work together for one semester while WebCT was introduced. Therefore, pre-departure workshops to introduce WebCT were developed and held with all of the student teachers and supervisors. This workshop was an introduction to the WebCT environment and the expectations of its use. During the semester, the author talked with the supervisors about the use of WebCT and helped to support its use in their supervising.

The author's final role in this study was that of participant. As part of the study, student teachers were asked to answer four questions during their eight weeks at their international student teaching locations; one question every other week. These questions were written and posted by the author as were the responses to the answers that student teachers posted to the questions in WebCT.

As a former student teacher in an international student teaching program, there were biases that the author brought to the study. She knew what her experiences were as a student teacher, the thoughts and feelings that are typically associated with such an experience, and the things that she had wished for to make her teaching experience a bit easier. Throughout this study, the author tried to separate her experiences from those of the student teachers in this study and tried to look at the study through an unbiased lens. While the author believes she was somewhat successful in separating herself while interviewing, it was impossible to forget her experiences when developing the WebCT environment and analyzing the data. In fact, these experiences helped her a great deal in this part of the research.

### Data Collection

Multiple methods were used to collect data for this study. According to Taylor and Bogdan (1998), using multiple methods to permit triangulation allows researchers to double

check their data. In-depth individual interviews were the foundation for data collection, while email questionnaires and observations from the WebCT site were also used to increase the depth of the description. The development of the WebCT site and observations from the site will be discussed first, followed by a description of the in-depth interviewing techniques that were used as well as the email questionnaires.

### *WebCT Development*

One of the first steps in the data collection process was to create the on-line learning environment that student teachers used to communicate with their supervisor and colleagues at other international sites. The WebCT environment then formed part of the “thick description” that will be discussed later in this chapter.

To ensure that student teachers and supervisors were familiar with the WebCT software, a pre-departure orientation was held with the student teachers and their supervisors. The orientation session was held during the final meeting of each group. Both student teachers and their supervisors participated in the orientation session. The session provided student teachers with their login names and passwords to access the WebCT site and was designed to familiarize student teachers with the WebCT environment. It also gave them the opportunity to practice using WebCT and ask any questions. In addition, student teachers were given a WebCT guidebook (see Appendix A) that they could take with them to their international location. The guidebook contained help sheets on how to login to WebCT and how to use the different components of WebCT, such as the email function, the discussion forums, and the interactive calendar.

As found in the Galanouli and Collins (2000) study, student teachers who know each other, or who have a personal connection with each other, are more willing to communicate

with one another through CMC. Therefore, in addition to the WebCT orientation session, the student teachers were asked to fill in a web page template that was created by the researcher. The web page template contained items that would help the student teachers get to know each other, such as their major and endorsement, hometown, and any information they wanted others to know about them. Digital pictures were also taken of each group and placed on the web pages, which were posted in the WebCT environment.

As stated in the literature, and drawing from personal experience, in order for on-line learning environments to be successful, expectations of the student teachers must be clearly laid out (Purcell-Robertson & Robertson, 2000; Levin, 1999). The expectations and requirements of using the WebCT site were clearly laid out and outlined in this orientation session. Before the introduction of WebCT, student teachers in the international student teaching program were required to e-mail their supervisors once per week. They were also required to keep a daily journal of each day's events. Student teachers were formally observed once in the eight-week placement by a university supervisor who traveled to the international site for a one-week period, and more frequently by an on-site supervisor. Typically, this was an administrator at the school in which they were teaching.

With the introduction of WebCT, student teachers were still observed as before and were still required to email their supervisor. However, in addition to this, student teachers were required to post to the public discussion forum every other week during their eight-week placements. Postings began in week two and continued through week eight. The questions were constructed to be reflective and open-ended, and were designed so student teachers had to reflect upon their experiences and then communicate these experiences with peers and their supervisor.

### *Observations on the Web*

Throughout the semester, the supervisors' and student teachers' use of WebCT was observed. This was done by reading the postings and looking at the types of interactions, if any, that were occurring within the environment. The track records for the number of times a student teacher logged onto the site and how many postings each student teacher had were observed. All of these observations were used to generate the "thick description" of this study. Thick description is a term, coined by Geertz, which describes a study that pays close attention to detail and uses observations in order to provide a very vivid description of the study to its readers (Taylor & Bogdan, 1998).

### *In-depth Interviewing*

According to Taylor and Bogdan (1998), in-depth interviewing allows a researcher to understand "informants' perspectives on their lives, experiences, or situations as expressed in their own words" (p. 88). They go on to explain that in-depth interviewing can take many different forms. They outline three of these forms in detail. In this study's interviews, the second form, which is "directed toward learning about events and activities that cannot be observed directly" (Taylor & Bogdan, 1998, p. 89), was followed. This form was followed because the researcher was not able to travel with the supervisors to observe them in their classroom observations of the student teachers, nor was the researcher able to travel to the three different international locations to see how the technology was working at each site, and see and hear how the student teachers engaged with WebCT. The researcher was also very interested in their perspectives, which is not something that can be directly observed.

While preparing and conducting interviews with the supervisors and student teachers, a descriptive questioning technique as laid out by Taylor and Bogdan (1998) was followed.

This questioning technique used open-ended question(s) that required the participant/informant to describe an event, a situation, a memory, or an experience. This technique, generally used at the beginning of an interview, got the participant/informant comfortable talking about what was important to them personally. It was from these questions that further questions then developed and were explored.

There were several participants in this study, so it was important to ensure that the same key topics were explored with each person interviewed. Therefore, the researcher used a second interviewing technique, an interview guide. As described by Taylor and Bogdan (1998), the interview guide is simply “a list of general areas to be covered with each informant” (p. 105). Examples of these general areas include: experience with technology, areas of improvement in the international student teaching program, use of WebCT by student teachers/supervisors, changes that can be made to WebCT, and changes in communication with the use of WebCT (see Appendix B).

Two interviews with the university supervisors were held throughout the course of the semester. One interview was held at the beginning of the semester, and the second interview was held at the mid-term, after supervisors had returned from observing the student teachers at the international locations. The purpose of the first interview was to get to know the supervisors, gain insight about their academic focus, and learn about their role as a student teaching supervisor. During the interview, their expectations for using WebCT in their supervision and the types of communication and/or interaction they would like to see take place within WebCT were discussed.

Supervisors traveled to the international site at the midterm of the semester for a one-week period. After this visit, a second interview with the supervisors was held. The purpose

of the second interview was to converse about how the WebCT software was working, what changes needed to be made, and the supervisors' thoughts about the benefits or barriers of using WebCT in their supervision (see Appendix C).

The perspective of the student teachers was also vital to this study. Therefore, individual interviews with the international student teachers were held with some of the student teachers upon their return home. It was hoped that student teachers would participate in a focus group upon their return home, however, many chose to stay and travel for several weeks, therefore it was not possible to get the student teachers together at one time.

In addition, the student teachers were what can be defined as a "migrate population," meaning that upon their return home, they were procuring jobs and moving to new locations. Not only were they moving, but they were changing phone numbers and email addresses as well. Requests for a face-to-face interview or a phone interview went unanswered with the exception of two student teachers. Therefore, the questions that would have been asked in an in-depth face-to-face or phone interview were emailed to the student teachers. The questions, as previously mentioned, followed an interview guide. This ensured that the same questions were asked of the student teachers in the face-to-face and email interviews (see Appendix D). Emailing the interview questions to the student teachers yielded a much higher response rate than the request for face-to-face or phone interviews.

In the interviews with the student teachers, they were asked about their perceptions about using WebCT to communicate with their supervisors and with each other. It was essential to converse with both supervisors and student teachers about the benefits of using WebCT, the barriers associated with its use, how the technology worked, and which types of communication the student teachers preferred to use. The student teachers were also asked

about their living arrangements, about their access to the Internet, where they had access, and how their connection was.

### Method of Analyzing and Interpreting Data

While it has been noted that audio taping an interview may make some participants/informants uncomfortable and may affect what they say in an interview, it has also been noted that audio recording captures much more from an interview than can be recalled by a researcher (Taylor & Bogdan, 1998). It was the researcher's belief that the benefits outweighed the barriers, so all of the interviews in this study were audio taped and then transcribed for data coding.

For this study, open data coding was used. This is a process in which the raw data, in this case the transcripts from the interviews, were systematically categorized. From these categories, themes emerged and were developed for final analysis and finally for publication. The themes that emerged also helped to generate a "thick description" of the case.

Finally, a framework was sought out in order to help frame the case and to aid in generating the "thick description". The framework used in this study is the activity theory framework, introduced in Chapter II. As mentioned earlier, there were several "players" involved with the international student teaching program at Iowa State University that helped make it a success. These players included not only the student teachers and their supervisor, but also the Field Experiences office in the College of Education, as well as the student teachers' families and friends. With the use of CMC between student teachers and university supervisors, and between student teachers, computer technology could even be considered a "player" in this specific case.



In order to understand how all of the “players” work together in the international student teaching program, activity theory was used as a framework for analysis. Activity theory, as defined by Jonassen (2000), and as introduced in Chapter II, is a framework that can be used to describe and understand activity structures in their specific contexts. Activity theory in relation to this specific case will be discussed further in Chapter V of this thesis.

### Summary

The research approach in this study was the case study methodology. This methodology was selected because it allowed for an in-depth look at a specific program. The techniques that were used in conjunction with the case study methodology included: in-depth interviewing, email questionnaires, an interview guide, observations from the web, and open data coding. Three international student teaching locations were selected for this study, with a total of fourteen primary participants. The international student teaching program received much support from other faculty at Iowa State University, and in this specific case from researcher herself. Support faculty were secondary participants in this study. Data were gathered from both primary and secondary participants.

This chapter concluded with a brief description of activity theory, which served as the framework for looking at and understanding the international student teaching program as an activity system. In the next chapter, the case will be described in detail using the observations from the web, data from interviews, and personal experience.

## CHAPTER IV. THE STORY AND DISCUSSION

This chapter describes the case of using CMC in the international student teaching program at Iowa State University. In this case, there are several individuals that are integral to the description and understanding of this case. Therefore, the student teachers, the international teaching sites, and the student teaching supervisors are described. In addition, this case uses a specific form of CMC, WebCT, and for that reason, a description of the WebCT site are provided. The expectations for the use of WebCT and the outcomes of the study conclude the chapter.

### The International Student Teaching Program

Prospective student teachers began applying for their student teaching positions one semester before they student taught. It is in this semester that they filled out their student teaching applications, and began thinking about what their preferences were for student teaching. Students had the choice to be located within driving distance of the university town. They also had the option to apply for one international placement or a placement with a partner district in Houston, Texas.

As described in Chapter III, students interested in an international placement were required to fill out an application and then meet with faculty and staff in the College of Education for an interview. Around mid-semester students were informed of their student teaching placements. Preparation for their international teaching experience began almost immediately. University supervisors met with their student teachers before the end of the semester. Each university supervisor prepared the orientation material for their student teachers with the aid of Gayle Huey and her staff in the Field Experiences office in the College of Education.

### International Student Teaching Sites and Student Teachers

Each international student teaching site was unique in its own way. For example, some of the placements were at K-12 schools, while others were in solely primary or secondary schools. Some of the locations were in large cities, while other placements were in more rural areas. Although there were differences, each site offered student teachers the opportunity to teach in a different country, surrounded by its own unique culture. Table 3 shows the number of student teachers who taught at each international location, along with their teaching grade level.

Table 3. Number of student teachers and their teaching levels

International Sites	Number of Student Teachers	Teaching Grade Level
New Zealand	1	Elementary Education
	3	Secondary Education
Rome	1	Elementary Education
	3	Secondary Education
Scotland	3	Elementary Education
	0	Secondary Education

There were a total of eleven student teachers that traveled to New Zealand, Rome, or Scotland. Each group of student teachers had some of the same characteristics; they were nervous, eager, and excited. The following sections describe the student teachers and the international teaching sites to which they traveled.

#### *New Zealand*

As the researcher walked up to the home of Hannah, the supervisor for the New Zealand student teaching location, she was greeted with the sounds of joking and laughter. If she hadn't known it, she would have thought she were approaching the get-together of a

group of friends who were reuniting. In reality, it was the four women who were selected to complete their student teaching experience in New Zealand. Although three of the women were secondary education majors, two of whom majored in history, they did not know each other before being selected to teach in New Zealand.

Feelings of excitement and a bit of anticipation filled Hannah's living room. The women were meeting for the last time before leaving for New Zealand. As the researcher sat in on the final part of their meeting waiting for to give a WebCT orientation session, it was clear that despite being strangers before being selected, they were fast becoming friends.

"Ana" (pseudonym), the sole elementary major in the group, served as the group's most inquisitive and worrisome member. After an endless stream of questions, "Maggie" (pseudonym), one of the group's most outgoing woman, turned to Ana and bluntly said, "Shut up Ana. We are going to take care of you!" Surprisingly, this comment seemed to calm Ana down a bit and the meeting continued, with Ana asking only a few more questions.

The four women would soon be settling down in their new home for the next eight weeks, Alexandra, New Zealand, a town of approximately 4500. In Alexandra, the four would not only become student teaching colleagues, but roommates as well, as they would be sharing a three bedroom house rented through the Dunedin University College of Education, Iowa State University's partner university. Three of the women would be teaching at Dunstan High School with a student population of 250-300 students, while one student teacher would be in an elementary school.

While student teaching in New Zealand, student teachers were visited for on-site observation by the university supervisor from Iowa State University. They were also supervised on a weekly basis by a contracted supervisor from the College of Education at the

University of Otago in Dunedin. Student teachers also were assigned to work with at least one cooperating teacher. At the secondary level, student teachers worked in a team, so they had up to two or three cooperating teachers.

### *Rome*

Coincidentally, the Rome group was very similar. There were also three students who majored in secondary education, while only one student was an elementary education major; however, both genders were represented in the Rome group which comprised two females and two males. Like the New Zealand group, they did not know each other before being selected to teach in Rome.

The first eight-week student teaching placements varied greatly in the Rome group. One student was in Omaha, Nebraska, another was in Houston, Texas, while the other two student teachers were placed in larger Iowa schools. Therefore, the orientation sessions with these students did not take place as a group. Rather they occurred individually before they left for Rome. It was difficult to get a sense of the Rome student teachers as a group, unlike the New Zealand group. It was easy to tell all four student teachers were extremely excited, and all four mentioned having a strong desire to tour not only Rome, but much of Italy and Europe as well.

While student teaching in Rome, all of the student teachers taught at the American Overseas School of Rome (AOSR), a private pre-K-12<sup>th</sup> grade school situated on a six-acre campus. While it is an American school, about one fourth of the students were Italian. There were between 500 and 600 students at AOSR, some of which boarded at the school. The student teachers shared a three bedroom flat in an Italian neighborhood and rode the school bus to the AOSR campus everyday.

Similar to the New Zealand site, student teachers in Rome were assigned to a cooperating teacher with whom they worked. A faculty person at AOSR also supervised student teachers throughout the eight weeks they were teaching. Not only this, “Lucia” (pseudonym) the Iowa State University supervisor for the Rome site, traveled to Rome for one week to spend time observing the student teachers whom she sent.

### *Scotland*

Upon entering the room in the education building on campus where the Scotland group was meeting for the final time before leaving for Scotland, this researcher was greeted by the sound of “Fiona” (pseudonym), the supervisor for the Scotland program, telling the students that one of the toughest things they will face in the classroom is the language barrier. “You’re going to have to listen very, very carefully because the Scottish accent and enunciation is difficult to understand and the vocabulary is very different too,” she told them.

The Scotland group was made up solely of elementary education majors, two females and one male. As explained by Fiona, the Scotland location is limited to elementary education majors, as secondary education in Scotland is taken very seriously and competition is very fierce. Therefore, placing secondary education student teachers there is very difficult and the site has been limited to elementary education majors.

Unlike the New Zealand and Rome groups, the three students selected to teach in Scotland knew each other or had taken classes with one another prior to being selected to teach in Scotland. Despite this, they still seemed a bit uneasy and not quite sure how to react to one another. They seemed to be much more serious than the New Zealand group and expressed many concerns about the differences in teaching style. As “Rebecca” (pseudonym), one of the student teachers, noted, “I don’t think I can ever get used to yelling

at my students.” Fiona quickly reassured her that there are alternatives to this and she will not be expected to teach in the exact same way as her cooperating teacher in Scotland.

“Luke” (pseudonym), the sole male in the group, cracked a joke about it, which sent the group laughing. The meeting continued in much of the same way, a balanced mixture of concerns and questions, mixed in with fun and laughter to lighten things up a bit.

Unlike the other two international sites, the Scotland site presented a few new challenges. Due to some restructuring of the program between St. Andrews and the University of Glasgow, the collaborating university, the dorms on the campus where students had stayed in previous semesters were no longer available to the student teachers. The uncertainty of housing had been a stressor for Fiona for months. This was the first semester that the student teachers in Scotland did not live in the dorms on the St. Andrews campus in Glasgow. This semester, the students shared an apartment, or flat. They shared the flat with each other, and also with a student from Spain and a student from Australia. All had their own bedrooms and shared the common spaces such as the living room and kitchen.

The three student teachers were placed at St. Andrews in Glasgow. Like the other two international sites described, the student teachers were assigned a cooperating teacher and were observed by a faculty member from the University of Glasgow. Fiona also traveled to Scotland to observe her students for one week during their eight-week stay.

#### International Student Teaching Supervisors

The supervisors for the New Zealand, Rome, and Scotland sites all had very different backgrounds, and became involved in the international student teaching program in a variety of ways. This section gives an illustration of the supervisors, their international experience,

Table 4. University supervisors, their international experience and current position held in the College of Education (all names used are pseudonyms)

Name	International Site	International Experience (Teaching and/or Travel)	ISU Position
"Hannah"	New Zealand	Travel	Practicum Coordinator and Student Teaching Supervisor
"Lucia"	Rome	Travel/Conference Presentations	Associate Professor: Special Education
"Fiona"	Scotland	Travel/Conference Presentations	Associate Director for the Center for Technology in Learning and Teaching

their positions at Iowa State University, and their responsibilities as an international student teaching supervisor (Table 4). This section will also explain how they became involved in the international student teaching program.

*"Hannah": New Zealand Supervisor*

Working from a makeshift cubical, using a single chair as a side table, Hannah quickly answered a student teacher's email. This small cubical had become her office while she and others waited for office renovations to be completed. Her organization and calm nature in such a situation was amazing. Hannah, the practicum coordinator for the College of Education's Field Experiences Office at Iowa State University, was also supervising student teachers who travel to New Zealand to complete their student teaching experience.

While Hannah hadn't had the opportunity to teach abroad or attend conferences at an international location, she had lived and worked in Canada. She also had a strong interest in



travel and had spent time touring Europe. This was her third semester of supervising the student teachers in New Zealand.

Prior to Hannah taking on the supervising position for the New Zealand student teaching site, only College of Education professors had gone there to supervise students, not faculty supervisors. The position became open when the program decided it needed “continuity.” An email was sent out to faculty and staff in the College of Education looking for someone to take the position for three to four semesters. Hannah was very interested, applied, and was selected for the position.

*“Lucia”: Rome Supervisor*

Lucia was a very outgoing and fun-loving person, who loves to tell stories. Her office spoke volumes about her personality, her dedication to her students, and to education. A sign that read, “A messy office is a happy office. This office is delirious!” hung on the door. Most would consider her office a mess; however, Lucia seemed to know where everything was. Organized chaos is the best way to describe it.

Lucia, an associate professor of Special Education, had served as the Rome supervisor since the first semester it was offered as a student teaching site in the Fall semester of 2001. She became involved with the program from its birth. AOSR has the largest number of special needs students in a private school in Italy. The school also serves grades pre-K through 12. Lucia has a background in both pre-K and special education programs, which is why she was approached by Gayle Huey, Director of Field Experiences, to take on the supervision of the Rome student teachers. Huey knew Lucia’s background and saw Lucia as a natural fit with the program.

While Lucia hadn't had any experience teaching internationally, she did have experience with international travel and interacting with an international community. Lucia participated in symposia and workshops in Taiwan, Russia, and Ukraine.

*"Fiona": Scotland Supervisor*

Found tucked away in a corner office off one of the busiest places in the education building, was Fiona. Before settling down for an interview, she busily juggled students dropping in for "just a quick question", a phone call, and finishing "just one last e-mail". Her office was warm, inspiring, and reflected her many interests. Mickey Mouse memorabilia was sprinkled in with inspirational quotes from various famous athletes, while photos of her family lined her desk.

Fiona, the assistant director for an education and technology center on campus, was also teaching literacy and reading and language arts courses in the College of Education. Fiona was new to the international student teaching program. This was only her second semester with the program, and the first semester that she would supervise on her own.

Fiona was a bit apprehensive when asked to become involved in the Scotland program. However, the program turned out to be a natural fit for her. Like herself, the university contact at the University of Glasgow was an IT faculty member. Now, not only was Fiona serving as a university supervisor for the student teachers in Scotland, she was also working on building professional relationships with the faculty at the University of Glasgow for future collaborations.

Fiona has exploded on the international scene. While she had collaborated with others internationally, it was only within the past couple of years that she started traveling and attending conferences internationally. Just in the previous year she traveled to Scotland

for student teaching supervision, was a keynote speaker at the Information Technology in Teacher Education conference (ITTE) in Wales, and recently returned from a trip to Ukraine as part of an international collaborative exchange between faculty in the College of Education at Iowa State University, and faculty from Nizhyn State Pedagogical University in Ukraine.

### *Supervisor Responsibilities*

The responsibilities of the university supervisors entailed much more than simply supervising the students. As described by one supervisor, their responsibilities lay on three different levels: support and supervision, recruitment, and detail work. All three supervisors noted the support and supervision of the student teachers was their main, and most important responsibility. This entailed everything from arranging three pre-departure orientation sessions with their student teachers, to fielding any questions about living and teaching internationally from both students and parents, to finding housing for the student teachers, and finally establishing and maintaining strong relationships with teachers and administrators at the international locations.

The second level of responsibility was the recruitment of students to participate in the international student teaching program. This required the supervisors to put together information packets to distribute to interested students, attend the international programs fair sponsored by the college of education, inform students of the international opportunities available to them. Supervisors also sat in on interviews with prospective student teachers and helped to make the decision of who was chosen and where they would be placed.

The third level was what one supervisor called the “mind-numbing” details. There were so many little details that needed to be in place for the program to work. These details

were anything from making their own arrangements for travel, to figuring out the best times for the students to travel, finish teaching, and with whom they would be teaching.

In addition to all of these responsibilities, Fiona had a few more. The Scotland program was unique in that it had a collaborative exchange with the University of Glasgow, St. Andrew's campus. While the College of Education at Iowa State University did not send student teachers in the fall semester, every spring semester the College of Education of the University of Glasgow, St. Andrew's campus, sent to Iowa State University students who were completing one of their final practicums. Fiona was serving as the supervisor of the Scottish students while they were at Iowa State University, teaching at area schools. She, along with two other faculty members, were also coordinating finding their housing, a school or schools at which they could teach, and cooperating teachers with whom to place them.

#### The International Student Teaching WebCT Site

The use of the WebCT site, designed by the researcher, was piloted during the fall semester of 2002. The purpose of the research and development of the WebCT site was to discover the benefits and challenges of using computer mediated communication (CMC) in international student teaching placements; specifically to study communication among student teachers at different international locations and between student teachers and their supervisors back in the United States.

With this goal in mind, the WebCT site was developed in four different sections: Communication, Collaboration, Resources, and Links to ISU (see Appendix E). The communication section of the WebCT environment was developed to allow for both synchronous and asynchronous forms of communication. Student teachers and university

supervisors had access to the discussion forum, email, and chat, and they also had the option to turn their journals in through a virtual drop box.

### *Communication*

In the discussion forums, the initial questions were posted every other week for student teachers to answer and respond to other student teachers' postings (see Table 5). Discussion topics were also developed for students to share, or ask for lesson plan ideas; an international cafe area was also developed as an informal area for student teachers to use for whatever purpose they saw fit.

Table 5: Reflection questions as posted in the WebCT environment

Week Number	Reflection Question
Week 2	Compare and contrast your current school(s) and students with the school(s) from those in your first placement.
Week 4	What has been your biggest success inside and outside of the classroom thus far?
Week 6	Tell about one lesson you planned that worked really well in your classroom. Be specific as to where you got your resources for this lesson.
Week 8	Describe your experiences in terms of a metaphor. For example, it was like a roller coaster because...

The virtual drop box was set up for student teachers to hand in their journals to their university supervisors. Traditionally, with some international locations, the student teachers' journals are read only twice during the semester, once when the university supervisor visits the international location, and once again at the end of the semester when student teachers turn in all of their lesson plans, journals and other documents. It was hoped the drop box would allow the supervisors access to the journals on a more regular basis, which would give

the student teachers more feedback on a more regular basis. While none of the student teachers chose to use the drop box, some did choose to email their journals directly to their university supervisor on a regular basis, although it was not required.

### *Collaboration*

The second section of the WebCT site provided opportunities for collaboration between student teachers and university supervisors. The tools in this section supported activities that allowed student teachers to get to know their supervisor and colleagues at the different international locations. The different sections in the collaboration part of WebCT included requirements, homepages, a calendar, and photographs.

The requirements section served as a reminder to the student teachers of the requirements for successful completion of their eight-week international student teaching experience that were set by their university supervisor. The requirements for the use of WebCT were also posted in this section.

As mentioned in Chapter II, students are willing to interact and dialogue with other students whom they know, or have at least met (Galanouli & Collins, 2000; Clarke, 2002). Therefore, a homepage section was developed for students to be able to read about their colleagues and be able to put a face with their name. The researcher created a template of a web page and the student teachers filled in each part of the template during their orientation meeting. Digital pictures also were taken of each group and put on each student teacher's web page.

The calendar in WebCT served as an interactive tool for both student teachers and the university supervisors. Student teachers and supervisors had the option to put important dates in the calendar for everyone to see. The researcher started calendar entries by putting

in national holidays of the United States, along with the national holidays for Scotland, Italy, and New Zealand. Only one university supervisor chose to use the calendar to put in all of the due dates for lesson plans, journals, and other documents that she wanted her student teachers to turn in.

The photographs section was designed to give student teachers access to photos of the Iowa State University campus, the state of Iowa, and also pictures of events happening in Iowa or on the Iowa State University campus. Photos of the campus, the first snowfall, and a football game were posted by the researcher. While the photos section served as a great resource for the student teachers, the WebCT software did not allow student teachers access to add photos to the site. The software only allowed the site designer access. Student teachers were given the option to email photos they had taken and would like to share; however, there were no requests for this.

#### *Resources and Links to ISU*

The last two sections, resources and links to ISU, served a reference point for the student teachers. The sections included links about studying abroad, how to convert currency, information about the international student teaching program, and help sheets on how to use the different components of WebCT, such as the calendar and the discussion forums. Student teachers also found links that allowed them to stay in touch with Iowa State University through such links that would take them to information about university athletics and student announcements. Links also included the Iowa State University web cam and the student newspaper, the *Iowa State Daily*.

### WebCT Expectations

The university supervisors' expectations of the use of WebCT involved not only what they hoped their students would do, but more so, the expectations the supervisors had of themselves. This section will use data gathered from interviews with supervisors to explain the expectations the university supervisors had for the use of WebCT in their supervision.

All of the supervisors noted that they expected their students to login and participate in the WebCT discussions. Although none of the supervisors made this a requirement for their student teachers, they did discuss with them the importance of participating and expected that their students understand the importance of participating.

The university supervisors also set high expectations for themselves and the use of WebCT in their supervision. Fiona noted that she was hoping the supervisors would be able to serve as a model for how the discussion tool in WebCT could work and positively impact the experiences of the student teachers. In an interview she noted:

I am hoping if we do get into discussions, I think if we model it, which I'm very willing to do, students will be motivated that it is connecting them with ISU. My whole expectation with the WebCT environment is to help us stay connected and in communication mode. (October 18, 2002)

Hannah also noted some of her biggest expectations were for herself and for her supervision. Being new to WebCT, Hannah really hoped to:

find time for myself to actually sit down for an hour and just tap away and explore, because it is very new to me. I am hoping to get in there and try to see if it can actually be a two-way communication tool. I certainly think that there is a lot of capability with that site, and I would like to explore it and it might make some things easier, and I'd just like to determine that for myself. (October 14, 2002)



These thoughts were echoed by Lucia. Lucia expected that the use of WebCT had the potential to “allow us [supervisors] to move some things back and forth that could be problematic with other [forms of communication].”

### Study Findings

In the first interview, when university supervisors were asked if they had any anxieties or concerns about the use of WebCT in their supervision, two of the three supervisors talked about the technology. Their concerns mirrored this author's, as a researcher and designer of the WebCT site. They discussed their concerns over the accessibility of the technology, and how well it would work at an overseas location. One university supervisor noted: “I am still a bit anxious about it [using WebCT]. To make it work really, really well, I am hoping that they have access.”

Anxieties and concerns about access to WebCT as discussed by the university supervisors, turned out to be the greatest challenges of this study. As it turned out, only one of the three sites, Scotland, had access to the WebCT site once they arrived at their international student teaching sites. The following section will explore the reasons why one of the sites was able to login and use WebCT, while the remaining two were not.

The student teachers in Scotland were able to access the WebCT site because they had different access to the Internet than the student teachers in Rome and in New Zealand. One of the three student teachers brought his/her own personal laptop computer and had a high-speed Internet connection available to them in their flat. They did not have to totally rely on a school network or server, nor did they have to go to an Internet cafe.

The student teachers in New Zealand experienced trouble getting onto the Internet from the beginning of their teaching experience. As described by one student teacher, “It

was enough just to get on the Internet to email our families and supervisors let alone WebCT.” It was concluded that the issues of Internet access fell to an unstable server. Because the servers at the school were very quirky and did not always allow the student teachers to check their mail or surf the web, they resigned themselves to using Internet cafes rather than the school computers for their email. Student teachers had an especially hard time accessing any of the Iowa State University web pages or email, including WebCT.

The student teachers in Rome had similar access issues. The student teachers in Rome were able to check their email and surf the web without a problem. However, whenever they would try to connect to the WebCT site, they were unable to make the connection. Unlike at the New Zealand site, two of the student teachers in Rome could be considered “tech savvy,” meaning they knew enough about computers, the Internet, and networks to do some simple troubleshooting. “Jacob” and “Aaron” (pseudonyms) tried to troubleshoot the problems they were having with WebCT access. While they tried to work with the AOSR computer coordinator, they simply got an answer of, “it’s a server issue.”

Because “Jacob” and “Aaron” were tech savvy and were willing to try and help troubleshoot the problem from the Rome end, they worked with the researcher to try and figure out the access issue. The researcher spent some time talking with an Instructional Development Specialist at the Instructional Technology Center (ITC) on campus and checking for WebCT access problems others may have run into, but there were none. The minimum requirements a computer would need to be able to access WebCT was also double checked with ITC and the computers at AOSR were more than accommodating.

Finally, after several conversations with the people at ITC and with the researcher’s colleagues, it was decided to check if the DNS (Domain Name Server) tables at AOSR had

been updated. DNS tables translate a computer's IP number to a web address that is typed in any web browser. The DNS table then finds the computer that matches the IP number and is connected to the web page. If the DNS tables are not updated, it cannot translate the web addresses into an IP number. This results in an error message that states the page cannot be found.

In this case, students in Rome could not connect to the WebCT site because of a similar error. Therefore, a reverse look-up was done that allowed the researcher to find the direct IP number for WebCT. The IP number was then emailed to the Rome students for them to type into their web browser to see if they could connect to WebCT without using the DNS tables. Unfortunately, this did not help to remedy the access problem.

At this point, the student teachers in Rome became very frustrated with their inability to access WebCT. One student teacher, while traveling in Germany, tried accessing the site and was successful. Other student teachers were able to login at Internet cafes. However, the researcher decided that student teachers should not have to pay to use the Internet just to access WebCT, so they were left where they started, without access to WebCT.

While the student teachers in Rome and New Zealand were not able to login and participate in discussions with WebCT, the Scotland students were actively answering the questions that were posted. The researcher, with the aid of two of the university supervisors, decided that it was still important for the student teachers to answer the questions, so instead of using WebCT, students in Rome and New Zealand were emailed the questions. Student teachers then answered the questions, emailing the researcher their responses. She then put their responses into WebCT for the Scotland student teachers to read. The student teachers

were reassured that if their posting received a response from any of the other student teachers, that it would be forwarded to them via email.

The use of email seemed to work well for communication, with the exception of the New Zealand site. Most of the students answered the questions with the use of email. While the use of email worked, it did not foster the type of communication between student teachers at the different international locations and also their university supervisors that was hoped for in this study. With the exception of the researcher's replies to the student teachers responses in WebCT, the student teachers did not interact with each other. They did not reply to any of the other student teachers postings in WebCT.

The final chapter will take a further look at these results and will make some recommendations for further use of WebCT in the international student teaching program.

## CHAPTER V. ANALYSIS AND RECOMMENDATIONS

Although the access to communication technology turned out to be the major barrier in this study, much can still be learned from this specific case of using CMC to increase communication between student teachers and their supervisors, and also to promote collaboration between student teachers at international locations. This chapter will use activity theory to discuss the research questions that were outlined in Chapter I. It will conclude with recommendations for future use of CMC in the international student teaching program at Iowa State University.

### Bridging the Gap: The Case as an Activity System

The overarching research question in this study asked: What are the benefits and challenges of using computer mediated communication (CMC) in international student teaching placements, specifically an integrated on-line environment, WebCT, to facilitate communication between supervisors and student teachers and among student teachers in international placements? The answer to this question was found by answering a series of subquestions, which were answered by looking at the case of using CMC in international student teaching through the framework of activity theory.

The framework of activity theory allows one to study all of the key players and factors in an activity and allows for successes and contradictions to be examined. As stated by Lewis (2000), “attempts to consider all the relationships influencing human learning activities are likely to fail due to the multitude of interdependent parameters but it may be that the complexity can be constrained if various nodes are examined at one time” (p. 5).

Before the framework is discussed and applied to this specific case, it is important to first understand the case using the seven components of activity theory: instruments, subject,

rules, community, division of labor, object, and outcome(s). Activity theory is being applied to this study, which looked at one program, the international student teaching program at Iowa State University. Within this program, there are several people who are instrumental in keeping the program alive and who help to support it. Not only this, but there are several factors that go into making the program a success.

The diagram in Figure 3 shows the international student teaching program as it was analyzed into the components of activity theory. Activity theory can be used to analyze an activity from one component of the system. Because this is a complex activity system, in order for it to be more easily understood, it was analyzed from the perspective of one student teacher. This one student teacher served as the main subject of the activity system.

Jacob, a student teacher in Rome who was introduced in Chapter IV, was chosen because he represented the majority of the participants in this study, as he was not able to login and use the WebCT site. The following sections will use the activity theory framework to analyze the international student teaching program, through the experiences of Jacob.

### *Subject*

Jacob served as the subject in this activity system. This activity could also be analyzed from the perspective of the university supervisors, however, a student teacher was selected as the subject in the activity system for a few reasons. First, many of the research questions that helped to frame this study were those that looked at the student teachers' use of the WebCT environment. Second, the student teachers' perspective of how WebCT worked is extremely important because they were the ones on the front lines so to speak. They were the ones who had to find ways around the technology not working. They were also in the position to explain what Internet access was like at their international sites.

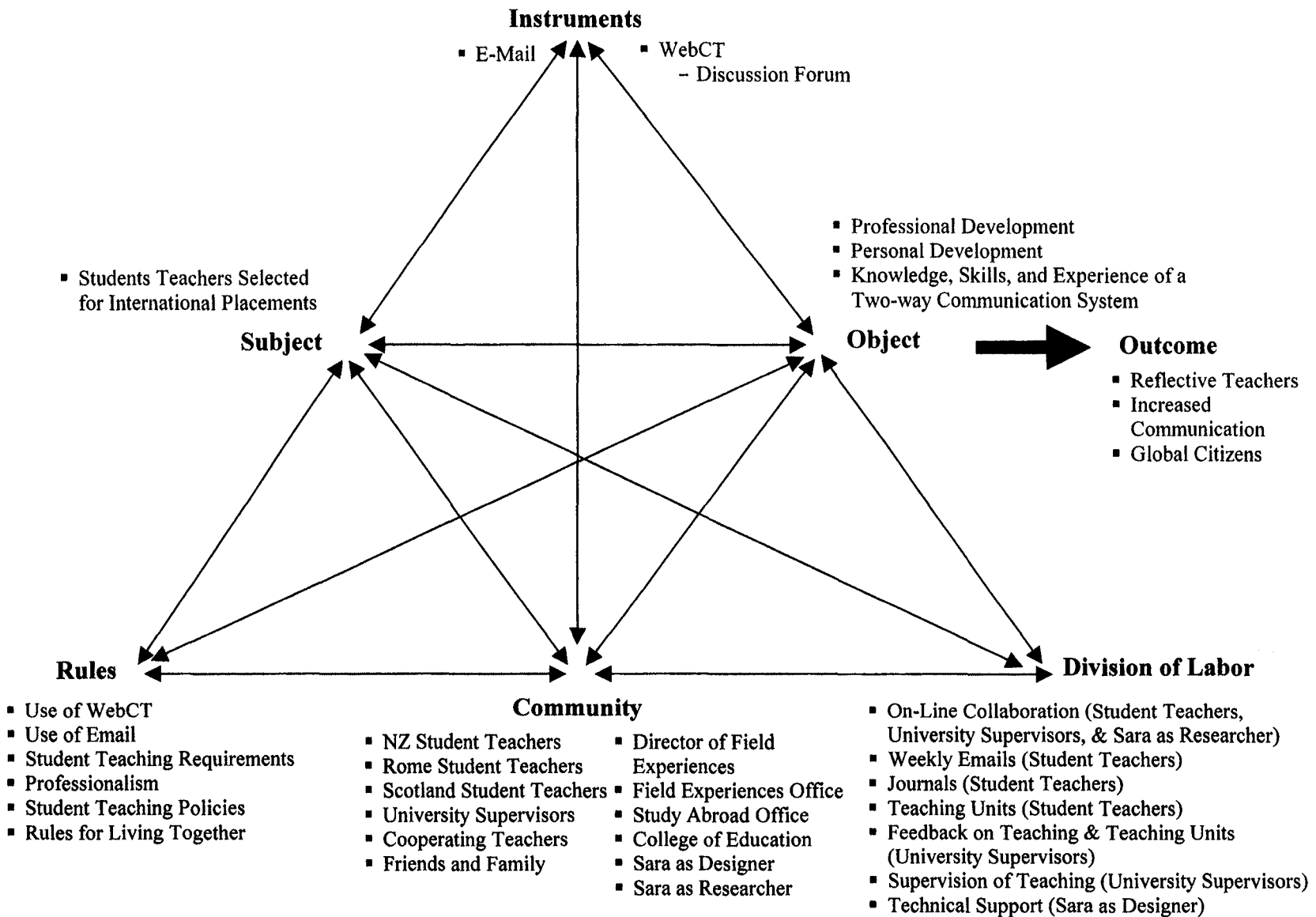


Figure 3: The international student teaching program analyzed into the components of activity theory

Finally, the objects and outcomes of the activity system were directed toward what was hoped to be gained by the student teachers when they used WebCT.

### *Object and Outcome*

The objects of the activity system focused on the development of the student teachers in terms of reflective practice and professional development. The objects also focused on the skills, knowledge, and experience gained from using a communication system such as WebCT. The objects and outcomes of this activity system were determined after talking with the university supervisors about their expectations for their student teachers and of the international student teaching program, and also after reviewing the literature.

### *Instruments*

In order for the objects and outcomes of the activity system to be achieved, there needed to be a mediating instrument. In this study, the mediating instrument is WebCT. The discussion forum section of WebCT was of particular interest to this study, as it was the component of WebCT where the questions were posted for student teachers, such as Jacob, to answer. Email is also considered an instrument in this study because that is the one form of communication that Jacob was able to use with relative ease. Because Jacob was unable to use WebCT, email became the primary instrument for him to use in order to communicate with others in the community, which included his university supervisor as well as friends and family back home. In this case, while Jacob did not have Internet access at the flat in Rome, he:

had [an] Internet connection all the time at school. So, Internet access was easy, and it was fairly fast. I had no problems with email. The only thing I had a problem with was WebCT. Oh, and trying to do on-line banking. I couldn't do on-line banking. (January 23, 2003)



### *Community*

Community members who helped to support Jacob included those that supported the international student teaching program. While others in the community may not have been in direct communication with Jacob himself, they did support Jacob through their roles in supporting the program in which he was taking part. For example, Gayle Huey, Director of Field Experiences at in the College of Education at Iowa State, helped to develop international locations for student teachers. She also helped to interview prospective student teachers and was supported by her staff in the Field Experiences office. In addition, Huey worked closely with the university supervisors to make and maintain strong relationships with the faculty and staff and the international teaching locations. These relationships were extremely important for the student teachers because if an international teaching location had strong relationships with the teachers and administration at the cooperating university, or school, in Jacob's case, then the more willing schools and teachers were to take student teachers. As one university supervisor put it:

They [the schools] are doing us a huge favor. Establishing a relationship with all of the players is one of the most important things we do. Yes, it does help them as well, it's not all one sided, but they are doing us a huge favor. (October 16, 2002)

Community members in this activity system included more than Jacob's university supervisor, friends and family back home, and Huey and her staff. In this specific case, Jacob's colleagues in Rome served as part of the community. If Jacob had been able to connect to the WebCT site, other student teachers in New Zealand and Scotland would have also been part of the community who would have helped to support Jacob. To Jacob, his colleagues and roommates provided the greatest source of community. In an interview after he had returned home, Jacob stated, "I wouldn't have wanted to go without my roommates.

We did lean on each other just coping with living and stuff. We got really close—maybe too close. I know I will keep in touch with my roommates.”

The community in this activity system is extremely important not only because it helped to support the international student teachers, but also because the members of the community helped to determine the rules of the activity system. The rules of the activity system are those that can be considered written rules, as determined by the College of Education for successful completion of student teaching, and also the written rules as determined by the individual university supervisors. These rules include those for teaching, units, lesson plans and journals; the university supervisors also set rules for keeping in contact with them while their student teachers are at their international student teaching locations.

### *Rules*

The rules in this activity system also included those rules that could be considered unwritten. For Jacob and his colleagues in Rome, these unwritten rules included rules for living together. All the student teachers in Rome got along very well and grew very close. This was because of the rules that they developed as a group throughout the eight weeks they lived in Rome. For example, it was an unwritten rule that they would help each other out as much as possible. In an interview, Jacob described how they all shared their expertise:

After a while, if we wanted to go somewhere, somebody knew how to get there without going. [If no one knew], some one would say, ‘OK let’s dig out the map. Where is this place? Let’s find it. Ok, which metro stop do we get off at?’ Between the four of us we would piece enough info together that pretty quick we could get around the city pretty efficiently and stress free. (January, 23, 2003)

It is believed more unwritten rules would have been developed during the eight weeks student teachers were at their international locations had Jacob been able to login to WebCT.

The Collins study, introduced in Chapter II, is an example of this. In this study, student teachers developed rules for using the different sections of the computer conferencing system that they were using. There was a “coffee bar” section that was informal and used for more personal needs, whereas in the other discussion sections, discussion was more formal and scholarly. Therefore, using this study as an example, it is speculated that student teachers would have developed their own rules for communicating with one another using the discussion forum in WebCT.

The Rome group also developed a few written rules. Because the four student teachers shared the same flat, they decided that each person would be responsible for cooking the evening meal one night a week. This way, everyone could put all their effort and money into one meal a week, rather than everyone fending for themselves each night.

#### *Division of Labor*

The rules in an activity system often times helps to determine the division of labor in the system. In this particular case, the tasks were clearly divided. Jacob was expected to send an email each week to his university supervisor. Jacob was also required to keep a journal of his reflections about his experiences at AOSR. It was also to include an analysis of the lessons he designed and taught, and an analysis of his use of behavior management techniques and things he would do differently in a lesson or in dealing with students (Lucia, personal communication, October 16, 2002). He was also expected to turn in a teaching unit at the end of the eight weeks.

In addition, if Jacob had been able to access WebCT, he would have been expected to participate in the discussion forum in WebCT. Student teachers were not the only ones who

were expected to participate in the on-line discussion within WebCT. University supervisors as well as the author, as researcher and designer, also shared in this division of labor.

University supervisors shared in tasks that made up the division of labor in this activity system. They were responsible for not only making and maintaining relationships with faculty and staff at the cooperating university or school, as discussed previously, but they were also responsible for providing students feedback on their teaching and journals. They also helped student teachers with any challenges or difficulties that arose during their eight-week teaching placement.

Finally, as researcher and designer, there were tasks for which the author was responsible. The author served as a technical support person, trying to help students login to WebCT. Although not successful, it was extremely important in this case. As described later in this chapter, by working with Jacob and his colleagues in Rome, there is a much better sense of the technical issues that prevented them from logging in and using WebCT.

The author's other task in this case was to support those that did have access to WebCT by for instance, responding to the student teachers who had posted responses to the questions in the WebCT discussion forum. In the case of Jacob, because he could not login to WebCT, he emailed his answers to the author, who then posted them in WebCT for others to read and respond to.

After looking at the international student teaching program as an activity system, it becomes clear that in order for the outcome(s) of a system to be achieved, all the components in the system need to work together. In this particular system, the mediating instrument did not work for all of the subjects, therefore, not all of the community members were able to support all of the subjects. Not only this, but the rules and division of labor were different

for the subjects who had access to WebCT. These students still had the responsibility to answer the question that was posted in the discussion forum, while student teachers without access could not fulfill this requirement. Because of these differences or contradictions in the system, the objects and outcomes of the system were unable to be reached by all of the subjects.

There are many questions that remain about the use of WebCT in the international student teaching program at Iowa State University. After revisiting the initial research questions and studying the diagram that outlines the international student teaching program (Figure 3), it becomes clear that the triads that include “instruments” are most vital to this study.

#### *Instruments-Subjects-Object*

The first research question focused on examining which sites and/or individuals used WebCT. It also asked why these sites or individuals were the ones to use the WebCT environment. The instruments, subjects, object triad (Jonassen, 2000) also known as the production triad (Figure 4) helps to answer this question as it focuses on the instruments (WebCT, discussion forums, email) that were used by the subjects (student teachers teaching

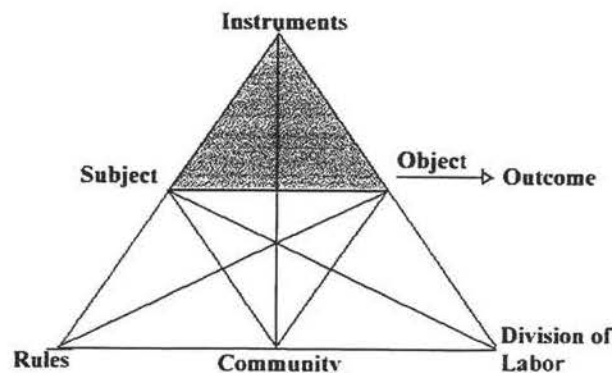


Figure 4: Instruments-subjects-object triad

at international locations) to achieve the object (reflective practice, professional and personal development, using two-way communication).

If we look at the first research question, and apply it to activity theory, it draws attention to the simple fact that because the instruments served as a barrier in two of the three international locations, the subjects were unable to fully fulfill the object of the activity system. This serves as a major barrier in the activity system.

To answer the first research question: “Which sites and individuals used WebCT and why were these the sites or individuals to use the environment?,” we can clearly answer that only the Scotland site used the WebCT site. The technology, specifically access to WebCT, was a major barrier at two of the three international locations. The different types of Internet access the student teachers at the three different international sites had, led to the reason why Scotland was the only site with access to WebCT. In Scotland, student teachers had access to a laptop and had high speed Internet, which was available to them in their flat. The student teachers in Rome seemed to have run into school server problems, while student teachers in New Zealand faced strict fire walls set up by their schools that did not allow them access, “hotmail or yahoo . . . at [the school] blocked all those sites, including sites such as CNN.com, FOXnews.com, etc.”

Although Scotland was the only site that was able to login and use the WebCT environment, it was discovered through interviews with university supervisors and student teachers that there was a definite interest in using the WebCT environment and, if student teachers had been able to access the WebCT site, they would have liked to use it. In an interview with Jacob from the Rome site, he noted:

We tried [to access WebCT] several times, but couldn't get on. I don't have a clear vision of how it would work, but I think it would, I think it could potentially make communication with your supervisor easy. It would be a place to post lesson plans, and the supervisor could post evaluation forms. (January 23, 2003)

### *Instruments-Subjects-Community*

The second triad in the activity theory framework focuses on the instruments (WebCT, discussion forums, email), and how they were used by the subjects (international student teachers) in order to gain support from members of the community (other student teachers, university supervisors, cooperating teachers, friends, and family, etc.) (Figure 5). The second research question focuses on this triad. It asked which components of the WebCT environment were used and for what purpose. According to student teachers in Scotland, other than "checking out the site to see what was there," the discussion forum was the only part of the WebCT site that was used, and it was used solely to answer the questions that were posted in the forum by the researcher.

Even though the student teachers in Scotland were the only ones with access to WebCT, which is a contradiction in the activity system, the two other international sites still fit into this triad. Although the primary instrument used in this study (WebCT) was not

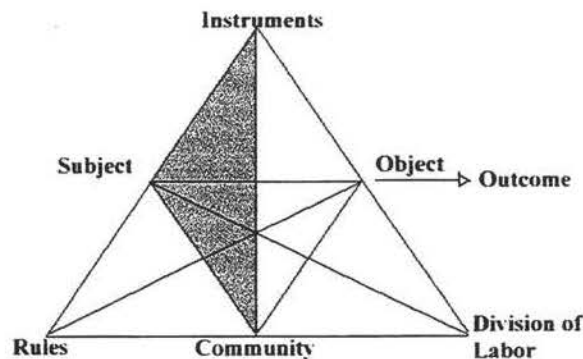


Figure 5: Instruments-subjects-community triad

accessible to all the subjects, there were other instruments that were used to support other members of the community. The use of instruments, other than the WebCT environment, serves as one solution to the contradiction in the activity system.

The use of email was also supported by the rules that were set by the university supervisors. All student teachers were required by their university supervisor to email them once per week to let them know of the week's events in and out of the classroom (one of the rules in the activity system). The student teachers, having access to email whether it was through their school's email or other email accounts, were able to fulfill this requirement. This helped the student teachers (subjects) and university supervisors (community) to stay in contact with each other. Communication through email between student teachers and university supervisors also helped to alleviate any problems or answer any questions that arose at the international locations.

The community in this activity contained more than just the university supervisors. It included friends and family back home as well. Student teachers used email regularly to stay in communication with their friends and family back home in the United States. This use of email helped the community members to support the subjects who were teaching at international locations.

#### *Instruments-Community-Object*

The final triad that focuses on the instruments in the activity system is the instruments, community, object triad (Figure 6). This triad looks at how the instruments (WebCT) in the activity are used to achieve the objects (reflective practice, professional and personal development, using two-way communication) with the support of the community (university supervisors, etc.). This triad can be used to answer the third and fourth research



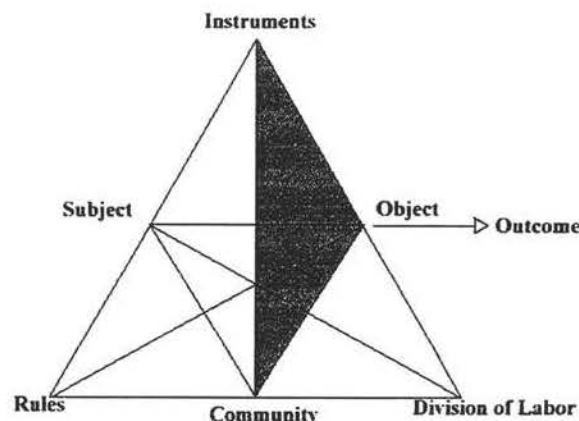


Figure 6: Instruments-community-object triad

questions in this study: “What were the expectations of the supervisors for using WebCT in their supervision before the student teaching experience?” and “In what ways were these expectations realized or not realized?”

As described in Chapter IV, one of the big hopes for the use of WebCT by the university supervisors (community) was not their expectations of the student teachers (subjects), but their expectations for themselves. University supervisors hoped to use WebCT to serve as a model for student teachers to show them the potential of using WebCT as a form of two-way communication (object). They also stated that they hoped to figure out for themselves how to use WebCT as a communication tool to its fullest potential (object).

Unfortunately, the expectations of the university supervisors could not be realized because of the inability of most student teachers to access WebCT, a contradiction in the system. In addition, student teachers in Scotland had access to the site, but did not utilize it as their primary tool for communication with their university supervisor. Student teachers in Scotland were not motivated to use the WebCT site because other student teachers were not able to login. They felt it was easier to use their normal web accounts to communicate with

student teachers than to login to WebCT and use its internal email system. Therefore, university supervisors were unable to see their expectations for the use of WebCT realized.

### Recommendations

After studying this case of using CMC in the international student teaching program at Iowa State University, there are several recommendations that can be made for future use of CMC in the program. These recommendations range from pre-departure orientation sessions to recommendations for the use of CMC in the program.

### *Activity Theory*

This study has focused on the use of CMC in the international student teaching program. In order to gain a better understanding of the program and to evaluate the use of CMC in the program, it is necessary to study the activity from the perspective of different key players in the international student teaching program. This would allow for a whole and complete picture of the activity. For example, this chapter used the theory to analyze the international student teaching program from the perspective of Jacob, a student teacher. The program could also be analyzed from the perspective of the different university supervisors, or from the perspective of Gayle Huey, director of field experiences.

Not only is there much to be learned by looking at the program from different perspectives, but there is also a lot that can be learned by looking at the program as a series of activity systems, instead of one large system. It became evident in this study that each international student teaching location can be considered its own activity system, with its own community, rules, and division of labor. If the program is studied as a series of activity systems, the commonalities and contradictions between activity systems could be identified and analyzed for further development of the use of CMC in the program.

### *Pre-departure Orientation*

While pre-departure orientations sessions were held with each group to familiarize both student teachers and university supervisors with WebCT, one university supervisor suggested that this orientation session could be more beneficial to all the student teachers and university supervisors if it were held at one time, with all the student teachers present:

Maybe we have to do a better job, because when we select these students for international placement, we take our little groups, we have our little meetings. Maybe there should be some socializing there so we can sell the point to them. At this point, they don't know if they can trust each other because they don't know each other. We need to set it up so they get to know each other a little bit more. (December 6, 2002)

This orientation session would serve not only as an orientation session to the WebCT environment, it would also help the student teachers to get to know each other and would allow them to obtain a personal connection with the other student teachers with whom they would be communicating. As described in Chapter II, Clarke (2002), Galanouli and Collins (2000), Pearson (1999), and Admiraal et al. (1999) found that student teachers who know each other, or who have at least been introduced to each other, are more willing to communicate with each other using computer mediated communication. This finding is supported in this study as well. One student teacher from the Scotland location noted in an interview upon her return home:

I think there should be a meeting so everyone can meet with each other so we actually know who we are communicating with. Since I only knew a couple of people who went to different sites, I was not interested in communicating with them. (March 8, 2003)

A face-to-face meeting would be ideal in a situation such as this. However, some student teachers are placed a great distance from the university. Trying to coordinate all of their schedules in order to find a meeting time for an orientation session could prove to be

very difficult, if not impossible. Therefore, there needs to be an alternative to the face-to-face meeting.

A viable option in this case is to continue to have student teachers create a very simple personal homepage with some basic information about themselves. Also, a section within WebCT, or another web based environment, could be created that would help to assist students in getting to know one another. Student teachers could be required to post a message in the discussion forum, and also post a response to another student teacher's message. This would allow student teachers to begin collaborating before leaving for their international locations.

#### *International Student Teaching Cohort*

Another way for student teachers to really get to know one another would be to create an international student teaching cohort. This cohort could be set up before the student teachers begin teaching at their first student teaching placement. Student teachers could meet in the same type of face-to-face orientation session previously mentioned, however with the cohort, student teachers would begin using WebCT in their first placements, and would continue to use it when at their international student teaching location.

The cohort would allow students more time to get to know one another and to develop some unwritten rules about the use of WebCT. It would also allow student teachers time to get familiar with the environment, where things are located, and how they work, before leaving for an international location. This could help to take off some of the perceived pressure of using the WebCT system for the first time when they are overseas.

### *WebCT as the CMC Tool*

It is believed that one of the reasons why the Rome and New Zealand student teachers were unable to access the site is because WebCT is a secure website. Therefore, the question becomes, is WebCT the best tool to use? While WebCT offers many options for communication and collaboration within one environment, if it is not accessible to all the student teachers at all of the international locations, then an alternative needs to be found. There are several environments that can be used for free, such as Aimoo (<http://www.aimoo.com/>) and MSN groups (<http://groups.msn.com/>), to name just two.

There are still some concerns that can be associated with using such alternative environments. One reason for using WebCT is that it is supported by the university. Therefore, there is support available for the creation of the site and also support to help with technical issues. Not only this, but because WebCT is supported by the university, many of the student teachers have used it at some point in at least one of their undergraduate courses. The familiarity with the environment helps to ease some of the student teachers' concerns with the use of the environment.

### *Technical Recommendations*

One difficulty with integrating any CMC system into a program, such as the international student teaching program, is the uncertainties of access and support at the international locations. This poses a great challenge to the program, as access and support at the international locations could change from semester to semester. The best way to ensure that each site has the access needed for the CMC environment that is to be implemented is to work with the each school's director of technology or technology coordinator. This responsibility would have to fall upon the supervisors of the different international locations.

Not only would they have to establish strong relationships with the administration and teachers at each of the locations, they would also have to build a strong relationship with that school's technology person.

### *The Need for CMC*

With all of the recommendations mentioned, one important question remains: Is there a need for the use of CMC in the international student teaching program at Iowa State University? An important finding in this study, as discussed by university supervisors, was that the student teachers at each international student teaching location grew extremely close to one another and did not feel much of a connection to their colleagues at the other international locations, nor did they feel much of a need to communicate with them. The student teachers gained the support they needed from the other student teachers at their international site. Fiona noticed this with her group, "The three of them got along so well and they formed a community, and that community was good enough for them to survive."

This thought was echoed by the other two university supervisors. Lucia noted, "This group was a really strong group, and they have really cohesed together." The New Zealand group was the same. They grew so close together, that at the end of their trip, they decided to all go sky diving together, much to Hannah's dismay. The four women decided in advance it was all go, or no go. They all went and they all jumped.

So, with this type of support within each international site, the question remains, is there a need for the use of CMC? According to one university supervisor, "I think there is a direct need, because we've heard it from others, that they feel isolated." The bond that developed between all three of the groups does not occur every semester, so some students may feel they had a community to turn to for support.

In addition, there have also been a few semesters when there is only one student who is sent to an international student teaching site. This has occurred at the Scotland site. Fiona envisions that the use of WebCT in these situations would allow student teachers to “go there for survival and just be glad to talk to someone in America.”

As discussed earlier in the chapter, there were several barriers to the use of WebCT at their international locations; therefore we did not get a clear picture of it and how this could work if all locations had access to the site. However, both students and supervisors mentioned being able to keep in good contact with each other solely through email. So, the question of using WebCT in the supervision of student teachers could be changed to focus on the use of WebCT to facilitate communication and support among the student teachers, without a moderator such as the researcher in this study or university supervisors. The debate of involving university supervisors and not involving them in CMC environments was explored in Chapter II. The use of CMC to support student teachers without university supervisors was a great success in the Galanouli and Collins (2000) study. This would also be a good area of further study of the international student teaching program.

The use of WebCT to promote support among student teachers is supported by Fiona, university supervisor for the Scotland student teaching location. In an interview with her, she stated, “they [the student teachers] really seemed to like the idea, but to me it seems more of a student community than a supervisor, student community.”

### *Program Extension*

This was a small-scale study, in which only three of the seven international student teaching locations participated. While not all of the locations have students every semester,

it is hoped that in time, each overseas site would be able to use the WebCT environment when they do have student teachers there.

Not only this, but in addition to the student teaching placements here in Iowa, the field experiences office at Iowa State University offers “satellite” student teaching locations in Houston, Texas and Omaha, Nebraska. The use of WebCT would be as valuable to these programs and to its student teachers as it is to the international student teaching program and its student teachers. One student teacher even envisioned the use of WebCT in student teaching for placements solely in Iowa. She felt WebCT “can be an effective way to communicate. I also think that it would be useful for student teachers who are placed with Iowa.”

### Conclusion

The use of CMC in teacher education programs is not new. In fact, it has been used for several years, with the results of its use varying with each study that is conducted. The use of CMC in this specific study, the use of CMC in the international student teaching program at Iowa State University, had its successes and barriers. While access to the WebCT environment served as the major barrier in this study, much was learned about Internet access at each international location. After having completed the study, it is now known what the barriers are at each international location and steps can be taken to strengthen the use of WebCT in the international student teaching program.

More importantly, the whole of the international student teaching program was analyzed using the activity theory framework. This framework allowed the successes and contradictions of the program to be analyzed, and helped to answer the initial research questions that were asked in this study.



In the final sections of this chapter, it was concluded that in order for the use of CMC to be used successfully in the international student teaching program, a pre-departure orientation session needs to be held to help student teachers get to know one another. In addition, an international student teaching cohort could be formed to help student teachers not only get to know each other, but to become more familiar with the WebCT environment.

As there were many technical problems with the use of WebCT, alternatives to the WebCT site was discussed. It was concluded that alternative CMC environments might be used more effectively. Benefits and barriers of using an alternative environment were also discussed.

As stated by the student teachers in this study, and as believed by the researcher who was also a participant in the study, there is a need for the use of CMC in the international student teaching program. However, there are some changes that need to be made in order for the use of WebCT to become successful in future semesters. Not only will student teachers need access to the site, but it will have to be an environment that is developed for student teachers to collaborate with and support one another, rather than an environment that is developed for supervisors to support their student teachers.

With these changes, the use of CMC in the program would allow student teachers to collaborate with one another to share lesson plans, classroom and personal successes, and challenges that accompany any international student teaching experience. This type of exchange and collaboration has the potential to help students become more confident in themselves, in their teaching, and will help them to become more reflective practitioners, as well as preparing them to become global citizens.

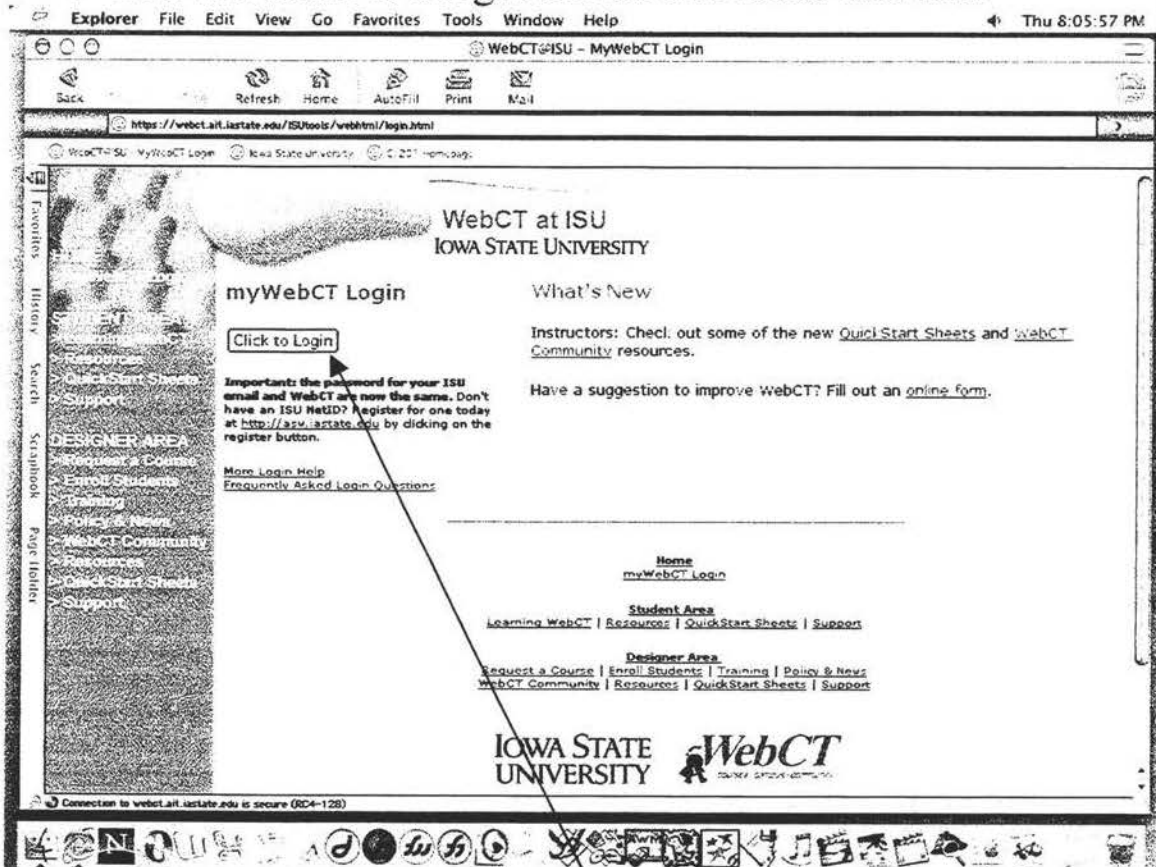
## APPENDIX A: WEBCT HELP MANUAL

## Logging in to WebCT

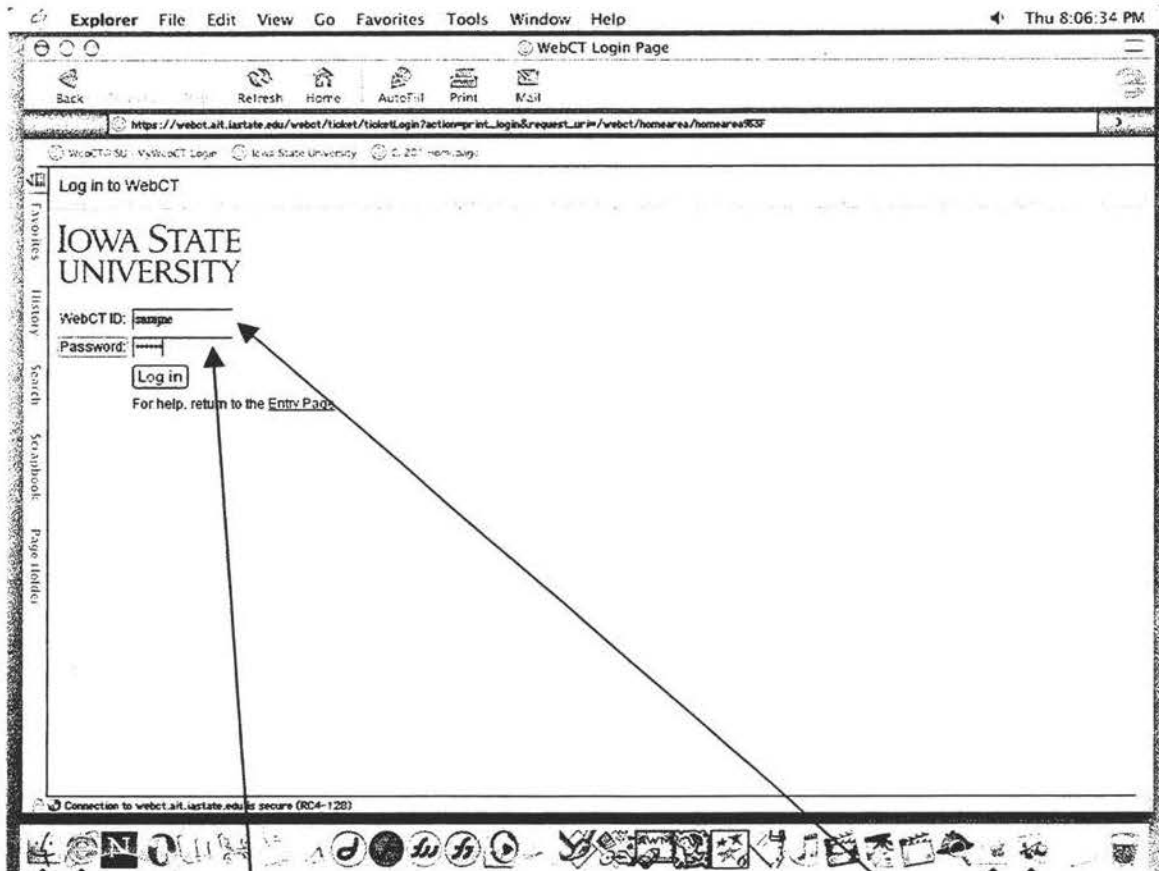
Type in the URL for WebCT:

**<https://webct.ait.iastate.edu/ISUtools/webhtml/login.html>**

❖ You will come to a login screen that looks like this:



❖ Click on the “Click to login button” and this will take you to the login screen that looks like this:



- ❖ **WebCT uses the same user name and login as your ISU e-mail account. Type in your user name and password and you will see a link for CI 416 D&E: International Student Teaching. Click on this link and it will take you to the course WebCT environment.**

## APPENDIX B: UNIVERSITY SUPERVISOR INTERVIEW GUIDE I

1. Why did you become involved with the international student teaching program?
2. How long have you been involved with the program?
3. Do you have any international experience?
  - a. Do you have any international teaching experience?
4. What responsibilities are assigned to an international student teaching supervisor?
5. From your experience, what are some areas that need improvement in the supervision of international student teachers?
6. What are your expectations for using WebCT in your supervision?
7. What types of communication have you used (and how) with your students in previous semesters?
  - a. What worked the best for you?
  - b. What would be helpful to you now?
8. What is your experience with using different communications technologies (email, chat, on-line discussions, etc)?
9. Can you describe any anxieties and or concerns you have or have had with supervising this semester?
  - a. General
  - b. WebCT
  - c. Related to the international experience
10. What types of questions or issues would you like to see discussed in the discussion forum?

APPENDIX C: UNIVERSITY SUPERVISOR INTERVIEW GUIDE II

1. How do you feel the communication and/or interaction with your students changed with the use of WebCT?
2. What are the changes that need to be made to make it work better for you and your students?
3. Up to this point, what are the benefits and/or barriers you see to using WebCT in your student teaching supervision?

## APPENDIX D: STUDENT TEACHER INTERVIEW GUIDE

1. Explain to me a bit about your teaching experience in Rome.
2. Tell me a bit about the group that you went with.
3. What was your access to the Internet like? (Where were the computer(s) located?  
Was it free? Speed?)
4. Do you feel using WebCT helped you to stay in good contact with your supervisor?
5. Do you feel using WebCT helped you to stay in good contact with your peers?
6. What feature in WebCT was the most helpful/not so helpful to you?
7. Do you feel using WebCT was more of a benefit or burden to your teaching experience? Why or why not?
8. How could WebCT be better used in future semesters?
9. What do you feel is the biggest thing you took away from your experience?

## APPENDIX E: THE WEBCT ENVIRONMENT

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# International Student Teaching

### Links to ISU

ISU Daily

**ISU Athletics**

## Student Announcements

ISU WebCam



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## ACKNOWLEDGMENTS

First and foremost I need to thank my parents, Karl and Mary Jane, my brothers and sisters, Erik, Heidi, Maria, and Patrick, for their unending support and understanding during the writing of this thesis. In the words of my sisters, I hope I can now “be fun again.”

I also would like to thank my major professor, Dr. Niki Davis, for her unending supply of patience, wisdom, and understanding. Although separated by time zones for some of the writing and editing, we got it to work, and it came together well. Also to my committee, for their enthusiasm about the study and the time they devoted to making this thesis into what it is, thank you.

Much thanks needs to be given to the College of Education at Iowa State University for supporting and investing in international programs for students. Also, my thanks goes to the Field Experiences Office for their continued development, support, recruitment of the international student teaching placements, and for all the support they provided to me throughout this study.

These acknowledgments would not be complete without thanking all of my “cell-mates” in W081 Lagomarcino. Your laughter and support proved to be invaluable to me. And finally, to Thomas, I don’t know how you do it. Your power to calm me down, make me take breaks, walks, and deep breaths served as my survival course. Thank you so much for your understanding, support, and calming abilities. Matthew 8:22-26 and Luke 8:23-27 are now dear to my heart, and engraved in my memory. Thank you.