

CMC-BASED LEARNING IN LANGUAGE TEACHER EDUCATION: A GERMAN-AMERICAN COLLABORATIVE PROJECT

Carolin Fuchs

Justus-Liebig Universität Giessen, Germany

ABSTRACT

This paper presents findings from a research project that integrated computer-mediated communication (CMC) into teacher education to provide future language teachers the opportunity to experience CMC-based learning. Overall goals of the project included preparing pre-service language teachers to use computer technology in their future teaching, and fostering electronic and professional literacy as well as cross-cultural learning. The research context was a qualitative case study involving cooperation among teacher educators and pre-service foreign language teachers at the Monterey Institute of International Studies, Monterey, California, and Justus-Liebig Universität, Giessen, Germany. Six groups of pre-service teachers collaborated via email and chat with their transatlantic partner groups in designing a joint website for CMC-based language teaching (<http://www.uni-giessen.de/anglistik/tefl/Projects/cmc/01Index.htm>). The paper explores institutional, technical, socio-cultural, and linguistic challenges that participants encountered when collaborating over a distance. More specifically, the following research questions are addressed: What kind of pedagogical value do CMC-based projects have in teacher education? What kind of challenges do pre-service teachers encounter when negotiating via computer technology? Which approach characterizes the most successful groups? The article draws on data such as email and chat transcripts, questionnaires, learner logs, and interviews. Lastly, some strategies to support a cooperative CMC-based learning environment and issues for further research are outlined.

INTRODUCTION

This paper presents findings from a Ph.D. dissertation (Fuchs, 2004) that integrated CMC into language teacher education. The project involved cooperation among teacher educators and pre-service foreign language teachers at the Monterey Institute of International Studies (MIIS), Monterey, California, and at the Justus-Liebig Universität (JLU) Giessen, Germany. Six groups of pre-service teachers collaborated via email and chat functions of the *FirstClass*® computer conferencing software (<http://www.softarc.com>) with their transatlantic partner groups in designing a joint website for CMC-based language teaching. The article addresses the following research questions:

1. What kind of challenges do pre-service teachers encounter when establishing a community and negotiating a joint product using email and chat?
2. How do they evaluate their collaboration with their local and transatlantic groups?
3. Will pre-service teachers feel encouraged to use CMC in their own future language teaching?

4. Which approach led to the most successful CMC-based cooperation?

The paper first presents the theoretical framework, and the context of the study, such as goals, participants, software, and final product. Next, it presents the research design and findings. Lastly, it discusses the pedagogical implications for CMC-based projects and makes suggestions for future research.

THEORETICAL FRAMEWORK

A number of studies investigated the potential of telecollaboration in second or foreign language learning (Belz, 2002; Fuchs, 2001; Kramsch & Thorne, 2003; O'Dowd, 2003; Warschauer & Kern, 2000). Following the notion of model learning (Bell, 2001; Van Lier, 1996; Willis, 2001; Willis & Raines, 2001; Woodrow, 1993; Wright, Wilson, Gordon, & Stallworth, 2002), it only seems logical to integrate CMC-based collaboration into language teacher education to expose pre-service teachers to the use of CMC in their own future classrooms. According to Willis (2001), in order for pre-service teachers to develop professional expertise, they “will have to see instructors model appropriate uses; have opportunities to learn how to use technology to support learning; see technology used appropriately in schools; and have many opportunities to develop and teach technology-supported lessons themselves under circumstances that support professional growth” (p. 309).

The potential benefits of CMC-based collaboration among language teacher educators and future language teachers is under-explored (Belz & Müller-Hartmann, 2003; Egbert, Paulus, & Nakamichi, 2002; Gibson, 2002; Gimbert & Zemba-Saul, 2002; Legutke, 2003; Schocker-v. Ditfurth, 2001). Following Willis's appeal for model learning in teacher education, the overall goal of this project included providing future language teachers with hands-on experiences that would encourage them to use computer technology in their own future teaching. Moreover, the project aimed at fostering computer proficiency and cross-cultural learning through the use of email and chat functions of *FirstClass*® (Available at <http://www.firstclass.com/>).



THE PRESENT STUDY

This qualitative case study involved collaboration within and across pre-service language teacher groups at the Monterey Institute of International Studies in Monterey, California, and the Justus-Liebig Universität Giessen, Germany.

Participants

Table 1 below shows the number of participants and composition of groups at each end.

Table 1. Composition of transatlantic groups.

	Monterey Institute of International Studies <i>An Introduction to CALL</i> 	Justus-Liebig Universität Giessen <i>CMC in FLT</i> 
N	12	20
Nationalities of participants	American (8) Japanese (2) Omani (1) Ukrainian (1)	German (19) Romanian (1)

All but one participant in the Giessen group were first-language speakers of German. All of them were state exam candidates in teaching English in state schools in Germany. By contrast, the Monterey group included participants from the U.S., Japan, Oman, and Ukraine. Eight of them were native and four were non-native speakers of English. All were master degree candidates in either TESOL (Teaching English to Speakers of Other Languages) or TFL (Teaching Foreign Languages).

Transatlantic Cooperation

The course in Germany, entitled *Computer-Mediated Communication in Foreign Language Teaching (CMC in FLT)*, took place during the winter semester of 2002-2003. It included an eight-week collaboration with a course in Monterey called *An Introduction to Computer-Assisted Language Learning (CALL)*. The two courses were not identical and had different goals; however, the teacher educators and the researcher developed a joint syllabus for the eight-week collaboration between Monterey and Giessen.

Pre-service teachers on each end formed six local groups of 3-4 members in Giessen and 2 members in Monterey. The local groups then combined to form transatlantic groups of 5-6 members each. These transatlantic groups collaborated in preparing materials for a joint website using *FirstClass®* computer conferencing software. The website (<http://www.uni-giessen.de/anglistik/tefl/Projects/cmc/01Index.htm>) was targeted at prospective language teachers and covered CMC-related issues such as starting an email project, designing tasks and lesson plans, and dealing with student motivation and cross-cultural challenges. The working language was English. The eight-week collaboration took place between mid-October and mid-December 2002 and was divided into three phases:

1. Experimental Phase

During this phase, the Monterey and Giessen groups exchanged profiles and formed transatlantic groups.

2. Project Phase

In this phase, transatlantic groups negotiated a topic for their website, with each group split up into sub-groups who divided tasks among themselves. The Giessen groups compiled the different pieces of the proposed website and published them on the Internet. The website contained a CMC module with links to the relevant literature and email project samples. Groups were encouraged to design a module that would be useful in their own language teaching. The goal was not to create yet another website on CMC-based language teaching, but to provide participants with the opportunity to design meaningful tasks for learners. The list of topics included institutional constraints, learning communities, role of learners and teachers in CMC, tasks, assessment, learning styles, and motivation. For example, one group chose to design tasks for an intercultural email project between English learners in Germany and learners of German in the U.S.

(http://www.uni-giessen.de/anglistik/tefl/Projects/cmc/04projects/04_4yal/04_4yal.htm).

This project aimed at using a book for young adults, *A Cab Called Reliable* by Patti Kim, as a basis for an intercultural exchange.

3. Evaluation Phase

During this stage, the Giessen groups provided peer feedback on the work of the other groups and wrote essays in which they reflected critically on their own learning processes.

METHODOLOGY: A GROUNDED THEORY APPROACH

Data Collection

According to Strauss and Corbin (1998), grounded theory refers to “theory that was derived from data, systematically gathered and analyzed through the research process. In this method, data collection, analysis, and eventual theory stand in close relationship to one another” (p.12). In other words, researchers usually do not start with a preconceived theory in mind. Instead, they begin with an area of study and allow the theory to emerge from their data. Furthermore, Strauss and Corbin (1998) argue that “[t]heory derived from data is more likely to resemble the ‘reality’ than is theory derived by putting together a series of concepts based on experience or solely through speculation (how one thinks things ought to work)” (p.12; quotes and brackets in original).

Moreover, it is important to interview and/or observe multiple and diverse representatives of persons, places, events, and times. This is typically achieved through the process of data triangulation that involves various data collection methods and approaches (Strauss and Corbin, 1998, p.44). Warschauer and Kern (2000) have used the term *sociocognitive* to include specific CMC-based practices of use as depicted and assessed in terms of their specific social contexts. Yet, in spite of meticulously triangulating multiple data, Denzin cautions that “[o]bjective reality will never be captured. In-depth understanding, not validity, is sought in any interpretive study” (1989, p.246). In the present study, triangulation involved gathering information by eliciting data through one or more instruments or sampling strategies (Grotjahn, 2003; Nunan, 1992; Strauss & Corbin, 1998):

- **email and chat transcripts** during which the actual negotiation processes took place;
- **pre-course questionnaires** to elicit information about the pre-service teachers’ computer skills, cross-cultural and group work experience, and reasons for taking the course;

- **self-assessments** in which pre-service teachers in Giessen were asked to rate their contributions within their local and transatlantic groups and grade their overall performance at the end of the course;
- **post-course interviews** with each local group in Giessen in which group members were asked to comment on issues that arose during their collaboration;
- **post-course questionnaires** in which the Giessen groups were asked to rate how strongly connected they felt to their local and transatlantic groups;
- **post-course questions** for pre-service teachers in Monterey asking them to respond to the following questions:
 1. Do you think that CMC projects like the Monterey-Giessen project make sense at the teacher education level? Why?
 2. Do you feel motivated to try out a CMC project in your own future teaching? Why? If applicable, please outline your target student population.
 3. Based on your CMC experience with Giessen, please make some suggestions as to what kind of learner and teacher training will be needed in the future to help overcome the challenges that participants have to face.
- **individual logs** by all pre-service teachers which helped to gain insight into their learning experience;
- **“voices from the classroom”** which contained participants’ comments on goals and expectations, their learning progress, experience with local and transatlantic groups, project results, motivation for taking the course, and suggestions for improving a project like this;
- **mid-term learning process statements** in which pre-service teachers in Giessen were asked to reflect on cross-cultural aspects of collaboration such as negotiating, bonding and trust building with their transatlantic partner group.

The status of the researcher in this study was that of a course designer and participating observer in Giessen in collaboration with both teacher educators. Consequently, most of the data were collected in Giessen.

DATA ANALYSIS

The overall goal of the analysis was to identify and code critical points in the negotiation processes of the groups that had not been anticipated, as well as recognize possible stages or formats of negotiation not yet identified in the literature. Coding has been defined as the “analytic process through which the data are fractured, conceptualized, and integrated to form theory” (Strauss & Corbin, 1998, p.3). The goal of *open coding* is “to discover, name, and categorize phenomena according to their properties and dimensions [...]”(Strauss & Corbin, 1998, p. 206). As a result, data collection during *open coding* remains unstructured and open to all eventualities. The main focus of analysis in this study was email and chat transcripts because this was where negotiation processes occurred in the first place. Chappelle (2003) uses the idea of *process data* to refer to “data that constitute the observable record of learners’ work on CALL tasks, often called ‘tracking data’ or ‘computer logs’” (p.98). During the *open coding phase*, a line-by-line analysis of the groups’ data was conducted by identifying those instances in which participants highlighted negotiation or miscommunication within their local or transatlantic groups. Moreover, differences and similarities between each incident, event, and other instances of negotiation were constantly compared (Flick, 2002, pp.178-181; Strauss & Corbin, 1998, pp. 82-

83). Next, these findings were compared and contrasted with those from other data sources such as reflections in logs or learning process statements to generate categories. In this study, sample categories included *turning points* and *technical difficulties*. For instance, for Group Four, “clarifying issues with Monterey via chat” was one of the most crucial points in the negotiation process (all data were kept in their original versions):

[...] But after Sabine had the luck to meet them in the chat, things cleared up a bit and we finally had a common goal to work up to together. This was the **turning point** because I was motivated again and things got better and better. [...] (Kirsten, Giessen Group Four; bold print not in original).

To represent the chat experience of Group Four, the “turning point” was taken from Kirsten’s statement above *in vivo code* (a code taken from the subject).

The category “technical difficulties” was the result of various codes from individual emails such as *inexperienced user of technology*:

“[...] not all of us in this group feel we are experienced technology users. I did not use computers as a child, and I am still getting used to various applications within this realm. I have lots to learn. That's why I'm taking this class! [...]” (Megan, Monterey Group Two).

Next, similar instances in other emails were identified to see if this was a group-specific or individual issue, or whether other groups had similar experiences with technology.

RESULTS

This section focuses on the following factors that emerged in this study as major challenges for CMC-based collaboration with regard to establishing a sense of community, establishing common goals and procedures, assigning roles and specific tasks, accomplishing tasks within a reasonable amount of time with both their local and transatlantic (or cooperative) groups, identifying with their final product, and negotiating a common project within transatlantic groups.

The results below are based on post-course questionnaires administered to the Giessen participants to elicit additional input on the questions asked during the small-group interviews after their collaboration with Monterey. For example, Giessen participants were asked to rate how much they felt they could identify with the final product, or whether they felt they had managed to negotiate a common project with their partner group. They were asked to assign a rating on a four-point Likert scale that included 1 = insufficient, 2 = satisfactory, 3 = good, 4 = very good..

How the Giessen Groups Perceived Their Group Collaboration

As can be seen from Table 1, the six Giessen local groups ranked their success within their local groups higher than their success with their transatlantic groups.

Table 1. Mean ratings on Post-Course Questionnaire by Giessen Groups.

	Establishing common goals and procedures	
	Local group	Transatlantic group
Group 1 (n=3)	3.67	2
Group 2 (n=4)	3.75	3
Group 3 (n=3)	4	2.33
Group 4 (n=3)	4	2
Group 5 (n=4)	3	2
Group 6 (n=3)	4	1
	Assigning roles and specific tasks	
	Local group	Transatlantic group
Group 1 (n=3)	3	2
Group 2 (n=4)	3.25	3.25
Group 3 (n=3)	4	3
Group 4 (n=3)	4	3
Group 5 (n=4)	3.75	2
Group 6 (n=3)	3.67	1.67
	Accomplishing tasks within reasonable time	
	Local group	Transatlantic group
Group 1 (n=3)	3.66	2.33
Group 2 (n=4)	3.5	3.5
Group 3 (n=3)	4	3
Group 4 (n=3)	4	3
Group 5 (n=4)	4	2
Group 6 (n=3)	3.5	1
	Establishing a sense of community	
	Local group	Transatlantic group
Group 1 (n=3)	3	2.33
Group 2 (n=4)	4	3
Group 3 (n=3)	3	2.67
Group 4 (n=3)	4	2.67
Group 5 (n=4)	4	1.75
Group 6 (n=3)	4	2.33

With respect to establishing common goals and procedures, scores ranged from “insufficient” to “good” for the transatlantic cooperation, and from “good” to “very good” for the local groups. Similar results were obtained for assigning roles and specific tasks, accomplishing tasks within reasonable time, and establishing a sense of community with the transatlantic groups. The exception was Group 2, whose scores for their transatlantic partners ranged between “good” and “very good.”

How the Giessen Groups Viewed Their Joint Projects

Table 2 shows the results of the post-course questionnaire administered to the Giessen group regarding the joint project.

Table 2. Mean ratings on Post-Course Questionnaire Regarding Joint Projects by Giessen Groups

	n	Identifying with the final product	Negotiating a common project with the cooperative group
Group 1	3	3.33	2.33
Group 2	4	3.25	3.25
Group 3	3	3.67	2.33
Group 4	3	4	2
Group 5	4	3.25	2.5
Group 6	3	3.5	1.33

With respect to identifying with their final product, participant scores ranged from 3.25 to 4.0. However, with respect to “negotiating a common project with their transatlantic groups”, the scores ranged from 1.33 to 3.25. These results seem to indicate that while all groups felt they could identify with their final product, they did not seem to consider having been successful in negotiating the respective products with their transatlantic partners – with the exception of Group 2.

Possible Reasons for Differences Between Perceived Success in Local and Transatlantic Groups

Institutional Factors

There appeared to have been an institutional mismatch (see also Belz, 2002) because the project was an elective course in Monterey, while it was a required course in Giessen. Here is a revealing comment by a Monterey participant: “[S]ince it’s a 2 unit course for me, I don’t dedicate enough to this class since my other classes demand so much of my time in terms of papers and exams.” (Lynn, Monterey Group 3).

One source of difficulty was the differing interpretations of the joint syllabus by teacher educators and participants. There appeared to have been a gap between what the teacher educators and the researcher had tried to communicate to the participants and their understanding of it. This, in turn, led to different goals and expectations for the transatlantic collaboration. For instance, Lynn believed that “[o]ne problem could be the lack of communication between the professors running the course. I feel that there was some misunderstanding regarding the theme of the topic [...]” (Lynn, Monterey Group 3).

In addition, participants were faced with a rather tight schedule since they only had eight weeks for getting to know their transatlantic partners and for completing their joint projects. This made it difficult for them to establish personal rapport. They had little time to clarify project requirements because they had to decide on their joint topic during the second week of the course. Furthermore, negotiation about the choice of topic turned out to be rather one-sided in all groups, except for Group 2. In transatlantic groups 1, 3, 5, and 6, the Giessen groups were dominant in choosing the topic, while in group 4, the Monterey group made the decision.

Nonetheless, most groups enjoyed the chat function for getting to know each other and the feelings of immediacy, directness, and “dialogue” that it helped create. Group 1 commented that

chat was used as a tool twice a week for progress checking and discussion. According to one of the Monterey participants, “[t]his has helped us to communicate and share ideas more effectively” (Susan, Monterey Group 1). She also felt that as “the project progressed, I think our chats became more productive and helped me gain a better understanding of where the group wanted to take this project.” When Sabine of Giessen Group 4 wound up chatting with her two Monterey partners, her chat was perceived as a “turning point” because members on both ends managed to clarify issues that had previously gone wrong. This helped Sabine to “have kind of a personal contact to them and that is what makes me feel more comfortable with the whole project [...]”.

Technical and Logistical Issues

With regard to technical issues, Giessen Groups 3, 4, 5, and 6 often had to wait a relatively long time before they received answers from their transatlantic partners. Misunderstandings arose due to the absence of face-to-face communication. For example, one participant mentioned that she found it rather difficult to negotiate only via a computer because of “spatial distance and lack of personal contact” (Ulrike, Giessen Group 5). A participant from Monterey also complained about the lack of shared knowledge in CMC-based communication: “[...] Because they are working with each other face-to-face they don’t seem to understand that we are not in the loop of information and come across as a bit impatient that we aren’t reading their minds [...]” (Gina, Monterey Group 5). Moreover, the fact that the initial task was project-based was considered a disadvantage. For example, Gina stated that she just wished that they could have established more personal contact from the start by “[...] talking about ourselves and our hobbies rather than the [introductory] article [...]”

Sociolinguistic Problems

The task of negotiating via CMC is complex and demanding even for high-intermediate and advanced language learners primarily because participants have to rely on the written medium and need to make sure they are not only explicit about what they want to express in the target language but also observe the appropriate sociolinguistic norms. For instance, some common ways of asking for clarification in American English are “Please correct me if I’m wrong, but...” “I am not sure that I understand your position,” or “Do you mean that...?” (see Rodgers, 1998, pp. 147-155 for further examples). Using such phrases is especially important when first communicating with strangers to avoid setting out on the wrong foot. For example, the use of modal verbs by the Giessen participants, e.g., “you should,” was considered harsh (Gina, Monterey Group 5).

Mio (Monterey Group 5) pointed out that she had just made a grammatical mistake in English during one of the chats. She indicated in her logs that she felt frustrated and inhibited in the chats because she could not type fast. This may have resulted in her failure to participate in subsequent chats. Her German partners, on the hand, interpreted her failure to participate quite differently. Katrin (Giessen Group 5) concluded that her Monterey partner did not feel responsible for the group: “[...] A thing that makes me a bit sad is that M. seems to try to keep herself kind of out of the project work--she seems to have no time to chat or do things we’ve agreed on [...]”

Pedagogical Value of the CMC-Based Project

Participants in Giessen and Monterey were also asked how they viewed the pedagogical value of the CMC project. Table 3 shows their responses to two questions. Participants in Giessen replied to these questions in the small-group interviews after the course, and pre-service teachers in Monterey responded to these questions via email.

Table 3. Participant Evaluation of the Pedagogical Value of the CMC Project.

	n	Yes	No	No Opinion	No Answer
1. Does CMC make sense for you in teacher education seminars?	26	17	0	0	9
2. Can you imagine trying CMC out in your own future teaching?	26	15	4	2	5

Results show that the majority of participants (65%) felt that CMC made sense in teacher education because, among other reasons, it provided them with hands-on experience. For instance, Mio emphasized the importance of clarifying the goals of such projects:

“I think the projects like we did make sense at [*sic*] the teacher education to some extent as long as it is [*sic*] well planned. [...] At first, I didn’t know what we were doing. I think it is crucial to set a purpose and goal for doing this kind of projects [*sic*] and to make them explicit so that all the participants will understand the importance of doing the project” (Mio, Monterey Group 5).

Another participant listed a number of advantages, such as creating a sense of community and developing intercultural awareness:

Yes I do for several reasons.
 - creates a larger sense of community as student teachers
 - helps us develop cross-cultural awareness
 - familiarizes us with the challenges [*sic*] and benefits [*sic*] of using CMC and CALL in learning (Betsy, Monterey Group 3).

As can also be seen from Table 3, slightly over half of the respondents (58%) felt that they could imagine using CMC in their own future teaching. However, some of them pointed out that they felt “motivated but not quite competent yet,” that they would “not use CMC by themselves,” that they would “only do it after having taught for a while,” and that they would “only do not-so-complex projects (i.e., with small classes and with a lot of training).” One pre-service teacher noted that she felt she could use CMC in her own future teaching because of the experience she gained from this project:

Yes. I am very motivated to use cmc as a tool for language teaching. Also I have become aware of the problems you have to face as a teacher when using this media. I learned a lot about communication via First Class and that was very helpful to me. Also getting to know “the other side of the ocean” a little more was very enriching. I am glad I joined the course. It was fun – although it was also a lot of work (Anonymous, Giessen Group 2).

However, another participant explained a negative response in this way:

No, not at this point and certainly not with groups with different languages unless some serious learner training took place before the project began. [...] What I feel I got from this project was a very clear understanding of how written language does not clearly communicate the speaker's/writer's intended meaning [...] Also, I realized how much learner training needs to take place before CMC projects-especially if two different cultures and languages are involved (Gina, Monterey Group 5).

Profile of a Successful Transatlantic Group

There were several possible reasons for the success of Group 2. Among them are being able to build trust and positive rapport, being aware of the impact of the project on their professional lives, being able to resolve miscommunications and to negotiate project goals and expectations.

For example, Nancy expressed her excitement about the collaboration and her interest in getting to know her German partners' culture and also made clear early on that she was aware of the meta-level of the project: "I hope that our exchange will prove to be interesting on an academic [*sic*] level, but also I am hoping that we will participate in cultural exchange. As teachers, I hope that we can offer each other ideas about activities." (Nancy, Monterey Group 2).

Although Group 2 had to struggle with misunderstandings, its members demonstrated their ability to clarify issues with their partners. Here is what Sonja from the Giessen group wrote: "There have been some misunderstandings as we had different ideas of lesson plans for example. But I think we have solved the problem now and are getting along well." Sonja also commented that although they "had some miscommunication, we did not allow discouragement to stop our communication. And it worked out very well."

Lastly, Group 2 discussed the goals and expectations for their collaboration. As Nancy noted, they had been "[c]larifying our project outlines and course requirements through e-mails; We have agreed upon a collaborative project and are in the process of identifying a format for both MIIS [Monterey] and Giessen groups to follow in terms of lesson planning."

CONCLUSIONS

Lessons Learned from this Study

As seems obvious from this study, time constraints due to differing academic calendars were a major problem. Yet, accomplishing a joint product should not come at the expense of time that needs to be spent on group formation processes and trust building, especially in the beginning. In order to deal with this challenge, teacher educators could put groups in touch via email prior to the start of the semester to enable participants to get to know each other personally.

It is also essential to provide participants with information about each other's contexts, especially when there are differences in the set-up of courses as was the case in this study. Teacher educators may need to provide sufficient information about course goals, requirements, tasks, expectations, and limitations.

Another important issue was the articulation of goals and expectations for the project. It is important to spend sufficient time prior to starting the collaboration to ensure that students read the syllabus and fully understand the complex nature of the project. Participants could be asked to paraphrase their understanding of the project's tasks, goals, and expectations which can then be discussed in class. Moreover, they could be encouraged to discuss goals and expectations with one another as well as periodically re-evaluate them within their groups. This is essential to avoid frustration and disappointment with the project. To achieve this, pre-service teachers could be asked to keep logs or diaries in which they reflect on their learning and collaboration. Participants may also choose to share entries with their group members to find solutions for their concerns. They could also be asked to reflect on their peers' lesson plans and to think of ways to adapt the plans for their own classes. Teacher educators may also want to address some linguistic issues, including the use of appropriate sociolinguistic forms in negotiation. It is also essential to raise participants' awareness of the pace and efficiency of different media.

Finally, some proposed chat strategies can include incorporating a pre-configured role for chat as a socializing instrument. It is suggested that pre-service teachers meet in their groups to chat on a regular basis. Specific chat-based tasks could range from "find someone who..." so that group members learn more about each other, to activities aimed at discussing and re-evaluating goals and expectations throughout the course.

Recommendations for Future Projects

Further research is needed that includes multi-side observations or multiple case studies (see Müller-Hartmann, 2001, pp. 208-213) in order to generate a typology of strategies needed for successful group negotiation via CMC (see Kluge, 1999, pp. 91-215 for generating typologies). A typology of CMC-based negotiation strategies would help teachers and teacher educators to prepare learners for CMC-based projects. These strategies may help overcome some of the difficulties resulting from the lack of face-to-face contact in CMC.

Finally, to gain insight into how pre-service teachers apply their newly acquired knowledge to their own classroom teaching, further research will have to follow them into their classrooms. Since more than half of the pre-service teachers in this study stated that they would be willing to use CMC in their own teaching, it would be interesting to find out which technology they actually chose to use in their classes, and if they were able to apply it successfully in their own teaching.

ACKNOWLEDGEMENTS

I would like to thank Michael K. Legutke (Justus-Liebig Universität Giessen, Germany) and Leo van Lier (Monterey Institute of International Studies, CA) for their kind support and cooperation in this project. In addition, I would like to thank Irene Thompson and David Hiple for their valuable feedback on an earlier version of this paper.

ABOUT THE AUTHOR

Carolyn Fuchs has recently completed her Ph.D. dissertation, a qualitative analysis of a German-American computer-mediated communication project in language teacher education. She holds an MA in TESOL and a Certificate in TFL, and her primary research interests include synchronous and asynchronous CMC-based language teaching, electronic literacy, corpus

linguistics, socio-cultural theory, dynamic assessment, intercultural learning, and electronic portfolios in language teaching and language teacher education.

REFERENCES

- Bell, L. (Ed.). (2001). Preparing tomorrow's teachers to use technology: Perspectives of the leaders of twelve national education associations. *Contemporary Issues in Technology and Teacher Education*, 1(4), 517-534.
- Belz, J. (2002). Social dimensions of telecollaborative foreign language study. *Language Learning & Technology*, 6(1), 60-81. Retrieved August 27, 2003, from <http://llt.msu.edu/vol6num1/belz/>
- Belz J., & Müller-Hartmann, A. (2003). Teachers as intercultural learners: Negotiating German-American telecollaboration along the institutional fault line. *The Modern Language Journal*, 87, 71-89.
- Chapelle, C.A. (2003). *English language teaching and technology*. Amsterdam: John Benjamins.
- Denzin, N.K. (1970). *Sociological methods: A source book*. New York, NY: McGraw-Hill.
- Egbert, J., Paulus, T.M., & Nakamichi, Y. (2002). The impact of CALL instruction on classroom computer use: A foundation for rethinking technology in teacher education. *Language Learning and Technology*, 6(3), 108-126. Retrieved August 27, 2003, from <http://llt.msu.edu/vol6num3/egbert/>
- Flick, U. (2002). *An introduction to qualitative research* (2nd edition). London, Thousand Oaks, New Delhi: SAGE Publications Ltd.
- Fuchs, C. (2001). Munich - Monterey online: Integrating email and chat to foster reading and writing skills in a distance learning course. In Y. Saito-Abbott, R. Donovan, T.F. Abbott, & P. Kennedy, (Eds.), *Digital Stream 2000: Emerging technologies in teaching languages and cultures* (pp. 147-165). San Diego State University, CA: The Language Acquisition Resource Center (LARC).
- Fuchs, C. (2004). *(Topic) negotiation in CMC-based language teacher education: A qualitative analysis of a German-American collaborative project*. Justus-Liebig Universität Giessen, Germany. Unpublished doctoral dissertation.
- Gibson, S. (2002). Incorporating computer-based learning into pre-service education courses. *Contemporary Issues in Technology and Teacher Education*, 2(1), 95-116.
- Gimbert, B., & Zembał-Saul, C. (2002). Learning to teach with technology: From integration to actualization. *Contemporary Issues in Technology and Teacher Education*, 2(2), 204-217.
- Grotjahn, R. (2003). Konzepte für die Erforschung des Lehrens und Lernens fremder Sprachen: Forschungsmethodologischer Überblick. In K-R. Bausch, H. Christ, & H.-J. Krumm (Eds.), *Handbuch Fremdsprachenunterricht* (4th edition). [The foreign language teaching manual.] (pp. 493-499). Tübingen, Basel: Francke.

- Kluge, S. (1999). *Empirisch begründete Typenbildung. Zur Konstruktion von Typen und Typologien in der qualitativen Sozialforschung*. [Empirically grounded formation of typology. About constructing types and typologies in qualitative social research.] Opladen: Leske + Budrich.
- Kramsch, C., & Thorne, S.L. (2002). Foreign language learning as global communicative practice. In D. Block, & D. Cameron (Eds.), *Language Learning and Teaching in the Age of Globalization*. London: Routledge.
- Legutke, M.K. (2003). Forschendes und kooperatives Lernen in multimedialen Lernumgebungen. Ein Beitrag zur fremdsprachlichen Lehrerbildung. [Research and cooperative learning in multimedia learning environments.] In M.K. Legutke, & D. Rösler (Eds.), *Fremdsprachenlernen mit digitalen Medien*. Beiträge des Giessener Forschungskolloquiums. [*Foreign language learning with computer technologies*. Articles by the Giessen research colloquium.] (pp. 209–246). Tübingen: Narr.
- Müller-Hartmann, A. (2000). The role of tasks in promoting intercultural learning in electronic learning networks. *Language Learning & Technology*, 4(2), 129-147. Retrieved August 27, 2003, from <http://llt.msu.edu/vol4num2/muller/default.html>
- Müller-Hartmann, A. (2001). Fichtenschonung oder Urwald? Der forschende Blick ins vernetzte fremdsprachliche Klassenzimmer – Wie Triangulation und Interaktionsanalyse der Komplexität gerecht werden können. [Spruce protection or jungle? The researcher's look into wired foreign language classrooms – how triangulation and interaction analysis can deal with complexity.] In A. Müller-Hartmann, & M. Schocker-v. Ditfurth (Eds.), *Qualitative Forschung im Bereich Fremdsprachen lehren und lernen. Giessener Beiträge zur Fremdsprachendidaktik* (pp. 206-237). Tübingen: Narr.
- Nunan, D. (1992). *Research methods in language learning*. Cambridge: Cambridge University Press.
- O'Dowd, R. (2003). Understanding the “other side”: Intercultural learning in a Spanish-English e-mail exchange. *Language Learning & Technology*, 7(2), 118-144. Retrieved January 29, 2004, from <http://llt.msu.edu/vol7num2/odowd/>
- Rodgers, D. (1998). *English for international negotiations. A cross-cultural case study approach*. Cambridge: Cambridge University Press.
- Schocker-v. Ditfurth, M. (2001). Forschendes Lernen in der fremdsprachlichen Lehrerbildung. [Learning through research in foreign language teacher education.] In L. Bredella, H. Christ, M.K. Legutke, F.J. Meißner, D. & Rösler (Eds.), *Giessener Beiträge zur Fremdsprachendidaktik*. Tübingen: Narr.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research* (2nd edition). London, Thousand Oaks, New Delhi: SAGE Publications Ltd.
- Van Lier, L. (1996). *Interaction in the language curriculum: Awareness, autonomy, authenticity*. New York, NY: Longman Group Limited.

- Warschauer, M., & Kern, R. (Eds.). (2000). *Network-based language teaching: Concepts and practice*. Cambridge: Cambridge University Press.
- Willis, J. (2001). Foundational assumptions for information technology and teacher education. *Contemporary Issues in Technology and Teacher Education, 1*(3), 305-320.
- Willis, E., & Raines, P. (2001). Technology and the changing face of teacher preparation. *Contemporary Issues in Technology and Teacher Education, 1*(3), 412-420.
- Woodrow, J. (1993). The implementation of computer technology in pre-service teaching. *Technology and Teacher Education Annual, 368–373*. Charlottesville, VA: Association for the Advancement of Computing in Education.
- Wright, V. H., Wilson, E.K., Gordon, W., & Stallworth, J.B. (2002). Master technology teacher: A partnership between pre-service and inservice teachers and teachers educators. *Contemporary Issues in Technology and Teacher Education, 2*(3), 353–362.