
Online Discussion in a CALL Course for Distance Language Teachers

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ABSTRACT

Computer-mediated communication (CMC) is increasingly used not only in second/foreign language teaching but also in language teacher education. This study investigated distance students' participation in an online discussion group established for an applied linguistic course entitled Computer-Assisted Language Learning (CALL). Patterns of student-student interaction and students' attitudes toward the online discussion were identified through quantitative and qualitative analyses of the students' postings to the discussion group, transcripts of online discussions, and students' responses to a web-based questionnaire. The results of the study indicate that students contributed primarily in the forms of fully and partially task-focused messages while the messages mainly consisted of task-based answers and interactive contributions. Almost half of the student-student interactions involved giving on- and off-task opinions and/or ideas on particular matters. Students showed positive attitudes toward online discussions as a way of learning CALL as well as toward CMC as a means of facilitating collaborative learning. The findings suggest that online discussions are useful for CALL teacher training as they provide language teachers with practical experience of CMC and communication channels for sharing ideas, comments, questions, and resources with their fellow teachers.

KEYWORDS

Online Discussion, Computer-Mediated Communication, Computer-Assisted Language Learning, Distance Education, Language Teacher Education

INTRODUCTION

With the rapid growth of the Internet, computer-mediated communication (CMC) is changing the way of interpersonal communication and is linking individuals and educational institutions with their counterparts in other locations. It establishes "an electronic environment that is accessible to participants who might otherwise be separated by time zones and physical distance" (Wells, 1992, p. 1). In CMC, interaction can occur synchronously or asynchronously.

CMC can be utilized in a wide range of educational settings. For example, it can be easily integrated into a distance education course. Considering that many teachers are unable to attend a conventional face-to-face course for various reasons, distance education can provide those teachers with opportunities for further professional development without leaving school or home. The advantages



of distance education include self-paced learning, autonomy, and reflection (deep thinking); the disadvantages include difficulties in communication, isolation (reduced contact with peers and with tutors), and undesirable delays in the learning sequence (Howard & McGrath, 1995; Cowan, 1995). For effective learning, the advantages need to be positively exploited while the disadvantages should be overcome by providing adequate support for the learner. In response to this situation, CMC can be used to reduce the difficulties in communication and the feeling of isolation and also make the educational process more flexible (Trentin, 1997).

While computer-assisted language learning (CALL) researchers and practitioners have attempted to look into specific features within CMC which may contribute to improved language learning and teaching, very little research has been published on the evaluation of the effectiveness of CMC in the context of a CALL course and, in particular, on the analysis of patterns of interaction in online CALL discussion groups. This paper addresses this issue and reports the results of a study that evaluated student use and perceptions of asynchronous online discussions on CALL-related topics and investigated student-student interaction via electronic communication.

CMC, CALL AND LANGUAGE TEACHER EDUCATION

A number of researchers in education have examined various aspects of CMC such as academic writing in computer conferencing (Durham, 1990), flaming behaviour (Lea, O'Shea, Fung, & Spears, 1992), intercultural communication (Ma, 1996), interactions in conventional university courses (Light & Light, 1999; Light, Colbourn, & Light, 1997; Light, Nesbitt, Light, & Burns, 2000; Warren & Rada, 1998), online chat and group work (Pilkington, Bennett, & Vaughan, 2000), tutor group in distance education (Weller, 2000), distance students' online behavior (Wilson & Whitelock, 1997, 1998), and teacher education (Ahern & El-Hindi, 2000; Schlagal, Trathen, & Blanton, 1996; Trentin, 1997).

Similarly, CMC, as an expansion of CALL activities, has been widely used in second/foreign language classrooms in the forms of email (e.g., Barson, 1991; González-Bueno, 1998; Gray & Stockwell, 1998; Kern, 1996; Lunde, 1990; Sanaoui & Lapkin, 1992; Soh & Soon, 1991; Son & O'Neill, 1999), computer conferencing (e.g., Davis & Thiede, 2000; Zähler, Fauverge, & Wong, 2000), electronic discussion groups (e.g., Warschauer, 1996), and electronic bulletin boards (e.g., Lamy & Goodfellow, 1999; Meagher & Castaños, 1996). In line with this widespread use, teacher educators are very keen to include CMC activities in their teacher education programs and try to give teachers practical experience of CMC through their programs (Kamhi-Stein, 2000; Motteram & Teague, 2000; Murray, 2000; Nunan, 1999). In the context of a CALL course particularly, online discussion activities are being integrated into the course as a means of encouraging teachers to develop knowledge through experience (Johnson & Brine, 2000; Son, 2000b).

Recent studies on the use of CMC tools in language teacher education have



shed some light on the issues of the use of technology and the potential of CMC for teacher training. Nunan (1999), for example, investigated the learning opportunities provided by a web-based Master of Science program in TESOL through a case study. The participants in the study were four native speakers of English and one native speaker of Japanese. Data for the study included transcripts of synchronous web-based chats over an 8-week period and students' evaluations of the course in interviews. Nunan found that the students made connections between the context of their work and the context of their learning in web-based chatting, the discourse of the synchronous interactions was similar to face-to-face interactions, student-centred discussions occurred as the course developed, and the interactive classes facilitated the evolution of a shared culture between participants. While pointing out that web-based courses offer great potential for constructivist, student-centred and collaborative approaches to learning, he concluded that the technology is simply a tool which can be used to support face-to-face instruction. In another study on web-based bulletin board (BB) discussions in a TESOL MA course entitled *Methods of Teaching Second Languages*, Kamhi-Stein (2000) investigated 20 students' participation patterns in face-to-face discussions and in web-based BB discussions and their attitudes toward the latter. Through the analysis of transcripts of web-based BB discussions, Kamhi-Stein found an increase in student contribution and a decrease in the instructor's participation. She also found that there was no difference in the level of participation of nonnative English speakers versus native English speakers and that web-based BB discussions promoted peer support and collaboration whereas face-to-face discussions reflected the initiation-response-evaluation pattern. She concluded that a web-based BB system can be a means of integrating technology into TESOL teacher education and helps teachers develop knowledge through collaboration.

THE STUDY

Subjects

The subjects in this study were 22 distance students (12 male and 10 female; mean age 39, ranging from 27 to 51 years) enrolled in a CALL course as part of their Masters programs offered through a university in Australia. They consisted of 17 native speakers of English, two native speakers of Korean, one native speaker of French, one native speaker of Hungarian and one native speaker of Slovakian. There were 19 ESL (English as a Second Language) and three LOTE (Language Other Than English—French, Chinese and Japanese in this study) in-service teachers residing in seven different countries, participating in the course. Of the 22 students, 19 were active in the online discussions and made contributions to the student-student interactions and responded to a web-based questionnaire while all of the students completed the unit questions and tasks assigned as part of their course requirements.



The Course

Offered by distance education over a 15-week period, the CALL course was designed to introduce language teachers to the field of CALL by providing them with insights into key aspects of CALL and a basic knowledge of the practical uses of computer technology in language instruction. The course consisted of three major modules: (a) a discussion on basic concepts of CALL and identification of terms associated with CALL, (b) a review of previous research on CALL and discussion of general trends and issues in CALL research, and (c) attempts to answer the question of what language teachers can do with CALL to enhance second language teaching. The final module explored language teachers' roles and tasks in CALL environments in terms of observation, design, implementation, evaluation, and management. The assessment for the course consisted of three assignments: two essays and a CALL design/evaluation project. In addition, the course had the requirement of participating in an online discussion group.

Materials

At the beginning of the course, the students received a study package containing an introductory book, a study book, and selected readings. The study book was their guide to studying the course. It provided a framework of the concepts presented in the course, directed them to appropriate readings, and contained frequent exercises and questions that they were advised to complete. It also contained various prompts to post messages to the online discussion group.

In the preparation stage, the electronic discussion group was created to hold discussions using text messages as a medium for communication. The online structure of the discussion group allowed participants to post messages, primarily focused on issues arising from the course content, for everyone to read and to respond to at the convenience of the participants. As part of the course assessment (weighting of 10%), students' contributions to the discussion group, including their completion of unit questions, tasks, and participation in online interactions, were marked by the instructor in terms of the quality and quantity of their contributions.

At the end of the course, a web-based questionnaire was used to document the students' use and perceptions of the online discussions. The questionnaire was composed of two parts, the first containing 10 statements requiring numerical responses and a second section asking for written responses to five questions. A numerical code from one to five was used in the first section, ranging from strong disagreement to strong agreement.



RESULTS

Postings to the Online Discussion Group

Participation

Participation in the online discussion group was classified into three categories: fully task-focused, partially task-focused and off-task. Fully task-focused postings were those that included a direct answer to the unit questions, a compulsory aspect of the online course work. Partially task-focused messages were those that responded to another student's answers or which discussed topics relating to CALL (e.g., language learning/teaching and computer issues). Postings that were not related to CALL were classified as off-task (see Table 1).

Table 1
Categories and Frequencies of Postings to the Online Discussion Group

Participation		
Full task focused	224	(47%)
Partially task focused	209	(43%)
Off task	47	(10%)
Message types		
Task-based messages	224	(47%)
Interactive messages	191	(40%)
Self-introductory messages from the students	23	(5%)
Informative messages from the instructor	16	(3%)
Erroneous messages	16	(3%)
Administrative matters	10	(2%)

Note: A total of 480 messages were posted in the discussions, excluding discontinued students' messages posted in the early stage of the study.

Student contributions in the online discussions were primarily in the forms of fully and partially task-focused messages. Almost half of the posted messages were in direct response to the unit questions/tasks (47%), while 43% of all messages were partially task focused. Only 10% of postings were nontask related.

Message Type

Messages were grouped into six types: self-introductions, task-based answers, interactions, the instructor's informative messages, erroneous messages, and administrative matters. These types emerged from the content of the students' contributions. The task-based answers were a required part of the course evaluation while student interactions were optional.

The task-based answers accounted for almost half (47%) of all messages posted. Of the remaining messages, most were interactive contributions (40%



of all postings). All students gave a personal introduction, and these postings accounted for 5% of all contributions. The instructor posted a few messages to the discussion group at various intervals. Human error accounted for some messages; some contributions were occasionally repeated in sequence, and some students made apologies for their personal errors and mistakes. These postings were classified as erroneous messages. Some students also discussed administrative matters such as the purchase and delivery of course materials. Course-related messages from the instructor, erroneous messages, and administrative messages were infrequent, and each accounted for less than 5% of the total.

Interactions

Interactive messages between the students were posted to the discussion group; a minimal number of student messages were directed to the instructor (see Table 2).

Table 2
Categories and Relative Frequencies of Interactions

Interactions*		
Student-instructor interactions**	14	(7%)
Student-student interactions	177	(93%)

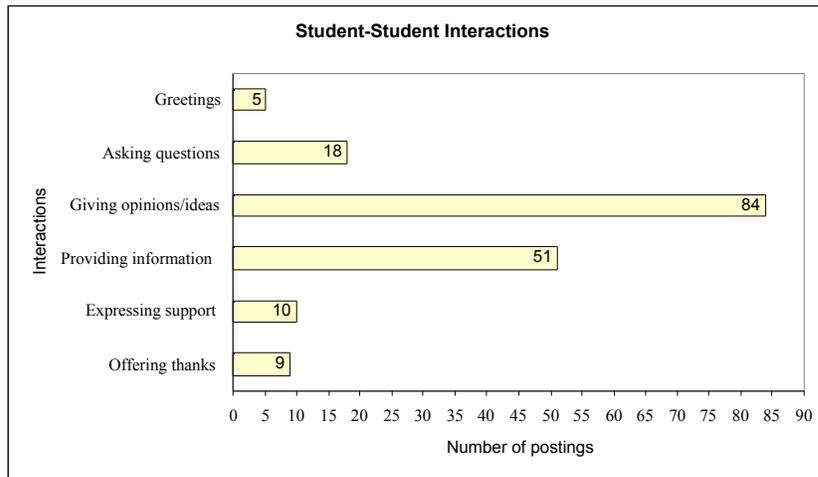
* A total of 191 messages were categorized as interactions.

** The students were encouraged to use email as the main channel of communication with the instructor. The instructor received 175 direct email messages from the students during the semester.

The student-student interactions (177 messages in total, 93% of all interactive messages) were further categorized into six subcategories: greetings, asking questions, giving opinions/ideas, providing information, expressing support, and offering thanks. When multiple categories appeared in one message, only one category was assigned on the basis of the main theme or purpose of the message. Almost one half of the student-student interactions involved giving on- and off-task opinions and/or ideas on particular matters. Some students used the online discussion to provide information to other students, and these contributions accounted for almost one third of all student-student interactions. The students also used the online discussion to seek out information by asking questions (10% of the interactions). Greetings, expressions of support, and thanking others each accounted for less than 10% of the interactions (see Figure 1).



Figure 1
Categories and Relative Frequencies of Student-Student Interactions



Content of the Interactive Postings

The students were asked to post their answers to a total of 16 open-ended questions and tasks in the study book given to the online discussion group. This activity allowed the students to feel free to comment on other students' answers and to share their ideas with them since there were no correct answers to the selected questions and tasks. Questions included

- Think about computer technology and learning. What do you think about the role of the computer in learning?
- What do you think about the future of CALL? Note the reasons for your view.
- What benefits do you see in using electronic mail in second language teaching?
- Make a short list of your own selected CALL resources for teachers' professional development. (Son, 2000a)

In most cases, the students' answers to these questions were accompanied by follow-up interactions. For example, the discussion of the future of CALL appeared to be initiated on two separate occasions. The first interaction included a student's opinion posted in response to a task-based answer and a request for other students' comments.

Yes, I am so glad that there is someone who doesn't believe computers will substitute conventional teaching/learning. I agree that computers will alter traditional classrooms for better, but human factor will still need to be present. ... It is interesting to know what other people think of our classroom future
RE: computers. (*Student Q*)



It appeared that no student directly responded to this comment, but three other students expressed similar ideas when the topic resurfaced. For example, *Student V* responded to *Student D*'s task-based answer by writing, "I support your comments that see a viable future for CALL." Despite minor differences and justifications for personal opinions, these students all agreed on a viable future for CALL as well as the notion that the classroom teacher cannot be replaced by the computer.

It is true that CALL is here to stay. I think it is useful for acculturation. But really, there is no substitute for a good language teacher that uses a variety of methods (computerized or noncomputerized) to make a language come alive for the novice language learner. (*Student V*)

I completely agree. The problem is that there aren't enough good language teachers to go around. Or in some larger classes, the teacher just can't give enough attention to each learner. This is one of the places that I hope CALL can come into its own. (*Student H*)

Topics that generated active discussions between group participants, apart from the questions given as course requirements, included the printing press, the quality of ESL teachers, IT skills and language learners, keyboard skills, and writing on the computer. For instance, the printing press gained some discussion from the students. This series of interactions were initiated by a student's statement and subsequent question.

It seems to me that the computer is simply a new, permanent and popular method of transmitting information and ideas. I wonder if academics had a similar discussion to the one we're having with regard to 'the book' after the printing press was invented? I suspect the question is not 'should we use the computer?' but only 'how should we use the computer?' in the classroom. Any thoughts? (*Student C*)

Another student responded, "Of course we are all threatened by what is new and more to the point, what we cannot completely control." The student went on to give examples of children that learn how to use the technological advances before the rest of society.

Another interactive discussion arose from *Student J*'s task-based answer in which he discussed "the demand for quality English education" and "the unqualified so-called ESL teachers and poor quality courses" offered by many English schools. While other students similarly expressed their concern about the lack of quality ESL teachers, *Student D* suggested a possible solution.

CALL has the potential to monitor quality control to some degree, although CALL programs need to be managed as I'm sure many of you can testify. It's becoming a saturated market out there and indeed our 'consumers' are demanding high quality education. And why shouldn't they have it?



Meanwhile, *Student A* posted his opinion that language teachers do not incorporate IT enough and that “we need to develop students’ skills in IT through languages and languages through students’ IT skills.” He further asserted that IT should never have been used to “promote computer subjects, but to encourage the use of computers in ALL subjects” and that students must not be restricted by “insufficient knowledge of their learning tools.” Another student expressed her agreement with this opinion and added, “Again language learning is contextual and CALL is not only learning language through a computer but learning how to communicate through a computer.”

The interactive discussion on IT skills and language learners progressed onto English for specific purposes, with *Student C* and *Student D* giving their opinions. “This is an excellent example of how we must remember that English language teaching is situation specific,” stated *Student D*. She went on to give examples of English for specific purposes, to which *Student C* replied, “But we try to teach fundamental English before we move onto English for specific purposes.” *Student D* then justified her previous comment and added that “there is room for computer assisted learning” in English classes for specific purposes.

Unlike the previous discussions, interactions about keyboard skills were initiated by *Student H* simply writing,

Just read something which implies that poor keyboard skills mean that it is impossible for students to take part in real-time chatting activities. I’m not so sure about this—difficult yes—impossible no. Comments anyone?

Two students agreed with *Student H*’s opinion that it is not impossible. One student further added, “Perhaps the dual language keyboards may exacerbate the difficulty,” while the other student suggested, “I think it’s best to set up online chat situations after students have become familiar with the keyboard.”

The most interactive topic discussed by the students concerned writing assignments on the computer, with a total of 19 postings (approximately 20% of all partially task-focused opinions/ideas). This discussion began with a statement by *Student R* concerning her interest and opinion on an article about computers in the second language writing classroom, especially the human-machine interface. She stated

If I’m honest I must say that for some reason, although competent enough with the editing tools in word processing, I still somehow need to do my ‘planning’ and initial shaping of a written assignment on paper which I then copy onto the PC for editing. I wonder if this reflects my prior experience in learning (very much the traditional precomputer type of learning). I also wonder whether more computer-friendly learners do absolutely everything on the screen without call on pen and paper. Does anyone else have a comment? (*Student R*)

Two students indicated that they also needed to write down their initial plan on paper, before using the computer for word processing. One student pointed out



that while she uses pen and paper for academic writing, she types directly onto the computer for her freelance work; five students said they do not use pen and paper at all. Two students suggested that the reason they write on paper initially could be due to their age ('precomputer'). However, *Student Q* described how some of her teenage students also use pen and paper and suggests that "this is more or less habitual and it has nothing to do with generations." Another student, although not a user of pen and paper, said, "However, when it comes to going over the final drafts, I still like to print it out—for proofreading and final checking," to which three students agreed. This same student also initiated a mini-discussion by giving his opposing view to the statement that the use of drag and drop editing (for cutting and pasting) was time consuming compared with drawing an arrow on a paper draft. Others also disagreed with the statement and some further stated that they prefer to use the control keys instead of the pull-down menus.

Questionnaire

Responses to Statements

The results of the students' responses to Section 1 of the questionnaire are given in Table 3. The first statement commented on whether the online discussion activities were enjoyable; the mean rating of 3.9 indicated that most students agreed with this statement. They also found the discussions constructive, with five respondents strongly agreeing (item 2). To the statement (item 3), "I feared peer evaluations on my answers and comments posted to the discussion group," a mean score of 2.6 indicated that the group was uncertain. Ten students, however, did not fear peer evaluations while five students did.

Table 3
Average Ratings on the Questionnaire Items (n = 19)

1. The online discussion activities were enjoyable.	3.9
2. I found that the interaction in the discussion group was constructive	3.9
3. I feared peer evaluations on my answers and comments posted to the discussion group.	2.6
4. I would have welcomed greater instructor engagement in the online discussions.	3.9
5. I was satisfied with others' contributions to the discussion group.	3.6
6. The online discussion group participation was a valuable experience to me.	3.8
7. Communication and exchange of ideas were achieved effectively through the online discussions.	3.6
8. I think that online discussions are essential for teacher training for CALL.	4.2
9. I think that online discussions are a good way of learning CALL.	4.3
10. I think that CMC can facilitate collaborative learning.	4.2



Despite the intention that students would use the online discussions for collaboration, many students indicated that they would have welcomed more online instructor participation (item 4). Three of the 19 responses, however, disagreed with the statement, showing that a few students would not have appreciated greater instructor engagement. The statement (item 5) "I was satisfied with others' contributions to the discussion group" generated mixed responses (a mean score of 3.6), where 14 students were content with the discussions and five respondents were not.

While two respondents did not agree that the online activities were valuable, a mean of 3.8 indicated that most agreed with the statement in item 6. The question of the effectiveness of communication and exchange of ideas through the online discussions (item 7) generated 13 positive responses (mean of 3.6).

Approximately 84% of the respondents agreed to each of statements 8, 9, and 10. The students considered online discussions to be essential for teacher training in CALL, to be a good way to learn CALL, and to facilitate collaborative learning.

Answers to the Open-ended Questions

The questionnaire contained five open-ended questions. Students' responses to these questions are summarized below.

1. How did you deal with reading and responding to others' postings to the online discussion group?

The students' responses to this question show that most students responded differently to others' postings to the online discussion group. Only four respondents indicated that they read all the postings, with one of these students responding to many postings and one responding only "if a pertinent idea occurred to me." This student, along with another, also wrote notes from others' messages or printed others' postings for further study. Two students also downloaded new messages and read them off line. Three students said they only read what was interesting or relevant at that time and responded only to postings of particular interest to them. Two students indicated that they read postings to see how others answered the task-based questions while one did not read others' postings before submitting her own answers for "fear of it being more difficult to give my own opinion." Two students said they would post something that they thought might have been of use to their peers in the discussion group. In contrast, two students indicated that they used the online discussions as an information source by either asking questions or posting messages to seek out others' viewpoints, especially those who had more knowledge in a particular field. Similarly, one student said other students' answers or postings were useful when he had study problems. A student expressed that she was "more concerned about just writing my own postings as a requirement of the course. I was not so much concerned about interacting." Another student simply stated that he tried to be open minded and learn as much as possible about CALL.



2. What were the factors that affected your degree of participation?

Of the 19 respondents, 12 mentioned two or more factors that either positively or negatively affected their degree of participation. The most common factors, in order of decreasing frequency, were lack of time (9 comments), a decision that either no response was needed or selecting to respond to specific postings (8 comments), and technical problems, including lack of computer knowledge (4 comments). Other infrequent factors that had a negative effect on participation were intimidation by others' experience with computers and no other or instructor input. Positive influences included the enjoyment gained in reading others' responses and high interest levels.

3. What do you think are the strengths of the online discussions of CALL-related topics or issues?

Fifteen of the 19 respondents listed more than one strength of online discussions of CALL-related topics or issues. The notion that these activities supported collaborative learning and group interaction was commented on by 12 respondents. Speed, including the availability of immediate help and the convenience of the online discussions, were strengths mentioned by 7 students. Five students pointed out the immediate relevance of the online discussions to the subject of CALL. As one student simply stated, "I think most importantly it demonstrates how CALL can be used effectively as a learning tool." Other strengths listed were peer support, educational value, and the building of a resource base, each one being mentioned three times. Other students also thought the activities were fun and stimulating. One student believed a strength of the online discussions was that they eliminated feelings of isolation that many distance education students face. Other reported strengths were that the activities were up to date, that there was an opportunity to talk professionally and technically with someone, and that those living in non-English-speaking countries were able to use English.

4. What suggestions do you have for improving the online discussion group of the CALL course?

The most common suggestions made by the students were to have more instructor participation (recommended by six students), to have smaller group discussions (e.g., setting up interest groups and collaborative projects; from three respondents), and to categorize messages enabling easier perusal and choice of which postings needed a response (three students). Three respondents also recommended the online activities should allow for more informal discussion. One student recommended that a summary of the most useful postings (e.g., those containing web sites relating to CALL) be available for future students. Other suggestions for improvement were requirements that different people post answers to different questions in order to promote discussion and reduce bore-



dom and that students should post their comments on at least one other person's posting. While three students had no response to this particular question, two stated that the online activities met their expectations and needed no improvements.

5. Are there any other comments you would like to make about any aspect of group-based CMC discussion?

Seven students had no other comments to make, and, of the remaining 12 respondents, six made general comments such as discussing computer problems and their hopes and visions for the implementation of CALL in language classrooms. Some students expressed concerns about problems encountered while participating in the online discussion. For example, one student stated, "The group was so large that the responses tended to move down the screen quickly and be buried." Four respondents expressed the positive outcomes of participating in the online discussion group activities. One student commented

I really enjoyed it, liked getting to 'know' other students, their comments on the material, their sharing of Web sites and knowledge. It added a very human dimension to the unit which is difficult to convey in distance learning. Quite apart from the human aspect, it was very valuable in obtaining comments and hints for additional material and research.

DISCUSSION

This study evaluated the use of group-based CMC discussion of CALL-related topics by analyzing patterns of student-student interaction in an online discussion group and investigating students' perceptions of the online discussion. Data collected from the study were examined through analyses of transcripts of postings to the online discussion group and students' responses to a web-based questionnaire.

Individual postings consisted of fully task-focused, partially task-focused, and off-task contributions. In terms of the frequency of the postings, the students produced fully task-focused postings most often (47%), followed by partially task-focused postings (43%) and noticeably fewer off-task postings (10%). Due to the course requirement, the students had to post their responses to the preselected questions and tasks and regularly produce fully task-focused contributions. Considering that many students gave their answers to several questions in one message, the number of fully task-focused postings could be easily increased if they were requested to post their answers to each question in one message. The partially task-focused postings reflected the students' subsequent discussions of the topics directly or indirectly relevant to the preselected questions and tasks. This particular group of students participated in the fully and partially task-focused discussions at similar levels.



From the content of the postings, six message types were identified. Task-based messages (47%) were fully task-focused contributions from the students. The frequency of postings indicate that 40% of all the messages were actual interactive messages between the participants. Other message types included the students' self-introductory messages (5%), the instructor's messages posted for the course (3%), the students' messages posted by errors or mistakes (3%), and the students' messages about administrative matters (2%). These percentages suggest that the student-student communication was maintained even in the absence of a strong guiding voice of the instructor. In the discussion group, the instructor assumed the role of observer and facilitator rather than director or guide of the discussions. It seems that this role allowed the students to formulate their own ideas and to learn for themselves from the online discussions although there might be room for the instructor's inevitable involvement in clarification and feedback on the students' discussions.

The interactive messages contained a large number of student-student interactions (93%) and very few student-instructor interactions (7%). In the student-student interactions, the students posted messages mainly to exchange their opinions and/or ideas with their fellow students and to provide information on CALL resources or CALL-related topics. These interactions indicate a high degree of peer support and collaboration in the CMC environment. This finding is similar to the finding reported in Kamhi-Stein (2000) on the use of web-based BB discussions.

The students' first responses to the course questions initiated their subsequent discussions on the responses and discussions on other issues of CALL. Based on the course content, most students produced interactive discussions on various aspects of CALL from their own perspectives. The online discussion provided the students with virtual space for exchanging ideas and opportunities for collaborative learning with their fellow students in the course. The students themselves took great control of the learning process throughout the course.

The students' overall reactions to the online discussion group were positive. The students considered the activities to be constructive, enjoyable, and valuable. The results of the questionnaire also indicate that some students feared peer evaluations on their answers and comments, but most either experienced no fear or were essentially uncertain. Many students were satisfied with the contributions submitted by others, but some suggested that they would have appreciated greater instructor engagement. Most students strongly agreed that online discussions are a good way to learn CALL, to facilitate collaborative learning, and to provide teacher training.

The students showed considerable diversity in their reading of and responses to others' postings. Time and personal interests were the most significant factors in their degree of participation. The strengths of the online discussions included collaborative learning, group interaction, speed, convenience, and the relevance of the online discussions to CALL. Smaller group discussions or projects were suggested for improving the online discussion group. These sug-



gestions will be rechecked with other groups of students in the following academic year.

CONCLUSION

This study offers some insights into the issues of how effectively, and by what means, communication and exchange of ideas are achieved through online discussion, what patterns of interaction online discussion generates, and how teachers judge the value of their experience in electronic discussion. It also shows teacher educators the potential of CMC, particularly for online discussions, in a distance education CALL course for language teachers. Further, the use of CMC in language teacher education is important because it provides teachers with practical experience of CMC for its eventual implementation in their teaching situations as well as a collaborative communication channel with their fellow teachers. It would certainly be valuable to investigate the use of online discussions with many different groups of teachers in various contexts.

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