

Chapter 8

From Theory to Practice: Intracultural CMC in the L2 Classroom

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1. Introduction

The focus of the present chapter is intracultural computer-mediated communication (CMC), whose participants share a native language, such as American learners of German enrolled in language classes in the United States. It reviews the research done in this subfield of applied linguistics and examines the underlying pedagogical principles that inform the effective use of CMC in L2 settings. Specifically, this chapter aims to inform newcomers to CMC about previous studies and the reliability of their claims, to offer practical considerations for incorporating CMC into the L2 classroom, and to present tasks that are appropriate and effective for different levels of instruction.

2. Overview of the Existing Intracultural CMC Research

CMC is by now a staple in many college-level L2 classrooms and has had several aliases: ENFI (electronic networks for interaction, Bruce, Kreeft Peyton, & Batson, 1993), NBLT (network-based language teaching, Kern & Warschauer, 2000), CACD (computer-assisted class discussion, Chun, 1994; Ortega, 1997; Swaffar, 1998a), or CMFLC (computer-mediated foreign language communication, Meunier, 1998). It is often used with the intent to improve learners' opportunities to use the L2 creatively and to establish an interactional community that allows participants to exchange ideas in a positive learning environment. The research on intracultural CMC has grown exponentially in the last decade, sharing the spotlight with intercultural CMC in the most recent past. Given the number of studies published on this topic, it would be impossible to review all of them in this space. Thus, the following section samples only the seminal articles that launched CMC studies in the L2 learning context and other works that represent the current trend of CMC research.

2.1 CMC: An Early History

CMC was originally developed for deaf education at Gallaudet University in the mid-1980s (Bruce et al., 1993). After being used successfully in English composition courses, it made its debut in the L2 learning/teaching context in the 1990s. One of the early pioneers of CMC in language pedagogy were instructors using the *Daedalus Interchange Writing Environment* at the University of Texas, Austin.¹ Early asynchronous CMC (ACMC) typically referred to email exchanges, whereby one writer would submit a message to one or more recipients and wait until the respondent(s) read the message, composed a response, and submitted it. Synchronous CMC (SCMC), on the other hand, referred to immediate messaging in a local area network (LAN), using mostly split screens on which the writers/readers could compose their message and see those of their interactants on the other half of their screen in real time. Since the 1980s and 1990s, CMC has expanded to include online chats, *Blackboard*, or *WebCT* discussion boards, instant messaging systems, and other chat applications; these allow one-to-one, one-to-many, small-group and many-to-many (large group) interactions. Recent research in distance education explores the potential of videoconferencing—instructional activities which connect the instructor “face to face” with the students or students with each other. Not only does this interaction allow oral language practice, a skill that distance educators were often forced to neglect prior to this new capability of faster processors and readily available webcams and microphones, but it also promotes student motivation and retention (Wang, 2004; Wang & Newlin, 2002).

2.2 CMC in the L2 Context

Studies on the use of CMC for L2 learning have investigated the linguistic and affective benefits of this environment (Beauvois, 1995, 1998a, 1998b; Meunier, 1998). One of the first articles published on intracultural CMC in the L2 context was Chun’s (1994) longitudinal study on first-year German honors students’ computer-assisted class discussions (CDCs). This seminal work presented the findings that CMC can positively modify teacher-centered models of interaction in the L2 classroom by encouraging students to (a) interact with each other, (b) rely less on the L1, and (c) use a larger variety of discourse functions than in face-to-face communication. Chun found, furthermore, that CMC can reduce effects of shyness; her typically more reticent students blossomed in the online discussion environment.

Kern’s (1995) study was equally influential on subsequent studies in CMC. His analysis of collaborative SCMC among 40 second-semester French students revealed similar findings to those in Chun’s earlier work. Students exchanged messages with each other—questions, responses, commands—without teacher intervention or mediation. Although some people advocate that teachers keep monitoring and guiding the CMC interchanges because without such oversight “networking becomes an end in itself, lacking the structure needed to achieve specific educational goals” (Swaffar, 1998b, p. 179), Kern found that learners’ comments were “rarely produced for ... teacher appraisal” (p. 459). He praised CMC’s pos-

sibility for “reflection and analysis of direct interpersonal communication”(p. 459), allowing other students to quote and react to previous comments in greater depth. While his students’ linguistic and formal accuracy was reduced due to the fast pace of the interaction, they participated with boundless enthusiasm in these CMC sessions.

Another important early CMC study, published by Warschauer in 1996, has become one of the most often cited studies in CMC literature. In this article, he compared the language output of 16 advanced ESL students in Hawaii (5 Filipinos, 5 Japanese, 4 Chinese, and 2 Vietnamese students) as they partook in a *Daedalus Interchange* activity and face-to-face interactions “during a normal 75-minute class-period” (p. 12). The 16 students, divided into 4 groups, took turns either communicating on the computer or talking face to face. Each discussion took 15 minutes. The results showed that students participated more equally in the CMC discussion than in face-to-face interaction and that shy students were more likely to “speak up” during CMC sessions as were students whose self-perception of their fluency was lower (although, due to the small group size, the author’s generalizations must be viewed with caution). In addition, students’ language in CMC “was both more formal and more complex than [during] the face-to-face discussion” (p. 21). Not only did Warschauer’s study cement the positive view of CMC’s abilities to promote equal class participation and improve L2 skills, it also provided the field with standards for analyzing students’ language output: measures for lexical and grammatical complexity.

In an informative qualitative study, Sullivan and Pratt (1996) reported on the attitudes and writing performance of 38 intermediate ESL students, enrolled in two sections of an English writing course at the University of Puerto Rico. One class collaborated on brainstorming and the writing process using the synchronous chat function of *Daedalus Interchange*, while the other class completed these tasks in face-to-face discussions during the 15 weeks of the study. These authors found that while students in both classes had lower writing apprehension at the end of the semester, students in the CMC course had a significantly more positive attitude towards writing than their peers in the oral classroom and that they significantly outperformed their peers on writing scores: “the mean score in the oral class *decreased* significantly at the end of the fifteen weeks while the mean of the computer-assisted class *increased* significantly [emphases in original]” (p. 496).

Similar to the other studies, Meunier (1998) investigated possible affective benefits of CMC. She examined the role of personality and motivation (in which constructs she includes anxiety, risk taking, sociability, reaction to teaching styles, and integrative and instrumental motivation), attitude, and gender in CMC. She proposed that anxiety in CMC can pertain either to language or to the use of computers, the former reduced by CMC (perhaps due to the focus on information in the interactive environment), the latter mediated by students’ increased expertise with computers. She reported that CMC promotes risk taking and creativity with the L2, sociability with one’s peers, and improved (i.e., more learner-centered and flexible) teaching practices by the instructor. Eighty-three percent of her subjects (comprised of 54 French and 10 German students in advanced language classes)

reported that they had a positive attitude towards CMC, and “a surprising 24% of these students report[ed] considering foreign language studies as a major *due to CMFLC* [emphasis added]” (p. 158). Meunier argued that the primary reasons for such a positive reception included students’ feeling that they “can be understood and that they can sustain a discussion” which they are in control of and that they are genuinely “interested in their peers’ ideas and [are] thrilled by the authenticity of their exchanges” over extended periods of time while simultaneously improving the social fabric of the class (pp. 177-178).

In another seminal article, Beauvois (1995) discussed the findings of her study of learner output during four 75-minute interactions by 41 intermediate French learners. Seventy-five percent of her subjects reported that they felt the CMC sessions “facilitated self-expression” and were “much less anxiety-producing than the regular classroom in which they felt ‘on the spot’ and nervous when called on to participate” (p. 181). Her students also overwhelmingly reported that they felt the CMC sessions improved their ability to write and that they felt more comfortable about using the L2 both in oral and written contexts as a result of these interactions. They also explained that the delayed error correction (i.e., after the CMC sessions) allowed them to focus on communication during the CMC sessions while helping them recognize areas of weakness in their performance they still needed to focus on once the discussions were completed. Similar to Chun (1994), Beauvois’s students admitted that they were less likely to rely on the L1 to fill in missing communicative pieces and worked harder at expressing themselves only in the L2. Their only source of frustration, according to Beauvois, was the fleeting nature of CMC postings; students found it difficult to keep up with reading and reacting to all the output their peers produced. Several of Beauvois’s findings were reciprocated in a study of intermediate learners of German (Arnold, 2002). In Arnold’s study, learners reported that during SCMC sessions they felt that their peers’ written comments moved too fast for complete understanding. Her study also revealed, however, that students’ anxiety was reduced through participation in SCMC and face-to-face chats and that students’ focus shifted from trying to achieve only grammatical accuracy to expressing *meaning*.

Long’s interaction hypothesis lies at the basis of Blake’s (2000) study of 25 dyads in two intermediate Spanish classes who chatted using SCMC. He analyzed the students’ discourse in four interactional contexts (i.e., four different task types), examples of which included

1. one-way information gap task: develop and write up a personality profile of your partner
2. two-way information gap task: guess the object or concept that your partner describes (or gives synonyms for); list of possible words: *sadness, conflict, absence, history...*
3. jigsaw task: apartment—each partner has different Web ads and desires for selecting the best residence; students negotiate to reach a compromise, ultimately selecting one apartment
4. decision-making task: mystery object—based on written, sound, and im-

age clues given by the instructor, guess the identity of the mystery object, then write up the results using TEXTPAD (pp. 124-125).

The analysis revealed that regardless of the task type, learner-to-learner CMC exchanges matched the pattern originally identified by Varonis and Gass (1985) for face-to-face interaction between nonnative speakers: trigger, indicator, response, reaction. Smith (2003) later adapted the Varonis and Gass model specifically for CMC contexts by adding two functions: due to the delayed nature of CMC, confirmations and reconfirmations might be necessary.

Blake found relatively few instances of negotiation, but the distribution of these negotiations was task sensitive.² Jigsaw tasks produced the highest number of negotiations, followed—in order of decreasing frequency—by the decision-making task, the two-way information gap tasks and the one-way information gap task. The most intensive exchange (i.e., highest frequency of negotiation of meaning), however, was prompted by the task to write up a native-speaker profile, which was based on an online interview each L2 learner conducted with a heritage learner elsewhere on campus. The question remains whether intensive interest results in better language development compared to the amount of negotiation that takes place between L2 learners (for further discussion, see the section on designing tasks below).

The most frequent trigger of a negotiation sequence was lexical confusion (also supported by Smith, 2003), about which a student reported that “vocabulary means everything” (p. 129). Blake’s students overwhelmingly enjoyed the CMC sessions, interacting with their peers especially in extended discourse (as opposed to in-class exchanges, where student turns are often limited, and there are few opportunities for extended discourse). Of great importance, Blake found no evidence in his data that subjects learned incorrect language from their peers (contrary to Kern’s [1995] suggestion); rather, his students appeared to be quite aware of errors and worked together to correct them.

Negotiation of meaning is one way to work together on interactive mishaps and to correct them. These routines promote L2 development by helping learners to restructure the cognitive representation of linguistic systems (Long, 1996; Pica, 1994). Smith (2004) tested one aspect of this theory by examining intentional lexical acquisition during such negotiation routines in CMC. His study included 24 intermediate-level ESL learners who participated in one-on-one synchronous chats once a week for 5 weeks. They were told they would be tested on their knowledge of eight selected target items based on a pretreatment vocabulary test; eight words that were unfamiliar to all participants were chosen as the target items. The treatment sessions began with a general open chat about the day’s activities that was used as a warm-up activity, followed by a 30-minute target task (jigsaw or decision-making tasks³). The tasks were followed by two vocabulary tests (one productive—students had to name 16 items shown on an overhead; the other receptive—students matched pictures with lexical items shown on another overhead). Smith’s results indicated that if students had to discuss the meaning of a word, their receptive and productive knowledge of that word was significantly

higher than without this negotiation. In other words, “negotiated interaction ... facilitate[d] learners’ ability to recognize and produce new lexical items better” (p. 382) than if the speaker preemptively defined them to prevent potential miscommunication. Learner uptake—whereby learners in a turn following the negotiation sequence actively produces the correct or newly learned lexical item to demonstrate that it is now a part of their knowledge—was not evident in Smith’s study; he posited that this may be due to CMC’s permanence: the written text remains on the screen, making reiteration less necessary.

In addition, negotiation of meaning offers students opportunities to notice mistakes or gaps in their own knowledge that they can repair or fill through “interactionally modified and comprehensible input” (Pelletieri, 2000, p. 62). Pelletieri’s dyads of intermediate Spanish learners, who participated in weekly 30-minute SCMC sessions, regularly used negotiation routines triggered by lexical, semantic, morphosyntactic, and content difficulties. Especially joint composition tasks (in which students had to compose an essay online) prompted more morphosyntactic awareness (i.e., focus on form in a meaningful context). Due to the lack of nonverbal cues (which in face-to-face interactions indicate that a communication breakdown has been repaired/resolved to the mutual satisfaction of both interactants), negotiation routines in CMC included extended tie-up (i.e., repair) sequences. These routines, the data revealed, regularly moved towards an improved form of the L2 through immediate self- or peer-editing.

Previous studies illustrated positive effects on learners’ writing ability and indicated (based on student feedback) that their speaking abilities might improve as well. My own study (Abrams, 2003a) of 96 intermediate learners of German compared three groups of learners’ oral proficiency after regular class activity, ACMC, and SCMC sessions (the two treatment groups used *WebCT* for their discussions). The classes chatted or submitted their comments on the discussion board as whole groups to simulate such discussions in authentic settings, such as online magazine forums, discussion groups, or listserv discussions. The premise was collaborative learning: in each of the three groups of learners, different students read different articles pertaining to the same general topic (e.g., hunger, healthy eating, and eating disorders). Students had to answer the main discussion question(s) using the content and vocabulary/language they learned in their own reading to teach their peers and exchange ideas about these questions. The treatment sessions were followed by oral exams, during which students had to discuss general questions similar to those posed during the treatment chats and ACMC discussions. Subsequently, learners’ oral production was analyzed in terms of the number of communicative units they produced.⁴ The results showed that SCMC significantly increased the amount of language students produced in subsequent oral production compared to both ACMC discussions and merely oral practice; the quality of language, measured as lexical richness, lexical density, and grammatical complexity, was similar in all three groups, however. The significantly larger amount of language produced by the SCMC group suggests that interacting on this medium may lead to increased fluency and proficiency in the language.

Darhower (2002) examined the discourse produced by 33 students enrolled

in intermediate (fourth semester) Spanish classes produced during nine weekly SCMC sessions (using *WebCT*) in terms of various social interactive features: intersubjectivity, off-task discussion, greetings, leave takings, identity exploration, role play, humor, sarcasm, and use of the L1. He framed his study in Vygostkyan (1962) sociocultural theory which posits that the locus of learning is not within the individual but rather “is a product of social interaction with other individuals” (Darhower, 2002, p. 251) and interpersonal mediation. Darhower found that CMC participants quite regularly established a shared context for interaction (intersubjectivity), which allowed his subjects to explore each other’s perspectives on movies they liked, to explain their own positions, and thus maintain a coherent social space for substantive communication. He also found episodes of off-task behavior (five or more consecutive comments not related to the assigned discussion topic) in every chat session but noted that “learners found [these side comments] interesting and of immediate relevance to their lives” (p. 262). Off-task behavior was more common when the instructor left the chat session. Extensive greeting and leave-taking sequences (multiturn hello and good-bye exchanges, much longer than in face-to-face communication) served a social purpose to create a community of learners. Humor seemed to function in the same way: jokes (often one liners) and teasing helped make the learning atmosphere more socially cohesive. Experimenting with new identities was another notable social feature of SCMC; it allowed students to make mistakes with less personal risk. Darhower also found, similar to the findings reported by Chun (1994), Beauvois (1995), and Kern (1995), that students rarely resorted to the use of L1 to communicate with each other (and, if so, almost exclusively to provide a lexical item they did not know in the L2). Less positive were instances of sarcasm and insults, including flaming behavior (the use of vulgar, aggressive or otherwise offensive language; for further discussion, see Abrams, 2003b).

As this overview has demonstrated, research up to the current time has extensively examined the linguistic and affective benefits of intercultural CMC. These benefits include improved attitudes towards the L2, increased learner-to-learner interactions resulting in a positive learning environment for students, greater student output possibly leading to increased fluency in the L2, and more opportunities for negotiation of meaning fostering successful L2 development. At this point it is important to address some issues that CMC research should explore in the future.

3. Directions for Future Research

Current trends in SLA research increasingly recognize that “cultural and sociopolitical processes are central, rather than incidental, to cognitive development” and, thus, to language learning (Watson-Gegeo, 2004, p. 332). Warschauer (2000) states that “language learning is a complex social and cultural phenomenon, even more so when it involves new technologies that connect the classroom to the world” (p. 41). CMC research, thus far, has been at the forefront of this train of thought, due to the socially embedded nature of the medium itself. By grounding

CMC research in the Vygostkian sociocultural framework (see Darhower, 2002; Warschauer, 1997), we have gained important insights into the social nature of the language learning process.

CMC research has many valid directions in which to go in the near future: examining cognitive and interpersonal communicative aspects of learner language development as well as effective pedagogical practices using this medium. Studies that analyze the actual language used in CMC interactions could offer important insights into interpersonal interlanguage development. What kinds of psycholinguistic demands does CMC place on the language learner for “online” processing of the linguistic input? Should students be expected to perform immediately or contribute at their own pace in ACMC (Ortega, 1997)? Studies thus far have contributed to our understanding of the way in which CMC can improve L2 language skills; future research must identify *which* language skills CMC may affect positively and how.

In terms of the interpersonal communicative demands of CMC, we need to answer questions such as: How is turn taking realized? What specific discourse management skills are necessary to make heads and tails of the discussion? Are more instances of negotiation really the key to language development or should we aim for more intensive interactions, as Slimani-Rolls (2005) suggests? How can CMC be effectively used in the language development of heritage speakers, who are often fluent speakers but insecure writers of a language?

The most effective pedagogical applications of CMC also need further attention. Although several studies have examined jigsaw and decision-making tasks, to what extent are these tasks authentic? Would other, more authentic, tasks improve L2 development as much as these pedagogic tasks? Finally, the issue of different orthographies and how CMC might be used for teaching Arabic, Chinese, or Greek, for example, has not been addressed satisfactorily at all.

Other studies need to explore the role CMC plays in a new concept of L2 literacy: CMC for CMC’s sake; in other words, learning to use CMC because it is an authentic communicative environment in its own right (see also Gonglewski & DuBravac in this volume). Intracultural CMC research needs to investigate how students can best be prepared for authentic online interactions so that they can participate in discourse communities beyond the L2 classroom or the end of their last language courses. While a developing subfield in CMC, our understanding of how CMC facilitates cultural acquisition (either through interaction with other nonnative speakers or with native speakers) is still in its infancy. It also remains to be seen whether CMC just taps into a skill many of our students now live with day to day, thus extending an already comfortable mode of communication into the L2 classroom to facilitate L2 learning processes, or whether the novelty of CMC wears off and leaves our students jaded with our efforts to diversify their discourse experiences. Swaffar (1998a) offers hope;

The first feature praised ... is the positive student response to networking activities. This enthusiasm exists even in classes where exchanges have at times been confrontational. Indeed, depending on the assignment and class-

room demographics, irate or even homophobic, insensitive remarks are not uncommon in networking exchanges. Judgmental statements ... often prove to be the basis for committed engagement, lively discussion, and elaborated reactions that lead to more positive, less prejudiced views. (p. 3)

Studies should investigate whether this positive aspect of CMC holds true for all language proficiency levels and whether language levels benefit differentially from asynchronous and synchronous CMC. We also need practical descriptions of how CMC can become a natural part of the L2 curriculum, both at lower levels of instruction and in upper division courses. How are assignments and tasks designed, student performance graded (if at all)? What group constellations are effective for what tasks? What are some other practical considerations for teachers? The following segment of this chapter aims to answer some of these questions, although a thorough discussion would require an entire book by itself.

4. Pedagogical Considerations

4.1 Designing Tasks and Assignments

Lee (2000) defines an effective language learning task as a purposeful activity that requires and utilizes language comprehension with or without language production. A task can also promote “the automatization of already internalized structures ... [and help] learners focus on formal aspects of the second/foreign language” (Rosa & Leow, 2004, p. 192). These tasks should provide not only experience with content knowledge but also optimal language learning situations in which students develop their linguistic abilities in the L2. In order for a task to be successful, the instructor must have a clear idea of what the expected language learning outcome is and must ensure that the instructions, the task(s), and students’ subsequent “behavior” match this outcome. Meunier (1998) points out that students learning different languages might have different expectations of learning outcomes, either due to the underlying pedagogical philosophies of, for example, German and French language programs or due to the students’ preferences who may opt for studying these languages. In addition, in a recent study, Slimani-Rolls (2005) found that the teacher’s expectation of what students should produce during a given task is not necessarily what the results will be. She argues that the students’ personal and psychological characteristics, their perception of the task, and their relationship with their peers may affect the learning outcome of any task. Contrary to accepted claims by SLA research, she reports that in her study one-way information tasks and decision-making tasks, not traditionally recommended two-way tasks (e.g., jigsaw tasks, calendar tasks, etc.), brought about meaningful input modification from her students. In other words, two-way tasks promoted the use of “communication strategies not learning ones” (Slimani-Rolls, 2005, p. 204).

Despite the possibility that we cannot foresee the actual outcome of a task, it is still better to have thought out a desirable outcome, the steps required to accomplish it, and alternative routes of progressing with the task (i.e., flexibility). Several questions can help us design CMC tasks.

1. What is the desired (language) learning outcome of this activity?
2. Would synchronous or asynchronous CMC best suit this learning objective?
3. What group constellation best matches the authentic (or pedagogical) communicative purposes of this task: pairs, small groups, or entire classes?
4. What kind of preparation is required for a successful completion of this task by the students? How will we help students develop the requisite skills (be it lexical, grammatical, discourse, or sociolinguistic knowledge)?

Table 1 illustrates these pedagogical questions and presents two levels of tasks, beginning and intermediate level, on the topic of travel and vacation activities in German-speaking countries (for an overview of tasks and results from previous CMC research, see the Appendix to this chapter). For the purpose of clarity, the table is organized in columns, but many of the tasks can be exchanged at the different levels or reframed, depending on the particular pedagogical purpose.

It is preferable that the CMC tasks not be an “unusual but fun” aspect of the L2 classroom because students might not accept the different medium as a valid academic domain and must be reminded that tasks to be completed for the course are, indeed, a part of the classroom. Rather, CMC tasks should be seamlessly welded into our everyday practice. The task should reiterate, introduce, or expand other classroom activities. The linguistic and sociolinguistic requirements of the task must be manageable for the students. For example, students in the first weeks of language learning cannot be expected to maintain an elaborate, many-to-many discussion without some supporting reading or visual input available to them (these are necessary to provide the learners with relevant content, lexical, discourse, or grammatical knowledge). Preparation of the students for the task is of primary importance. Students should be prepared to handle the requirements of the task: audience awareness, lexical knowledge, grammatical and discourse knowledge, relevant cultural knowledge, and practical considerations such as logging on and manipulating the required technical aspects of the interaction. Preceding activities should build these prerequisite skills. As Salaberry (2001) correctly claims, “[t]he success of a technology-driven activity will likely depend as much, or more, on the successful accomplishment of pre-and post-activities than on the technology activity itself” (p. 51). Training students to use CMC effectively can have further significant benefits; Cornelius and Boos (2003) found that groups that did not receive adequate training in communicating in this medium exhibited reduced “[c]oherence and mutual understanding” and increased “coordination and accommodation difficulties” (p. 168). These groups were also less able to complete assigned tasks successfully.

In addition to training, the task design must match the learning objective: if we want our students to learn to use discourse functions and argumentation, the task characteristics must match this objective. Open-ended questions should provoke different perspectives on a common topic. This can be achieved by assigning reading texts before the CMC session that present vastly different arguments on the same topic (see Abrams, 2003a). Students need to be explicitly taught useful

expressions that allow them to present their arguments effectively. In addition, we must determine the optimal group constellation for the learning objective. For example, if the purpose of the task is to prepare students to partake in a cross-cultural exchange with native speakers in an online forum to learn about another culture, the students should have opportunities to practice managing many-to-many discussions and interviewing their peers prior to meeting native-speaking interactants.

Table 1
Task Comparisons for the Topic of Traveling and Vacation

	Beginning level	Intermediate level
Learning objective	Learn about cultural practices of German-speaking countries: their preferred vacations, amount of time off, modes of transportation, and so forth Practice and build the relevant vocabulary in extended discourse	Create a web site informing American visitors of German travel and vacation practices, discussing the efficacy of public transportation in the US and of increasing vacation time for Americans
SCMC or APMC	SCMC forces more negotiation of meaning, retains immediacy of topic, students' discourse abilities may still be limited, more suited to a conversation rather than formal writing (which is more characteristic of APMC)	Combination APMC and SCMC 1. open-ended discussion or decision-making task in SCMC 2. collaborative writing task in small groups, the entire class creates a course web site
Group constellation	Dyads or small groups to reduce the cognitive demand for students (they do not have to follow too many other comments); increased negotiation	Small group or large class interaction because more contributors can offer more diverse opinions on the topic at hand
Required preparation	Build necessary vocabulary by reading articles or watching video prior to CMC: modes of transportation, travel destinations Build phrases necessary for interaction (e.g., "I agree with the previous statement that ..." "The most impressive/disturbing/exciting idea in this movie/story/image was ..." Training in SCMC (use of specific technology, typing, characters, etc.) Handout identifying learning objective and expectations for students (e.g., each student must contribute at least X number of comments; grammatical and lexical accuracy will [not] count; follow-up task is [for example] a collaborative report on how X differs from what the students read and discussed prior to the CMC session; and assessment criteria)	Read about different issues on the main topic, perhaps interview native speakers prior to SCMC Build phrases necessary for interaction (e.g., "I agree with the previous statement that ..." "I read something that contradicts the claims of this article ..." Training in SCMC and APMC (use of specific technology, typing, special characters, etc.) Handout identifying learning objective, the different steps in the overall project, and expectations for students (e.g., each student must contribute at least X number of comments in X number of minutes; grammatical and lexical accuracy will [not] count; the subtasks of the collaborative web project include ...; and assessment criteria)

An important caveat to teacher preparation should be remembered. Some of the positive results from CMC research may be attributed to the unpredictability of CMC interactions; ignoring teacher intentions, students may go off on tangents or “redesign” the objective of the CMC chat. These chats will still create a comfortable learning environment in which students can make mistakes, take risks, freely exchange ideas in a very authentic (and, for most of our students, rather everyday) interactional activity. Even in SCMC, students can still spend more time planning their output (Meunier, 1998), which “makes possible reflection and analysis of direct interpersonal communication” (Kern, 1995, p. 459). The linguistic benefits are also significant due to increased opportunities to negotiate meaning (Pelletieri, 2000; Smith, 2004) and to formulate language using more diverse discourse functions (Chun, 1994) or participant roles (Abrams, 2001). In order to promote further linguistic development, the transcripts of CMC sessions can be used in subsequent class periods to improve learners’ knowledge of composition and grammar or to support follow-up discussions in class (Kern, 1995). Specifically for writing, learners can develop better composition skills and audience awareness in that they “not only ‘read to write’ (by paying close attention to others’ points in order to respond) but also ‘write to be read’” (Kern, 1998, p. 63).

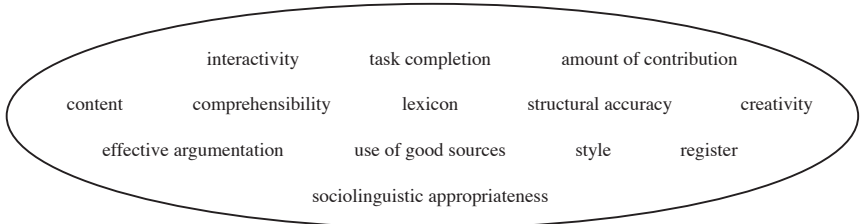
4.2 Assessment

Clear learning objectives should guide the instructor in determining how to evaluate the CMC task. When the objectives are clearly established, there are several choices for assessing student performance (either qualitatively or quantitatively):

1. self-assessment (reflective journal or assigning points),
2. peer-assessment (dialog journal or assignment of points),
3. analytic scoring (detailed criteria for various aspects of the task),
4. holistic scoring (an overall, more impressionistic grade),
5. portfolio assessment (completing multiple subtasks that build towards a final objective), and
6. no assessment (using CMC as a springboard for another task and grading only that task).

The grading criteria should be established prior to completing the CMC task so the students can perform accordingly, or at least decide whether to participate fully or not, in full knowledge of what is expected. Again, these criteria must match the intended learning outcome of the task because they are an important way for the teacher to communicate to the students what his/her expectations are. If we ask students to explore a topic thoroughly, grading them only on grammatical features and lexical errors would be inappropriate. The next time students will likely focus only on these criteria and not complete the task as we had planned. If we are really concerned about grammatical accuracy and lexical knowledge, then our tasks should reflect that concern, including information in the instructions and the evaluation guidelines. The assessment could include any of the following aspects related to language learning and teaching in Figure 1.

Figure 1
Potential Assessment Categories for CMC Tasks



Instructors, in collaboration with the students, should determine which of these aspects are most important (and emphasize them with more weight in evaluation) and how best to evaluate the learners' work based on them. Two sample evaluations are outlined in Table 2 for the tasks presented in Table 1 above; notice the differential emphases for the more advanced learners.

Both of these assessment sheets are analytic (Hughes, 1989; Scott, 1996; Weir, 1991) in that they provide individual scores for separate subcategories of language and performance. Teachers can develop holistic scoring procedures from these sheets and can assign a more general A, B, C, D or F grade for students' performance. The more specific you can make your expectations for students, the more they will be able to develop their CMC skills. These assessment sheets can be administered by the instructor, the student contributor(s), or their peer(s). A word processor or a spreadsheet allows you to cull individual students' work from the transcripts of the CMC interactions, delineating their individual language and performance profile.⁵ Then, you can compare individual output to the entire transcript to identify ways in which the students effectively interacted with peers (were questions answered, were discourse cohesion markers really appropriate for the questions peers had asked, etc.). You can also use any of these assessment sheets or a self-report for a portfolio assessment (for a discussion on electronic portfolios, see Wright, 2003). Students should complete several chat tasks during the semester, and their participation in both SCMC, APMC, and web-design tasks, for example, should be turned in at the end of the course in order to demonstrate to you and to themselves how their language abilities developed over the course of the semester, as well as their ability to argue more effectively or interact with their peers more effortlessly. The portfolios are already available electronically, so you need to determine whether you want these to be "turned in" individually, in small groups, or from the class as a whole. You may also want to leave the CMC session ungraded. If students are motivated to participate, they may not need an external incentive. If you are using the content and language outcome of the CMC tasks (e.g., a follow-up essay assignment, web-design task, or oral presentation), then perhaps the CMC task itself need not be evaluated separately.

Table 2
Sample Assessment Sheets for Beginning- and Intermediate-level SCMC Tasks⁶

<p>Beginning level task – 15 points total Practicing vocabulary pertaining to travel and vacation practices of Germans; work in dyads during SCMC</p> <p>Comprehensibility 2 points: little or no difficulty for instructor to follow meaning 1 point: regular instances of guess work required to understand student’s message</p> <p>Content 5 points: addresses topic in depth (15+ comments, all pertinent to assigned topic) 3-4 points: addresses topic adequately (10-14 comments, still extensive responses to questions) 1-2 points: fewer than 10 comments, some are brief</p> <p>Lexicon and Structure 5 points: extensive and accurate use of relevant vocabulary and expressions, accurate use of grammatical structures already covered 3-4 points: solid knowledge of relevant vocabulary and expressions, mostly accurate use of grammatical structures already covered 1-2 points: some mistakes in the vocabulary already covered, few mistakes in grammatical accuracy</p> <p>Interactivity 3 points: reacts to and elicits information from partner, responds to at least 12 comments by partner 2 points: some monologues, responds to 5-12 comments by partner, asks him/her some of his/her own questions 1 point: little evidence of partners working together</p>	<p>Intermediate level task – 15 points total Ultimate task: Creating a web site of information about travel and vacation practices of Germans; grading is for the SCMC, whole class interaction</p> <p>Content 3-4 points: reports on at least two readings in depth (at least 3 comments per reading) 2 points: student only reports superficially on the readings 1 point: reports on only one reading, superficially</p> <p>Effective argumentation 3 points: expands on content of readings from other sources, uses information to respond to teacher’s and peers’ questions, elaborates and provides evidence for claims, excellent use of rhetorical devices covered 2 points: offers content of readings as evidence to support arguments in response to teacher’s and peers’ questions, good use of rhetorical devices covered 1 point: mostly own opinions, little external support</p> <p>Lexicon and Structure 5 points: extensive and accurate use of relevant vocabulary and expressions, accurate use of grammatical structures already covered 3-4 points: solid knowledge of relevant vocabulary and expressions, mostly accurate use of grammatical structures already covered 1-2 point: some mistakes in the vocabulary already covered, few mistakes in grammatical accuracy</p> <p>Interactivity 3 points: reacts to and elicits information from partner, responds to at least 12 comments by partner 2 points: some monologues, responds to 5-12 comments by partner, asks him/her some of his/her own questions 1 point: little evidence of partners working together</p>
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4.3 Group Constellation

Choices are rather limited in group constellations. Both SCMC and ACMC can

have pairs, small groups, or entire class group constellations. Table 3 provides a quick overview of the various possibilities.

Table 3
CMC Tasks and Group Constellations

	CMC tools	Group constellations
Asynchronous	email online discussion boards	one to one, one to many, or many to many small group or many to many
Synchronous	SMS instant messaging videoconferencing chat rooms and virtual classrooms	one to one, one to many, many to many one to one, one to many, small groups small group or many to many

The determining factor in choosing group size should be, once again, the purpose of the CMC task. Although little research has examined the role group size has on interactions or language learning outcomes (but see Böhlke, 2003), it could be hypothesized—and anecdotal evidence seems to support this hypothesis—that students in earlier language courses might be overwhelmed by the onslaught of linguistic data coming from 22 fellow contributors. The “discussions” often deteriorate into off-task exchanges, and students can feel frustrated both by the cognitive demand of following so many comments while trying to compose their own or by the lack of achievement in terms of covering the assigned content. Such students would work better in dyads or in small groups, and perhaps these group constellations will allow for more focused negotiation of meaning, leading to improved L2 development. Students in more advanced groups can also work effectively in pairs or small groups, but the learning objective may be to prepare these learners for authentic interactions in a chat room or online discussion group, requiring them to practice many-to-many “conversations.” Their task may also be to examine multiple perspectives of a particular issue, which also may be done more effectively and appropriately with the help of many-to-many exchanges where multiple voices can be heard.

Two more pedagogical considerations should be mentioned. First, if you have pairs and one partner drops the course or simply does not “do” CMC, the remaining partner might have difficulties completing the assignments and should not be penalized for it. In order to avoid this problem, you may want to assign small groups instead of dyads for pedagogical purposes or mention to the students that it is their responsibility to tell the instructor if their partner has gone AWOL. Second, keeping the same members in a group for the entire semester may create close-knit learning and discourse communities, but it may also stifle creativity or diversity of opinions. Arnold (2002) suggests a compromise that may help foster a sense of community while limiting boredom; she recommends keeping small groups together for several chat sessions and then rotating students to new groups. It may also happen that if one member of a three-student A-CMC group does not do much work, the situation places an undue burden on the other students to pick up the uncooperative learner’s load. Open communication with the students and

regular evaluation of collaboration may alleviate some of this concern. It might also be a good way to foster collaborative work to have the original small group members “visit” other groups to share ideas and then reconstitute themselves with the original members to bring back what they had learned “abroad.”

4.4 Teacher Participation (Off-task Behavior and Flaming)

The basic message from literature is that it cannot hurt to have the instructor participate in CMC sessions. After Beauvois (1995) found that a nonparticipating instructor had no negative effect (e.g., off-task behavior), Darhower (2002) showed that students were indeed more likely to engage in inappropriate language use and off-task discussions when the teacher left the chat room. Chun (1994), Kelm (1998), and Kern (1995) demonstrated that having the instructor present did in no way detract from the enthusiasm with which the students participated. However, it is important to note that the teachers in these studies did not dominate the CMC interactions. Students cheerfully ignored the instructor’s questions and comments and were able to glean the sociolinguistic benefits of the exchanges: they could participate in more discourse roles, use more discourse functions, produce larger amounts of language, take more risks, and use less L1 to communicate than in face-to-face interactions. In other words, the instructor, while not much of a facilitator in CMC, is not a hindrance.

It bears consideration that Darhower also found that his students engaged in flaming behavior (see also Sproull & Kiesler, 1991). Abrams (2003b) suggested that students are quite capable of controlling each other by either not responding to taunts that would pull them off task or explicitly telling their peers to stop the inappropriate behavior. Whether you allow such interactions (and off-color language arguably forms a continuum with some forms acceptable and other forms not) depends on your personal preferences, the task perhaps (in case there is some foul language on a heated topic in the readings themselves) and whether you accept that some forms of teasing, sarcasm, and humor may actually contribute to the social cohesion of your class (Abrams, 2003b; Darhower, 2002). Some possible solutions include having the class come up with some guidelines for CMC conduct themselves, which would amount to a contract among the students, or including a notation on the assessment sheet that such language will result in certain penalties (a colleague of mine regularly assigns a grade of 0 for the entire task if inappropriate language is used).

5. Conclusion

As is the case with many studies in second language acquisition, some issues raised and findings provided by CMC research have diverse interpretations. For example, we do not yet know definitively whether increased negotiation of meaning improves language development or whether this goal is better accomplished through increased amounts of writing and interaction (i.e., increased amounts of input and forced output). We are still teasing out from the CMC research what is proven and what is merely a suggestion. Teachers must be guided by their own

understanding of language learning and pedagogical practice to navigate the vast body of intracultural CMC research. Our own philosophies of learning should also guide our decision whether CMC is a literacy skill in its own right (Abrams, 2003), whether we use it to build other L2 skills, or perhaps both. Some of the decisions may also be limited by the available applications, the teacher's training, and the teacher's own experiences in computer-assisted language learning. Others should be guided by the discussion presented in this chapter illustrating many of the benefits of intracultural CMC such as

1. collaborative learning,
2. meaningful language use,
3. extended language practice,
4. use of multiple participant roles and subsequent discourse roles/discourse functions,
5. increased motivation (perhaps leading to extended language practice), and
6. less reliance on the L1 as a compensatory communication strategy.

In order to harness these benefits, several pedagogical recommendations have been made that should be thought through and deliberated upon.

1. Design purposeful tasks with language and content goals;
2. use shorter tasks in beginning language classes (length can be increased at more advanced levels of proficiency);
3. introduce CMC to beginning L2 classes to increase authentic multimedia-based literacy;
4. vary group constellations to increase students' awareness of and exposure to different audiences and resulting linguistic/discourse requirements;
5. vary tasks to reflect all possible beneficial uses of CMC in both authentic and pedagogical ways (e.g., authentic task—learning how to navigate a chat room intended for fluent or native speakers of the TL; pedagogical task—preparing students to write an essay by collaborating on the brainstorming and drafting steps of the process);
6. be flexible: think of tasks that you can relinquish control over (and teacher control will be reduced; Kern, 1995) and still utilize them in follow-up activities;
7. alternate instructor participation to allow more student control while keeping down instances of off-task chat and flaming;
8. offer opportunities for creative, collaborative uses of CMC (these are some of the most important potential benefits of this medium); and
9. prior to the execution of the activity, design an assessment sheet that reflects the purpose of the task and the emphasis you place on the interaction (e.g., use of idiomatic expressions, interaction, and culture learning).

As I argued earlier, CMC should be seamlessly incorporated into the curricula of lower division courses (first- through fourth-semester courses). Table 4 offers an overview of some possible activities where CMC can be systematically used.

Table 4
Systematic Use of CMC for Language Curricula⁷

Level	Type of CMC	Suggested tasks	Learning focus
First semester	ACMC	Collaborative writing, planned writing tasks, compiling film reviews; journal entry writing—peer responses	Focus on language practice in discourse larger than the sentence level
	SCMC	Working in pairs, interviewing each other about everyday practices, holidays celebrated by the partner's family, travel and free time activities, etc.	
Second semester	ACMC	Collaborative writing, creative writing, creating web site	Focus on larger discourse units, writing for different audiences/different genres; practice basic argumentation structures
	SCMC	Responding to/analyzing/reacting to readings, establishing social community in real time	
Third semester	ACMC	Discussion of reading texts, student-prepared research-based assignments/reacting to cultural content; incorporating authentic materials into discussion; building critical thinking skills in L2 context and language	Build cultural awareness; expand genre proficiency; practice discourse cohesion, building argumentation
	SCMC	Socialization; question/answer sequences, stating opinions, arguing for ideas	
Fourth semester	ACMC	Collaborative writing, more sophisticated and longer written presentation/discussion; expect more critical application	Logical, sophisticated discussion with planning time; spontaneous interaction (either as prespeech/prewriting or as modality in its own right)
	SCMC	Small- and large-group presentations; discussions immediately following reading materials or current events	

To conclude, CMC is by now an everyday aspect of most of our students' communicative practices. Research has shown that it increases learners' opportunities to use the L2 creatively, to improve their interactional skills and their L2 abilities, and to establish an interactional community that facilitates a free flow of ideas in a nonthreatening learning context. This chapter has provided a brief overview of the field, of the most salient studies and issues raised. It has also posed some questions that practitioners and researchers need to ponder and offered some answers to these questions. These questions, and particularly the answers presented to them in this chapter, are by no means exhaustive; they merely aim to raise awareness about some pragmatic considerations of incorporating CMC tasks—and the findings from CMC literature—into pedagogical practice.

Questions for Reflection

1. Why do you think CMC seems to effect such positive affective outcomes among language learners? Do you think all the claims about its affective and cognitive benefits are adequately supported? It might help you to make a list of the claimed benefits, and review this chapter as well as the original studies to examine the supportability of the claims.
2. How would you define “quality of language” in CMC? That is, what could you measure—either in research or in classroom assessment—to establish better or worse output?
3. Do you feel that both synchronous and asynchronous CMC are appropriate at all levels of instruction? Explain your answer in detail.
4. With a partner, design an activity set that utilizes CMC tasks in beginning, intermediate and advanced language classes. Make sure that the task is authentic and that you are not using CMC just for the sake of the technology. Discuss what the language learning outcomes are of your task, be specific about what you would ask the students to do during these activities, and how you would assess their performance.
5. How would you incorporate CMC tasks (both synchronous and asynchronous) into a semester-long or two-year curriculum? Would your plan change if this was a second versus a foreign language program?
6. CMC tasks can be closely linked to other tasks (e.g., as a springboard or a follow-up activity). How would you design such an integrated unit including an appropriate assessment rubric?

Notes

¹ For an excellent review of ENFI’s (CMC’s) early beginning with the *Daedalus Interchange Writing* system, see Bruce et al., 1993.

² Smith (2003) argued that negotiation routines are actually quite frequent in CMC because the online environment has reduced nonverbal cues that often help alleviate miscommunication in face-to-face contexts; thus, CMC forces the interactants to resolve miscommunication explicitly through writing.

³ In the jigsaw tasks, each student had three pictures, which they had to describe to their partners. Then, in possession of the information about all six pictures, the students had to agree on the appropriate sequence of events. The decision-making task required students to describe four items on their list to their partners and determine which to give to which member of the students’ four-member host family.

⁴ C-units (for a detailed discussion, see Crookes, 1990) were used for analysis because they allow such ‘casual’ phrases as “Right,” “Not sure,” and so on. Such grammatically incomplete, yet communicatively significant, comments are common in CMC exchanges and in oral discussions and must be a part of the analysis to reflect accurate language use in this medium.

⁵ Beware that some SCMC applications do not allow you to record the transcript of interaction. Before you plan to teach or conduct research using CMC, try out your particular application and learn about storing, archiving, and retrieving the data to avoid unnecessary frustration.

⁶ Swaffar (1998c) offers a grading matrix for CMC writing; it is perhaps more appropriate for formal ACMC tasks but can easily be adapted to other evaluation contexts. Her paper provides clear examples and explanations for the different types of clauses we can expect our students to write for effective argumentation.

⁷ Due to space limitations, these ideas could not be developed for upper division courses, but CMC is definitely not restricted to beginning- and intermediate-level courses.

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Appendix

Author (study)	Task	Research specifics	Research findings
Abrahms (2002)	<p>Students discussed in large groups diverse reading assignments centered on same topic (e.g., 4 different articles, each read by 4-5 students on the topic of hunger).</p> <p>Premise was collaborative learning.</p>	<p>6 third-semester German classes (N = 67)</p> <p>SCMC, ACMC, or face-to-face discussion sessions and following oral examinations</p> <p>no teacher participation</p>	<p>Amount of oral output was highest after SCMC, possibly leading to increased fluency and proficiency.</p> <p>No difference between amount of oral production was found as a result of ACMC training or face-to-face training.</p> <p>Quality of language (lexical richness and density, grammatical complexity) was not different as a result of any of the treatments.</p>
Arnold (2002)	<p>Students discussed various topics pertaining to course materials in open-ended tasks (opinion exchange tasks).</p> <p>Topics were selected with student interest and motivation levels in mind; issues directly affect students' lives (e.g., learning, expenses, family relationships, and friendships).</p>	<p>5 sections of third-semester German (N = 56)</p> <p>comparison of SCMC, ACMC, and face-to-face groups</p> <p>no teacher participation</p>	<p>Speaking was a high-anxiety trigger for many FL learners; many also experienced listening anxiety.</p> <p>Majority (83-100%) of subjects enjoyed the CMC sessions.</p> <p>Synchronous CMC group and face-to-face interaction (but not ACMC) appeared to increase self-confidence in L2 use.</p> <p>Lower anxiety scores were found for all groups (no significant difference in gain scores among groups).</p>
Beauvois (1995)	<p>Students worked in large groups, discussing readings they had completed prior to the CMC session.</p> <p>Transcripts of CMC chats with student errors highlighted were distributed.</p>	<p>41 intermediate French learners</p> <p>four 75-minute SCMC interactions</p>	<p>Students found that CMC was less anxiety producing than face-to-face discussions and that it improved their writing and speaking skills.</p> <p>Delayed error correction allowed students to focus on communication during SCMC and later work on weaknesses in their interlanguage.</p> <p>Students found SCMC somewhat frustrating because the fleeting screen was difficult to follow.</p> <p>Students were very unlikely to rely on the L1 as a communication strategy (compensation strategy).</p> <p>Teacher participation (or lack thereof) did not affect quality or quantity of student output.</p>

Blake (2000)	<p>1. 1-way information gap tasks: develop and write up a personality profile of partner (another L2 learner) or (in another task) a heritage learner.</p> <p>2. 2-way information gap task: Password game; guess the object or concept that partner describes (or gives synonyms for); list of possible words: sadness, conflict, absence, history, dialogue. etc.</p> <p>3. jigsaw tasks:</p> <p>a. apartment; each partner has different Web ads and wishes to select the best residence; negotiate to reach a compromise, ultimately selecting one apartment.</p> <p>b. calendar; each partner has a different calendar; identify common activities and write a story about these activities (in past tense).</p> <p>c. odd-man out; each partner has only 2 out of 4 pictures in each of three sets of 4 pictures; identify which picture of the 4 in each group does not belong.</p> <p>4. decision-making task: mystery object based on written, sound, and image clues given by the instructor, guess the identity of the mystery object, then write up results using TEXTPAD.</p>	50 students in intermediate Spanish classes interacted in pairs once a week in 50-minute class period	<p>Overall, there were relatively few routines of negotiation of meaning (NOM).</p> <p>The number of NOM per task type were (in descending order)</p> <ul style="list-style-type: none"> • jigsaw tasks, • decision-making task, • two-way info gap task, • one-way info gap task. <p>The most intensive exchange was prompted by the task to write up a native-speaker profile.</p> <p>Regardless of the task type, learner-to-learner CMC exchanges followed the pattern of trigger-indicator-response-reaction.</p> <p>The most frequent trigger of a negotiation sequence was lexical confusion.</p> <p>Students also reported that they enjoyed the CMC sessions, interacting with their peers especially in extended discourse.</p> <p>Students were aware of errors and worked together to correct them: "No incorrect forms were explicitly passed on from one to the other in their incidental negotiations in the present experiments." (p. 133)</p>
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Chun (1994)	Weekly discussions were held; no further detail provided on the tasks.	14 first-year German honors students in a large group (i.e., entire class) SCMC sessions (N = 14)	<p>Student output ranged from 2.8 to 17.8 comments; one-sentence entries to paragraph-length entries; more complex grammatical sophistication.</p> <p>Shy students were often most prolific in SCMC.</p> <p>Students created with the L2, there were no complete English sentences.</p> <p>Most entries were responses to questions, second largest group of entries were questions to other students.</p>
Darhower (2002)	Students worked in one of four groups (in each class), discussing their opinions based on weekly readings about movies, for example; no further details about the tasks were offered	33 intermediate (4th semester) Spanish students; nine weekly SCMC sessions (WebCT)	<p>Participants quite regularly established a shared context for interaction (intersubjectivity), even when originally competing threads of discussion were initiated. This intersubjectivity allowed students to explore diverse perspectives, explain their own positions, and maintain a coherent social space for substantive communication.</p> <p>Students found off-task exchanges (more often when instructor did not participate) interesting and relevant to their lives.</p> <p>Extensive greeting and leave-taking sequences and humor served the social purpose of creating and maintaining a community of learners.</p> <p>Instances of sarcasm/insults (e.g., flaming) occurred; no solution offered.</p> <p>Students experimented with new identities which allowed them to make mistakes with less personal risk.</p> <p>The L1 was only rarely used as a communicative strategy.</p>

<p>Kelm (1998)</p>	<p>Students wrote 50 lines of email in Portuguese with a partner each week on any topic they wished; students received comments from the researcher/instructor on spelling errors, grammar, Spanish transfers (the students had either studied Spanish before their Portuguese class or were native speakers of Spanish).</p> <p>Although the direct correspondents were all nonnative speakers of Portuguese in another class, the students could address their emails to students of Portuguese at other American universities, Brazilians living all over the world, and other students in their class.</p>	<p>distance communication—ACMC—between two 4th semester Portuguese classes at two US universities in two different states</p>	<p>Evidence was found for authentic communication in the target language; students wanted to continue their correspondences after the end of the semester; emailing increased students' use of the TL outside of class.</p>
<p>Kern (1995)</p>	<p>Instructor posted several questions on a variety of topics each session, students responded to these questions and to those written by their peers; 50 minutes were spent on the activity each time (sample topic: What is your opinion about the sale of RU 486 pill in the US?)</p>	<p>computer lab (group sizes: 18 + instructor/15 + instructor reported in the data)</p>	<p>CMC output was rarely incomplete.</p> <p>There was evidence of increased student turn taking in CMC (in oral interactions, instructor took 81 turns; in CMC instructor produced only 4% of output).</p> <p>Students used a wider range of discourse functions in CMC than in face-to-face interaction.</p> <p>There was more grammatical inaccuracy in CMC (perhaps due to more output) than in face-to-face interactions.</p> <p>93% of the students had positive reactions to CMC; students reported increased closeness with their peers.</p>

Pelletieri (2000)	<p>Students used Ytalk for SCMC. Activities included</p> <ol style="list-style-type: none"> 1. based on a list of qualities, student and partner looked for a third roommate; 2. student described pictures with partner to find out which ones are different and what the differences are; 3. dyads had 5 pictures of horrible things the new roommate did (each partner witnessed 3 acts); student discussed with partner each picture to decide which events they both witnessed; once they agreed, they composed a note to the roommate, asking him to move out; 4. In a picture description, student identified which of 4 did not fit the category the other 3 fit in; 5. each partner had a different picture of what Calvin did during the day; they collectively described his day to his mother. 	<p>20 intermediate Spanish learners in dyads; same pairs throughout the semester in SCMC sessions (length approximately 30 minutes per task)</p>	<p>There was evidence of increased negotiation of meaning, focus on meaning-based form, hypothesized to lead to improved grammatical development in the L2; students focused on form; they increased output; they noticed mistakes or missing information; they interactionally modified and produced comprehensible input.</p> <p>Lexical/semantic, morphosyntactic, and content triggers prompted negotiations.</p> <p>Joint composition tasks prompted more morphosyntactic awareness (in which students had to compose an essay online); focused on form in a meaningful context.</p> <p>“Tie-up” routines were even more important in CMC than in oral communication because there were no nonverbal cues to indicate that a communication breakdown had been repaired/resolved to the mutual satisfaction of both interactants.</p> <p>There was evidence of modifications towards the L2 (improved form) and immediate self- or peer-editing.</p>
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Smith (2004)	<p>Treatment sessions began with a warm up (an open chat about the day's activities; the main task consisted of one of two possible 30-minute tasks:</p> <p>1. jigsaw task: Each partner had 3 of 6 pictures about a bus trip, which s/he had to describe to the partner, then the two had to put these into the correct order collaboratively followed by an open-ended discussion with the partner about the public transportation system in the US, for example.</p> <p>2. decision-making task: Students were presented with situations in which they had to reduce a number of items or objects held from 8 to 4; no further details provided about these types of tasks, no sample given.</p> <p>Posttreatment assessment included a productive vocabulary test (name 16 items, pictures shown on overhead) and a receptive vocabulary test (match the target vocabulary items on a list with the correct number seen on a differently arranged overhead).</p>	<p>24 intermediate ESL learners in dyads once a week over 9 weeks</p> <p>research focus: intentional lexical acquisition as a result of negotiated SCMC</p> <p>pre-/posttest design, 8 target lexical items (selected based on a pretreatment vocabulary test)</p>	<p>Negotiated interaction seemed to facilitate vocabulary acquisition (caveat: lexical acquisition being defined as basic word-referent mapping).</p> <p>Learner uptake, in which the students actively produced the correct or newly learned lexical item to indicate that they had taken steps towards integrating it into their cognitive system, was not evident, perhaps due to CMC's permanence, that is, that the written text remains on the screen, making reiteration less necessary.</p>
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Warschauer (1996)	<p>Groups of students discussed questions with peers, for example,</p> <p>Main topic: family</p> <p>1. Who should decide basic things about the teenagers' lives—what they major in, how they spend their money, who they go out with—the teenagers themselves or their parents?</p> <p>2. If a husband and a wife each work full time (40 hours/week), how much and what type of housework should the husband do?</p>	<p>16 advanced ESL students (5 Filipinos, 5 Japanese, 4 Chinese and 2 Vietnamese) divided into 4 groups of 4</p> <p>first 2 groups use CMC, the other 2 talk face-to-face, then switch; Daedalus InterChange and face-to-face talk</p> <p>one 75-minute class-period divided into 15-minute activities</p>	<p>Students participated more equally in the electronic discussion than during face-to-face interaction.</p> <p>Shy students, and those with low self-perceptions of ability, were more likely to “speak up” during CMC sessions.</p> <p>Students' language in CMC was more formal and more complex than in the face-to-face discussions.</p>
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About the Author

Dr. Zsuzsanna I. Abrams is Assistant Professor of German at the University of Texas, Austin. Her past and present research focuses on the development of learners' interlanguage in the context of, and as a result of, learner-to-learner computer-mediated communication. She has published articles on CMC in the *CALICO Journal*, *Foreign Language Annals*, *The Modern Language Journal*, *System*, and the *Canadian Journal of Learning and Technology*.

