NSU NOVA SOUTHEASTERN UNIVERSITY Abraham S. Fischler School of Education

Innovate: Journal of Online Education

Volume 2
Issue 3 *February/March 2006*

Article 2

3-1-2006

# Using Instant Messaging for Collaborative Learning: A Case Study

Susana M. Sotillo

# Using Instant Messaging for Collaborative Learning: A Case Study

# Using Instant Messaging for Collaborative Learning: A Case Study

*by Susana M. Sotillo*

In the spring of 2003, I became intrigued by the use of instant messaging (IM) when one of my English as a Second Language (ESL) students urged me to buy a webcam and sign up for Yahoo! Messenger so that we could chat and see each other during her night shift at work where she processed orders online. Encouraged by studies in corporate settings that showed the extensive use of IM for quick task-related consultations among co-workers (Poe 2001), and as a means of manipulating social distance between subordinates and superiors (Quan-Haase, Cothrel, and Wellman 2005), I spent time learning how to communicate effectively with colleagues and students using the text, video, and audio components of various IM applications. I soon realized the potential pedagogical benefits of the various modalities of IM for ESL and foreign language learning by enabling instructors to interact with and provide immediate feedback to students in the second language.

In this article, I describe the results of a pilot study involving the provision of corrective feedback to ESL learners through collaborative work utilizing the text-based chat and audio features of Yahoo! Messenger (Yahoo IM), a form of synchronous desktop videoconferencing (DVC). I also discuss the implications of such studies for enhancing language learning outside of traditional contexts and possibly encouraging connectivity and informal collaboration with colleagues and students.

## Second Language Acquisition and Computer-Mediated Communication

### *Principles and Strategies of Second Language Acquisition*

Second language acquisition (SLA) research in the past two decades has shown that the negotiation of linguistic input between learner and interlocutor facilitates the acquisition of a second or foreign language. In *negotiated interaction*, interlocutors and second language (L2) learners focus primarily on the meaning of messages; that is, they try to reach mutual understanding of a message through lexical, phonological, semantic, or morphosyntactic modifications by utilizing clarification requests, repetitions, and elaborations. Thus language learners need meaningful linguistic input and ample opportunities to negotiate both linguistic form (e.g., morphosyntax, vocabulary) and message meaning contextually with native-speakers or more advanced learners of the target language (Pica 1998).

In turn, the process of negotiated interaction may entail two forms of evidence provided to learners so that they may subsequently correct their L2 errors: positive evidence and negative evidence. *Positive evidence* consists of direct information that shows which strings of words are grammatical or possible in the target language, whereas *negative evidence* consists of direct or indirect information about what is *not* grammatical or possible in the target language. While some researchers such as Pinker (1995) and Schwartz and Gubala-Ryzak (1992) maintain that only positive evidence is sufficient for language learning, recent SLA research has shown that there is a role for the provision of negative evidence to child and adult language learners (Chaudron 1987; Lightbown and Spada 1999; Long and Robinson 1998). This negative evidence can be provided either explicitly as grammatical explanations and corrective feedback to language learners or implicitly in the form of recasts (i.e., teacher or interlocutor reformulations of all or part of a learner's utterance minus the error).

Focus-on-form (FonF) studies of second- and foreign-language classrooms have shown that teachers provide negative evidence to learners that fosters uptake or student response in meaning-focused lessons or

activities (Doughty and Varela 1998; Ellis, Basturkmen, and Loewen 2001; Loewen 2004; Lyster and Ranta 1997). Likewise, the provision and incorporation of corrective feedback has been examined in studies of different types of dyads (Braidi 2002; Mackey, Oliver, and Leeman 2003). The results of these investigations show that some corrective feedback is successfully incorporated by L2 learners into their subsequent output; that is, learners notice the gap between their own linguistic output and the correct target language forms, which may contribute to second language development.

*Adapting Computer-Mediated Communication to Language Learning Contexts*

Studies examining the quantity and quality of language produced by L2 learners in synchronous and asynchronous computer-mediated communication (CMC) environments have revealed evidence of similarly negotiated interaction sequences (Fernández-García and Martínez-Arbelaiz 2002; Oskoz 2004; Smith 2003). Researchers have also identified, described, and analyzed differences between face-to-face (F2F) and CMC learning environments in second language use and development, discourse functions, syntactic complexity, and evolving sociolinguistic competence (Abrams 2003; Darhower 2002; Schultz 2000; Sotillo 2000).

Results of recent studies show that learning languages in CMC is possible through tasks that focus on specific linguistic forms. For example, Levy and Kennedy (2004) report that FonF tasks utilizing audiovisual recordings encourage students to engage in stimulated reflection, and that this seemed to facilitate students' acquisition of Italian linguistic forms. Such research suggests that audio-enhanced CMC can facilitate the language learning process.

*Technological Options for Language Learning: Traditional Videoconferencing versus Internet DVC*

Just as educational institutions and governmental agencies have used traditional, non-Internet based videoconferencing to bring courses to small rural centers or disseminate health information and services (Yiu 2001), second and foreign language instructors have already utilized videoconferencing tools to overcome the constraints of traditional classroom settings that rely exclusively on F2F interaction (O'Dowd 2000, 2003). In a traditional videoconferencing environment, a dedicated (non-Internet) link makes teacher-student interaction, student-student exchanges, and supervised group work possible. This type of videoconferencing is reliable but costly and often takes place in a distance education room.

As a more flexible and cost-effective alternative to traditional videoconferencing, Internet-based desktop videoconferencing (DVC) has become increasingly popular in foreign and second language instruction. In this environment, participants connect a webcam and microphone to their personal computers and interact via fast Internet connections that support IM applications such as Yahoo! Messenger, MSN Messenger (version 7.0), NetMeeting, or AIM. With the audio component of such Internet-based desktop videoconferencing tools, language learners can receive oral feedback from instructors. In the case of NetMeeting, the use of the Whiteboard feature in conjunction with the video component allows instructors or tutors of less commonly taught foreign languages such as Chinese and Japanese to provide immediate linguistic explanations or modifications in response to written learner output (Wang 2004).

While this medium is often fraught with technical difficulties such as breakdowns in transmission because of Internet congestion or bandwidth limitations (Coverdale-Jones 2000), particularly when participants attempt to use a video component, the text messaging and audio functions of such applications are more reliable and can facilitate real-time virtual interaction for language learning.

**Language Learning Activities via Yahoo IM: A Pilot Study**

Motivated by current focus-on-form research that stresses both implicit and explicit corrective feedback in communicative tasks used in ESL classrooms, by findings from CMC studies of second- and foreign-language acquisition, and by my own experiences in instant messaging sessions with colleagues and students, I carried out a small-scale exploratory study of negotiated interaction and error correction episodes

in CMC environments (Exhibit 1).

The study initially included 14 participants ranging in age from 24 to 32, but at the end of nine weeks, 10 participants remained. The five tutors in this study included three native speakers of English—two females and one male, all of whom were enrolled in an elective course for teachers-in-training—as well as two advanced non-native speaker females who volunteered for the project. The five L2 learners in this study who had been encouraged to volunteer for this project by former ESL teachers and friends included four females and one male. The tutors and learners were divided into five dyad pairs consisting of three native-speaker—non-native speaker (NS—NNS) dyads and two non-native speaker—non-native speaker (NNS—NNS) dyads. These dyads were asked to work collaboratively on a series of activities using Yahoo IM, and chat logs and audio-recorded data were collected from these interchanges for subsequent analysis.

All participants received explicit instructions for the use of Yahoo IM at the outset of the study (Exhibit 2). Moreover, all participants in this pilot project had had previous experience with CMC, but they ranged from novice users (i.e., less than four months experience) to advanced users of CMC and IM. Three of the ESL participants had used CMC for 15 weeks in a previous ESL writing course for high-intermediate learners.

In order to encourage the exchange of information between partners, I designed five 45-minute collaborative learning activities for this project. These activities also provided ESL learners with opportunities to request corrective feedback from their dyad partners. One problem solving activity included in this project required participants to repair communication breakdowns caused by technical problems related to the operation of the video/audio components of Yahoo IM. This activity was planned as part of the project because we foresaw difficulties during the training sessions. Having previously shown students how to activate their webcams and the talk feature of IM, we asked dyad partners to use the chat message box to solve a technical problem related to the use of these additional components. The other four activities stressed communication by asking participants to jointly fill out a needs assessment questionnaire, to synthesize information from newspaper and magazine articles, to negotiate individual perceptions regarding the content of a movie each participant had seen separately, and to evaluate the usefulness of Yahoo IM as a learning tool.

Although the video component of Yahoo IM performed a "handholding" function in the initial stages of learner-interlocutor contact by enabling participants to see each other prior to their collaboration, the use of webcams was discontinued by partners in three of the five dyads because bandwidth problems interfered with the audio component and forced those not using fast Internet connections to end their sessions abruptly and restart their computers.

**Results**

Using the chat logs of text messages and the transcripts of tape recorded exchanges from the 10 participants (three NS–NNS dyads and two NNS–NNS dyads) who completed all activities, I examined specific occurrences of error correction episodes and noted the frequency and type of negative corrective feedback (i.e., implicit or explicit) provided to L2 learners during IM sessions (Exhibit 3). While NS–NNS exchanges focused primarily on message meaning (Exhibit 4), NNS–NNS dyads negotiated both message meaning and grammatical features (Exhibit 5).

Although NSs who are also teachers-in-training are generally expected to take the initiative for error correction, these findings show that the advanced NNSs spent more time in negotiated interaction with their partners than native speakers of English; that is, they spent six and a half hours working with ESL learners as compared with five hours spent by NSs. They also provided more corrective feedback to ESL learners than their native-speaker counterparts, primarily in communicative learning activities (36 instances vs. 7 instances, respectively). Learners initiated 17% of all error correction episodes.

Although neither NSs nor NNSs were told to correct errors explicitly, advanced NNSs also provided more

direct or explicit corrective feedback (i.e., grammatical explanations or correct linguistic forms) to ESL learners than NSs (92% vs. 8%, respectively). In contrast, NSs provided more indirect or implicit corrective feedback (i.e., recasts, clarification requests, and comprehension checks) to ESL learners than NNSs (57% vs. 43%, respectively). Regardless of dyad type, ESL learners received more indirect or implicit feedback than direct or explicit feedback during this project (Exhibit 6).

These results appear to support previous NS–NNS negotiation research by Gass and Varonis (1984) who found that native speakers accustomed to the speech of ESL learners were able to understand the meaning of their utterances and fill in the gaps. Despite the use of the Yahoo IM audio feature by four of the five dyads, participants generally ignored pronunciation errors. A possible explanation is that both learners and interlocutors needed to pay attention to oral messages and allow for a pause before using the audio feature to respond. Except in cases where the ESL learner specifically requested feedback on pronunciation, NS and NNS dyad partners focused primarily on the message or the task at hand.

Finally, the dyads were measured in terms of their relative rates of successful response (or "uptake") when learners were provided feedback from their interlocutors. Successful uptake occurred when ESL learners incorporated corrective feedback provided by their dyad partners into their written and spoken output in subsequent turns. Unsuccessful uptake occurred when ESL learners ignored their partners' feedback, continued the topic of discussion, resumed work on the learning activity, or shifted topics. Of all instances of learner response or uptake, which in many cases consisted of a simple "yes" or "I know," 63% (20/32) occurred in NNS–NNS dyads. Of the total learner uptake found in both types of dyads, 75% was successful (24/32) (Exhibit 7).

**Implications for Language Learning**

Findings of recent CMC studies motivated by theories of SLA seem to indicate that the audio- and video-enhanced components of IM applications have potential benefits for the language learning enterprise (Wang 2004). In this pilot study, successful learner uptake did occur as a result of corrective feedback provided by both NS and NNS partners immediately following the detection of a lexical or grammatical error on the part of the learner. In other words, ESL learners noticed the gap between their own second language output and the correct linguistic forms in the feedback provided by their partners. It seems, then, that the type of one-on-one focused negotiated interaction available in an IM environment facilitates learner awareness of linguistic forms or grammatical structures in second language input.

However, the fact that participants utilized written input (i.e., the text messaging component) more extensively than oral input (i.e., the talk feature or audio component) in this instant messaging context suggests that some forms of L2 feedback still lend themselves more readily to a written medium than a spoken one, since this is the type of modality generally utilized to provide feedback to learners in traditional settings. Moreover, the fact that NNS tutors were more likely to provide explicit corrective feedback to their partners suggests that NSs, rather than relying primarily on recasts, may need training in the use of feedback strategies that raise learner awareness of appropriate linguistic forms for second language development.

Nevertheless, these findings suggest that corrective feedback made available to L2 learners by their NS or NNS partners using Internet IM tools allows learners to detect a deviant use of a certain lexical, grammatical, or semantic form in their second language output, and research has shown that this may facilitate second language development. When corrective feedback is embedded in learning activities conducted via IM tools, learners are able to expand their linguistic competence outside the traditional F2F classroom environment.

**Conclusion**

Although there was evidence of successful learner uptake in a synchronous CMC environment, this exploratory study was limited in terms of size and scope. In order to further explore the potential benefits of the text messaging and audio features of IM for language learning purposes, significantly more participants

should be divided into equal proportions of NS-NNS and NNS-NNS dyads. Also, tightly focused communicative and problem-solving tasks have to be designed in order to provide sufficient opportunity for negotiated interaction between dyad partners.

Furthermore, teachers and researchers interested in exploring the language learning benefits of IM modalities might consider maximizing the use of both audio and video components as dyad partners collaborate in learning activities. While text-based chat logs are often automatically saved (depending on the software application), dyad partners need adequate training to be able to save audio files during IM chat sessions. Researchers also need to make sure that dyad participants have had extensive exposure to CMC, especially to the audio-visual modalities of IM or Internet-based videoconferencing (ICT). Without this preparation, inexperienced learners often reach what Paul Saffo (1996) refers to as the "threshold of indignation" in the event of a breakdown in communication, experiencing frustration as a result of having to focus on mastering the technology. Such frustration negatively affects possible language learning gains. Much the same would apply to the activities and problem-solving tasks assigned to participants; the inherent complexity of computer-mediated activities should not outweigh the fundamental goal of facilitating second-language development in students.

In order to avoid communication breakdowns or unnecessary time spent solving technical difficulties, even well-prepared participants in this type of language learning experiment need access to fast Internet connections. Since the Internet is congested at peak times in various parts of the continental United States, scheduling mutually convenient IM meetings between L2 learners and their NS and NNS partners is also crucial. Late evening hours appear to be more advantageous than earlier hours for dyad partners who are exchanging information across national boundaries since more bandwidth is available for using audio and video in instant messaging sessions. For the most effective exchanges, researchers also need to train participants in ways of achieving successful negotiated interaction via IM. For example, transcripts and models of previous IM can be provided to new participants in order to illustrate the process.

Finally, as more powerful technological tools become available, their use in second or foreign language learning will probably alter current notions of negotiated interaction, pedagogical tasks, linguistic awareness, and language development (Kern, Ware, and Warschauer 2004). Researchers therefore need to take into account the complicating effects of technology on current theories of second language acquisition and examine studies that utilize other theoretical frameworks such as Erickson and Kellogg's (2000) Social Translucence of Technology (STT). Since findings from studies of evolving corporate practices show that the use of real-time communication systems such as IM is not just for informal collaboration but also for manipulating social distance between subordinates and superiors (Quan-Haase, Cothrel, and Wellman 2005), this has to be factored into social aspects of language learning theories. Research of IM usage in high-tech firms has shown that the visibility it provides is useful for promoting informal, on-the-fly exchanges as well as "a sense of community, and ease in collaboration" (Quan-Haase, Cothrel, and Wellman 2005, 17). All these benefits make IM a potentially ideal tool for learning, communicating, and community building.

**References**

Abrams, Z. I. 2003. The effect of synchronous and asynchronous CMC on oral performance in German. *Modern Language Journal* 872:157-167.

Braidi, S. M. 2002. Reexamining the role of recasts in native-speaker/non-native-speaker interactions. *Language Learning* 52 (1): 1-42.

Chaudron, C. 1987. The role of error correction in second language teaching. In *Patterns of classroom interaction in Southeast Asia*, ed. B.K. Das, 17-50. Singapore: SEAMED Regional Language Centre.

Coverdale-Jones, T. 2000. The use of video-conferencing as a communication tool for language learning: Issues and considerations. *IALL Journal* 321:27-40.

Darhower, M. 2002. Instructional features of synchronous computer-mediated communication in the L2 class: A sociocultural case study. *CALICO Journal* 19:249-277.

Doughty, C., and E. Varela. 1998. Communicative focus on form. In *Focus on form in classroom second language acquisition,* ed. C. Doughty and J. Williams, 114-138. Cambridge: Cambridge University Press.

Ellis, R., H. Basturkmen, and S. Loewen. 2001. Learner uptake in communicative ESL lessons. *Language Learning* 51 (2): 281-318.

Erickson, T., and W.A. Kellogg. 2000. Social translucence: An approach to designing systems that support social processes. *ACM Transactions on Computer-Human Interaction* 7 (1): 59-83.

Fernández-García, M., and A. Martínez-Arbelais. 2002. Negotiation of meaning in non-native speaker-non-native speaker synchronous discussions. *CALICO Journal* 19:279-294.

Gass, S. M. and E. Varonis. 1984. The effect of familiarity on the comprehension of non-native speakers. *Studies in Second Language Acquisition* 7:37-57.

Kern, R., P. Ware, and M. Warschauer. 2004. Crossing frontiers: New directions in online pedagogy and research. *Annual Review of Applied Linguistics* 24:243-260.

Levy, M., and C. Kennedy. 2004. A task-cycling pedagogy using stimulated reflection and audio-conferencing in foreign language learning. *Language Learning & Technology* 82:50-68.

Lightbown, P. M., and N. Spada. 1999. *How languages are learned*. Oxford: Oxford University Press.

Loewen, S. 2004. Uptake in incidental focus on form in meaning-focused ESL lessons. *Language Learning* 54 (1): 153-188.

Long, M., and P. Robinson. 1998. Focus on form: Theory, research and practice. In *Focus on form in classroom second language acquisition*, ed. C. Doughty and J. Williams, 15-41. New York: Cambridge University Press.

Lyster, R., and L. Ranta. 1997. Corrective feedback and learner uptake: Negotiation of form in communicative classrooms. *Studies in Second Language Acquisition* 19:37-66.

Mackey, A., R. Oliver, and J. Leeman. 2003. Interactional input and the incorporation of feedback: An exploration of NS–NNS and NNS–NNS adult and child dyads. *Language Learning* 53:35-66.

O'Dowd, R. 2000. Intercultural learning via videoconferencing: A pilot exchange project. *Recall* 12 (1): 49-62.

O'Dowd, R. 2003. Videoconferencing in foreign language learning. http://www3.unileon.es/personal/wwdfmrod/vctext.html (accessed November 20, 2005).

Oskoz, A. 2004. Negotiation of meaning in jigsaw and free discussion in synchronous computer-mediated communication S-CMC. Paper presented at *CALICO 2004,* Pittsburgh, PA, June.

Pica, T. 1988. Interlanguage adjustments as outcome of NS–NNS negotiated interaction. *Language Learning* 38:45-73.

Poe, R. 2001. Instant messaging goes to work. *Business 2.0*, July 10.

Quan-Haase, A., J. Cothrel, and B. Wellman. 2005. Instant messaging for collaboration: A case study of a

high-tech firm. *Journal of Computer-mediated Communication* 10 (4): 120-121.

Saffo, P. 1996. The consumer spectrum. In *Bringing design to software*, ed. T. Winograd, J. Bennett, L. De Young, and B. Hartfield. Reading, MA: Addison-Wesley.

Schultz, J. M. 2000. Computers and collaborative writing in the foreign language curriculum. In *Network-based language teaching: Concepts and practice*, ed. M. Warschauer and R. Kern, 121-150. Cambridge: Cambridge University Press.

Schwartz, B., and M. Gubala-Ryzak. 1992. Learnability and grammar reorganization in SLA: Against negative evidence causing the unlearning of verb-movement. *Second Language Research* 8 (1): 1-38.

Smith, B. 2003. Computer-mediated negotiated interaction: An expanded model. *Modern Language Journal* 87(1): 38-54.

Sotillo, S. 2000. Discourse functions and syntactic complexity in synchronous and asynchronous communication. *Language Learning & Technology* 4 (1): 82-119. http://llt.msu.edu/vol4num1/sotillo/ (accessed November 20, 2005).

Wang, Y. 2004. Supporting synchronous distance language learning with desktop videoconferencing. *Language Learning & Technology* 8 (3): 90-121. http://llt.msu.edu/vol8num3/wang/default.html (accessed November 20, 2005).

Yiu, A. 2001. Rural communities get that long-distance healing. *Capital News Online*, November 16.