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Online Synchronous Language Learning: SLMS over the Internet
by Yuping Wang and Nian-Shing Chen

Learning a second language at a distance poses a tremendous challenge to learners. Physical distance from teachers and peers coupled with possible isolation from the relevant language community makes language learning extremely difficult. However, live interaction supported by synchronous learning management systems (SLMS) over the Internet holds great potential to address various difficulties facing distance language learners. By allowing students and instructors to negotiate linguistic issues together in real-time virtual settings, the interactive functions of such systems—online chat, whiteboards, and videoconferencing technology—can help foster vital learning communities in second language instruction. The study in this article offers an illustration that may contribute to further research and innovation in the use of SLMS to support language instruction in distance learning environments.

This article will first discuss the needs of distance language learners and the importance of online synchronous interaction in distance-based language learning. It will then proceed to discuss the capabilities of an advanced SLMS over the Internet and to report the initial results from a pilot study involving learners' evaluation of this SLMS. The implications of these findings for future research will then be explored.

The Needs of Distance Language Learners

Along with its many advantages, including flexibility and low costs, traditional distance education often has disadvantages—such as a lack of communication, a sense of disconnectedness, and a lack of confidence commonly felt by learners. Distance *language* learners face even greater difficulties. Despite their wish to improve their proficiency in a given language, distance language learners find little opportunity to communicate in the language itself within this particular learning environment, and these same learners become very frustrated when they cannot converse spontaneously in face-to-face situations. This problem has been well documented (see Hampel and Hauck 2004; Kötter 2001; Wang and Sun 2000; White 2003). In response, distance language educators and researchers have attempted to find a solution to this problem, experimenting with various technologies such as audio and video tapes, telephone, multimedia packages, and individual online tools (e.g., e-mails, audio conferencing, or video conferencing). These technologies are effective to a certain point, but none of them have addressed the needs of distance language learners in a comprehensive manner.

The Importance of Synchronous Interaction in Second Language Learning Online

Anderson and Garrison (1998) contend that interacting only with learning materials is not enough. Quality interactions between teachers and learners and among the learners themselves are the key factors for successful learning (Anderson and Garrison 1998; Spencer and Hiltz 2003). In the area of second language learning, interaction is commonly regarded as an integral part of a communicative language learning process (Gass 2003; Hall 1995; Lantolf 1994; Long 1996; Mitchell and Myles 1998; Ohta 1995; Swain and Lapkin 1995; Vygotsky 1978). Central to the communicative approach is the notion that language is a tool for social communication and interaction. Extended from this notion, the characteristics of this approach can be summarized as follows:

- an emphasis on using language for social interaction (Richards, Platt, and Weber 1985, 48),
- an emphasis on learning to communicate through interaction in the target language (Nunan 1991, 279),
- the introduction of authentic texts into the learning environment (Nunan 1991, 279; Balet 1985, 178-179),

- a focus not only on language but also on the language learning process itself (Nunan 1991, 279), and
- an emphasis on learning a second language as the mother tongue has been learned—that is, by using it in real-life situations (Balet 1985, 178-179).

These principles are equally important for successful online language learning, and they require a pedagogy that incorporates synchronous forms of communication as well as asynchronous forms of communication.

The provision of synchronous interaction to support effective online learning is a key issue addressed by many researchers (cf. Chen and Huang 2002; Chen et al. 2005; Kinshuk et al. 2001; Verhaart 2003; Wang 2004a, 2004b, 2006). However, most learning management systems mainly function as platforms where digital materials are stored and where students are only required to browse and interact with these materials by themselves. Some systems do support human-to-human interaction, but such interaction is often limited and predominantly asynchronous, as in the customary use of discussion boards and e-mails. What distance language learners urgently need is a SLMS that supports both synchronous and asynchronous interaction with both materials and humans. When enhanced with desktop video conferencing and synchronous document sharing tools, an SLMS can allow multiple forms of interaction to happen at the same time even when learners are physically separated. Such an SLMS is the focus of this study.

An SLMS for Second Language Learning

In our attempt to find a solution to the lack of interaction in distance language learning, we found one SLMS to be most effective—the Collaborative Cyber Community (3C) platform developed by the National Sun Yat-sen University in Taiwan. The development of the 3C platform was funded by the Taiwan National Science Council in 1997. Since then, the system has been constantly updated and maintained by a team of experts led by Professor Nian-Shing Chen of National Sun Yat-Sen University. Users must buy a Web camera and a headset (a total cost of approximately $80). In terms of scalability, the server running the 3C platform has a capacity to support up to 500 online asynchronous users and 200 online synchronous users (see the MRTG graph for details).

The 3C platform has two main environments. One, called the teacher's office, can be accessed only by the teacher and can be used for planning learning activities, uploading learning resources, and designing course material links (Figure 1). The other is called the classroom (Figure 2). Accessible by both the teacher and the learner, this space has two modes—asynchronous and synchronous. The asynchronous mode serves as a learning space for participants to access learning resources (e.g., lecture notes, Web-based course materials, assignments, and video recordings) and to engage in written communication (e.g., discussion board and e-mail). Of particular importance in the classroom is its synchronous mode, which is named the synchronous cyber classroom; this component features audio and video interaction, versatile synchronous information-sharing tools, a control panel, and multiple synchronous classrooms (Figure 3).

The synchronous mode of the 3C platform supports quality audio and video interaction through an Internet-based desktop videoconferencing tool called JointNet. JointNet allows the teacher to see and talk to any number of learners simultaneously; thus, live online classes that function similarly to traditional classroom environments can be conducted on the 3C platform. Students can click the talk button to speak to the teacher and to the class; moreover, individual students can be seen by the whole class if they have installed a Web camera on their computer. There is also a text chat box below the main video window. Users can text chat using languages supported by Microsoft Word while listening to the lecture. This rich learning environment effectively facilitates interactive and authentic language learning.

The synchronous cyber classroom is also supported by seven synchronous information sharing tools, making it a multimodal environment that is richer than a traditional classroom in some aspects; these different tools support different learning activities, and together they effectively facilitate language learning (Table 1). Aside from the videoconferencing feature, the most valuable tool is the digital onscreen whiteboard, which functions

in a manner similar to the chalkboard of a traditional classroom while offering the added functionality of uploading electronic resources prior to the start of class or during the class itself. The whiteboard allows the teacher and the learner to write simultaneously by using the embedded canvas function or the electronic writing pad. Both of these allow writing (e.g., Chinese characters) to be transmitted directly to the whiteboard.

As shown in Figure 3, there is a control panel on the 3C platform that can be used to control the flow of discussions of the synchronous sessions. It gives instructors quick access to various commands, including asking questions to individual students, giving additional controls (e.g., the shared desktop and joint Web browsing) to selected persons, polling participants, and disconnecting users. Additionally, as soon as a student logs in, his or her name will appear on the control panel, thus providing a roll call mechanism.

Through the function of multiple synchronous cyber classrooms, students can be organized into different online classrooms to practice and use the target language in mediated real-life situations (cf. Balet 1985), such as role play or group discussions. The teacher can navigate these rooms to observe and guide the discussions. This feature enables the teacher to cater to different learner needs and also facilitates small group practice.

All the online synchronous activities can be digitally recorded using the recording tool embedded in the 3C platform. The video recording can then be posted on the system for learners to play back after class for review or to catch up with classes they might have missed.

A Pilot Study

A pilot study was carried out in late 2005 to examine the effectiveness of the 3C platform. Seven students enrolled in the intermediate level of the Open Learning Chinese Program at Griffith University participated in the study. Five of them were from different parts of Australia, one was from Hong Kong, and the other was from the Czech Republic. Each participant was supplied with a Web camera, a headset, and access to the system.

Through the 3C platform, a two-hour live speaking tutorial was conducted each week for 10 weeks. The participants were required to complete learning tasks either in the form of role play, game playing, or dialogue within the synchronous cyber classroom (Exhibit 1). Participants usually performed the task orally with one another, and text chat was utilized in both Chinese and English to supplement the activities. All the activities were digitally video recorded and were placed on the system for participant review.

Following the completion of the tutorials, participants were surveyed via e-mail. In consideration of the small number of participants, a qualitative approach was adopted; survey questions were open-ended rather than multiple choice in their format.

Results of the survey are presented in Exhibit 2. The data demonstrates that all participants welcomed synchronous learning with enthusiasm and they claimed that they enjoyed the experience. The opportunities for synchronous interaction and for speaking the target language were the recurring refrain in the data (Q1). Some participants noticed progress in their learning as a result. Participant 5 felt that she "improved dramatically in a very short time-frame" (Q2). This positive experience also led to increased confidence in language acquisition and a sense of connectedness among the participants.

Convenience and time efficiency were two other major advantages cited by the participants. This is probably because all the participants attended the online tutorials from their homes, thus saving time that would have been used for traveling. Participant 3 also believed that this form of learning might create less anxiety than face-to-face language learning "as there is more of a degree of anonymity" (Q2). In addition, the home environment created a relaxing and comfortable atmosphere with some participants smoking and drinking coffee during the tutorials. Participant 1 thought highly of the video recordings of the tutorials, noting that these recordings could be replayed for analyzing one's mistakes or understanding things that one missed

during the sessions (Q2). This remark pointed to the effectiveness of a learning model that combines synchronous learning with asynchronous resources.

As other studies have indicated (e.g., Sotillo 2006), some participants were frustrated by sound quality and technical problems (Q3). The sound quality of the synchronous classes could be similar to that of an international telephone call if broadband were to be used. However, the quality was reduced when using a dial-up connection. The best quality we had was that of the participant in Hong Kong and the technical assistant in Taiwan when both used broadband connections. For most participants in Australia, except for one who used broadband, the sound could be unstable at times and packets of data were lost.

We also encountered two technical problems. On one occasion the sound volume of the teacher's headset was accidentally muted; as a result the teacher could not hear anything from the participants. At another time the teacher could not log into the 3C platform due to a problem with the setting of her computer. Although these problems were incidental and eventually solved, some valuable online time was lost.

Despite these problems, all participants suggested the inclusion of this type of learning in their distance programs in the future (Q4). Overall, their enthusiasm about SLMS-based learning was evident.

Implications for Future Work with the SLMS

In recognition of the small sample size of this pilot study, implications will be discussed in terms of future directions for scholarly research. In our study the asynchronous features (e.g., discussion board and e-mails) of the 3C platform were not tested; these features have been confirmed as equally important for second language learning (cf. Kitade 2000; Sykes 2005). Future studies may explore the potential of these features in conjunction with the synchronous cyber classroom.

Teacher and student training emerged as a significant consideration during this pilot study. Our experience suggests that it is crucial to provide training sessions prior to the start of formal teaching in order to familiarize all users with the proper setup of the microphone and Web camera and to review user interface navigation of the 3C platform. As far as the learner is concerned, to log in and attend the online class is straightforward. However, it takes longer to be able to use creatively the various features offered by the system. As for teachers, apart from training in the technical aspects of the SLMS, pedagogical training should be an ongoing endeavor (cf. Hampel and Stickler 2005). Although the workload for preparing synchronous teaching sessions is much the same as that required of campus-based teaching, to manage and sustain a vast amount of visual and textual input and to use the 3C platform features with creativity requires practice and conscientious effort. Our data indicates that synchronous learning coupled with video conferencing may be more demanding and present different challenges from audio conferencing since video conferencing requires one to manage visual cues, such as facial expressions and hand gestures as they relate to effective communication. More in-depth study is needed to explore this issue further.

Finally, as institutions begin to explore the value of such synchronous communication tools for online language learning, further research will be needed to establish the value of these tools with regard to their support of learning outcomes. The value of such tools for enhancing community and student engagement in a distance learning environment remains clear and should not be underestimated; however, further study will be needed to confirm the extent to which such enhancements also translate into measurable results in student proficiency and performance. For many educators and institutions, this will remain the key issue that determines whether they fully embrace such technology in their own online course offerings.

Conclusion

This pilot study suggests that SLMS-supported online learning was positively received by distance language learners who perceived it as providing interaction and communication that they would otherwise not have. As a result, they felt more confident and connected. This finding confirms the results of studies on the impact of

video technologies on building a learning community, increasing learner confidence, and reducing learner isolation (Bloomfield 2000; Lake 1999; Stacey 1999; Hampel and Hauck 2004). In addition, this research also provides some insight into the potential of online synchronous learning.

Although the 3C platform was evaluated for its support of distance language learning, it is a generic tool that can adequately support large classes of any discipline. The system has been employed by teachers and institutions from New Zealand, Australia, Taiwan, and Germany for teaching subjects other than languages. As more and more learners now have easy access to the latest broadband technologies in their homes, blended learning—combining on-campus classrooms with cyber classrooms or integrating asynchronous learning with synchronous learning—will become the mainstream e-learning model. As SLMSs play a key role in this emerging trend, it is therefore timely to investigate this technology regarding its ability to meet learners' needs.

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