

INTERNET AUDIO COMMUNICATION FOR SECOND LANGUAGE LEARNING: A COMPARATIVE REVIEW OF SIX PROGRAMS

Gary A. Cziko and Sujung Park
University of Illinois at Urbana-Champaign

ABSTRACT

A vast and largely untapped resource for second language learners has recently become available: native speakers of languages being learned who have access to the Internet. To explore the potential of this new resource for second language learning, we reviewed six free programs for Windows and Macintosh computers that permit synchronous audio (and some video) communication via the Internet. It was found that although the audio (and video) quality varied both among and within the programs reviewed, the communicative contexts created by these programs can provide second language learners with an inexpensive means for useful audio interaction with native speakers of their second language. We provide recommendations for program choice according to user needs and preferences, with an emphasis on *tandem language learning*, a context in which participants take turns being both second language learner and tutor of their native language.

It should be quite obvious to anyone living in a technologically developed country today that the widespread availability of personal computers and the Internet have brought about dramatic changes in the way that we communicate. The use of electronic mail is the most obvious way in which our communicative behavior has changed over the last two decades. Instant messaging systems are also gaining widespread use with the integration of the Internet into various wireless devices such as portable telephones.

However, none of these computer-mediated communication media has yet had a major impact on second language (L2) teaching and learning. There are certainly many instructors and students who make use of foreign-language materials on the Internet; and there are numerous foreign-language courses that make use of the World Wide Web. But there remains a vast and largely untapped Internet resource for L2 teachers and learners that has recently become available, namely, audio access to native speakers of the L2.

Native speakers who use the Internet comprise a particularly valuable resource for L2 learners since a major barrier to the development of L2 listening and speaking proficiency is the lack of opportunity to converse with native speakers of the target language. A high school student of French in Iowa is not likely to have much, if any, opportunity to use French outside the French classroom. However, there are millions of native French speakers throughout the world, many of whom have Internet access and would welcome the opportunity to interact with English-speaking French learners in exchange for the opportunity to converse in English with a native speaker.

There have been several projects that have used the Internet to link second language learners with native speakers, but for the most part these efforts have been limited to text communication (Belz, 2002; Blake, 2000; González-Bueno, 1998; Negretti, 1999; Ortega, 1997; Toyoda & Harrison, 2002). One project that made use of synchronous audio and video to link second language learners with native speakers (Wong & Fauverge, 1999) was apparently successful in motivating students and providing a rich context for conversing in the second language. In Europe, researchers, teachers, and students have been involved in eTandem Europa (www.slf.ruhr-uni-bochum.de/etandem) in which telephone and Internet audio have

been used to allow pairs of learners with different native languages to interact and learn each others' languages (see the Language Learning in Tandem Bibliography available at www.slf.ruht-uni-bochum.de/learning/tandbib.html, Brammerts, 2002; Apfelbaum, 1993; Gläsmann & Calvert, 2001; Helmling, 2002; Rosanelli, 1992).

Until quite recently, synchronous audio and video communication required special software and hardware along with the use of costly ISDN telephone lines. "Business quality" video conferencing that provides full-screen video at 30 frames per second still requires special hardware such as that provided by Tandberg and PolyCom. However, recent advances in programming, computer speed, and Internet bandwidth have brought the ability to talk with and even see others anywhere in the world to millions of home and educational computer users at little or no additional cost above that incurred for the computer hardware and Internet connection. This is a particularly exciting development for L2 learners who speak English as a native language. The emergence of English as the world's predominant international language virtually guarantees that no matter which L2 a native English speaker is learning, there are many native speakers of that L2 who are learning English, too. This fact greatly facilitates the establishment of Internet tandem language learning partnerships involving English and other languages.

The availability of free, synchronous, computer-mediated audio communication (SCMAC) software comes at a time when there is increasing agreement among L2 researchers and educators concerning the importance of second language input, output, and interaction for second language acquisition. The behaviorist-based audio-lingual theories and practices of L2 teaching of the 1950s and 1960s (e.g., Lado, 1957, 1964) and the subsequent opposing communicative competence perspective of the 1970s and 1980s (e.g., Krashen, 1985; Krashen & Terrell, 1983) have both given way to a more encompassing view that recognizes the importance of the quantity and quality of input, output, and interaction in communicative settings where there is some focus on L2 form (e.g., Ellis, 2002). The use of SCMAC programs that allow verbal communication between L2 students who are learning each others' languages appear to provide particularly rich contexts for L2 acquisition with opportunities for L2 input, output, and communicative interaction along with the possibility for focus on L2 form (see www.uiuc.edu/ph/www/g-cziko/papers/scmac/contexts.html for a description of various L2 learning contexts made possible by SMAC).

THREE COMMUNICATION ENVIRONMENTS

Three different kinds of communicative environments are offered by SCMAC programs: (a) instant messaging, (b) conferences, and (c) chat groups. Some programs offer all three, and others offer only one or two.

All programs reviewed provide instant messaging, which uses both text and audio between two users. Some programs also provide video communication in their instant messaging modes.

A conference, like a telephone conference call, is a temporary gathering of three or more individuals, typically fewer than 10. All programs providing conferences permit at least text communication and allow users already in a conference to invite others into the conference. Some conferences add audio and video capabilities as well, although these may be limited to one-to-one communication between two participants of the conference. Conferences disappear after the last user leaves. It is usually not possible to find an on-going conference itself, although it may be possible to request admission to a conference if a user's acquaintance, also called a "friend," "buddy," or "pal," is in a conference.

A chat room, also called a "chat group" or just "group," is typically a more permanent gathering of up to 50 individuals. Chat rooms are of two types: pre-established (by the software provider) and user-created. User-created chat rooms may be public or private, with the latter requiring non-public information (usually obtained from the chat room creator) to enter. It is always possible to share text with all members of a chat room. In addition, some programs make it possible to share audio and even video with one,

several, or all members of a chat room. On some systems, the creator of the chat room has special privileges such as being able to control access to the chat room and mute or ban unruly users.

PURPOSE OF THE RESEARCH

Having considered the possible environments in which L2 learners and native speakers can interact using Internet-based SCMAC, the question then arises concerning the extent to which available software provides the means to create these communicative settings. The purpose of this research was, therefore, to review free, widely-used SCMAC programs and to explore their potential use for L2 learning by allowing L2 learners to converse with native speakers of the target language. To be included in this review, a program had to be (a) available without cost, (b) widely used, and (c) capable of at least synchronous audio communication between two or more Internet users using Windows or Macintosh computers. Based on these criteria, six programs were selected: AOL Instant Messenger, Yahoo Messenger, MSN Messenger, Windows Messenger, PalTalk, and iVisit.

The majority of the testing of the SCMAC software was conducted using high-speed Internet connections. All reviewed programs can also be used with slower connections, such as telephone modems, but speed, quality, and reliability of audio and video tend to suffer with slower connections. Even with high-speed Internet access, Internet traffic jams can result in poorer performance than that noted below.

SCMAC PROGRAMS DESCRIBED AND REVIEWED

AOL Instant Messenger

AOL Instant Messenger (<http://www.aim.com/>) was the first instant messaging program to be adopted by a large number of Internet users. Two versions of this program were reviewed: Version 4.8.2790 for Windows (95, 98, 2000, NT, XP) and Version 4.3.1232 for Macintosh (OS 8, OS 9). The version for Macintosh OS X (4.5.651) promised, but had not yet provided audio at the time of testing and so was not reviewed.

AOL Instant Messenger provides text chat in both instant message (one-to-one) and conference environments. File transfer is also provided. AOL Instant Messenger currently has no video capability and while it does offer audio communication, its audio capabilities are limited.

Sound quality with AOL Instant Messenger was quite variable and often had longer latencies (more than a second) than the other programs reviewed. The user has a choice between half- ("walkie-talkie mode") and full- ("telephone mode") duplex audio, but audio works only one-to-one. As with other programs offering both half- and full-duplex audio, the choice of one mode over the other depends on user preferences and the ability of the program to maintain high-quality audio when used in the more demanding full-duplex mode.

AOL Instant Messenger offers many "Chat Communities," but you must go to their Web site (www.aim.com/community/chats.adp) to find groups of individuals who are engaged in text chat. A user in a chat room may invite another into the chat room. A chat room participant may also request a one-to-one audio link with anyone else in the room. Communication will be established only if the other party agrees. There is apparently no option for users to set up their own chat rooms using AOL Instant Messenger.

Nothing of interest related to second language learning opportunities was found in any of the chat rooms. There is an "International Chat," but as with almost all of the chat rooms visited on AOL Instant Messenger, it consisted primarily of sexually-oriented and defamatory communication.

A first-time user of AOL Instant Messenger is asked to provide information for the user directory, which is accessible by other users. Directory information can also be added or edited later via *My AOL Instant*

Messenger > Edit Profile. Included is a request for country and personal interests. AOL Instant Messenger provides a "find a buddy" function for locating someone with a "Common Interest." However, no matter what interest we searched, we found no users with that interest, leading us to conclude that this feature is not yet working. In any case, none of the common interests specified, with the possible exception of *Community > Hispanic* were of interest to second language learners. The country field can only be used when the searcher knows the name of the person being searched, so it is not possible to obtain a list of AOL Instant Messenger users who live in a given country or region by specifying only a country or region. However, one can search using a common name of a target country (e.g., Pierre for France, Juan for Spain) to obtain a list of likely target language speakers.

In summary, while AOL Instant Messenger was the first widely used instant messaging program and now includes audio chat as well, it has limitations for the second language learner. No video is provided, and audio is limited to one-to-one. None of the pre-established chat rooms are of particular interest to students learning a language other than English, although it may be possible to find users who speak other languages. No user-created chat rooms are possible using the free software either, and the directory is not fully functional. These limitations plus the fact that better communicative environments are available for Windows users lead to the recommendation that AOL Instant Messenger be used only by acquaintances wanting to communicate using audio when at least one party is using a Macintosh computer.

Yahoo Messenger for Windows

Yahoo Messenger (messenger.yahoo.com) Version 5.4 for Windows (95, 98, 2000, NT, and XP) is a very versatile program, which provides both one-to-one and multiparty text chat as well as one-to-one audio and video conferencing. A Macintosh version is also available, but it does not support audio and so was not reviewed.

Yahoo Messenger can be used in three different environments: Instant Message, Conference, and Chat Room. The instant message environment is for one-to-one communication. Here, conferences are temporary gatherings of two to nine individuals, and chat rooms are permanent or semi-permanent multi-user settings with up to 50 users that have been set up either by Yahoo or by individual users. A user can have multiple environments open at the same time in different windows, but audio and video connections can only be made to one window at a time. Yahoo Messenger users can make aliases so that while they always use the same logon name and password, they can choose a different screen name to be shown to other users of the program.

Text chat, audio, and video work similarly in all environments. Audio was found to be of good quality but is essentially half-duplex only, even in the one-to-one Instant Message environment. In some situations, it was found to be possible to interrupt another person's audio or to talk and be heard while another user was playing music to the group. To use audio, users must either hold down the "Talk" button on the screen or check the "Hands Free Mode." Video is available as a small frame that can be made two or three times larger, resulting in a larger but same-resolution image. The frame rate was found to be quite slow, about three per second, providing a very jerky video image for moving subjects.

Yahoo Messenger provides a large number of pre-established audio- and video-enabled chat rooms for up to 50 participants at any one time. While the great majority of chat rooms use English, thereby providing ESL learners opportunities to interact with native English speakers, chat rooms using many other languages, including Spanish, French, German, Italian, and Korean, were found under the "Cultures and Communities" and "Regional" headings.

There are several useful options for user-created chat rooms. In all cases, they exist only until the last person leaves the room. These rooms can either be created as (a) public (in which case they will be listed on the user-created chat room directory and can be accessed by all Yahoo users), (b) private, or (c) private by invitation only. Private rooms are not listed in the directory and can be accessed only by joining a user

who is known to be in the desired chat room; whereas "private by invitation only" chat rooms are accessible only to those who have been invited by someone already in the room. An individual can have only one user-created chat room in existence at any one time.

Using Yahoo Messenger, a teacher can easily set up a private chat room for students that cannot be entered by others. One way to do this is for the teacher to create a new Yahoo ID and use this ID to create a private chat room. Students can then log into Yahoo Messenger using their normal ID, add the teacher's new ID as a friend, and join this "friend" in the private chat room. However, since a user-created chat room exists only as long as it is occupied, the Yahoo ID used to create the room would have to remain connected continuously in order for students to have uninterrupted access to the chat room.

When you first use Yahoo Messenger, you are given the opportunity to provide personal information including name, age, gender, location, and hobbies. By going to *Tools > Manage Friend List > Search for a Friend*, you can search for friends in this directory using user ID, name, age, gender, and keyword (including location). Individuals in the directory matching the search criteria are then listed with their ID, gender, age, and location. You can then attempt to make someone from the search list your friend by sending an optional message, and if he or she accepts your invitation, you can communicate with this new friend by using an instant message or inviting him or her to a conference or chat room.

Since there is no directory field for native language, one way for Yahoo Messenger users to find native speakers of a given language is to do a keyword search for a location such as Paris, Berlin, Madrid, or Beijing. One can then select a friend from the resulting list and send a message inviting the potential friend to become a language exchange partner.

Yahoo Messenger also provides a Web-based method for finding potential language resource friends at members.yahoo.com. Here you can search Yahoo's extensive directory, which is not restricted to Yahoo Messenger users, for people interested in various topics and consult the profile of potential language partners. Since locations are included, one can look for individuals in selected countries or cities and send them an invitation to communicate via email or instant message. Under the category of "Schools and Education," there are the subcategories "Study Abroad," "Bilingualism," and "Exchange Student" which offer additional possibilities for finding speakers of desired languages.

Yahoo Messenger does not offer complete documentation or support. Although a "Yahoo Helper" shows up on your friends list when you start the program, despite repeated inquiries we received only one response in which an "automated robot" offered to help but was not particularly helpful. Neither could we find information on how user-defined chat rooms are accessed, and so we had to spend considerable time investigating the various chat room options to figure this out ourselves.

In summary, Yahoo Messenger provides SCMAC capabilities that have good potential for second language learners. It provides free multiparty text and audio and one-to-one video for users with Webcams. It can also be used by individuals to find chat rooms that use the target language. Users can then either lurk for input or actively communicate with those in the chat room via text, audio and/or video. Teachers and learners can also set up private chat rooms to create tandem language learning environments. The only notable disadvantages of Yahoo Messenger are that its audio and video capabilities are available only to Windows users, leaving Macintosh users with only text, and that video in conferences and chat rooms is limited to one-to-one connections.

MSN Messenger and Windows Messenger

MSN Messenger (messenger.msn.com) for Windows 95, 98, 2000, Me, and NT 4 (Version 4.6.0082 reviewed) provides multiparty text chat, but its "audio conversation" capability is limited to one-to-one connections. MSN Messenger provides file transfer, allowing partners to share files (including photo files) without the size constraints encountered on most email systems. There is also a version of MSN

Messenger for the Macintosh, but because it is limited to text communication, the Macintosh version was not included in this review.

MSN Messenger has excellent audio capability, as it is capable of high-quality, full-duplex voice communication with short latencies. Talking with another MSN Messenger user is much like talking on the telephone, the only differences being more variable audio quality and a slight delay between the time one speaks and the time one's voice is heard by the other party. As with Yahoo Messenger, users of MSN Messenger can change the name that other users see.

Windows Messenger (messenger.msn.com) for Windows XP (Version 4.6.0078 tested) has all the features of MSN Messenger plus a number of useful additional capabilities. Version 4 is included as part of both Home and Professional editions of the Windows XP operating system, and a free upgrade to Version 4.6 is available at messenger.msn.com.

Windows Messenger is used with a Webcam and allows users to see each other in a small video window while talking. Its video, while limited to a small video frame and moderate frame rates, was among the best of the programs reviewed and permits senders to monitor their own video in a corner of their correspondent's video image.

Windows Messenger also provides several features beyond text, audio and video, and file transfer. These include remote assistance, application sharing, and a whiteboard. Remote assistance allows User A to give permission to User B to see and control User A's computer, which can be particularly useful for troubleshooting. Application sharing allows two connected users to share any application located on either computer so that, for example, the two connected users can work on the same document together. The whiteboard provides an environment for collaborative drawing and graphics creation. The addition of these collaborative capabilities, along with the text chat, audio, and video capabilities of Windows Messenger, makes it the program of choice for one-on-one SCMAC where both partners are using Windows XP.

Microsoft's extensive Hotmail directory can be accessed and searched from within both MSN Messenger and Windows Messenger (*Tools > Add a Contact*). However, since one must specify both first and last names to perform a directory search, it would appear that only acquaintances can be found. You can find speakers of a given language by making up a common name and searching by country. Many were found searching for Pierre Simon in France, and too many to display were found for Angel Garcia in Mexico. The directory will not reveal Hotmail users' email addresses, but one can send an invitation message, which includes information on how to install Windows Messenger, to anyone found. The directory does not indicate if someone is currently online.

You cannot search by hobbies or other keywords from within MSN Messenger or Windows Messenger. But you can do so by moving to the Web-based Hotmail directory at members.msn.com. Here one can browse members by pre-established interests and obtain member listings indicating nickname, gender, age, location, and interests. One can also establish contact with another by e-mail or check to see if the member is already chatting online. By clicking on "Advanced Search," one can search using the following fields: MSN nickname, first name, last name, gender, age, marital status, city, and country/region. This is a very useful feature for users wanting to find tandem language learning partners in specific parts of the world. For example, 175 individuals were found who listed Aix-en-Provence in France as their location.

From within both MSN Messenger and Windows Messenger, chat rooms are found by going to *Actions > Go To Chat Rooms*. Since audio in these programs is limited to one-to-one communication, these text chat rooms are not audio enabled. However, there are many text chat rooms available and it is possible to check the profile and contact information for anyone in a chat room. Under the "General" category, we found text chat rooms using English, French, German, Japanese, Dutch, Swedish, Korean, Portuguese,

Finnish, Danish, Italian, Norwegian, Chinese, Spanish, Czech, and Turkish. So this is another possibility for finding potential tandem language learning partners.

Finally, it should be noted that an individual using the older MSN Messenger can communicate using text chat and audio with another using the newer Windows Messenger. However, none of the added capabilities of Windows Messenger are available in this hybrid environment.

In summary, MSN Messenger and Windows Messenger both provide useful audio environments for one-to-one communication among Windows users. An extensive international directory of Hotmail users provides potential access to millions of people and a multitude of languages worldwide. One may also find potential language exchange partners in chat rooms, although chat rooms are text only. For users of the Windows XP operating system, Windows Messenger provides the most feature-rich environment for one-to-one communication among all of the programs reviewed here.

PalTalk

PalTalk (www.paltalk.com; Version 5 for Windows 95, 98, NT, 2000, XP) exists in both free and paid subscriber modes (PalTalk Plus). In its free version, PalTalk offers instant messaging, conferences, and chat rooms and is capable of multiparty half-duplex audio and still-frame video with up to three other users. In its paid-subscriber mode (about \$25 annually--not tested), PalTalk adds live-motion video with up to three other users. A user can create a permanent chat room for a fee starting at \$49 a month.

PalTalk's audio chat room environment is of particular interest to L2 learners and teachers. PalTalk provides both pre-existing and user-created chat groups ("groups"). In its free version, user-created chat groups are semi-permanent in that they exist only as long as the creator or the last user remains in the chat group. The chat room is re-established the next time the creator ("administrator") enters a four-digit key that was used to create the room. The creator can make the chat room private, which requires a password, and he or she can silence or eject anyone in the room. The creator can also share the room's access code with another trusted user who then becomes a "co-administrator" and who can then open and moderate the chat room. Administrators' and co-administrators' IDs appear with a preceding "@" in the list of the chat room participants.

PalTalk also provides some degree of adult ("parental") control over children's access to its rooms and features. By entering a password, one can limit users to "General" rooms, which according to PalTalk policy are for a "general audience ... including minors, in which offensive language is not permitted." However, this does not provide protection to minors from potential predators who may enter general rooms and cause problems before being blocked or banned by a PalTalk administrator. A knowledgeable minor can circumvent the parental control by simply removing and reinstalling the program. There is no way to limit minors so that they have access only to certain rooms.

Of all the programs reviewed, PalTalk provides the best environment for group audio chat. This is because of its consistently good audio quality and because it includes a "req talk" button that one can click to indicate intention to address the group. Clicking this button raises one's ID to a queue at the top of the list of participants and adds a raised hand icon. In this way an administrator can see who has requested to talk and pass the microphone in an orderly fashion from one user to another. Of all the programs reviewed, PalTalk was the only one in which audio chat was almost always used in chat rooms, with users of other programs tended to rely primarily on text chat.

In addition, of all the programs reviewed, PalTalk had what appeared to be the greatest number of interesting and educational chat rooms. With other software it was often difficult to find any chat room that was not dominated by sexual, obscene, or defamatory communication. PalTalk has its share of these, too, but there are also more serious and educational chat rooms. Of particular interest are chat rooms created for practicing English and other languages (listed under "Distance Learning"). Some of these were moderated discussions in the target language while others were actual language lessons offered by

individual users wishing to help others learn the language. Many non-English-language chat rooms were also found in all of the world's major languages as well as in many other languages.

PalTalk provides no user directory beyond a search of PalTalk nicknames, but as with the other programs reviewed, it is possible to find individuals in chat rooms and then request to establish private two-way communication with them. After using the program for a few days while on the lookout for users with whom to practice Spanish, I (GC) was able to compile a list of Spanish-speaking PalTalk users who were interested in improving their English. When added to my buddy list, I could then see which of them were online at any given moment, allowing me to send an instant message invitation for a chat in Spanish and English -- an invitation that was often accepted.

PalTalk also has three or more help rooms available at any given time. Here users can find assistance for PalTalk problems from live helpers who appear quite knowledgeable about the program.

To summarize, PalTalk provides an environment of considerable value for L2 learners and teachers. Individual L2 learners can find chat rooms using their target language and then either observe and listen, participate, or attempt to connect to an individual in the chat room (perhaps after first participating in the chat room and announcing their intention to engage in tandem language learning with any interested user). Teachers can set up private chat rooms for their classes and moderate and control user access and participation. Audio quality was also generally very good, and the ability to "raise one's hand" to speak allows orderly group audio chat in contrast to the audio chaos typically found in other group SCMAC environments. In addition to its unavailability for Macintosh users, the only serious drawback to PalTalk is the frequent rate of distracting pop-up ads promoting the purchase of PalTalk Plus and other products and services.

iVisit

iVisit (www.िवisit.com and www.िवisithelp.com; Version 2.8b2 for Windows 95 and higher; Version 2.8b2 for Mac OS 7.5 and higher, but not for OS X) differs in many respects from the other programs reviewed. First, iVisit is unique in that virtually all of its features are available for both Windows and Macintosh platforms. In addition, iVisit uses a multiparty peer-to-peer architecture instead of relying on a central server. This means that when you enter a chat room on iVisit, your computer makes direct connections with all of the other individuals in the room. This makes it possible for iVisit to offer multiparty full-duplex audio, with half-duplex being the default option, and multiparty video, the only program reviewed here with these capabilities. However, this also means that the quality of audio and video is determined by the computer processing power, Internet connection speed, and reliability of the connected parties. We found that audio and video quality can be quite good with two or three users connected (with audio quality usually being better with paused video). The sound quality tends to deteriorate with large groups, and the video frame rate often slows down to less than one frame per second, particularly when someone joins the group who has a slow modem connection. Users taking the trouble to fine tune iVisit's many user settings to their particular machine nevertheless may experience significantly improved video and audio quality.

iVisit is also different from the other programs in that it does not use a typical sign-in procedure. A first-time user simply enters a nickname he or she is connected with no registration or password required. One disadvantage associated with this procedure is that one's list of contacts, called "bookmarks" in iVisit, is stored on the local computer and is therefore not available to the user when using a different computer unless the original bookmark file is transferred to the new computer.

iVisit provides both user-created rooms and pre-established rooms, including "Help Desks" staffed by helpful and knowledgeable volunteers. It also provides what are called "listings" or "lobbies." When one enters a room, one is immediately connected to everyone else in the room. However, when one enters a listing or lobby, one first sees a list of other users in the listing and can then request one-to-one

communication with one of them. This could turn into a multiparty connection if the other user is already connected to someone else. Users can create semi-permanent chat rooms that are either public or private (password protected). Many families and groups of friends have established private chat rooms on iVisit. These chat rooms continue to exist unless they are not used over a period of several days. Chat room creators can eject users from their rooms and ban them from re-entering or temporarily remove them to make room for new users to enter. Chat rooms can also be set up to be self-moderating, meaning that anyone in the room for a certain length of time can obtain moderator privileges. iVisit chat rooms can contain 16 or more visitors, but the standard listing contains a maximum of 12 users.

Chat room creation will be different in iVisit 3, which will likely be available by the time this review is published. iVisit 3 will exist in both free and paid versions. The paid version (\$30/year) will be required to create chat rooms, but the free version of iVisit 3 will retain access to all created chat rooms.

An interesting and unique feature of iVisit is its ability to record all the text, audio, and video of a communication session (after obtaining permission from all participants) for a period of up to 10 minutes. It can then be played back locally or over the Internet to connected users. This feature was not completely reliable when we tested it, but its potential is obvious for L2 learners and teachers. The Windows version of iVisit also allows connected users to easily share Webpages with each other.

There is no user directory available on iVisit; but as with other programs lacking a user directory, it is possible to find speakers of other languages in chat rooms and request two-way communication with them. The chat room directory under "iVisit World" lists many rooms in many countries using many different languages.

iVisit is primarily used as a video-plus-text environment, and a very high percentage of iVisit users have live Webcams. The program offers 160 x 120 video resolution in a small window that can be enlarged while the resolution remains the same. Users without a Webcam can paste a photo in their "Local AV Window" for others to see as a still image. Audio is not used much in iVisit except by a minority of users with more powerful computers and high-speed Internet connections. Audio rooms have been established in several languages (under "iVisit World"), but they are seldom and sparsely occupied. Finally, it is possible to restrict young users' access to certain directories of rooms and listings in iVisit, but not to specific rooms and listings. However, the means by which this is done is not described in iVisit's public documentation, and this control could easily be defeated by a savvy young user by simply removing a single file from the iVisit directory or downloading and reinstalling the program.

iVisit is the only program reviewed here that provides multiparty video along with multiparty half- or full-duplex audio, and it offers these features for both Windows and Macintosh computers. It is also the only program we reviewed which allows the recording and playback of communication sessions. However, as noted, audio and video quality may deteriorate for larger groups and the audio environment may become chaotic in chat rooms with many users talking (and being heard) simultaneously with no way to request to talk as in PalTalk. As personal computers continue to gain power, Internet connection speeds increase, and iVisit continues to rapidly evolve, this program promises to become a powerfully useful program for L2 learners and teachers, and it is quite useful in its current version for one-to-one and small-group communication on both Windows and Macintosh computers.

MATCHING SOFTWARE TO L2 LEARNER NEEDS AND PREFERENCES

Having reviewed these six programs, we now provide a guide for program selection based on teacher and learner needs and preferences. (See [Table 1](#) for a summary of each program's features.)

Table 1. Feature Comparison of Six SCMAC Programs

Program	Platform	Audio Chat	Video	Audio Chat Rooms	User Directory	Other Features
AOL Instant Messenger	Windows, Mac OS 8 & 9	1 to 1, half- or full-duplex	No	Pre-established	Partly functional	File transfer, URL embedding
Yahoo Messenger	Windows	Multi-party, half-duplex	1 to 1	Pre-established; user created	Yes	File transfer, shared files, user aliases
MSN Messenger	Windows (not XP)	1 to 1, full-duplex	No	No	Yes	File transfer
Windows Messenger	Windows XP	1 to 1, full-duplex	1 to 1	No	Yes	File transfer, remote assistance, shared apps & whiteboard
PalTalk	Windows	Multi-party, half-duplex	Paid version only	Pre-established; user created	No	Mic request; access control
iVisit	Windows, Macintosh 7.5+ (no OS X)	Multi-party half- or full-duplex	Multi-party	Pre-established; user created	No	Audio-video recording & playback; access control

Dyads of Acquaintances

For users wishing to establish private one-to-one voice communication with an acquaintance, many options are available, depending on the computer platforms being used. For Windows to Windows communication, any of the reviewed programs will work, but MSN Messenger or Windows Messenger is recommended. Windows Messenger provides the best communicative environment for dyads, including high-quality, full-duplex audio, video, and many other features; but it can only be used if both parties are using Windows XP. MSN Messenger has fewer features but can be used by older versions of Windows and can also communicate with Windows Messenger if one user has Windows XP and the other a previous version of Windows. AOL Instant Messenger and iVisit also provide audio communication between two Windows users, but their audio quality was more variable than that of the two Microsoft products.

For Macintosh users, both AOL Instant Messenger and iVisit are the only possibilities for audio communication as they allow audio chat between a Windows computer and a Macintosh computer, or between two Macintosh machines.

Dyads with New Contacts

If an L2 learner does not already have a native speaker acquaintance, he or she will need to find one. In such a situation, the user directories provided by MSN (for use with MSN Messenger and Windows Messenger) and Yahoo Messenger can be very useful for Windows to Windows communication as they allow users to find other users with specific interests in specific locations around the world. Although PalTalk does not have a user directory, it may be possible to find native speakers in a given language by browsing through the many foreign-language public chat rooms.

For Macintosh users, neither of the two audio-capable programs, AOL Instant Messenger and iVisit, provides a user directory. However, as with PalTalk for Windows users, it is possible for Macintosh users

to find chat rooms using the desired language. They can then attempt to establish one-to-one communication with a prospective partner who is using either a Windows or a Macintosh computer.

However, for both Windows and Macintosh users, perhaps the easiest way to find a partner for SCMAC-based language learning is to take advantage of an Internet-based service specifically designed for this purpose. Parvis (www.etandemlearning.com) provides both free and paid services for matching individuals who want to learn each other's languages via electronic media and has linked thousands of language learners together worldwide.

Audio Chat Groups

For Windows users wanting to find and interact with pre-established audio chat groups in foreign languages, PalTalk and Yahoo Messenger are recommended. PalTalk works best with groups using audio for three reasons: (a) it allows users to request to talk, thus helping to reduce or eliminate audio chaos, (b) audio is used in just about every chat room, and (c) more serious chat rooms were found on PalTalk compared to the other programs. Yahoo Messenger also works well for this purpose for Windows users, but users must "grab" the mic instead of requesting it. Yahoo Messenger, however, offers file sharing and a user directory, both lacking in PalTalk. iVisit is less suited for group audio chat using Windows for three reasons: (a) its audio quality can deteriorate with larger groups or when someone with a slow Internet connection joins a session, (b) few groups use audio, and (c) when group audio is used, chaos usually results. Nonetheless, iVisit is the only program reviewed that Macintosh users can use in audio chat rooms.

PalTalk, Yahoo Messenger, and iVisit are also recommended for teachers or other individuals who want to create their own public or private audio chat groups for L2 learning opportunities. They all allow users to create public and private audio chat groups and to control many aspects of the chat room's operation. PalTalk and Yahoo Messenger are recommended over iVisit for Windows users, for the reasons noted in the preceding paragraph. Only iVisit provides multiparty SCMAC for Macintosh users and it is also the only program reviewed here that provides multiparty video for either Windows or Macintosh users.

PREDATORS

It should not be surprising that the anonymous nature of Internet communication attracts a fair number of predators who get their thrills by hiding behind screen names and harassing other users with shocking words and images. In reviewing these programs, we have been subjected to text and spoken words that we found offensive and shocking, solicited by instant messages inviting us to view pornography, and exposed to obscene still and moving images. While all the programs reviewed make it possible for users to block such offenders from a repeat offense, users must be warned that unless they restrict their SCMAC use to acquaintances, it is inevitable that they will be exposed to this dark side of the Internet.

For this reason, we feel that none of the programs reviewed here are appropriate for unsupervised users under the age of 18. PalTalk and iVisit allow some degree of administrative control (with increased parental/teacher control promised for iVisit 3). These programs may be suitable for minors, but only when supervised by a responsible adult. In any case, parents or teachers should carefully explore the environment created by these programs and the controls provided by PalTalk and iVisit before making these programs accessible to minors.

CONCLUSION

Several years from now, a look back at the SCMAC programs reviewed above will undoubtedly be quite amusing. The continued evolution of computer hardware, software, and Internet speeds will soon make it possible for computer users to communicate over the Internet using reliable high-fidelity audio combined with DVD quality video. This will make the current programs appear crude and clumsy by comparison.

However, as this review has shown, it is not necessary for L2 learners and teachers to wait any longer in order to take advantage of the ability to communicate online with native speakers of dozens of languages who are already connected to the Internet and using audio and video. The technology is already here, the software is free, and a polyglot world is already connected and waiting for the opportunity to share its languages.

There are many barriers still to be overcome. Even at the University of Illinois at Urbana-Champaign with its international reputation for technological development and application (and where the first graphical Web browser, Mosaic, was developed), language students do not yet have ready access to microphone-equipped computers. L2 teachers will need to change their methods and lesson plans in order to allow and encourage their students to use the Internet to interact with native speakers of the language they are learning. Students will also have to learn to take risks to find and speak with native speakers of their L2, and both students and teachers will have to become familiar with the software that now makes such communication possible.

It is hoped that this review will help remove this last barrier and encourage L2 teachers and students to begin to remove the others as well. The promise of a worldwide community of language learners sharing their languages, along with the increased cultural awareness and understanding that inevitably accompany international communication, is well worth any short-term risks involved in making use of this promising new technology for language learning.

ACKNOWLEDGMENTS

This research was supported in part by a TALENT grant from the College of Education of the University of Illinois at Urbana-Champaign, funded as part of the U.S. Department of Education's PT3 (Preparing Tomorrow's Teachers to Use Technology) program. We wish to thank and acknowledge James W. Bertelsen, Eunok A. Kim, R. Scott Wennerdahl, and James H. Yang for their assistance in reviewing the software described here.

ABOUT THE REVIEWERS

Gary A. Cziko is professor of Educational Psychology and English as an International Language at the University of Illinois at Urbana-Champaign. His interests include tandem language learning and the use of computer-mediated communication for language learning.

E-mail: g-cziko@uiuc.edu

Sujung Park has a MATESOL degree from the University of Illinois at Urbana-Champaign and is currently a PhD candidate in the Department of Educational Psychology. Her interests include second language acquisition and pedagogy and CALL.

E-mail: supark@uiuc.edu

REFERENCES

- Apfelbaum, B. (Ed.). (1993). *Erzählen in Tandem: Sprachlernaktivitäten und die Konstruktion eines Diskursmusters in der Fremdsprache* [Narrating in tandem: Language learning activities and the construction of a discourse pattern in the foreign language] (Zielsprachen: Französisch und Deutsch; Vol. 387). Tübingen, Germany: Gunter Narr Verlag.
- Belz, J. A. (2002). Social dimensions of telecollaborative foreign language study. *Language Learning & Technology*, 6(1), 60-81. Retrieved August 20, 2002, from <http://llt.msu.edu/vol6num1/BELZ/>

- Blake, R. (2000). Computer mediated communication: A window on L2 Spanish interlanguage. *Language Learning & Technology*, 4(1), 120-136. Retrieved August 20, 2002, from <http://llt.msu.edu/vol4num1/blake/>
- Brammerts, H. (2002). *Language learning in tandem bibliography*. Retrieved September 6, 2002 from <http://www.slf.ruhr-uni-bochum.de/learning/tanbib.html>
- Ellis, N. C. (2002). Frequency effects in language processing: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition*, 24(2), 141-188.
- Gläsmann, S., & Calvert, M. (2001). *Tandem language learning in schools*. Sheffield, England: Philip Armstrong Publications.
- González-Bueno, M. (1998). The effects of electronic mail on Spanish L2 discourse. *Language Learning & Technology*, 1(2), 55-70. Retrieved August 20, 2002, from <http://llt.msu.edu/vol1num2/article3/>
- Helmling, B. (Ed.). (2002). *L'apprentissage autonome des langues en tandem*. Paris: Didier.
- Krashen, S. D. (1985). *The input hypothesis: Issues and implications*. New York: Longman.
- Krashen, S. D., & Terrell, T. D. (1983). *The natural approach: Language acquisition in the classroom*. Englewood Cliffs, NJ: Alemany Press/Regents/Prentice Hall.
- Lado, R. (1957). *Linguistics across cultures*. Ann Arbor: University of Michigan Press.
- Lado, R. (1964). *Language teaching: A communicative approach*. New York: McGraw-Hill.
- Negretti, R. (1999). Web-based activities and SLA: A conversation analysis research approach. *Language Learning & Technology*, 3(1), 75-87. Retrieved August 20, 2002, from <http://llt.msu.edu/vol3num1/negretti/>
- Ortega, L. (1997). Processes and outcomes in networked classroom interaction: Defining the research agenda for L2 computer-assisted classroom discussion. *Language Learning & Technology*, 1(1), 82-93. Retrieved August 20, 2002, from <http://llt.msu.edu/vol1num1/ortega/>
- Rosanelli, M. (Ed.). (1992). *Lingue in Tandem: Autonomie und Spracherwerb* [Languages in tandem: Autonomy and language acquisition]. Merano, Italy: Alpha & Beta.
- Toyoda, E., & Harrison, R. (2002). Categorization of text chat communication between learners and native speakers of Japanese. *Language Learning & Technology*, 6(1), 82-99. Retrieved August 20, 2002, from <http://llt.msu.edu/vol6num1/TOYODA/>
- Wong, J., & Fauverge, A. (1999). LEVERAGE: Reciprocal peer tutoring over broadband networks. *ReCALL*, 11(1), 133-142.