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Measuring Language Learners' Speaking Proficiency in a Second Language Using Economical Digital Tools

Peter B. Swanson
Georgia State University, pswanson@gsu.edu

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Open-Source Technologies for Maximizing the Creation, Deployment, and Use of Digital Resources and Information

Shalin Hai-Jew
Kansas State University, USA

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REFERENCE

Managing Director: Lindsay Johnston
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Chapter 10
Measuring Language Learners' Speaking Proficiency in a Second Language Using Economical Digital Tools

Peter B. Swanson
Georgia State University, USA

ABSTRACT

Rising costs, combined with an increasing lack of flexibility of commercial course management technology tools such as uLearn and Blackboard, have prompted educators to consider other options. New advances in free and open source software, webware, and hardware are becoming attractive alternatives for educators and school systems due to decreased funding. These innovative digital tools hold promise to help educators overcome a variety of impediments to teaching and learning in the 21st century such as fostering student motivation. In the context of second/foreign language learning, the author seeks to present various technologies to P-16 educators that can be used for student oral language assessment. The author provides an overview of the obstacles language teachers must overcome in order to teach more effectively, as well as a synopsis of various options with which language instructors may not be familiar. Afterwards, findings from empirical research comparing the use of digital technology for the measurement of student speaking proficiency to the more conventional face-to-face method are presented. Student and instructor perceptions of using free and open source software are discussed, and the chapter concludes with a discussion of challenges that can appear when changes in assessment methods take place as well as avenues for future research.

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INTRODUCTION

Creating and nurturing student motivation to acquire a new language can be a challenging endeavor, particularly when instructors must overcome a myriad of obstacles that tend to decrease instructional time in the classroom. Institutional hindrances such as large classes, complex work schedules, and perceptions that teachers lack voice in the creation of school policy can serve to complicate daily instructional practices (Futernick, 2007). Furthermore, the high stakes testing requirements inherent in *No Child Left Behind* have become overwhelming to many teachers as they lose valuable instructional time due to working around testing schedules and administering the exams (Zellmer, Frontier, & Pheifer, 2006) that have nothing to do with the teaching of a new language. Moreover, classroom time and academic focus can be compromised by sports and other extracurricular activities (Goldman, 1991).

While teachers regardless of discipline must cope with such impediments to teaching and learning, new strategies to take advantage of every minute in the classroom for instructional purposes need to be identified in order to enhance student achievement. In the context of second/foreign language (S/FL) teaching, instructors face these same challenges while struggling with a second quandary, the array of methods in which proficiency can be assessed. Swanson, Early, and Baumann (2011) find that at its core, S/FL instruction in the communicative classroom is dedicated to the ideals and the practice of developing second-language proficiency as conceptualized by the American Council on the Teaching of Foreign Language's (ACTFL) three modes of communication: the Interpersonal, the Interpretive, and the Presentational (National Standards in Foreign Language Education Project, 2006). Formerly conceptualized as the four skills (reading, writing, listening, and speaking), the three modes of communication are three parts of a common goal, communication, rather than placing focus on any one isolated skill. While proficiency in listening reading, and writing are measured typically through objective testing methods such as multiple choice and true/false items, the assessment of students' ability to speak in the target language has continually presented numerous challenges, which include the development of useful and flexible rubrics (Foster, Tonkyn, & Wigglesworth, 2000) and the time expended in individual learner assessment (Flewelling, 2002).

Furthermore, unlike reading and writing assessments, oral assessments which are traditionally conducted in the classroom during instructional time, fail to leave an assessment artifact that is archivable in nature. Such a lack of what can constitute a body of evidence toward language proficiency hinders overall performance evaluation because such an artifact could be used to measure similarities and/or differences in learner progress towards proficiency goals. Additionally, the artifact can materially support assessment outcomes, and can be presented as concrete evidence of linguistic and cultural proficiency to stakeholders and third-party program evaluators or accreditation bodies. In an effort to address these concerns, language laboratories have been transformed to accommodate digital recordings that can facilitate whole-class concurrent, archival recordings (Flewelling, 2002; Gilgen, 2004). Such advances in the teaching and learning of languages have spawned a body of research centered on the multiple uses of emerging technologies and their potential uses within the context of oral proficiency and assessment (Chan, 2003; Kvavik, 2005; Volle, 2005; Zhao, 2005). This chapter is guided by my research with several colleagues on the integration of digital tools for oral language assessment (Early & Swanson, 2008; Swanson & Early, 2008; Swanson, Early, & Baumann, 2011; Swanson & Schlig, 2010).

BACKGROUND

While younger teachers are more likely to have grown up in a technology-rich environment, and therefore may be more comfortable integrating technology in the classroom, many of these novice educators suffer the same problem as their veteran counterparts — a lack of time and resources to develop technologically rich lessons (Pierson & Cozart, 2005; Early & Swanson, 2008). Additionally, teachers tend to teach the way that they were taught (Ball, 1990; Vrasidas & McIsaac, 2007, Wright, Wilson, Gordon, & Stallworth, 2002). Even with an abundance of available software, hardware, freeware, and webware, research continues to reiterate Cuban's (2001) finding that school systems have not been restructured fully to support the integration of technology for instruction (Park & Ertmer, 2008). Owing to a variety of issues such as student security and privacy, school districts tend to restrict teacher and student access to a plethora of technologically rich learning opportunities for students and teachers such as blogs, *YouTube*, and even *TeacherTube*. Furthermore, it is commonplace for teachers to lack administrative privileges to install free or open-source software on their classroom computers (Swanson, Early, & Baumann, 2011).

For S/FL teachers, such constraints to use the latest emerging technology for instructional and assessment purposes compels teachers to rely on traditional face-to-face assessment methods, which reduces instructional time dramatically. For example, if a Spanish teacher has 32 students in a class, which is commonplace in public schools in the United States of America, the S/FL teacher could easily spend approximately two minutes per student listening to and evaluating speaking performance on an assessment task. Such a procedure easily consumes at least one hour of instructional time if the teacher does not have to deal with disruptions caused by students who are not being assessed at the moment.

In addition to reducing instructional time, face-to-face oral language assessment can be a source of performance anxiety for language learners (Early & Swanson, 2008; Swanson, Early, & Baumann, 2011). Performance anxiety, the feeling of uneasiness, worry, nervousness and apprehension experienced by non-native speakers when learning or using the target language, is theoretically linked to learners' affective filter and may cause an adverse result during performance assessment. According to Krashen, (1981), the affective filter explains the emotional variables associated with the success or failure of acquiring a second language. The relative basis of the affective filter can either facilitate or hinder language production in a second language. When the learner's affective filter is high, he or she may experience stress, anxiety, and lack of self-confidence that may inhibit success in acquiring a second language. Conversely, a low affective filter facilitates risk-taking behavior with regard to practicing and learning a second language. Therefore, for language learning to take place, the learner needs to be in a state of anxiety-free relaxation (Schinke-Llano & Vicars, 1993). The effects of S/FL learning anxiety have been evidenced in the S/FL classroom for decades, showing that perceptions of anxiety are a strong indicator of academic success (Buttaro, 2009; Carroll, 1963; Chastain, 1975; Gardner, Smythe, Clement, & Gliksman, 1976; McIntyre & Gardner, 1991; Mishra & Sharma, 2005; Naimon, Fröhlich, Stern, & Todesco, 1978; Oller, Baca, & Vigil, 1977; Sharma & Mishra, 2007).

Recent research on the relationship between anxiety and oral performance in the target language indicates that students encounter the most stress when being assessed face-to-face by the instructor (Woodrow, 2006). Other major stressors were performing in front of the class and talking to native speakers. Such findings led Woodrow to recommend that S/FL teachers consider oral language assessment outside the classroom because out-of-class tasks can utilize more rich linguistic resources available to learners.

Over the course of the past 20 years, the emergence of Computer-Assisted Language Learning (CALL) combined with new ideas about language teaching have helped transform S/FL from a teacher-centered or textbook-centered instructional practice to a student-centered approach (Hai-Peng & Deng, 2007). Popular teaching methodologies such as constructivism (Piaget, 1973) and socioculturalism (Vygotsky, 1978) work well with CALL. Both advocate for teachers as facilitators of learning by giving students control over what they do, how fast they do it, and time to find and correct their own mistakes, which results in a transformation of the learning process. Combined with Communicative Language Teaching, an approach to the teaching of S/FL that emphasizes interaction as both the means and the goal of learning a language, these approaches promote linguistic and cultural fluency over accuracy so that language learners take risks and build confidence to use the target language in more student-centered activities. Such notions of interaction have been linked to increased output, a decreased sense of the affective variables, and improved quality of communication (Schinke-Llano & Vicars, 1993; Stepp-Greany, 2002).

By integrating elements of CALL into a constructivist and sociocultural perspective to teaching languages with communication as its goal, there are a number of benefits for students. For example, students participating in a Local Area Network writing project showed positive attitudes about learning in that setting because the network not only represented a low-anxiety situation, they also they expressed that they felt more control than in a traditional classroom (Beauvois, 1998). Additionally, interactive visual media clearly have a unique instructional capability for topics that involve social situations or problem solving (Nunan, 1999), which can provide cultural knowledge not found in the typical S/FL classroom. And when combined with the internet, channels can be created whereby language learners can obtain a vast amount of human experience enabling them to participate in a global community. Such learning opportunities can extend students personal views, thoughts, and experiences as well as teaching them to interact in the real situations found in the target language culture. By integrating CALL, students can take a more active role in the classroom and become the creators not just the receivers of knowledge in a nonlinear fashion facilitating the development of critical thinking skills (Hartman et al., 1995; Lai & Kritsonis, 2006).

In the wake of the obstacles to teaching and learning with which S/FL teachers are confronted continually, I will present a variety of technology tools (software, webware, and portable hardware) that can be used in the S/FL classroom for oral language assessment in an effort to decrease student performance anxiety and increase instructional time. Afterward, I will summarize research using digital voice recording systems that are available to S/FL teachers and their students in the context of oral language proficiency. Then, I discuss some of the issues to consider when using digital voice recording technology for measuring student oral language proficiency before I present some avenues for future research.

Available Digital Tools

Beginning in 2001, the *No Child Left Behind Act* began to marginalize S/FL instruction because it prioritized instruction in and the allocation of resources to the core areas of science, mathematics, and reading, thus resulting in a narrowing of the curriculum (Rosenbusch, 2005; Rosenbusch & Jensen, 2004; Swanson, 2010). Later, in 2008, the global economic crisis had detrimental effects on schools and those areas not part of the core tested areas. School systems reacted by slashing budgets and decreasing funding allotments. However, due to the STEM (Science, Technology, Engineering, and Mathematics) initiative, funds were available for a variety of purposes such as to update outdated language labs and media centers. Schools used funds to hire instructional technologists in order to introduce teachers to the latest technological advances in personal digital technology

as well as hardware and software resources. Of these resources, free and open source software, webware, and inexpensive portable hardware became appealing to school systems struggling with budget issues.

For the S/FL teachers, these new developments hold the potential to allow interested language instructors to use digital technology for oral proficiency measurement. While many tools are available for these purposes, I begin by briefly outlining two free and open source software options that are free of spyware, adware, or license limitations, which do not dominate computer processing and storage resources. Afterward, I will present four webware applications followed by three commonly used portable hardware devices.

Software

Windows Sound Recorder

All computers that use the *Windows* operating system are already equipped with the *Windows Sound Recorder*™. Accessible via the Start Menu by clicking on *Programs* > *Accessories* > *Entertainment* > *Sound Recorder*, this recorder allows users to record audio for a maximum of 60 seconds. However, users can extend the 60 second default by referring to various web pages (e.g., Microsoft, PC World) in order to learn how to extend the maximum recording time for *Windows XP* as well as older operating systems. The interface is simple to use; however, the only file format available with the Sound Recorder is the *.wav* format. Nevertheless, users do not have to download an additional file encoder to use this recorder.

Freecorder

The *Freecorder Toolbar*© < http://applian.com/asktoolbar/>, created by Applian Technologies, is a free video and audio recorder. It uses high quality sound recording technology that includes a *Google*-based search menu. *Freecorder 4* can be used for a variety of applications such as a song recorder, an internet radio recorder, an audio extractor from videos, and a sound recorder from the computer's microphone. Once downloaded (8.3 MB), the software installs as a tool bar. With a simple mouse click, users can record, stop, pause, and play audio. The interface for each of these functions is straightforward. As the recording process begins, sound is displayed graphically in the form of sound waves. Audio files can be recorded and saved in either the popular *mp3* format or as a *wmv* file. Because the software uses the computer's internal microphone, or an external microphone plugged into the computer, sounds that are detected by the microphone are recorded. In essence, if it can be heard on the computer's speakers, *Freecorder* can record it.

Additionally, *Freecorder* has the capability to separate sounds from individual applications and eliminate background noises. It also eliminates silence at the beginning and end of the recording. Recordings begin when audio is first detected and recording ends when the audio stops. Unlike many other sound recorder software packages, *Freecorder* supports all *Windows* systems. However, Mac users can install Parallels and Windows in order to run *Freecorder*, which can be accessed easily from the Applian Technologies webpage. Overall, *Freecorder* is easy to use and has an intuitive interface, which is of consideration with younger users and less technologically-savvy individuals.

NanoGong

Developed at the Hong Kong University of Science and Technology, *NanoGong* (http://gong.ust.hk/nanogong/) is a free and open source recording option that can be used to record, playback and save voice recordings. Unlike other free standing audio recording platforms, *NanoGong* is an applet, a small application that performs a specific task that runs within the scope of a larger program.

That is, it can be set within a webpage. It does not require a complicated setup procedure and users only need a simple webpage in order to use it.

An advantage of *NanoGong* is that users can manipulate the speed of the playback by increasing or decreasing the speed of the playback without changing it. Although originally designed to function in the Windows environment, it has been expanded to function on Mac and Linux machines. *NanoGong* was developed using Java technology so users' computers must be equipped with Java in order to use it. However, a drawback of *NanoGong* is that it uses only two types of audio format (*Speex* and *IMA ADPCM*) unlike other recording devices and platforms that use the common *mp3* file format. Nonetheless, the *IMA ADPCM* format is part of the *.wav* audio file form, and it can be played by most music software platforms.

An interesting application for *NanoGong* is found when users combine its functionality within *Moodle* (http://moodle.org/)as an integrated component in this course management system. *NanoGong* is compatible with most *Moodle* versions including version 1.9.11. At the time of this publication, it is being tested with *Moodle 2.0*. According to *NanoGong's* website, it can also be used with other course management systems such as *Blackboard* and *Sakai*.

Audacity

Mazzoni and Dannenberg (2000) designed the *Audacity* recording and editing software as an open source recorder available to the public with relaxed or non-existent intellectual property restrictions <http://audacity.sourceforge.net/>. The software is distributed under the terms of the GNU General Public License and the registered trademark of Dominic Mazzoni. It is available free to users in several platforms (Windows, Mac and Linux/Unix). While *Audacity 1.2.6* (2.1MB) is the main release of the software, it is not supported at present in Windows Vista and Windows 7. Users running Windows 7, Windows Vista and Mac OS X 10.6/10.7 should use the beta version, *Audacity 1.3.13* (13.8 MB). *Audacity's* creators note that the beta version is a work in progress, and that it is not available yet with complete documentation or translations into world languages. However, version *1.2.6* is considered a stable release, is complete and is fully documented. The creators mention on the website that both *Audacity 1.2.6* and the beta version can be installed on the same machine. Nevertheless, *Audacity's* creators are continually enhancing the software and users are encouraged to check for modifications and innovations periodically.

Once downloaded, users will find its buttons and interface intuitive with relatively sophisticated editing capabilities built into the software. *Audacity* is versatile software that can be used for multiple purposes such as converting audio files from cassette tapes and vinyl records into digital recordings or CDs as well as simply recording one's voice. It can also be used to edit a variety of audio file types (e.g., w*av*, *.mp3, and Ogg Vorbis*,). Users can cut, copy, and splice sounds together, and even change the speed or pitch of a recording. By default, audio files are recorded in the *.wav* format. However, if an *.mp3* audio file is desired, users can download the *LAME™ MP3 Encoder* from the aforementioned website. *Audacity* does not distribute *mp3* encoders, but a link is provided on *Audacity's* website to a third-party site where the *LAME* encoder can be downloaded at no charge. If audio file size is a consideration, it is recommended that users save audio files as mp3 files because the file format requires less storage space than other audio formats.

Webware

Webware are classified as online applications of software that do not require downloads and installation of software on individual computers. These digital tools are made available on any

computer with an online connection. Webware have the advantage of non-dependence on a particular computer operating system, making them accessible to all platforms: Windows, Mac, and even Linux.

Odeo

One popular free webware option for voice recording and immediate podcasting is Arturo and Rupert's (2006) *Odeo* <www.odeo.com>. Odeo offers an impressive *mp3* player that functions in web pages. After instructors create an online account, a button can be placed on the instructor's website by copying a line of HTML text and pasting it on a class website. When students click on the button, they can record their voice, and the recording is sent directly to a designated email address. I recommend that instructors create a separate email account with a service that allows for large file storage, as audio files can be quite large.

Vocaroo

Designed as a completely web-enabled recording service, *Vocaroo* <www.vocaroo.com> offers users an exceptionally simple web interface. Students can record their voice from any computer with a microphone and then send the recording to an instructor's email address. An advantage to using *Vocaroo* is that instructors can designate different email addresses for different classes in order to easily manage student work. Additionally, *Vocaroo* offers an embeddable widget that teachers can insert easily into a class website or blog. However, teachers do not have an audio file to archive as a part of a body of evidence of student performance because the recordings remain on *Vocaroo* servers. Once a recording is made, teachers receive an email with a link to the student's recording.

VoiceThread

Another webware option is *VoiceThread* (Papell, & Muth, 2007), a free service that allows users to use text and voice using a simple web interface available from www.voicethread.com. Group conversations can be collected and shared without installing any software. *VoiceThread* is a collaborative, multimedia slide show that can serve as a repository of images, documents, and even videos. It allows users to navigate slides and make comments in five different ways: voice (with a computer microphone or telephone), text, audio file, or video via a webcam. Recordings can be saved and played offline. Teachers can store student work on computers, burn them to DVDs, or download them for use on an mp3 player or mobile phone. However, *VoiceThread* charges a fee for downloading files.

Instructors can upload an image or video and post it for students to view. Once the image is posted, a link is generated that can be shared via email or posted on a website or blog. Educators can then use these images as visual prompts for the speaking assessments, utilizing both the text and the recorded comment for instructions for students to hear. Students may then record their voices using the same simple interface and these audible comments are saved on the site. I caution instructors to note that students will be able to hear the comments of the other students in the class, which may make this tool more suitable for formative assessments than for high-stakes summative assessments. The creators of *VoiceThread* are aware of the possibilities for this tool in the education market, and as a result they provide additional services geared to teachers for minor subscription charges. The K-12 products are available along with downloadable instruction sheets for teachers from the educational side of the *VoiceThread* webpage <ed.voicethread.com>.

gCast™

Developed for podcast production for bloggers by phone, *gCast* <www.gcast.com> is a free-to-use web service with basic features. In order for educators to use its most useful features, teachers must pay an annual subscription cost ($99 US). While categorized as a web tool, *gCast* has a unique advantage over the other web tools in that a computer is not needed to voice record. In order to utilize *gCast*, instructors first create a *gCast* account. After creating an account, a *gCast* web page is created for the instructor. A PIN number is assigned to the account, and then instructors may distribute a toll-free telephone number provided by *gCast*. Students may then be given an access code. Users simply dial the toll free number (there is also an international option), follow the voice prompts, and record. Recordings are archived on an established web account. Again, I urge instructors to create separate accounts for individual classes in order to organize student recordings.

Using any telephone, prevalent mobile technology among today's student population, students can call into the *gCast* account, record their responses, review them, re-record if necessary, and then submit the recording using simple commands. In order to review the recordings, the instructor can logon the *gCast* account and listen to the students' recordings. Due to the sophistication of today's telephone microphone technology, the clarity and quality of recordings is remarkable. The primary advantage for this system of recording is that it does not make presumptions regarding student access to digital technology; any student with access to a telephone can record their voice. However, one unfortunate disadvantage of *gCast* is that the filenames as they appear on the account website do not indicate the name of the caller. Thus, it becomes necessary for students to state their names at some point during the recording.

Portable Hardware Devices

The explosion of digital music technology has led to many outcomes such as the decline in prices for personal, portable devices and the increased number of such devices. While the large capacity *iPod*® remains among the digital elite, there are many mp3 recorders with built-in microphones at low prices depending upon the features and the storage size of the unit. The *SanDisk Sansa Clip* ($39) is a basic 2GB mp3 player and voice recorder with push-button recording and an integrated microphone (SanDisk, 2011). Although the quality of the recording has a distinctly mechanical tone to it, the articulation is clear and comprehensible.

A comparable technology is the 4GB *Creative Zen Style M100* mp3 player ($39). As well as serving as a full-functioning mp3 player, it contains a voice recorder that accommodates multiple audio formats such as mp3, WMA, Audible 4, and AAX. It also has a micro SD card slot that allows users an additional 32GB of storage space (Creative, 2011). Using a digital menu, the recording process is rather simple where one selects "microphone" from a list of resources on the main menu.

Finally, the *Sanako* mp3 recorder is at the upper end of the price range for personal, portable hardware devices ($120). Although it only has 512 MB of storage capacity, this recorder, specifically designed for language learners and teachers, has the advantage of a dual track recording system, in which the student can record their voice while concurrently listening to a teacher-track (Sanako, 2011). This recorder was primarily planned for use with *Sanako Lab 100* systems in order to provide students with a handy and convenient way of saving and using audio material. The recorder increases opportunities for question and answer assessments or simulated, asynchronous "interviews". The recording quality is excellent; however, its recording process is not intuitive and significant training or detailed user guides may need to be provided to the students in order for them to use the recorder.

MOVING AWAY FROM TRADITIONAL ASSESSMENT METHODS

Beginning in 2006, the Provost requested that the Department of Modern and Classical Languages at Georgia State University determine a method to assess student proficiency in foreign languages at the introductory level of language learning. The mandate coincided with faculty member interest in replacing traditional face-to-face speaking assessments with digital recordings in order to increase valuable instructional and preparation time. Thus, as one of the Foreign Language Methods professors who had developed a class on integrating technology into instruction, I collaborated with a doctoral student enrolled in the instructional technology program and the professor in charge of the lower division Spanish courses. In addition to our objective of finding a technology tool that would help instructors increase precious instructional and preparation time, we sought to identify technology tools that would be easy-to-use and not increase student performance anxiety as theoretically described by Krashen's (1981) Affective Filter hypothesis. Additionally, we sought to find technologies that would assist students in creating digital portfolios to showcase student progress during the language learning process.

Pilot Study

University faculty members were accustomed to using the *uLearn* course management platform, and the system was equipped with the *Wimba*® voice recorder (Wimba, 2008). This web-based voice recorder was embedded in the *uLearn* system where students could access the recorder either in the language lab on-campus or from the internet away from campus. With a recording system already in place, we decided to conduct a pilot study of 128 students enrolled in first- and second-semester Spanish (n = 61) and Japanese (n = 67) courses during the 2006-2007 academic year participated (Early & Swanson, 2008). The research sample was ideal because included a wide range of traditional and nontraditional undergraduate students whose age ranged from 18 to 52 years of age (M = 23). Students had a minimum of two oral language assessments during the semester, one at the third week and another at the thirteenth week of the semester. Instructors were taught how to use the *Wimba* system and instructions on how to use the system were published for students and placed on *uLearn* as a resource.

Classes met two or three times per week for a total of three instructional hours and each instructor conducted both traditional in-class speaking assessments and digital voice-recorded assessments. Data analysis provided several interesting findings. First, students and instructors alike favored the digital recording method for speaking assessments. Students reported feeling more self-conscious and anxious when being assessed in-class in front of the instructor and their peers. Students also reported higher levels of affective filter due to peer presence during the assessment process. Additionally, the students felt that their responses in the target language were less authentic and less creative when assessed face-to-face in class.

However, when assessed using voice recordings, the students felt more relaxed. They reported that their responses in the target language were more thorough, and they felt that they could notice oral improvement. Additionally, the students felt more in control of their success in the target language, and they reported that they preferred recording their answers for oral language assessment. Interviews with their instructors confirmed the students' perceptions and offered insight into the process. Instructors viewed the traditional face-to-face in-class method time consuming, which led to student disengagement. The instructors noticed immediately how much instructional time is lost when conducting face-to-face speaking assessments. Furthermore, the instructors remarked that the traditional method of oral language assessment does not allow for a second opinion of a

student's grade. They noted that they liked having an artifact of student progress that could be used to re-evaluate student proficiency with an outside reviewer listening to the student's recording and using the same objective scoring rubric.

Moreover, the instructors mentioned that evaluation of student progress could take place at unconventional times; they did not have to evaluate student performance immediately in the classroom. They could listen to the recording several times before concluding the assessment process. Additionally, they found that students could record their responses to instructors' questions at times/places convenient for students. By doing so, the length of student response to questions was longer and many times more accurate when using the voice-recording software. Furthermore, the instructors commented that the rate of success on assignments increased when students were allowed to record their responses outside of class rather than having only one opportunity to respond during in-class assessments. To that end, students said that they often practiced for about an hour before making a final recording to turn in for evaluation. Finally, the instructors stated that they preferred the idea of digital recordings for oral language assessment because it encouraged students to practice and study before submitting work for instructor evaluation. The online assessments given during the semester were formative assessments and provided students with valuable information in order to improve future performances.

Large-Scale Investigation

After learning about the results from this pilot study, the department wanted to investigate the use of digital recordings on a much larger scale. In 2007, Carmen Schlig and I decided to examine undergraduates' (N = 1180) oral language proficiency at the introductory- level of the Spanish courses because it was the language with the largest student enrollment. Instead of searching for other digital recording options, the *Wimba*® voice recorder was used again. The curriculum for Spanish 1001, as well as the curriculum for the other languages taught in the department, was grounded in national standards (National Standards in Foreign Language Education Project, 2006).

Framed by Vygotsky's (1978) zone of proximal development and Long's (1996) Interaction Hypothesis, the researchers trained the 13 instructors who taught multiple sections of the Spanish 1001 course over the course of two consecutive semesters on campus to guard against errors in validity and reliability. Student speaking proficiency was measured at three different periods during the semester (week 3, 8, and 14). The research focused on assessing student speaking ability on five factors: pronunciation, task completion, fluidity of response, linguistic structure, and content. Instructors were trained how to give precise, constructive feedback using various methods to note errors in the five variables of interest. The researchers encouraged instructors to give as much written feedback as possible to help the students improve their speaking proficiency. Additionally, the researchers requested that the instructors note common errors made by students, discuss those in class the following day, and continue to design activities to help students overcome such errors. A total of 2,343 instances of corrective feedback were given over the course of the study.

Statistically significant differences were found for pronunciation, linguistic structure, and content using paired sample t-tests. Additionally, a high degree of inter-rater reliability was reported. Findings from the data suggested that pronunciation, linguistic structure, and content of the speaking assessment task can be improved by systematic interaction using formative feedback in the classroom setting and summative feedback collected from out-of-class recordings of language assessment tasks. Additionally, it was noted that the majority of the students (82%) reported that

they liked using digital recording for oral language assessments. The notion of being able to review their answers before submitting them for review was popular with the students as well.

From the instructors' perspective, an increase in the accuracy of evaluation and the accuracy of student response appeared to improve. Additionally, the instructors reported less time assessing student speaking proficiency using the digital recordings and more accuracy of student performance because student work could be reviewed by other instructors to verify instructor accuracy when determining student proficiency. Moreover, instructors noticed that by giving students feedback on a digital file, students could then listen to their recordings for specific areas for improvement. As noted by one of the instructors, "I think the process is helping both of us to improve (instructors in the evaluation process and students in speaking ability)" (Swanson & Schlig, 2010, p. 25). The researchers noted that for many of the students, this was the first time they had the opportunity to listen to themselves speaking in Spanish. Additionally, it appeared that students' affective filters were lowered by implementing mandatory oral assessments as part of the curriculum.

While both studies indicated that the use of digital recordings for oral language assessment should be seriously considered for use in all modern language programs, it was noted that many instructors and students did not favor using the *Wimba* system for three reasons. First, both groups mentioned that the interface was too basic. While it contains a timer and the necessary buttons to record, pause, play, and stop, users noted that many times there is a short delay before recording starts. Second, the lack of a save option forces users to listen to the recording and choose to either record a new answer or save and submit their response for instructor evaluation. Third, conversations with students and instructors indicated that many had experience using other digital recording platforms, and it was strongly suggested that the department consider exploring free and open source software options. To that end, it was decided to investigate other technology tools.

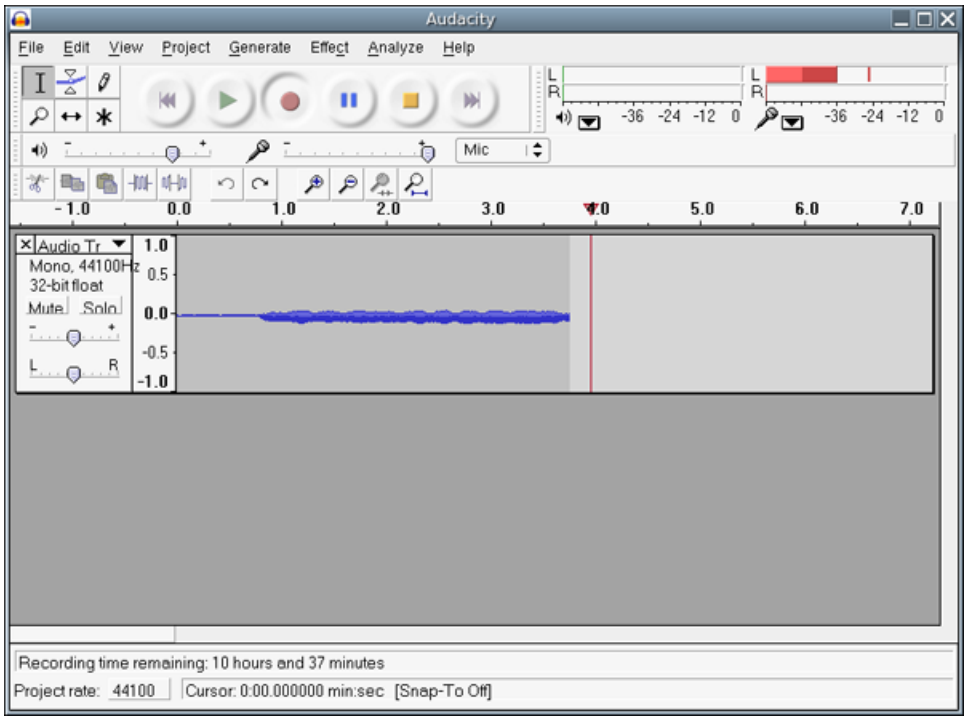
Exploring Emerging Technologies

Our investigation into other technology began by reviewing the literature on available tools for oral language assessment, which quickly uncovered that there was a dearth of research on the topic. Further investigation showed that many universities and colleges relied on costly technologies created for multimedia language laboratories such as the *Sanako*© and *Sony*© systems. Therefore, we began to identify inexpensive software, webware, and hardware solutions that were described in detail earlier in this chapter. After much research and testing of the aforementioned digital tools, the instructors and students stated that they preferred *Audacity* for multiple reasons. They found its interface intuitive, and they found many of its features appealing (see Figure 1). They liked the graphic display of their voices, the level meters to control volume before, during, and after recording, its ability to create different file formats, in particular, the popular *mp3* format, and its editing ability for users to cut, copy, paste, and delete portions of recordings.

Additionally, they mentioned the usefulness of *Audacity*'*s* ability to slow the tempo of the recording so that students could listen for specific purposes. For example, the Japanese and Chinese instructors found this feature particularly useful when teaching students to listen for case markers and word boundaries. Those teaching French, German, Portuguese, and Spanish found this feature appealing to teach listening and speaking in terms of unit ideas, which is consistent with best practices (Cervantes & Gainer, 1992; Griffiths, 1992)

Furthermore, the ability to record multiple tracks on the same recording was attractive for the instructors. In the French classes, instructors could record a series of questions allowing enough

Figure 1. Audacity Interface (Audacity® software is copyright©1999-2011 Audacity Team. The name Audacity® is a registered trademark of Dominic Mazzoni. Used with permission.)



dead time for student responses. Then, students could open the file, listen to the questions, and provide answers on a separate track. Then, the file would be saved as one file with questions and responses on it. Overall, it appeared that *Audacity* was the preferred option to explore for oral language assessment.

Testing Audacity's Usefulness for Oral Language Assessment

While our research on using digital technology for speaking assessments was focused at the undergraduate level, we decided to conduct two more studies using *Audacity* as the digital platform for speaking assessments (Swanson, Early, & Baumann, 2011). The first project broadened the existing work by studying both middle school students' perceptions ($N = 76$) and their teacher's perceptions of using voice recording technology for out-of-class speaking assessments from a mixed methods approach using data from surveys and interviews. The second study used a qualitative research design to gain understanding about using voice recording technology for out-of-class speaking assessments with a group of eight undergraduate students studying Japanese with their instructors. First, students were asked to place in rank order of importance to them the four skills of language learning (listening, reading, speaking, and writing). Afterward, using a 7-point Likert scale survey, students in both studies were asked to rate their agreement on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) on 13 questions centered on three areas of interest: accuracy using the target language, student anxiety, and student grades on assignments. Two additional statements were added to gauge student creativity and ease of use of *Audacity*. Finally, students were asked if they liked using voice recordings for oral language

assessment, the students' preference to traditional or digital oral language assessments. The instructors were interviewed in order to understand their perceptions of using *Audacity* as a resource for oral language assessment.

Student Perceptions

Data analysis from both studies revealed several interesting findings. First, students rated learning how to speak and to listen to people speaking in the target language higher than learning to read and write the language. That is, students were interested in learning how to use the target for oral/aural communicative purposes. Next, related to the three areas of interest, the majority of the students (82%) indicated that their recorded responses outside of class were an accurate representation of their speaking ability in the target language. Additionally, almost all of the students (92%) stated that their responses using digital voice recordings were more accurate than their responses given during in-class speaking assessments and that the use of the digital technology helped improve their ability to communicate orally in the target language. Interviews with students confirmed these findings where most of those interviewed mentioned without being asked about it that it was helpful to listen to their recordings in order to identify errors (e.g., in pronunciation).

In terms of enhancing or diminishing performance anxiety as theoretically conceptualized in the Affective Filter Hypothesis, only one student found her performance anxiety increase when having to record responses for out-of-class oral assignments. Her anxiety was found to be more related to using unfamiliar technology than having to speak in the target language for assessment purposes. The remainder of the students expressed a lower sense of performance anxiety when using *Audacity* for out-of-class speaking assignments because they did not have to speak in front of their classmates, which was found to be a tremendous source of anxiety for students regardless of educational level.

When asked about improvements in grade using the two methods of assessments, student opinion was divided. More than half of the students felt that their grades on out-of-class speaking assessments were better than those conducted in-class because they had the ability to submit their best work for evaluation. That is, they could record and listen to their responses. If they were dissatisfied with the outcome, they could delete it and then re-record responses as many times as they wanted until they were ready to turn in their best work. Most students (82%) remarked that they re-record their responses more than once with more than a quarter of the students (29%) reporting having spent almost an hour recording a final version of their response.

In terms of measuring differences in student creativity and ease of use, most (81%) did feel that their voice recordings were more creative than responses they would give during an in-class assessment. Additionally, all of the students expressed that *Audacity* was easy to use. They remarked that the interface was intuitive. They found its features easy to locate and they found the Help menu useful. On the whole, the students overwhelmingly concluded that they preferred using digital voice recording for speaking assessments to traditional in-class assessments.

Instructor Perceptions

Interviews with instructors indicated that the traditional method of oral language assessment was at a disadvantage when compared to using digital recording technology. They noted that in addition to increasing student performance anxiety, the in-class assessments also tended to decrease the likelihood of students using newly-learned grammatical structures. They noted that in class, students tended to be more cautious with their responses and less willing to experiment in the target language. Furthermore, during the in-class

assessments, there tended to be more instances of classroom management problems because all of the students were not engaged in the assessment activity. Also, the instructors noted that in-class assessments are fleeting. That is, once the students' responses are given, there is no mechanism to listen to the response a second time, which allowed for possible inaccuracies during the evaluation process. Finally, they noted that due to an increased level of anxiety, students tended to prepare a statement in written form instead of speaking without a script.

However, when the students used *Audacity* to record answers to teacher-created language tasks, the instructors noted various outcomes. First and foremost, they noted that student performance anxiety was much lower because they did not have to perform in front of peers. It appeared that the possibility of peers being able to make judgment about classmates' performance on assessments was a source of increased angst, which is consistent with the literature (Woodrow, 2006). Additionally, student responses appeared to be more animated during the out-of-class assessments. Second, they immediately noticed how much extra time they had during class for instructional purposes. Several of the instructors had estimated that each in-class speaking assessment could consume at least one class meeting. In addition to having more instructional time, it was noted that instructors could evaluate student performance much quicker and more accurately. They did not have to deal with classroom management issues and they could listen to student responses more than once at unconventional times and locations (e.g., at home in the evening). Third, instructors noticed that students tended to complete the language assessment tasks better when recording and the responses also tended to include newly-learned grammatical structures and vocabulary, which the instructors noted tended to lead to an increased sense of control over one's success during assessment. Such findings were due to providing students multiple opportunities for success according to the instructors. Interestingly, they noted that improvements in linguistic accuracy and improvements in course grades were not observed. However, such findings could be due to the timeframe needed for novice-level language learners to progress to an intermediate level of speaking proficiency on the ACTFL (2012) rating scale.

Next, the instructors found the ability to have a digital artifact of student learning very useful for several purposes. It can serve as a mechanism to measure student progress during language learning. The Japanese instructors noted that many times students become discouraged because they feel they are not progressing adequately. By having recordings at different points throughout the semester, they can play the recordings to students to show linguistic improvements. Such opportunities provide students with not only the ability to note progress in the language; it also can help increase student awareness of errors, which can encourage self-correction. Additionally, the recordings can be used to increase the reliability of assessment whereby multiple instructors can evaluate student performance using objective rubrics. Moreover, the recordings can be archived as part of a body of evidence for institution accreditation purposes.

Posed Challenges

While instructors and students alike appeared to welcome the notion of continuing to use *Audacity* for speaking assessments, multiple challenges can arise when replacing in-class assessments with out-of-class assessments. First, there is an issue of the digital divide. There is a gap between individuals at different socio-economic levels with regard to opportunities to access information via the internet and communications technologies for an array of activities. Care needs to be taken to assure that all students have access to technology in order to complete such out-of-class assignments. While such shortcomings can be overcome to a large extent by working with media center personnel to download and install *Audacity* and the *LAME*

encoder on student workstations, instructors need to make sure all students have the knowledge and the ability to access the technology.

Second, with respect to the equipment, costs related to out-of-class oral language assessments can increase if students do not treat school recording equipment properly. Since the first study in 2006, damage was reported to language lab equipment, in particular the headsets that have earphones and a microphone. Although headsets can be purchased relatively cheaply, the replacement cost can become a serious issue over time. At present, students attending language labs in the aforementioned studies must now check out headsets and return them in proper working order.

Three more issues can emerge when working with large numbers of faculty members. First, arriving at agreement on the technology to implement for non-traditional speaking assessments can become problematic. Due to the increased presence of innovative Apple products in recent years, Microsoft's market share has declined (Halfacree, 2009; Hodgin, 2009), and Mac users may opt for *GarageBand*®, a recording software application developed by Apple. Therefore, it is important to remain focused on the objectives in order to determine an appropriate technology tool. Second, large-scale training sessions to use *Audacity* can prove to be challenging due to instructor inflexibility and complex work schedules. The third involves the paradigm shift from traditional face-to-face assessment to out-of-class assessments. Our research has shown us that less tech- savvy instructors may need special attention to help them embrace a new method of assessment. It is recommended that time and patience be given liberally to all instructors in order for them to learn how to use *Audacity* and then teach their students how to use it effectively. Research indicates that there is a dearth of research on the time needed to form a habit, and therefore, it is difficult to predict how long it would take for instructors to become accustomed to and to form a habit of using digital technology for oral language assessment (Lally, van Jaarsveld, Potts, & Wardle, 2009).

A final issue can arise if funds have already been allocated for expensive, and possibly outdated, language lab systems. Such was the case when we first set out to measure student speaking proficiency with the undergraduates enrolled in classes in the first two semesters of Spanish. Instructors were interested in pursuing other technologies while administrators felt it was important to use existent technology. Therefore, I advocate conducting comparative research to determine which technology platform will best serve instructors and students alike.

FUTURE RESEARCH DIRECTIONS

Audacity's use in the S/FL language classroom appears even more promising given the recent economic turmoil that began in late 2007, especially in K-12 classrooms. The Great Recession as it has come to be called (Wessel, 2010) caused manifold problems in educational systems worldwide and further research of using free and open source software like *Audacity* is called for. While federal, state, and local policies have been designed to distribute education funds equitably, research indicates that these policies systematically provide more money to higher-income students and wealthier schools. However, at every level of government, policymakers allocate more resources to students who have more resources, and less to those who have less (Carey & Roza, 2008). Therefore, it would be insightful to test the benefits and effectiveness of using *Audacity* in school districts that are suffering from disproportionate funding.

Additionally, it would be interesting to explore using *Audacity* for out-of-class speaking assessments in an elementary school context. For decades linguists have professed that S/FL language learning should occur during the early

years of development because younger individuals tend to demonstrate lower levels of performance anxiety (Brown; 2007; Dulay & Burt, 1977; Krashen, 1981, 1982; Omaggio Hadley, 2001). Such research may lead to understandings that could assist adolescents and adults lower affective barriers, which in turn may lead to improved language learning.

Additionally, from an interdisciplinary perspective, research focused on using digital voice recordings in other content areas such as history, science, and the arts would be valuable. It would be interesting to investigate how *Audacity* could be implemented in other curricula to improve student learning. Finally, studying remediation strategies to help students suffering from writing disabilities such as dyslexia using digital voice software such as *Audacity* might reveal unconventional methods to support student learning. Research indicates that computer system remediation is beneficial for students with disabilities such as dyslexia (Draffan, Evans, & Blenkhorn, 2007), and such research is supported by the American Academy of Pediatrics and the American Association for Pediatric Ophthalmology (Bowan, 2002).

CONCLUSION

Engaging students continues to be a challenge for novice and veteran teachers alike, especially when instructors face a multitude of impediments to learning that tend to decrease instructional time in the classroom. It is crucial that teachers in all disciplines develop new strategies to take advantage of every minute in the classroom for instructional purposes in order to improve student achievement in today's high stakes testing environment. For S/FL teachers, classroom time is lost when assessing students using the traditional face-to-face method. Teaching languages from a communicative approach as set forth by ACTFL combined with the integration of computer assisted technology appears to hold promise for instructors as well as language learners. Advances in the teaching and learning of languages have led to research highlighting a myriad of emerging technologies for use in the measurement of student speaking proficiency and assessment (Early & Swanson, 2008; Kvavik, 2005; Swanson & Schlig, 2010; Swanson, Early, & Baumann, 2011; Volle, 2005; Zhao, 2005).

In this chapter, I have outlined various software, webware, and hardware technologies for oral language assessment purposes. While each has its advantages and disadvantages, instructors need to spend time determining appropriate objectives and outcomes for its use. In our research, *Audacity* has been shown to be a viable and useful tool for students and instructors. The program downloads and installs very quickly. Its interface is intuitive and becoming acquainted with its features only takes a few minutes. Research has shown that by using *Audacity* for out-of-class speaking assessments, student performance anxiety appears to decrease as students become more confident in their abilities to use the target language. Instructors have noted many benefits of using *Audacity* ranging from an increase in instructional time to less time spent evaluating student performance.

While it can be argued that students using voice recording software out-of-class may choose to write a script and then read it aloud instead of presenting a spontaneous answer, our research has noted that instructors can tell when students are reading instead of providing unrehearsed responses. Nevertheless, I advocate for using *Audacity* for formative but not summative evaluation. Our research indicates that students tend to use the out-of-class assessments as a means to experiment and improve linguistic ability. That said, it is important to remind instructors of the digital divide and that some students may not have access to technology outside of the educational setting. Therefore, instructors should assess student access to technology before implementing out-of-class assessments.

Clearly, the integration of the internet into daily life and the increase in the rate of emerging technologies have helped shape the educational landscape for almost two decades. Such changes have presented numerous opportunities as well as challenges for instructors. The technology tools presented earlier serve as examples of the technology available today. Findings from our research indicate that the use of digital technology for oral language assessment is a viable and preferable option. Future research and the development of new technologies available to language teachers will expand upon our research.

NOTE

REFERENCES

American Council on the Teaching of Foreign Languages. (2012). *ACTFL proficiency guidelines -- Speaking*. Alexandria, VA: Author.

Arturo, R., & Rupert, E. (2006). *Odeo* [software]. New York, NY: Sonic Mountain.

Ball, D. L. (1990). The mathematical understandings that prospective teachers bring to teacher education. *The Elementary School Journal*, *90*(4), 449–466. doi:10.1086/461626

Beauvois, M. (1998). Conversations in slow motion: Computer-mediated communication in the foreign language classroom. *Canadian Modern Language Review*, *54*(2), 198–217. doi:10.3138/cmlr.54.2.198

Bowan, M. D. (2002). Learning disabilities, dyslexia, and vision: A rebuttal, literature review, and commentary. *Optometry (St. Louis, Mo.)*, *73*(9), 553–575.

Brown, H. D. (2007). *Principles of language learning and teaching* (5th ed.). Englewood Cliffs, NJ: Prentice Hall Regents, Buttaro, L. (2009). Language, learning, and the achievement gap: The influence of classroom practices and conversation on performance. *Language and Learning Journal, 4*(1). Retrieved from http://ojs.gc.cuny.edu/index.php/lljournal/article/view/458/547

Carey, K., & Roza, M. (2008). *School funding's tragic flaw*. Seattle, WA: Center on Reinventing Public Education.

Carroll, J. (1963). The prediction of success in intensive foreign language training. In Glazer, R. (Ed.), *Training research and education* (pp. 87–136). Pittsburgh, PA: University of Pittsburgh Press.

Cervantes, R., & Gainer, G. (1992). The effects of semantic simplification and repetition on listening comprehension. *TESOL Quarterly*, *26*(4), 767–770. doi:10.2307/3586886

Chan, M. (2003). Technology and the teaching of oral skills. *CATESOL Journal*, *15*, 51–57.

Chastain, K. (1975). Affective and ability factors in second language learning. *Language Learning*, *25*, 153–161. doi:10.1111/j.1467-1770.1975.tb00115.x

Creative. (2011). *Creative store*. Retrieved from http://us.store.creative.com/category/ 68709286741/1/ZEN-Style-M100.htm?gclid=CP_uj6qq66wCFZGx7Qod9xCcKA

Cuban, L. (2001). *Oversold & underused: Computers in the classroom*. Cambridge, MA: Harvard University Press.

Draffan, E. A., Evans, G., & Blenkhorn, P. (2007). Use of assistive technology by students with dyslexia in post-secondary education. *Disability and Rehabilitation. Assistive Technology*, *2*(2), 105–116. doi:10.1080/17483100601178492

Dulay, H., & Burt, M. (1977). Remarks on creativity in language acquisition. In Burt, M., Dulay, H., & Finnochiaro, M. (Eds.), *Viewpoints on English as a second language* (pp. 95–126). New York, NY: Regents.

Early, P., & Swanson, P. (2008). Technology for oral assessment: Recapturing valuable classroom time. In Cherry, C. M., & Wilkerson, C. (Eds.), *Dimension* (pp. 39–48). Valdosta, GA: SCOLT Publications.

Flewelling, J. (2002). From language lab to multimedia lab: Oral language assessment in the new millennium. In C. M. Cherry (Ed.), *Dimension: Proceedings of the Southern Conference on Language Teaching,* (pp. 33-42). Valdosta, GA: SCOLT Publications.

Foster, P., Tonkyn, A., & Wigglesworth, G. (2000). Measuring spoken language: A unit for all reasons. *Applied Linguistics*, *21*, 354–375. doi:10.1093/applin/21.3.354

Futernick, K. (2007, October). Study examines why teachers quit and what can be done. *District Administration*, *43*(10), 16.

Gardner, R., Smythe, P., Clement, R., & Gliksman, L. (1976). Second-language learning: A social-psychological perspective. *Canadian Modern Language Review*, *32*, 198–213.

Gilgen, R. G. (2004, April 22). *Creating a mobile language learning environment*. Presentation presented at the Educause Midwest Regional Conference, Chicago, IL.

Goldman, J. P. (1991). Balancing school sports and academics. *Education Digest*, *56*(8), 67–71.

Griffiths, R. (1992). Speech rate and listening comprehension: Further evidence of the relationship. *TESOL Quarterly*, *26*(2), 385–390. doi:10.2307/3587015

Hai-Peng, H., & Deng, L. (2007). Vocabulary acquisition in multimedia environment. *US-China Foreign Language*, *5*(8), 55–59.

Halfacree, G. (2009, November 2). Windows loses market share to Mac os. *Bit-Tec*. Retrieved from http://www.bit-tech.net/news/bits/2009/11/02/windows-loses-market-share-to-mac-os/1

Hartman, K., Neuwirth, C., Kiesler, S., Sproull, L., Cochran, C., Palmquist, M., & Zabrow, D. (1995). Patterns of social interaction and learning to write: Some effects of network technologies. In Berge, Z., & Collins, M. (Eds.), *Computer-mediated communication and the online classroom* (pp. 47–78). Creskill, NJ: Hampton Press, Inc. doi:10.1177/0741088391008001005

Hodgin, R. C. (2009). Windows losing market share fast to Mac and linux. *TG Daily*. Retrieved from http://www.tgdaily.com/software-features/41291-report-windows-losing-market-share-fast-to-mac-and-linux

Krashen, S. D. (1981). *Second language acquisition and second language learning*. Oxford, UK: Pergamon.

Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Oxford, UK: Pergamon.

Kvavik, R. B. (2005). Convenience, communication, and control: How students use technology. In D. G. Oblinger & J. L. Oblinger (Eds.), *Educating the Net generation* (pp. 7.1-7.20). Boulder, CO: Educause. Retrieved from http://www.educause.edu/educatingthenetgen

Lai, C. C., & Kritsonis, W. A. (2006). The advantages and disadvantages of computer technology in second language acquisition. *National Journal for Publishing and Mentoring Doctoral Student Research*, *3*(1), 1–6.

Lally, P., van Jaarsveld, C. H. M., Potts, H. W. W., & Wardle, J. (2009). How habits are formed: Modelling habit formation in the real world. *European Journal of Social Psychology*, *40*(6), 998–1009. doi:10.1002/ejsp.674

Long, M. (1996). The role of the linguistic environment in second language acquisition. In Ritchie, W., & Bhatia, T. (Eds.), *Handbook of second language acquisition* (pp. 413–468). San Diego, CA: Academic Press. doi:10.1016/B978-012589042-7/50015-3

Mazzoni, D., & Dannenberg, R. (2000). *Audacity* [software]. Pittsburg, PA: Carnegie Mellon University.

Mishra, S., & Sharma, R. C. (2005). *Interactive multimedia in education and training*. Hershey, PA: IGI Global.

Naimon, N., Fröhlich, M., Stern, D., & Todesco, A. (1978). *The good language learner*. Toronto, Canada: Ontario Institute for Studies in Education.

National Standards in Foreign Language Education Project. (2006). *Standards for foreign language learning in the 21st century*. Lawrence, KS: Allen Press, Inc.

Nunan, D. (1999). *Second language teaching & learning*. Boston, MA: Heinle & Heinle.

Oller, J. W. Jr, Baca, L., & Vigil, F. (1977). Attitudes and attained proficiency in ESL: A sociolinguistic study of Mexican-Americans in the southwest. *TESOL Quarterly*, *11*, 173–183. doi:10.2307/3585453

Omaggio Hadley, A. (2001). *Teaching language in context* (3rd ed.). Boston, MA: Heinle & Heinle.

Papell, B., & Muth, S. (2007). *VoiceThread* [webware]. Chapel Hill, NC: University of North Carolina.

Park, S. H., & Ertmer, P. A. (2008). Examining barriers in technology-enhanced problem-based learning: Using a performance support systems approach. *British Journal of Educational Technology*, *39*(4), 631–643. doi:10.1111/j.1467-8535.2008.00858.x

Piaget, J. (1973). *To understand is to invent*. New York, NY: Grossman.

Pierson, M. E., & Cozart, A. (2005). Case studies of future teachers: Learning to teach with technology. *Journal of Computing in Teacher Education*, *21*(2), 59–63.

Rosenbusch, M. H. (2005). The No Child Left Behind Act and teaching and learning languages in the U.S. schools. *Modern Language Journal*, *89*, 250–261.

Rosenbusch, M. H., & Jensen, J. (2004). Status of foreign language programs in NECTFL states. *NECTFL Review*, *56*, 26–37.

Sanako. (2011). *Sanako mp3 recorder*. Retrieved from http://www.sanako.com/Products/Product_container/SANAKO_MP3_Recorder.iw3

SanDisk. (2011). *Sansa clip + mp3 player*. Retrieved from http://www.sandisk.com/products/sansa-music-and-video-players/sandisk-sansa-clipplus-mp3-player

Schinke-Llano, L., & Vicars, R. (1993). The affective filter and negotiated interaction: Do our language activities provide for both? *Modern Language Journal*, *77*(3), 325–329. doi:10.1111/j.1540-4781.1993.tb01979.x

Sharma, R. C., & Mishra, S. (2007). *Cases on global e-learning practices: Successes and pitfalls*. Hershey, PA: IGI Global.

Stepp-Greany, J. (2002). Student perceptions on language learning in a technological environment: Implications for the new millennium. *Language Learning & Technology*, *6*(1), 165–180.

Swanson, P. (2010). Teacher efficacy and attrition: Helping students at the introductory levels of language instruction appears critical. *Hispania*, *93*(2), 305–321.

Swanson, P., & Early, P. (2008). Digital recordings and assessment: An alternative for measuring oral proficiency. In A. Moeller, J. Theiler, & S. Betta (Eds.), *CSCTFL report* (pp. 129-143). Eau Claire, WI: Central States Conference on the Teaching of Foreign Languages.

Swanson, P., Early, P. N., & Baumann, Q. (2011). What audacity! Decreasing student anxiety while increasing instructional time. In Özkan Czerkawski, B. (Ed.), *Free and open source software for e-learning: Issues, successes and challenges* (pp. 168–186). Hershey, PA: IGI Global.

Swanson, P., & Schlig, C. (2010). Improving second language speaking proficiency via interactional feedback. *International Journal of Adult Vocational Education and Technology*, *1*(4), 17–30. doi:10.4018/javet.2010100102

Volle, L. (2005). Analyzing oral skills in voice e-mail and online interviews. *Language Learning & Technology*, *9*(3), 146–163. Retrieved from http://llt.msu.edu/vol9num3/volle/

Vrasidas, C., & McIsaac, M. S. (2007). Integrating technology in teaching and teacher education: Implications for policy and curriculum reform. *Education Media International*. Retrieved from http://vrasidas.com/wp-content/uploads/2007/07/integrateemi.pdf

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Wessel, D. (2010, April 8). Did 'great recession' live up to the name? *The Wall Street Journal*. Retrieved from http://online.wsj.com/article/SB10001424052702303591204575169693166352882.html

Wimba. (2008). *Wimba Voice*. Retrieved from http://www.wimba.com/products/wimbavoice/

Woodrow, L. (2006). Anxiety and speaking English as a second language. *RELC Journal*, *37*(3), 308–328. doi:10.1177/0033688206071315

Wright, V. H., Wilson, E. K., Gordon, W., & Stallworth, J. B. (2002). Master technology teacher: A partnership between preservice and inservice teachers and Teacher Educators. *Contemporary Issues in Technology & Teacher Education*, *2*(3). Retrieved from http://www.citejournal.org/vol2/iss3/currentpractice/article1.cfm

Zellmer, M. B., Frontier, A., & Pheifer, D. (2006, November). What are NCLB's instructional costs? *Educational Leadership*, *64*(3), 43–46.

Zhao, Y. (2005). The future of research in technology and second language education. In Zhao, Y. (Ed.), *Research in technology and second language learning: Developments and directions* (pp. 445–457). Greenwich, CT: Information Age Publishing, Inc.

KEY TERMS AND DEFINITIONS

Affective Filter Hypothesis: The theoretical screen that captures the relationship between second language learners and the input needed to acquire a second language. If the filter is high, input is being blocked by affective variables. Conversely, if the filter is low, more input can be received. Teaching and learning environments with low levels of anxiety are postulated to be more conducive to language learning.

American Council on the Teaching of Foreign Languages: An United States of America organization whose mission is to improve and expand the teaching and learning of all languages at all levels of instruction. Commonly referred to by its acronym, ACTFL serves as a membership organization for thousands of foreign language

teachers and administrators as well as individuals serving in governmental and industrial capacities.

Instructional Time: The amount of time teachers have during class to conduct learning activities.

MP3 Files: A digital audio recording file format that compresses the size of the file for storage purposes.

Oral Language Assessment: The manner in which individuals or groups of language learners are evaluated in terms of their speaking ability.

Performance Anxiety: A state of nervousness and apprehension when an individual performs a task before an audience.

Second/Foreign Language: For the purposes of this chapter, whether an individual is part of a language program termed as *foreign language*, *immersion*, or even *second language*, the teachers and their students are collectively grouped as S/FL teachers and students because they share the same educational goal, learning a new language.

Traditional Method of Oral Language Assessment: Instructors assigning language performance tasks in class and then listening to and evaluating student speaking performance.