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What Audacity! Decreasing Student Anxiety while Increasing Instructional Time

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Free and Open Source Software for E-Learning: Issues, Successes and Challenges

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Chapter 11

What Audacity!

Decreasing Student Anxiety while Increasing Instructional Time

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ABSTRACT

Promoting student engagement in the second language classroom can be difficult for teachers. Multiple obstacles such as perceptions of the irrelevance of authentic language applications and the affective barriers (e.g. performance anxiety speaking before peers) tend to hinder student oral language performance. For teachers, especially for beginners, other obstacles appear such as being given the most challenging assignments with little to no professional support. Many times these educators scramble to squeeze the most out of every minute in the classroom for instructional purposes while trying to increase student achievement. Three free and open source software options are presented and findings from two studies of focusing on the use of Audacity indicate multiple benefits for both teachers and students. Afterwards, the authors demonstrate how to use Audacity for oral language assessment and discuss its implications for the world language classroom.

INTRODUCTION

Fostering student engagement in the classroom is a challenging endeavor, particularly when teachers face so many obstacles that decrease teacher instructional time in the classroom. First, and in no particular order, are the bureaucratic impediments,

such as large classes, complex work schedules, unnecessary meetings, and little say in school policy, all of which complicate the daily reality of teaching (Futernick, 2007). Secondly, the testing requirements inherent in *No Child Left Behind* can seem overwhelming to teachers as they lose precious instructional time due to off-task preparation and administration of the exams (Zellmer, Frontier, & Pheifer, 2006). A third factor, which

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has remained unchanged throughout decades of education as noted by Goldman (1991), must be acknowledged as loss of classroom time and student focus due to sports and extracurricular activities.

Concurrent with struggling with these difficulties, all educators, regardless of their discipline, must also endeavor to capitalize on every minute in the classroom for instructional purposes while trying to enhance student achievement. Second language instruction faces these same challenges while adding an additional component of a multiplicity of manners in which proficiency is assessed. At its core, second language instruction in the communicative classroom is dedicated to the ideals, if not the practice, of developing second-language proficiency in the Three Modes of Communication: the Interpersonal, the Interpretive, and the Presentational (National Standards in Foreign Language Education Project, 1999). Formerly known as the four skills (reading, writing, listening, and speaking), the Three Modes of Communication are three parts of a single goal of communication rather than any one skill in isolation. While proficiency in reading, writing, and listening are measured mainly through common assessment instruments such as written exams, the assessment of students' oral language skills has continually presented numerous challenges, including the development of useful and flexible rubrics (Foster, Tonkyn, & Wigglesworth, 2000) and the time expended in individual learner assessment (Flewelling, 2002).

Additionally, unlike assessments for reading and writing, oral assessments, traditionally conducted in the classroom, do not leave an archivable assessment artifact. This lack of an artifact impedes overall performance evaluation, as an artifact could be used to measure similarities and/or differences in learner progress towards proficiency goals, can materially support assessment outcomes, and can be presented as concrete evidence of language proficiency to stakeholders and third-party program evaluators or accreditation certifiers. In an

effort to address these concerns, older language laboratories are being transformed to accommodate digital recordings that can facilitate whole-class concurrent, archival recordings (Flewelling, 2002). Presently, researchers are investigating the manifold uses of emerging technologies and their potential uses within the context of oral proficiency and assessment (Chan, 2003; Egbert, 1999; Volle, 2005).

BACKGROUND

Because younger teachers are more likely to have grown up in a technology-rich environment, their comfort and skills with technology may lead to an increased use of computers for instructional purposes (National Center for Education Statistics, 2000). Furthermore, many of these novice educators are confident using technology but perhaps lack the time and resources to develop technologically rich lessons (Pierson & Cozart, 2005). Even with an abundance of available software, hardware, free ware, and webware, Cuban (2001) finds that school systems have not been restructured fully to support the integration of technology for instruction. In an effort to balance student security and privacy with access to instructional technology, schools have restricted access to a plethora of opportunities for students and teachers, including many interactive web tools, such as blogs, *Skype*, and *YouTube*. Furthermore, it is not uncommon for teachers to lack the administrative privilege to install or configure software, even free or open-source software, on their classroom computers.

For language teachers, the inability to use cutting-edge technology for instructional and assessment purposes forces them to continue to use traditional assessment methods that were espoused decades ago. Specifically in the area of oral language assessment, teachers rely on time consuming face-to-face interactions in the classroom, which diminish precious instructional time.

For example, if a French teacher has 30 students in a class and spends approximately two minutes per student listening and evaluating performance on an assessment task, approximately an hour of instructional time is lost to the class as a whole. Of course, even more time can vanish if teachers must deal with a variety of disruptions from students who are not being assessed at the moment.

For students, traditional methods of oral language assessment can be detrimental too. Many times second language learners suffer from performance anxiety which is known to increase one's affective filter, and as a result may adversely influence their performance on the assessment. According to the Affective Filter Hypothesis (Krashen, 1981), affective variables such as anxiety and self-confidence play a role in language acquisition. When negative emotional factors are present, language acquisition is more difficult. Conversely, when students feel more relaxed and comfortable, language acquisition becomes easier. To this end, many researchers have found that this anxiety is negatively related to language performance with some researchers claiming that the presence of this affect is one of the strongest predictors of foreign language success (MacIntyre, 1999).

In a study focused on English language learners ($N = 275$) in Australia that were in their final months of studying English immediately prior to enrollment in university courses, Woodrow (2006) examined the relationship between second language anxiety and speaking performance. Both quantitative and qualitative measures were used to investigate the relationship between anxiety and oral performance in English. Findings from her research indicate that students reported the most stress for giving oral presentations and performing in front of classmates during in-class situations. Specifically, the major stressors reported by the subjects were performing in front of class and talking to native speakers. The researcher noted that it was important to consider communication both in and outside the classroom and ensure that

students have the necessary skills and practice for everyday communication, which she expressly stated "could be achieved by setting out-of-class tasks utilizing the rich linguistic resources available to learners" (p. 324).

Historically, these resources have been primarily in the form of educational language laboratories that emerged in the early 1960s and 1970s using cassette players with headphones. Later, these exclusively audio language labs began to be replaced with the latest state-of-the-art digital technology, which quickly transformed into a multimedia approach to language learning. With the emergence of Computer-Assisted Language Learning (CALL), the multimedia center, combined with an appropriate methodology, allows teachers to move from a teacher-centered or textbook-centered instructional practice to a student-centered approach (Hai-Peng & Deng, 2007). Among others aspects of language learning, CALL can be used with reading (reading on-screen), writing (word-processing), listening (digital archives), and speaking (Levy & Hubbard, 2005).

From a pedagogical stance, popular teaching methodologies such as constructivism (Piaget, 1973) and socioculturalism (Vygotsky, 1978) have emerged that work well with CALL. Both constructivism and socioculturalism stress the importance of the teacher as a facilitator of individualized learning by giving students control over what they do, how fast they do it and even the ability to find and correct their own mistakes, resulting in a transformation of the learning process. Here, the role of the teacher is deemphasized and students are given active learning experiences. These approaches are designed to promote fluency over accuracy in order to allow students to take risks in more student-centered activities. Research has shown that the reduction of a strong teacher presence is related to larger quantity and better quality of communication, observable as more fluidity and more use of complex sentences (Stepp-Greany, 2002).

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Research suggests that, with regards to the affective concerns addressed earlier, CALL has a number of benefits for students in the world language classroom context. Beauvois (1998) reported that students participating in a Local Area Network writing project showed positive attitudes about learning in that setting because the LAN not only represented a low-anxiety situation, they also they expressed that they felt more control than in a traditional classroom. In a study investigating English writing skills, the researchers found that the use of technology redistributes teacher and classmate attention so that less able students can become more active participants in the class (Hartman et al., 1995). While specific to the second language classroom, it may well be that these findings are generalizable to classes in other disciplines as well.

Given the obstacles all teachers face, the rapid technological advancements available to classroom teachers now, and the benefits these digital tools have for both teachers and students alike, we will present three free and open source recording tools currently available and then discuss research findings from two separate studies where students used digital technology for oral language assessments. Afterwards, we present strategies for using digital recording software in the language learning classroom and highlight the implications of using free and open source software in the classroom.

FREE OPEN SOURCE SOFTWARE RECORDING TOOLS

While there have been rapid advances in technology, especially where language labs or other technology installations are concerned, many of these new capabilities may not be available to language students in schools and universities due to either shrinking budgets or policy restrictions. The rapid advances in personal digital technology and the availability of both hardware and

software resources for individual recording have the potential to allow interested language instructors to use digital technology for oral proficiency measurement. While many tools are available for these purposes, we begin by briefly outlining three free and open source software options that are free of adware, spyware, or license limitations, and that do not monopolize computer processing and storage resources. However, as noted earlier, teachers may not have the administrative rights to download and install software on their classroom computers. It is recommended that in these cases, teachers consult with their campus technology support resources to determine the best compromise between network security and pedagogical advantage.

Freecorder

The *Freecorder Toolbar*© < <http://applian.com/asktoolbar/>>, created by Applian Technologies, is a free audio recorder that uses state-of-the-art sound recording technology that includes a *Google*-based search menu. *Freecorder 3.0* can be used as a song recorder, an audio extractor from videos, internet radio recorder, and a sound recorder from the computer's microphone or line-in ports. Once downloaded, the software installs as a tool bar and with one mouse click users can record, stop, pause, and play audio, using easily recognizable and universally-accepted symbols for each of these functions. Once the record button is activated, the user's voice in the form of sound waves is graphically displayed. Audio can be recorded and saved in either the popular *mp3* format or as a *wmv* file. Basically, if it can be heard on the computer's speakers, *Freecorder* can record it. It uses a Sound Card Independent recording technology, which does not require users to have a special sound card driver that may cause awkward side effects.

Unlike many other sound recorder software packages, *Freecorder* supports all *Windows* systems. Additionally, *Freecorder* is able to separate

sounds from individual applications and eliminate background noises. It also eliminates silence at the beginning and end of the recording. It starts to record when it first detects audio and stops when the audio stops. This unique audio recorder is easy to use and the interface is intuitive, which may be an advantage for younger users and less technologically-savvy individuals.

Skype

Skype is an exciting and extremely versatile voice-over-IP [VOIP] software tool, available for free at << www.skype.com >>. VOIP allows for the possibility of real-time communication over the internet, using high-speed cable, LAN or DSL connections. Calls via *Skype* can fall into three categories: *Skype-to-Skype*, in which one user on a computer speaks to another user on a computer; *Skype-to-Phone*, in which the *Skype* user can utilize dialing options in the software to call a land-line phone; and *Phone-to-Skype*, in which the user establishes a *Skype* phone-number that allows outside land-lines to call into *Skype* and interact with the software as if it were a traditional telephone with a voice mail option. While the second user options require the purchase of additional *Skype* packages, minutes, and other premium options, the first option remains free to all *Skype* users. Once a user downloads and installs the software, they are prompted to create a free user account.

This ability to talk *Skype-to-Skype* is what makes this software uniquely adaptable to education, in that students in one location can speak in real-time to their instructor, their classmates, or international speaking partners in remote locations. The additional option of video chatting via *Skype* allows speakers to see each other, including gestures, expressions, and other types of meta-language, making the communication more realistic, compelling, and rich in communicative cues. Files such as documents, images, and sound files can be transferred instantly via integrated peer-to-peer file-sharing capabilities. *Skype* calls

can be recorded and archived for assessment or to create multi-phase communication tasks such as interviews, transcriptions, or inclusion in student presentation or media creation. In short, the rich media capabilities of *Skype* enable a wide variety of communicative tasks to take place both inside and outside the classroom.

For an additional fee of about \$30 per year, a teacher can also set up a *Skype* phone number with voice mail, which will allow students to call the *Skype* number from a regular phone and leave a voice recording as a voice mail message. In this way, a teacher could record a greeting that was, in fact, the oral assessment prompt, and the student could “leave a message” that was the response to the oral assessment prompt. The student has the option of reviewing their recording before submitting, and can re-record their response until they have achieved a recording that they feel best represents their language proficiency level. In addition, these voice mail messages are reviewable and archivable by the teacher.

Audacity

The *Audacity*® recorder (Mazzoni & Dannenberg, 2000), available at <<http://audacity.sourceforge.net/>>, is an open-source recorder available to the public with relaxed or non-existent intellectual property restrictions. It is free software distributed under the terms of the GNU General Public License and the registered trademark of Dominic Mazzoni. Its familiar buttons and interface, while allowing for simple operation, belies the relatively sophisticated editing capabilities built into the software. It is available for Mac OS X, Microsoft Windows, GNU/Linux, and other operating systems. *Audacity* can be used for multiple purposes such as recording live audio, converting audio files from cassette tapes and vinyl records to digital recordings or CDs, editing a variety of sound file types (e.g., *Ogg Vorbis*, *.wav*, *.mp3*), cutting, copying, and splicing sounds together, and changing the speed or pitch of a recording. Sound

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files are recorded by default in the .wav format, but if an .mp3 recording is required because of file storage limitations, an additional *LAME™ MP3 Encoder* can be easily downloaded and installed from the web site. *Audacity* does not distribute the *LAME MP3 Encoders*, but supports linking to third-party *LAME* libraries for mp3 encoding subject to the legal precedents for software patents in the country of use.

The most recent release of *Audacity* is the *1.3.9 Beta* version. The creators note that it is a work in progress and it is not available yet with complete documentation or translations into world languages. They recommend it for more advanced users while the version *1.2.6*, considered a stable release, is complete and fully documented. The creators mention on the website that both *Audacity 1.2.6* and *1.3.9* can be installed on the same machine. For a complete list of functions, refer to the website.

CURRENT RESEARCH

In the following sections we present the results from two distinct oral language assessment studies while integrating strategies for using free and open source software in the second language classroom. In both studies instructors chose to use *Audacity* as the digital recording tool. The first study investigated eight undergraduate students' perceptions of using digital voice recordings for assessment purposes from a qualitative perspective. The second study focused on middle school student perceptions ($N=76$) using quantitative measures. We developed a 7-point Likert scale survey as a guide (See Appendix A) and asked students to rate their agreement on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) on 13 questions. Survey statements focused on three areas of interest: accuracy to use 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*.

Students in both studies were also asked to rank order the four skills of language learning (listening, reading, speaking, writing) in order of importance to them, if they liked using voice recordings for oral language assessment, preference to traditional or digital oral language assessments as well as giving some demographic data (e.g. age, gender, etc.). In addition to student perception, we interviewed the instructors from the two studies to understand their feelings about using *Audacity* as a resource for oral language assessment. In order to analyze the data from the interviews with the eight undergraduate Japanese students and the instructors' interviews, we used a modified version of Glasser and Strauss' (1967) constant comparative analysis to group answers and make connections to common questions. Field notes and memos were also used to help establish major themes as well as interesting observations noted during the interviews. At the end of the semester, member checks (Guba & Lincoln, 1981) took place to allow participants to identify anything they might find inaccurate, unfair, or uncomfortable for them. By doing so, member checks preserve the dignity of the participants and ensures the researcher accuracy in reporting the results. Instructors and students selected a pseudonym for reporting purposes.

Using Audacity for Oral Language Assessment

In this section, we outline strategies for first creating the digital space; that is, selection of the software, determining the frequency of digitally recorded assessments, the delivery method and the organization of incoming assignments, and the archiving system of student work. Afterwards, we then discuss best practices in creating oral language assessment tasks and evaluation tools.

The first step for individuals interested in using free and open source for oral language assessment purposes is to evaluate these software options available and discuss the selected software with

the school's technology personnel. During the evaluation process, we recommend that instructors spend ample time familiarizing themselves with the program. Teachers should not only practice recording the assessment tasks but we also encourage them to practice responding, listening, and editing their recordings, and ultimately turning in the final work as students would be expected to do.

Earlier we outlined several programs and the instructors chose to use *Audacity*. During the interviews, the instructors mentioned that they had spoken with their technology officials about using it in the schools. Tina, the middle school teacher, stated that the technology director already had prior knowledge about *Audacity* and had it installed on the computers, so it was an easy decision. As for the two Japanese instructors, Kuki and Kami, the technology laboratory director researched *Audacity* prior to consenting to installing *Audacity* on the lab's computers. The instructors stated that they opted to use *Audacity* because it was fast and simple to download and install. They felt that if they did not have any difficulty downloading, installing, and using it, neither would their students. Furthermore, the instructors noted that the interface was intuitive and that they felt their students would not require intensive training to use it. Data from the student survey as well as the interviews with the teachers indicated that students and instructors alike enjoyed the range of options *Audacity* offers such as being able to set audio levels for speaking and listening. Additionally, the instructors favored the *Audacity's* flexibility because students could download and use it at home for free. Lastly, the teachers mentioned that their technology personnel particularly favored the notion of having students save files as *mp3* files because this type of audio file is compressed, thus leading to less storage space needed.

Once the software is selected and installed, the second step is to determine the frequency of assessments. For the undergraduate Japanese classes, the instructors assigned 14 oral language assessments at the beginning of the spring 2009 semester in

order to assess students' oral language proficiency digitally each week beginning the second week of the semester. The students ranged in age from 18 to 22 years of age. However, Tina opted to require her 13 and 14 year-old students to use *Audacity* to record responses to her language performance tasks every other week during the eighteen week semester for a total of nine student recordings. We recommend that instructors do not assign performance tasks the first week the students are introduced to the software. It is imperative to give students time to tinker with the program so that their linguistic performance is not hindered due to unfamiliarity with the technology.

Next, teachers need to determine how students are to submit recordings for assessment purposes and how students should title the digital files. First, several options are available for digital receptacles such as having students email responses directly to the teacher or assigning students to use a computer in the school's media center to deliver digital assignments to a teacher's mailbox using a jump drive or CD. While the former is relatively easy for students with internet access away from school, the quantity of emails cluttering and possibly even overloading a teacher's email server space may become problematic. Nevertheless, such delivery would allow teachers a means for personalized feedback once evaluation has taken place.

Using the latter as an option, teachers can construct and title mailboxes such as "Week 3 Speaking Assignment". Students can be required to upload their assignments on the appropriate due dates whereby teachers can access the recordings for evaluation. With such a procedure in place, teachers would not need to sort through and open dozens of emails in order to evaluate student performance. Additionally, internet access would not be required to assess the assignments. Teachers could simply copy all of the students' files from the mailbox to a jump drive or *iPod* and evaluate students' oral language proficiency away from school at home or even during a daily commute using public transportation.

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We recommend that regardless of the collection system for assignments, teachers take time to create a system for identifying student work and continue to use the system throughout the academic year. For example, a third week assignment could be titled using the assignment name and the student's name (week3john_doe). Using such nomenclature allows teachers to quickly identify not only the assignment but also the student who turned in the assignment. A useful *Audacity* feature is that once a file name is composed and saved, a supplementary tag window is displayed where users can add more information about the recording such as additional comments. For students in both studies, the instructors required students to use the assignment title immediately followed by both first and last name (e.g., myfamily_john_doe).

The purpose for such continuity, which is essential for the accurate archiving of student work, leads to our next step in the digital recording process, teachers creating folders where student performances can be saved. Using the Windows Explorer tool located in the Accessories folder (accessible via the Start Menu by clicking on *Programs > Accessories > Windows Explorer*), teachers can quickly create and label folders in which to place student work. For example, a French I instructor requires students deposit 15 weekly assignments in a folder created on the school server in the media center titled "French I Speaking Assignments". On her class computer, or even her own personal laptop, she can create one folder called "French I" on her desktop. Inside that folder she can create 15 subfolders and name each one "Week 1", "Week 2", "Week 3", and so forth. As students deposit their work weekly, the teacher can copy/move the files to her computer, place each recording in its proper location, and then assess student proficiency outside of class time.

Our research with the undergraduates found that the instructors began by having them email their work weekly to them. The voice recordings were sent as attachments with the files saved as "firstname_lastname_assignmentweek". Early in

the process, Kuki and Kami found the email too difficult to manage and quickly set up weekly drop boxes on the course management system, *uLearn*©. After the third week of assessments, students were expected to deliver their weekly responses to the instructor-created oral language assessment objectives to the appropriate mailbox where the assignments were automatically marked with the date and time. Tina, on the other hand, created a series of folders for each class period and asked students to place their work in the appropriate folders. Her students performed all the assigned tasks in the school computer lab at the school administration's request, due to the fact that not all students had access to computers outside of school, and also because most of the assignments required a partner for role-plays. This allowed her to observe students while they recorded, and she was able to note how students improvised their speaking, became confident enough to the point where they did not write their scripts before speaking, and how they self-corrected themselves and/or corrected their partners. However, this function was found to be more useful in the middle school context more than with the undergraduates because the college professors stated that they did not continually check to see if students were turning in assignments or not.

As for the usefulness of having digital archives of student work, the three instructors mentioned on multiple occasions that having these files improved instructor feedback because students could listen to their recordings as the instructors made constructive comments. Additionally, all of the instructors quickly determined that the recordings had the potential to be listened to by multiple evaluators allowing for more consistency of evaluation. On several occasions, a few Japanese students questioned a grade on a particular assignment and the recording was re-evaluated by the other instructor.

In fact, Kuki noted that these recordings would work well as indicators of student progress for students. Tina reiterated the notion and added that

her middle schoolers occasionally remarked that they did not feel they were making much progress using the language. By having the students listen to their previous recordings, personalized discussions between Tina and the students took place to highlight improvement and progression toward fluency. In similar fashion, she used the archived files during parent-teacher conferences to document student improvement in the target language. Tina also mentioned that another unique advantage is that the recordings can be used for student portfolios. Both Kuki and Kami added that the recordings hold the potential to serve as a body of evidence for accreditation purposes. Kami stated that all of the Japanese students' digital files were already archived on the department's server for college and university accreditation purposes. However, the three teachers were quick to inform us that while the digital voice recording had certain advantages, the traditional face-to-face oral assessment was not completely eradicated because of its advantages. They noted the importance of having in-class impromptu real-time student-teacher interactions as well as student-student communications.

Now that the preliminary work has been established for teachers and students to use digital recording technology for oral language assessment, teachers need to spend some time telling students about the process upon which they are about to embark. The instructors mentioned that they spent part of a class period introducing students to the notion of using *Audacity* for out-of-class oral/aural assignments. We favor the Present, Perform, and Practice approach. First, teachers should spend a few moments presenting *Audacity* to students. We encourage teachers to give students time to read *Audacity's* Table of Contents under the Help pull down menu. A few minutes spent reading this section may help answer many student questions without consuming a great deal of time. Next, we urge educators to perform a practice language assessment task in front of the students. Here, the teacher may show an example of a speaking

assignment and the accompanying scoring guide. Then, the teacher can open *Audacity*, record a response, revise it as necessary, and then deliver it to the appropriate area for evaluation. Once completed, the teacher can give students time to work on the same assignment whereby they practice recording, editing, deleting, re-recording responses, and finally submitting final work. Afterwards, the instructor can show students his or her procedure for collecting assignments for evaluation purposes.

Now that the process has been established and organized, the next step is the development of quality and meaningful oral language assessment tasks. Met (2004) affirms that students need to carry out meaningful, motivating, purposeful tasks that allow them to use language for understanding others and for communicating their own ideas regardless if instruction is delivered by teachers or through technology. Furthermore, because learning objectives must be measurable (Kim & Kellough, 1995; Orlich, Harder, Callahan, Kauchak, & Gibson, 1994), we urge teachers to use the notion of the ABCD approach (Audience, Behavior, Conditions, and Degree). First, the audience must be clearly defined; that is, who is the learner? Secondly, what is the observable behavior or what task is to be accomplished? We suggest writing in terms of action verbs and objects. Thirdly, what are the conditions under which the behavior is to occur? And finally, what are the criteria for acceptable performance or even mastery of the task?

An example of a well-designed oral language assessment task is:

You are calling your new host family in Argentina and going to leave them a voicemail. Give them all of the following details: your name, the date and time you expect to arrive in Buenos Aires, your flight number, and what you will be wearing when you depart Customs in Buenos Aires. Once you are done recording and satisfied with your

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message, place your audio file in the mailbox in our school's media center.

A second type of performance task can be where the teacher poses a series of questions and leaves enough space between the questions for students to respond. For an intermediate level French class the teacher could post a picture on his or her blog and have a link below the photograph that opens an audio file that the teacher has recorded for the students. For example:

Listen to the following questions about the picture you see. Be sure to answer each question in a complete sentence. When you are finished, place your recording in my folder on the desktop.

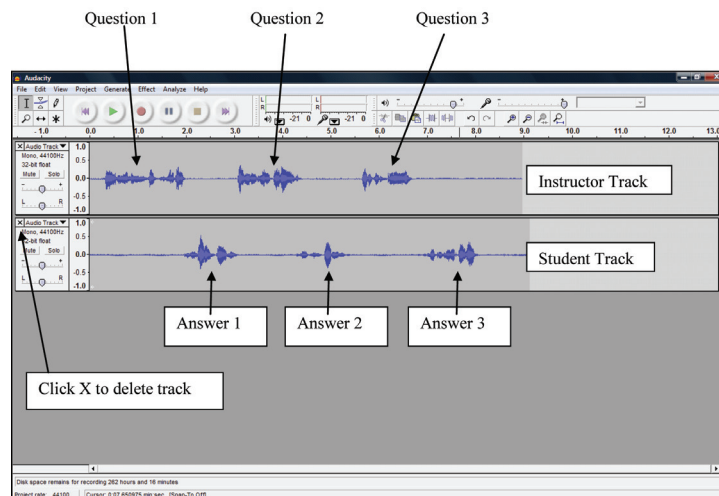
1. What is the woman in the red hat wearing? (approximately 5 second pause)
2. Where is the couple standing? (approximately 5 second pause)
3. Why do you think they are outside? (approximately 10 second pause)

Performance tasks such as this one can be easily created in *Audacity* where the teacher cre-

ates a file that students can listen to the questions and then respond to them using the same file. To do so, open *Audacity*, pull down the Edit menu, click on Preferences, click on the Audio I/O tab, and then click the box that says *Play other tracks while recording the new one*. The teacher can then record the performance task leaving adequate space for student responses and then save the file. When students open the file, they can play the file to listen to it. Then the students can select the Record button and listen to the teacher's questions and record their answers as they listen to the questions. If students want to delete their responses and begin again, they can simply click the "x" next to their recording track (see Figure 1). Once completed, the students save the questions and the responses as one file.

Clearly, performance tasks can take many forms from student narration of an event to responding to questions to describing a cultural scene from a photograph. For great cultural photographs from throughout the world, we strongly urge world language teachers to explore the *REALIA Project* <www.realiaproject.org>, to view the collection of peer-reviewed media for the teaching and study of modern languages and

Figure 1. Two track recording. (Audacity © 1999-2009 Audacity Team. The name Audacity © is a registered trademark of Dominic Mazzoni. Used with permission).



cultures. Additionally, we recommend that language teachers design performance tasks that continually strive to challenge students to use the language in a realistic manner. That is, to develop tasks that students would have to use in the target language environment.

In our studies, the instructors used the ABCD model and wrote their own language performance objectives. Kuki, the senior professor, began the study by recording the oral language assessment objectives in Japanese and then emailing them to students on Mondays with the student responses due on Fridays. Tina handed out paper copies of the objectives to the students three to four days in advance writing the objectives in both Spanish and English. Because we remain committed to the notion of teaching in the target language 95-100% of the time, we strongly urge teachers to compose oral language assessment objectives in the target language and present them to students in aural form. Here, the language learning is transformed from a speaking exercise to one of listening and responding without the use of the learner's first language.

In addition to providing students a solid language performance objective, we feel it is equally important to give students the assessment tool that the teacher will use to evaluate performance at the same time the assignment is given. By doing so, students immediately know what is expected of them. Such tools come in forms of rubrics and check lists. While check lists typically note the existence or absence of certain criteria, rubrics help identify the quality of a performance using performance levels. While there are a plethora of great resources describing best practices in rubric construction, we recommend our 10-step procedure that teachers can use to not only improve rubric integrity but also improve the accuracy of measuring student oral ability (Swanson & Early, 2008).

1. Determine and state learning outcome(s).
2. Align outcomes to national and state standards for world language education.

3. Determine assessment objective(s) and decide if an analytic or holistic rubric would best measure student achievement.
4. Work collaboratively with others from different schools to develop assessment criteria.
5. Select succinct titles for the performance levels.
6. Articulate quality definitions for each criterion.
7. Assign a numerical scale that is congruent with overall grading measures.
8. Solicit student and colleague opinion and revise as necessary.
9. Share the rubric with students before assessment is administered.
10. Following assessment, encourage students to archive rubrics as a means to document oral language development and progress.

In our research, the rubrics were given to the students at the time the language tasks were assigned. Analysis of the two datasets indicated that students in both study groups felt that student performance improved because the students were aware of the evaluation criteria. In fact, when asked if they felt that their grades were improving by using digital recordings for speaking assessments and having the scoring guide present, the majority of the middle school students expressed that they prepared more for assignments when they had the scoring guide at the time of recording. The same was found with the Japanese students.

Research Findings about Using Audacity for Oral Language Assessment

Student Perceptions

Data analysis from the undergraduate interviews and surveys administered to the middle school students revealed several interesting findings. First, the majority of the students in both contexts

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Table 1. Student preference of learning the four language skills

| | Middle School | Undergraduate |
|-----------|---------------|---------------|
| Speaking | 79% | 88% |
| Listening | 47% | 62% |
| Reading | 36% | 38% |
| Writing | 37% | 12% |

valued learning to speak and listen in the target language over the other skills (See Table 1).

Next, from a perspective of linguistic accuracy, the majority (75%) of the undergraduates strongly agreed that their recorded responses were an accurate representation of their ability to use Japanese while the remaining 25% expressed moderate agreement. However, all of the participants strongly agreed that their digital voice recordings are more accurate than their in-class performances. When asked about using voice recordings to help improve their ability to speak Japanese, all of the participants either agreed or strongly agreed. Several students mentioned that they enjoyed the ability to listen to their recordings in order to identify errors in pronunciation and to enrich the vocabulary for the recordings. Similar findings were found among the middle school participants. The majority (89%) either agreed or strongly agreed that their recorded responses were an accurate representation of their ability to use Spanish. Only one student felt that his recorded responses did not accurately characterize his linguistic ability. When asked if the digital recordings were more accurate than in-class performance, only 16% of the students disagreed. In similar fashion, 83% of the students felt that the voice recordings helped improve their ability to speak Spanish and the same percentage perceived more self-confidence speaking in Spanish when using *Audacity*.

Turning to feelings of student anxiety, only one of the Japanese students found recording answers stressful. She mentioned that she had

difficulties managing both the linguistic tasks and the production of the voice clips. For her, a self-admitted technophobe, the learning curve was just another uncomfortable impediment to learning a language. However, once she learned how to use *Audacity*, she stated that she discovered her anxiety emerged more from having to use unfamiliar software than from the language itself. The remainder of the undergraduates expressed that the recording software was intuitive and easy to use. Overall, the students remarked that using voice recording software decreased their performance anxiety because they did not have to speak in front of classmates. The interviews helped us understand that speaking in front of peers in class was a source of stress for these students. Six of the eight strongly agreed that impromptu in-class speaking was stressful and the other two moderately agreed. When asked about the moderate agreement, several students casually mentioned that the two students were the best in the group. Nevertheless, the two, even though they felt confident to use the language, felt that speaking in front of peers does cause them some sense of language learning stress. When asked about using *Audacity* for out-of-class oral assessment, the group of students unanimously agreed that they felt less stress and more comfortable speaking in Japanese. However, 75% stated that they did not feel that their voice recordings were any more creative than responses they would give in-class or one-on-one with the Japanese professors. Again, similar results were found with the middle school students. Only one of the students found creating the recordings stressful. Similarly, only 5% of the students (3 girls, 1 boy) disliked recording their voices for assessment purposes. All (100%) expressed that *Audacity* was easy to use and 82% felt that their answers were more creative than their answers given during in-class assessments.

Next, we investigated student perception of the grading of their responses. Two of the Japanese students felt that they wanted to be graded

on their face-to-face ability to listen to, interpret, and formulate a response in the language directly to the instructor. Further, the two stated that they wanted real-time feedback to their language ability and felt that personal contact with another speaker was crucial to learning to listen and speak in any language. However, one of the students who preferred recording and submitting her responses stated that she wanted every chance to turn in her best work for a grade. She, like many others, stated that they spent up to an hour recording, editing, and re-recording their responses before submitting their final version to the professors. However, none of the interviewees felt that his or her grade would improve because of the use of digital technology.

However, among the middle school students, only 14% preferred speaking in class for a grade to recording their answers. Two-thirds of the students (64%) reported that they typically recorded and re-recorded responses more than once with almost a quarter (24%) stating that they had recorded their responses at least four times or more before turning them in for grading. Fifty-eight percent of the students felt that their grade in Spanish would improve because they were recording their voices instead of speaking in class while a third of the students were uncertain (34%). Most felt that they prepared more for the assignment when using *Audacity* than for in-class oral assessments. Ninety-five percent stated that they liked using voice recording for assessing their ability to speak Spanish.

In general, students in both contexts felt that by using *Audacity* their responses were more accurate and representative of their speaking ability. Moreover, the students indicated that they perceived less stress when speaking in the target language for assessment purposes, even the ones who were seen as the best students in the class. While the undergraduates remained uncertain about the effect of the recordings on their overall grades, the middle school students reported that

they felt their grades would improve since they had multiple opportunities to turn in their best work.

Instructors' Perceptions

The researchers interviewed the instructors to better understand their perceptions about using digital technology for oral language assessment. In addition to talking about the themes of student accuracy using the target language, student performance anxiety, and grades on assignments, instructors were also asked about their preference of using either traditional in-class oral language assessment practices or using digital technology, administrative flexibility for grading performances, increased reliability of assessment, and the use of students' digital recordings as an artifact of progress for students' speaking proficiency. These interviews confirmed student perceptions using *Audacity* and the conversations identified multiple advantages of digital voice recordings (See Table 2).

Overall, the three instructors noticed varying degrees of improved linguistic accuracy by students. They felt that any improvement in linguistic accuracy could be explained by several factors, one of which was the time (typically 1-2 days) students had to compose, revise, and submit responses to teacher prompts. Survey data showed that students re-recorded responses multiple times to improve the quality of their work and that some of the recordings were the product of at least an hour of practice before submitting the final recording for evaluation. Because of the opportunity to turn in their best work, Tina remarked that the students loved using *Audacity* and they said so on multiple occasions.

Yet, Tina noted that while there were positive aspects to using *Audacity*, she felt that overall the use of digital technology for assessment purposes did not improve the majority of the students' accuracy in the target language and that "perhaps middle school-age students were not mature enough to realize the benefits of improved second

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Table 2. Instructors' perceptions of traditional and digital voice recording for oral language assessment

| Traditional Method | Digital Voice Recording |
|--|--|
| <ul style="list-style-type: none"> • Decreases student likelihood of using newer vocabulary and grammatical structures. • Tends to increase student anxiety dramatically. • Increases loss of classroom time. • Is time consuming and disengages learners. • Leaves more potential for classroom management problems. • Is not replicable and does not allow for second opinion of student grade. • Fosters apprehension for students who are worried about looking foolish in front of peers. • Tends to encourage students to write, memorize, and then present. | <ul style="list-style-type: none"> • Improvement of linguistic accuracy remains unclear. • Increases sense of student control of the language and success using the target language. • Increases experimentation with target language. • Tends to improve completeness of language assessment tasks. • Diminishes student performance anxiety significantly. • Increases student excitement and inquiry among students. • Improvements in overall course grades remain unclear. • Decreases time required to evaluate student performance. • Increases accuracy of evaluation. • Increases instructional time in class. • Offers wider flexibility for evaluating student performances at unconventional times and locations. • Leaves a digital artifact for indication of student progress, accreditation data, and increased reliability of assessment. • Increases personalized student-teacher dialogue about language learning. • Permits multiple opportunities for student success. • Allows students to record responses at home or school. • Encourages students to practice before turning in recordings. • Makes students more aware of their errors and encourages self-correction. • Encourages more creativity. • Encourages improvisation instead of writing a script to be read or memorized. • Tends to increase costs if students do not treat school recording equipment respectfully. |

language proficiency”. The Japanese instructors felt that the college students were acutely aware of the benefits of improved proficiency and had set language learning goals far beyond the classroom. Nevertheless, interviews with the instructors showed that students felt like they were more in control of their answers using *Audacity*. Students using voice recordings appeared to experiment more with the language and grammar and spoke with broader vocabulary. Additionally, students’ responses to language tasks were longer and for the university students, their recorded responses tended to be more complete than their in-class performances. The instructors also noted that the students chose to express themselves differently depending on the assessment procedure. All of the instructors indicated that during in-class assessments, students not only appeared less likely to use newer vocabulary and grammatical structures but were also less likely to complete the speaking

task completely and more likely to recite their task or sound unauthentic.

Turning to perceptions of the effects of *Audacity* to reduce student anxiety, all three instructors agreed vehemently that there was virtually little student performance anxiety as compared with in-class assessments. Before exploring digital recording options, Tina said that her students disliked having to speak in class. “Some students would be absent on days when oral assessment took place in an effort to avoid having to speak in front of peers. Other times, students would ask to be assessed privately.” Many times, students would avoid volunteering to be assessed and she would have to resort to assessing students alphabetically to avoid any appearance of unfairness by students. However, when oral assessment tasks were given using *Audacity*, students would become excited and asked more in-depth questions about the assignment’s specifics. She added that normally she

could note student angst in their voices and even see physical evidence of nervousness (profuse sweating and antsy behavior). Because of such trepidation, many times student performance suffered when Tina knew that the students were able to manage the language successfully. Again, Kami reminded us that they had expected many of the students to prefer recording their responses to having to speak in class, while she noted in-class speaking assessments to be a great source of anxiety for language learners.

According to the instructors, part of student anxiety was due to the percentage of the course grade assigned for speaking. In the Japanese courses, students' grades were based primarily on speaking and listening ability (80%), whereas in the middle school Spanish course, the weight for speaking was much less, 15% of the total grade. All of the instructors agreed that the amount of influence speaking has in the classroom will ultimately determine how seriously students take the assignments. For Tina at the middle school level, this was especially true because she felt that if her department would raise the percentage of the grade for speaking her students would be increasingly more motivated to improve orally.

As it stands right now, my students know exactly how many points they need before their grades become affected. Depending on how many activities they are in and how badly they want to earn a certain grade, they make conscious decisions about how much effort to put into the speaking assignments. I'm sure if the speaking grades made up a higher percentage of their final grades, maybe 40% or so, their speaking skills would improve dramatically.

Next, the instructors talked about the traditional method of face-to-face oral language assessment and expressed concern about in-class oral assessments mostly because of the loss of instructional time. The instructors reported that in-class speaking assessments lasted approximately three to six minutes per student, which consumed almost two entire class meetings. "While a solo speak-

ing piece, or even a presented conversation may take only a minute, it takes several other minutes to fill out the rubric, give feedback, and get the next person(s) ready", remarked Tina. Kuki and Kami reported that assessing the college students took even more time in class because students requested specific feedback about a variety of linguistic details (e.g. pronunciation, intonation). Further, Tina found that her in-class assessments increased student concern about appearing foolish performing in front of classmates. All three instructors mentioned that the digital recordings were evaluated much quicker and definitely more accurately because they did not have to deal with classroom management issues of disruptive behavior (mostly loud discussions and asking to leave the room). All three instructors indicated that by using digital recordings for oral language assessment, their instructional time had increased.

In addition to having more instructional time, the instructors indicated a high degree of satisfaction with the flexibility that digital voice recording offers in terms of time and place of evaluation of student performance. The instructors mentioned that they graded student voice recordings outside of their offices or classrooms. Kuki stated that she takes public transportation frequently. While she rides the metro, she can listen on her *iPod* and assess the students' recordings using rubrics she has printed. She felt that she was evaluating student work perhaps even more carefully since she could listen to the recordings several times if needed. Kuki boldly stated that traditional in-class speaking assessments can only be reviewed once and that the digital recording can serve many purposes such as reliability of assessments. Tina concurred by adding that because of the flexibility offered by using digital recordings for assessment, she can differentiate the tasks better among students with different levels of oral proficiency.

While noted earlier, all of the instructors immediately noted that the recordings had the potential to increase the reliability of assessment because multiple evaluators could listen to and evaluate

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the same recording, allowing for more consistency than the traditional method of oral assessment. In fact, Kuki stated that the recordings would work well as indicators of student progress for students. Tina reiterated the notion and mentioned that her middle schoolers occasionally remarked that they did not feel they were making much progress using the language. By having the students listen to archived files, personalized discussions between Tina and the student took place to highlight improvement and progression toward fluency. Additionally, as touched on earlier, the two university professors noted that the recordings hold the potential to serve as a body of evidence for accreditation purposes. Kami stated that she saved students' digital files on the department's server for an upcoming college accreditation review.

Compared with the traditional face-to-face method, the instructors noted that by using a digital recording system, students can have multiple opportunities for success on the language tasks because they can revise their recordings as much as they see fit at locations other than school if they so choose. Using *Audacity* helped students monitor any linguistic or pronunciation errors while the teachers encouraged students to make corrections as necessary. All three instructors also mentioned that digital recordings encouraged students to express themselves with more linguistic creativity and improvisation instead of relying on a written or memorized script. According to the three instructors, the traditional method decreased the likelihood that students would use newly introduced vocabulary and grammar because they felt the students did not want to risk using the unfamiliar word and constructions. Also, assigning in-class oral language tasks fostered an environment of students writing, memorizing, and presenting their work, which is nothing more than the oral presentation of a writing activity. Nevertheless, findings from these studies indicate that there are serious considerations for continuing to use traditional methods of oral language assessment.

FUTURE RESEARCH DIRECTIONS

While we have presented strategies to use *Audacity* in the second language classroom at both the public school and undergraduate levels, we call for further research in the area. With increased attention focused on urban and high needs schools, it would be interesting to explore *Audacity's* use in these educational contexts. Perhaps even including other venues for students to use *Audacity* (e.g. public libraries) where students could access technology would provide valuable insight because many of these students may not have access to computers and the internet at home. Moreover, it would be intriguing to know elementary and high school students' perceptions on using digital technologies for oral language assessment purposes. Additionally, studies conducted in international contexts would provide a more expanded perception of *Audacity's* abilities from a global perspective.

Results from our two studies may also have implications for other content areas. Perhaps speech, debate, and English as Second Language teachers may find curricular applications for using one of the free and open source software options described earlier. For example, debate coaches could require students to record persuasive monologues on various topics, have students upload these audio files to student-created blogs, and require students to evaluate peer performances. Regardless of the class or even the assignment, we encourage educators to review the current literature in their content areas, design a strategy that aligns well with the technology tool selected, and even collaborate with colleagues in the field to improve current practices. Clearly, the technology available to teachers has improved dramatically over the past several decades and we encourage readers to discover and learn more about provocative uses of free and open source software in the future.

CONCLUSION

Teaching, regardless of content area, is a challenging profession to say the least. Specifically for world language teachers who are charged with teaching students to communicate in a second language, impediments to language learning surface when assessing student oral ability and competency. Findings from the two studies presented here document multiple benefits for both teachers and their students when using a digital recording method to assess student oral language proficiency. The research indicates that student performance anxiety decreased when implementing recording software as opposed to using traditional face-to-face assessment. However, as with any implementation of technology in the curriculum, potential barriers to both technology use and technology access are inherent.

We have discussed the policy and administrative barriers that are often encountered in education, such as security concerns, the inability of an individual instructor to download and install software under restricted administrative privileges, and the difficulty in balancing student privacy and welfare against the pedagogical affordances offered by interactive multimedia software. With all of the benefits of using digital technology for oral language assessment, we feel it is important to note a hidden limitation to using digital technology for such purposes that neither study revealed. This process requires the use of somewhat expensive hardware and irresponsible users may misuse or even harm the computers, which in turn increases costs to deliver such a program. What has not been addressed, but continues to be of concern in student technology use, is the imperative to insure that all students have equal access to the technology required. Teachers must be vigilant against potentially harmful assumptions that all students have access to high-speed connectivity at home, and build in safeguards that allow for either on-campus opportunities to complete work or alternative paths for assessment.

We outlined three technology tools for oral language assessment purposes. While each has its advantages, the teacher needs to spend quality time selecting the appropriate tool for the pedagogical task. *Audacity* is one of several free and open source software options that is simple to use free and available to anyone. The time it takes to download, install, and use is relatively minimal. Its interface is intuitive and a few moments spent reading the Contents page will aid users immensely and even shorten the time it might normally take to become acquainted with this versatile digital tool.

Clearly the educational landscape has changed dramatically over the past several decades. Teachers are faced with more obstacles on a daily basis and many times teachers must choose to sacrifice precious instructional time in order to conduct oral language assessments in the classroom. Noting the heightened affective filter of students and the time required to assess each student, state-of-the-art technology in the form of free and open source software has the potential to be beneficial to both students and teachers. The three free and open source recording tools available to world language teachers presented here serve as basic examples of the technology for oral language assessment available today, with many more in development continuously. Findings from our research suggest that using digital technology for oral language assessment is a preferable option. While we presented a few strategies for implementing *Audacity* in the world language classroom, the creative and imaginative instructor will surely devise even more.

NOTE

Audacity(R) software is copyright (c) 1999-2009 Audacity Team. Web site: <http://audacity.sourceforge.net/>. The name Audacity(R) is a registered trademark of Dominic Mazzoni.

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KEY TERMS AND DEFINITIONS

Affective Filter: The Affective filter is a perceived screen between learners of a second language and the input needed to learn and acquire a second language. If the filter is high, the learner is blocking out input. Conversely, if the filter is lower, more input is received. Learning environments with low levels of anxiety are deemed better for language learning.

Instructional Time: The amount of time teachers have once the class has begun.

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: Also known as stage fright, it is the fear an individual has when requested to perform in front of an audience.

Three Modes of Communication: Developed for the American Council on the Teaching of Foreign Languages, the three modes describe the Interpretive domain (the appropriate cultural interpretation of meanings that occur in written and spoken forms), the Interpersonal domain (active negotiation of meaning among people), and the Presentational (the creation of oral or written messages).

Traditional Method of Oral Language Assessment: Teachers listening to and evaluating student oral language performance in-class.

World Languages: Also known as foreign languages, these languages can include modern and classical languages, American Sign Language, and even computer programming languages.