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Technology for Oral Assessment

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Abstract:

With recent developments in multimedia recording, researchers have begun to investigate the use of technology in oral proficiency assessment. This article addresses the benefits and ease of using seven different multimedia tools to assess P-16 students' oral language proficiency and compares traditional methods of in-class oral language assessment to out-of-class recordings. Additionally, the authors discuss the potential benefits of using technology to lower students' affective filter, to provide teachers with a digital portfolio of student progress, and to increase instructional and preparation time.

Second language instruction in the communicative classroom has as its core a dedication to the ideals, if not the practice, of developing second-language proficiency in four areas: written language, reading proficiency, listening ability, and oral language production (National Standards in Foreign Language Education Project, 1999). The first three areas are the most readily measurable through common assessment instruments, such as written exams. The assessment of oral language production, however, has consistently 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).

Furthermore, unlike written assessments, traditional oral assessments conducted in the classroom rarely leave an assessment artifact that can be archived or easily compared between subjects to measure similarities or differences in learner progress towards proficiency goals. In order to address these concerns, the language laboratories of previous decades are being replaced or refitted to accommodate digital recordings that can facilitate whole-class concurrent, archival recordings (Flewelling, 2002). Presently, researchers are beginning to investigate the uses of emerging technologies and their potential uses within the context of oral proficiency and assessment (Chan, 2003; Egan, 1999; Egbert, 1999; Volle, 2005).

Advances in personal digital technology and developments in hardware and software can supplement or even replace traditional language laboratories. Oral proficiency assessment capabilities are enhanced through the use of digital oral

production artifacts and out-of-class recording tasks. This article outlines the functionality, challenges, and advantages of three distinct categories of digital tools and discusses how each was used by undergraduate foreign language students at a southern university. The article concludes with a discussion of the research and the implications of using digital technology for oral language assessment.

Hardware and Software Resources

Software

Although application software exists in many forms and environments, for the purposes of this article, software is defined as an executable computer application that is installed directly on an individual workstation. Dozens of shareware and freeware digital recording programs are available for download. Each has its own interface and features, capable of recording oral production in one or more common recording file formats, WAV and MP3. Basic information regarding these file types is available at <http://en.wikipedia.org/wiki/Audio_file_formats> (Audio file format, 2007). Special measures should be taken to ensure that students' personal computers are kept free of adware, spyware, or license limitations and that the tool required for making recordings will not monopolize computer processing and storage resources. The free *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 easy to use, yet allows for relatively sophisticated editing capabilities. Sound files are recorded in the WAV format, and an additional *LAME* encoder can be easily downloaded and installed from an associated Web site if MP3 recording is required.

Every computer that utilizes the Windows operating system comes already equipped with the *Windows Sound Recorder*. This program is accessible via the Start Menu by clicking on *Programs > Accessories > Entertainment > Sound Recorder*. The only file format available with the Sound Recorder is the WAV format, but the limited functionality of the recorder is offset by its ease of use.

Webware

Webware encompasses online applications of software that do not require downloads or installation of software on individual computers. These tools are available from any Web-enabled computer. As they are not dependent upon a particular computer operating system, they are accessible to all platforms: Windows, Apple, and Linux. A popular, free Web resource for voice recording and immediate podcasting is *Odeo* (Arturo & Rupert, 2006), available at <www.odeo.com>. Once a user account is created by the instructor, a button can be placed on the instructor's website by copying a line of HTML text and pasting it on a class Web site. By clicking on this button, students can record their voices, and the recording can be sent directly to a designated e-mail address. As audio files can be quite large, instructors may wish to create a separate e-mail account that allows for large

file storage. An additional Web tool for voice recording is *YackPack* (Fogg, 2005). Educators can download a free version at <www.yackpack.net> or enroll in subscription services at <www.yackpack.com>. Instructors can use this software to establish class “packs,” or groups of students, and then interact asynchronously with the students. Prompts and responses can be recorded via the online interface and delivered to either an individual or the entire class, and ongoing discussion threads can be created to share information and facilitate truly communicative exchanges. One disadvantage of *YackPack* is that teachers would need to create a “pack” for each class, and then invite the students to join the pack via e-mail accounts. Students would need to have an active e-mail account prior to joining the class pack. For optimal results, instructors may want to set up the initial accounts in a language lab environment, where media specialists can assist students with the process of establishing accounts and joining groups. Once the initial setup has been completed, recording and submitting files is intuitive, and the interface is easily accessed and utilized.

Portable Hardware

With the widespread diffusion of digital music technology, the prices for personal, portable devices have fallen within a comfortable range for educational purchases. Although the large capacity iPods are still among the digital elite, it is possible to find MP3 recorders with built-in microphones for prices ranging between \$35 and \$120, depending upon the features and the storage size of the unit. An instructor could use this device to issue a written prompt to the class or prerecord an audio prompt, then check out units to all students, who would then record their responses outside of class. The students would then return the devices to the instructor, who could either offload the recordings onto a master archive or evaluate the recordings at a later time.

The lowest-priced unit investigated was the *Phillips SA1210*, a basic 1GB MP3 player and voice recorder with push-button recording and an integrated microphone. Although the quality of the recording had a distinctly mechanical tone, the articulation was clear and comprehensible. The moderately priced *Creative Zen V* also has 1GB of storage, an integrated microphone, and superior recording quality. This device not only allows the instructor to transfer an audio prompt to the students via a prerecorded message stored on the player, but also to deliver images as prompts, by transferring digital images to the player and having them called up by the student.

The *Sanako* MP3 recorder, designed specifically to serve the needs of language learners and teachers, falls into the upper end of the price range. It comes equipped with only 512 mg of storage capacity, but it has a dual-track recording system, in which students can record their voices while concurrently listening to a teacher track. This feature expands possibilities for question-and-answer assessments or simulated, asynchronous interviews. Although the recording quality was excellent, the recording process was not intuitive and would require a significant amount of training or detailed user guides.

The tools mentioned above are a sample of technology that is affordable, readily available, and simple to implement in language classrooms. In the next section, the researchers discuss a study that was conducted at a large research university, following the selection and implementation of a technology tool. The findings are part of a larger study that sought to identify students' and instructors' perceptions comparing traditional and technology-enhanced oral language assessment.

Method

Procedure

Researchers at a large research university studied 128 students enrolled in first- and second-semester Spanish (n=61) and Japanese (n=67) courses during the 2006-07 academic year. The research sample included both traditional and non-traditional undergraduate students, who ranged in age from 18 to 52 years of age (M=23). Females outnumbered males almost two to one, and there was an almost even distribution of Caucasian (34%), African American (32%), and Hispanic/Asian (34%) students. Most students (88%) reported having studied foreign languages previously in secondary schools.

Students who are enrolled in first- and second-semester Spanish courses have a minimum of two oral language assessments (OLA) during the semester, one at the third week and another at the thirteenth week of the semester. Instructors may assess individual student ability in class, or they may ask students to go to the language laboratory to digitally record responses to prompts. For this study, the investigators selected two Spanish and two Japanese courses that met twice per week for a total of three instructional hours. Each instructor conducted both traditional in-class OLA and digital voice-recorded OLA.

For the digital voice recordings, instructors, with the assistance of one of the researchers, assessed students' language proficiency using WebCT, a Web-based classroom technology system. Once logged in at the lab, students followed on-screen directions to record their responses in the second language (L2) to teacher-created prompts. The first prompt, randomly selected from 20 possible prompts, asked students to read a short, 40-word paragraph written in the L2 that contained descriptions of fictitious people. Students were allowed to take as much time as necessary to practice, record, listen to the recording, and rerecord the passage. Once satisfied with the recording, students saved the file with their name followed by a numerical one (1) to signify the first recording. Students then placed the file in the instructor's electronic folder for later retrieval and assessment.

Next, the computer displayed instructions for the second assessment to inform students that they had 60 seconds to answer an impromptu question. The students indicated their readiness to begin by clicking the "next" button, and one of 20 prompts was randomly assigned to each student on the computer screen. A digital timer counted down 60 seconds before the voice recorder automatically began to record student responses. Students were encouraged to maximize use of vocabulary, grammar, and L2 syntax as well as to speak for the entire time limit.

After one minute, the software instructed students to save the file with their names followed by a numerical two (2) to signify the second recording. Again, students placed the voice file in the instructors' folder before logging off the system.

For the in-class OLA, the instructors evaluated student proficiency during the designated weeks. The class day before the assessments, students were given examples of the two assessments and were told that the actual prompts would be slightly different. The day of the assessment, the instructors selected students' names from a box and assessed each individual student's oral language proficiency in a different classroom. Once students completed the assessments, they were excused from class and were requested to leave the building in order not to interact with students who had not yet been assessed.

Instruments

The researchers created an online survey using a 10-point Likert scale to ask students about their perceptions of traditional in-class OLA and digital voice recording assessments. Students were asked about their perceptions of anxiety, locus of control for success, accuracy of responses, amount of time they spent preparing for assessment, and vocabulary and structures usage in the L2. Instructors were interviewed about the two distinct procedures for OLA and were asked to discuss preference of OLA method, creation of artifacts to document student progress, issues of time management, administrative flexibility, and reliability of assessment.

Results

Findings from the survey and interviews with instructors and students indicate a perception that oral language proficiency was enhanced by using the traditional and technologically-enhanced methods of assessment. In an effort to avoid reporting complicated statistical findings, the investigators opted to report data using a more straightforward approach to demonstrate perceptions regarding the two approaches of OLA. To begin, survey data were retrieved from the database containing students' responses to the survey questions and were analyzed using a statistical software package.

The researchers first calculated Cronbach's Alpha, a measure of the degree of consistency for participants' responses on the survey, to determine the survey's reliability. A coefficient of .90 was determined, indicating that the participants' responses were very similar to one another. Next, the researchers analyzed means and standard deviations of individual survey items and then collapsed responses to form three groups for student responses: agreement, indecisiveness, and disagreement. Then, the investigators reported findings using percentages to indicate student perceptions of the two OLAs.

Table 1 shows a comparison of students' perceptions of traditional and digital voice recording methods for OLAs.

Table 1

Student Perceptions of Traditional and Digital Voice Recording for OLA

<i>Traditional Method</i>	<i>Digital Voice Recording</i>
<ul style="list-style-type: none"> -Students were more self-conscious and anxious. -Students reported higher levels of affective filter due to peer presence. -Students' answers in L2 were less authentic. -Students' responses were less creative. 	<ul style="list-style-type: none"> -Students were more comfortable and relaxed. -Students' responses were more thorough. -Students noticed improvement in L2 learning ability. -Students spent time identifying their errors and improved oral language proficiency. -Students had a greater sense of control of their own success in L2. -Students experimented more with L2 vocabulary and grammar. -Students preferred recording answers for OLA. -Students were more willing to imitate native speakers.

For many students, the in-class OLA produced substantial self-reported anxiety. Of this group, 44% indicated feeling self-conscious when the OLA was conducted in class. Nearly a third of the participants (30%) felt they did not express themselves authentically in the L2, and even more (41%) felt their oral language performance was less creative. Additionally, almost half (44%) of the sample expressed a lack of satisfaction with the traditional procedure of in-class OLA when peers were present, because of a heightened sense of the affective filter.

However, 55% of the students using digital voice recording for OLA reported feeling more comfortable and relaxed recording their responses to OLA prompts in the language lab. Almost half the students (45%) reported preferring voice recording to traditional in-class OLA, while 15% of the participants favored the traditional method of oral assessment. Moreover, 44% also believed that their recorded responses were more thorough, and even more (55%) appreciated the ability to review, edit, and improve oral language proficiency using technology. Almost the same percentage (52%) reported that they were more likely to experiment with new L2 structures and vocabulary using digital recording technology, and 78% reported that they were more likely to try to imitate native speakers' speech when using voice recording. The majority of the students perceived that they had more control of their academic success (52%).

Interviews with course instructors confirmed student perceptions regarding the two approaches to OLA. Table 2 summarizes the main advantages of digital voice recordings.

Table 2

<i>Instructors' Perceptions of Traditional and Digital Voice Recording for OLA</i>	
<i>Traditional Method</i>	<i>Digital Voice Recording</i>
<ul style="list-style-type: none"> -Is time consuming and disengages learners -Takes time away from instruction -Leaves more potential for classroom management problems -Is not replicable and does not allow for second opinion of student grade 	<ul style="list-style-type: none"> -Increases instructional time in class -Allows evaluation to take place at unconventional times -Permits multiple opportunities for student success -Allows students to record responses at home or school -Leaves digital artifact for indication of student progress, accreditation data, and increased reliability of assessment -Encourages students to practice before turning to recordings

First, the instructors expressed concern about the traditional method of OLA, especially for loss of precious instructional time. The instructors reported that in-class OLA took approximately five to seven minutes per student, or the equivalent of almost two class periods. As the instructors assessed oral language proficiency with individual students in a separate room, problems of classroom management arose. Other instructors in the classroom area alerted the L2 instructors to disruptive academic behavior, such as loud discussions, students' showing videos on phones and laptop computers, and rearranging desks and tables. Instead of preparing for the assessments, many of the students (75%) self-reported engaging in social activities with classmates. Furthermore, student absence during OLA required instructors to extend office hours and give make-up exams.

Instructors said that in addition to increasing time for instructional and scholarly purposes, the digital voice recording offered flexibility in scheduling the time and place for the OLA evaluations. The instructors also reported having more freedom to grade student voice recordings in contexts that the traditional method could not accommodate, such as commutes to and from the university using iPods and MP3 players. On several occasions the instructors downloaded the files to

home computers and evaluated student proficiency at times that best suited their busy schedules. Students also benefited from the use of technology. They felt a greater degree of control when using the voice recording strategy, and instructors noticed that most students recorded responses several times to improve the quality of their work. Students expressed themselves differently depending on the OLA procedure. Both instructors indicated that during in-class OLA, students were less likely to use newer vocabulary and grammatical structures and to completely answer teacher-created prompts. Students using voice recorders appeared to experiment more with the language and grammar, using a much broader vocabulary. Additionally, student response to questions was longer and many times more accurate using voice-recording software. Instructors commented that the rate of success of assignments increased when students were allowed to record their responses multiple times outside of class, rather than having only one opportunity to respond during in-class assessments. In fact, students said that they often practiced for hours before making a final recording to turn in for evaluation.

Instructors discussed other advantages of using digital artifacts over traditional oral assessment strategies. Over the course of the semester, several students had confronted the instructors regarding the accuracy of grading OLA using traditional methods, since student work could not be replicated in order to give a second opinion. Using archived voice recordings, other FL instructors were asked to listen to and evaluate student performance. The instructors agreed that digital files were more reliable than traditional methods and could be used to confirm assigned grades on OLAs. The recordings could also be used to document student learning progress over time, an important requirement for university accreditation.

Discussion

The authors see several implications of this study for FL educators. As school districts in many areas may face more stringent budgets, FL teachers can utilize a variety of free or affordable digital tools for oral assessment. The study indicates that using technology to assess oral skills appears to lower students' levels of self-consciousness and nervousness. Students reported feeling more creative when using technology than during traditional in-class assessments. Perhaps by utilizing available software, FL educators can encourage students to record responses for OLA in a non-threatening environment, building student confidence to use the L2.

The voice recordings also enhance accuracy and reliability in assessing student performances. Archived recordings can be replayed multiple times to calibrate scoring criteria and assure equity in grading by different instructors. Additionally, archived recordings can be used to demonstrate student proficiency during student conferences, and the files serve as a body of evidence to show progress toward meeting accreditation standards.

Instructors also reported that recordings saved valuable time and avoided many of the classroom management problems they normally experienced during in-class assessments. By using digital voice recording technology, FL educators

can recapture more instructional time to spend with students. Additionally, digital voice recordings offer instructors more flexibility as to when and where they evaluate student performances. This flexibility might inspire FL teachers to assess student OLA more frequently, therefore helping to bolster student confidence and quality of performance.

The software can be downloaded for use both at home and at school. Students can use the described applications and devices with minimal training, and instructions for installation of software and the procedures for making recordings could be created and reused each semester. Parents or other students who see students using the devices might recognize the importance of technology and oral assessment within the FL curriculum. Clearly, as digital recording software continues to emerge, teachers and students alike can implement more technology to enhance FL instruction and learning.

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