Title:	Audacity 1.2.6	Audacity
Publisher:	Developed by a group of volunteers and distributed under the GNU General Public License (GPL)	
Product Type:	Open source software for recording and editing sounds. Downloadable from the publisher's website: http://audacity.sourceforge.net/	
Platform:	Mac, Windows, and GNU/Linux	
Minimum System Requirements:	**PC**	**Mac**
	• Windows 98, ME, 2000, XP, or Vista (not compatible with Windows 95 or NT 4.0.) • Runs best with at least 64 MB RAM and 300 MHz processor • Speakers and microphone	• Mac OS X 10.1 or later (Audacity 1.2) • Mac OS 9.0 or later (Audacity 1.0) • Runs best with at least 64 MB RAM and a 300 MHz processor • Microphone
Price:	Free (to use, redistribute, or modify)	

Overview

Sound editing software such as Audacity has great potential for second and foreign language teachers who would like to create custom audio files for use in their classes. Audacity can be used to record and edit audio, convert old tapes and records into digital recordings or CDs, and export audio files into MP3, WAV, and Ogg Vorbis formats. With Audacity, users can cut, copy, split, and mix sounds together, change the speed or pitch of a recording, and apply other effects such as noise removal and sound amplification. These features allow teachers and learners to create high quality audio files which can be used to practice skills such as listening, speaking, and pronunciation.

Getting started with Audacity

As an open source program, Audacity's source code is made available to users and developers to freely download, use, modify, or redistribute it. It is written by a team of volunteer developers around the world. Audacity, along with its plug-ins and accompanying MP3 encoder, is available for download online for Windows, Mac, Linux and other Unix-like operating systems. The installer file of 2.1 MB takes less than one minute to download on a DSL 512 Kbps connection and requires at least 8 MB of free disk space. Downloading Audacity from the publisher's website and installing it are both straightforward operations. Since Audacity is open source software, there are no phone numbers to call for support. However, this program has a rich and growing community of users who cooperate to help each other in various ways. It provides many collaborative support options, such as forums and the Audacity Wiki. The program's manual can be found at http://audacity.sourceforge.net/manual-1.2/. It includes a tutorial, FAQ, credits, and an index of terms. The tutorial is an excellent place to start with illustrated step-by-step instructions of basic tasks.

Audacity provides ample audio editing options that were once only available to those with costly equipment. However, its interface is user-friendly. The audio control buttons will be familiar to anyone who has used a cassette tape player, VCR, or traditional audio software (Figure 1). Users are encouraged, however, to become familiar with the basics of Audacity before starting their own projects in order to make maximum use of its potential.
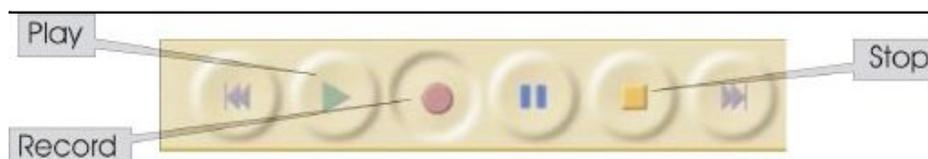
*Figure 1.*Audio control buttons

The main window of the program (Figure 2) features an array of toolbars,

menus, and visual displays of audio tracks that is uncluttered. Although the display has few text labels, pointing the mouse at any button will display a brief description of its function. The mixer toolbar is used to set the volume level of the recording and to choose the audio device and input source (such as a microphone, line-in, and so on). The meter toolbar enables the user to monitor the input and output audio levels while recording or playing.

Figure 2. Main Audacity window

Once an audio track has been recorded or imported into the program, it is represented by a waveform display (Figure 3) which is the default way of visualizing audio. However, it is possible to display a spectrogram instead of a waveform from the track menu. A spectrogram shows the amount of energy in the audio in different frequency bands.
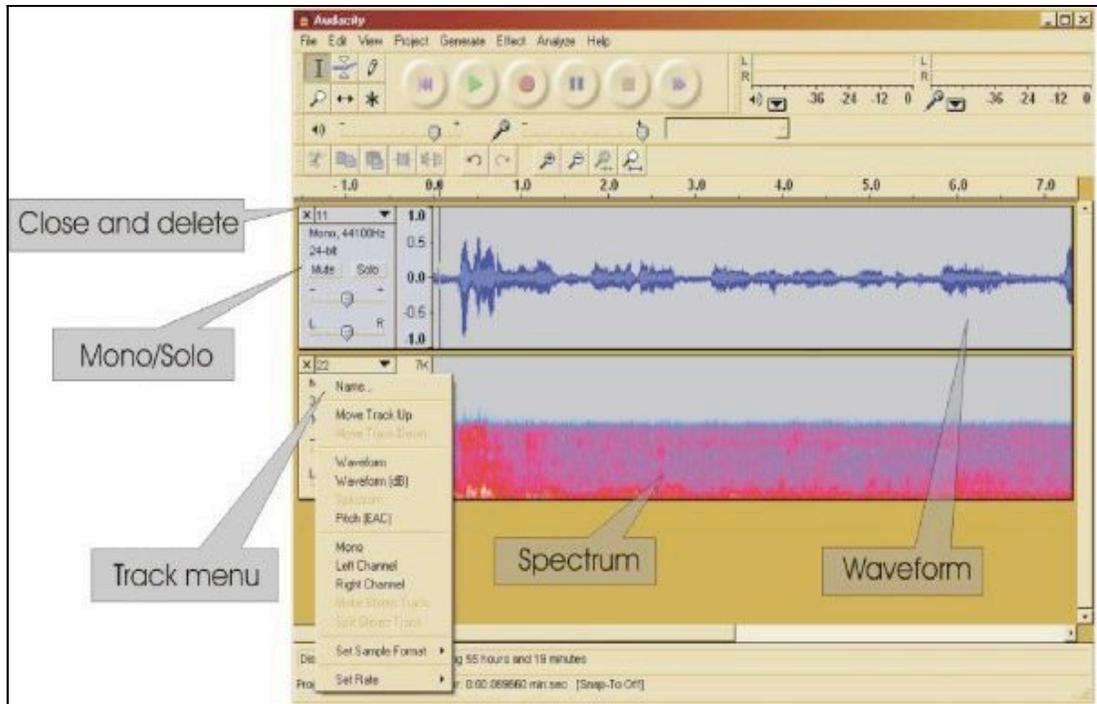
Figure 3. Audio track display and options

Also visible in Figure 3 is the track control panel which allows user to perform a number of functions. Clicking on the x in the upper-left corner will close and delete the track. To the right of the close box is the track's title. Clicking it brings down a menu that offers various track options such as changing the channel and the sample rate of the track. These options can also be set as defaults from the program's main setting window. The track control panel, however, allows changes to be quickly applied to individual tracks. Although Audacity offers unlimited undo and redo options which allow users to go back or forward any number of steps, it is a good idea to save projects every few minutes so that no data is lost in case the program crashes. This sometimes happens when working with large files (over 100 MB). To save the project, choose "Save project" from the "File" menu. Audacity projects are stored in an AUP file format which is only used by Audacity. It allows for good editing performance, but in order to be able to play a project using other audio software, it must be exported in either WAV or MP3 format. WAV is an uncompressed audio format, while MP3 is a compressed format that compresses audio with very little degradation in quality. It is, therefore, best to export directly to MP3 (instead of WAV) since MP3 files take up less disc space and can be easily attached to emails. Audacity can read and write both formats. The size of the audio file depends on its format, for example, a one-minute recording which uses the default sample format of 32-bit renders a 10 MB AUP file, a 5 MB WAV file, and 0.9 MB MP3 file. One small inconvenience about Audacity is that it cannot encode MP3 files by itself. To export files in MP3 format, users need to download

the LAME MP3 Encoder program that is also available from the Audacity website. Every time an MP3 file is exported, the user is prompted to enter its ID3 Tags (Figure 4), which are used to store information about the audio in the MP3 files, such as the title, artist, and album. These tags will be displayed when listeners play the MP3 file in a normal audio player.
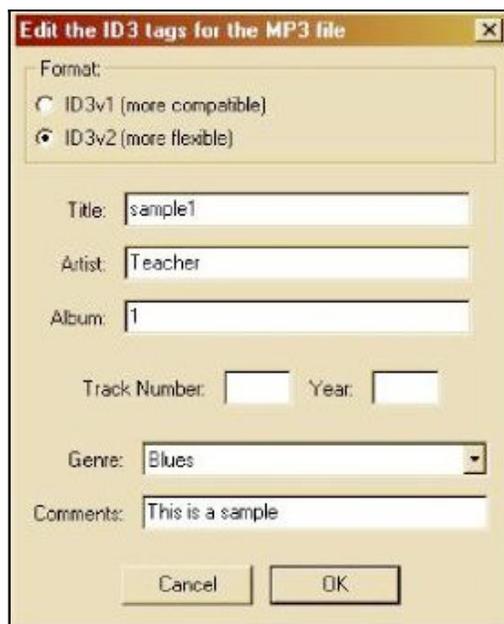
Figure 4. Editing ID3 tags for MP3 files

Editing Projects

According to the program's tutorial, editing involves cutting, placing, fading, cross-fading, shifting, duplicating, and adjusting the volume and mixing of audio material. The tutorial provides a detailed description of the editing process. However, teachers and students only need to learn a limited number of features in order to perform a variety of tasks and changes. Audacity's editing tools allow learners and teachers to create and manipulate unique audio texts using only a few essential editing tools (Figure 5) located in the upper-left corner of the Audacity window. The selection tool is for selecting the range of audio to be edited, and the timeshift tool is used for sliding tracks left or right. Note that users cannot edit without selecting audio nor while in the "Pause" position.
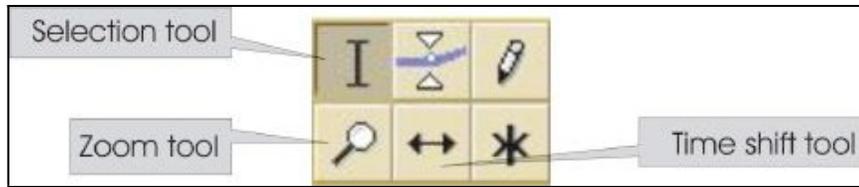
Figure 5. Editing tools

Audacity for language learning and teaching

Both teachers and students can adapt Audacity in a variety of ways depending on their needs and students' level of language proficiency. Teachers can create new materials and tasks, while students can practice listening comprehension, speaking, and pronunciation. Language tasks may involve original language generated entirely by speakers, or recited language as in pronunciation drills. The purpose of this section is to exemplify a range of task types that can be used to teach speaking, listening, and pronunciation with the help of Audacity, and to offer model tasks that could be used to develop teaching materials.

One of the main ways in which teachers can use Audacity is to record lectures, dialogues, or other types of speaking text,, and upload them to a server to be available for anyone. The program allows users to edit the texts, cutting unwanted parts or adding extra material, such as music or audio extracts from radio programs. The same operations can also be performed on audio texts downloaded or otherwise imported into the program. The most important step in making changes to the audio file is selecting the part to be modified using the selection tool (Figure 5). Users can then, for example, cut that part after selecting it by clicking "Cut" in the "Edit" menu and then pasting it in the desired place. To paste it in a new audio file, click "New" in the "File" menu and paste the selection in the new window. The user can also select the unwanted parts and delete them. Such operations are useful if the user wants to assemble audio clips from various sources into one audio file.

Users can add extra material to the recording by mixing parts of two or more audio files together. First, the audio files must be imported into Audacity by clicking "Import audio" from the "Project" menu, and then locating them. Once there, the unwanted parts can be deleted or "silenced" by selecting them and clicking "Silence" in the Edit menu (Figure 6). The audio clips can then be aligned as desired using the time shift tool (Figure 5). The silent period can be increased by selecting "Silence" from the "Generate" menu and adding the desired length of silence. When the final mix is done, the project can be exported from the "File" menu.
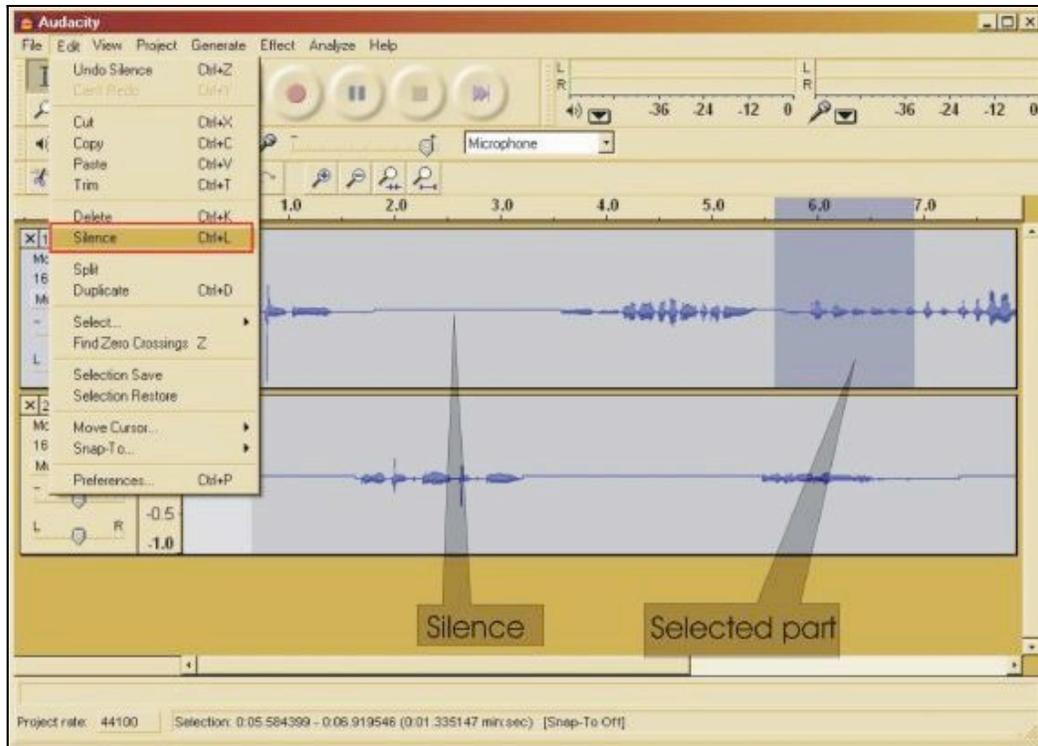
Figure 6. Changing a selected audio to silence

In the same way, other editing effects which enhance the recording quality can be added, such as noise removal, amplification, and normalization. Normalization balances the sound levels of the audio. If desired, users can also add sound effects such as echo, fade in, fade out, and the like to their audio files. These tools will help teachers tailor their materials and tasks to their students' needs and levels.

Speaking tasks

Students can perform a variety of speaking tasks and use the aforementioned tools to record and edit their performance. Students could use Audacity to record any number of different types of speaking assignments, and "hand" them in to their teacher via email or a course management system such as Blackboard. In effect, Audacity allows teachers who used to have learners record assignments on cassette tapes do the same thing, but without the need for an unwieldy box of cassettes.

One example assignment could be to ask learners to record a description of online shopping items, compare prices, and talk about their preferences. Online items are usually accompanied with pictures, which provide a motivating basis for speaking and visual support for learning since they activate mental images (Curtis & Bailey, 2001).

Audacity could also be used for recording interview assignments. If learners have access to digital voice recorders, they could do the interviews anywhere. Otherwise, they would have to have the interviewee sit down with them at a computer to record. One advantage of interviews is that since interviews are intended to elicit particular information, students can prepare questions beforehand (Bailey, 2005). This will reduce the tension on the part of the students and encourage them to take risks in English.

Recently, there has been a growing interest in integrating podcasts into language instruction. Podcasts are audio files published on the Internet allowing users to subscribe and receive them automatically. Students can create podcasts on various topics with a personalized scope and design using some background music and sound effects (be sure to make them aware of copyright issues and some of the resources available for downloading free music). Students could create their own collection of podcasts which could function as a digital portfolio of their work.

Pronunciation practice

To make themselves understood, students need to attend to a certain level of pronunciation accuracy. Providing opportunities for them to "notice the gap" (Schmidt, 1990) between what they say and what other people say can help them improve their pronunciation. Using Audacity, they can listen to utterances recorded by the teacher and repeat them, recording their speech in the same audio file in order to listen and compare.

One example of a pronunciation activity that could be done with Audacity would be for the teacher to record pronunciation exercises on reduced forms, adding periods of silence in between utterances as a free space for the student to repeat them. After giving the instructions at the beginning of the recording, the teacher would need to save and send the audio file to the students. To be able to record their part while listening to the teacher's utterances, students need to go to "Preferences" in the "Edit" menu and check the "Play other tracks while recording new one" box (Figure 7) in the Audio I/O tab (the box is unchecked by default).
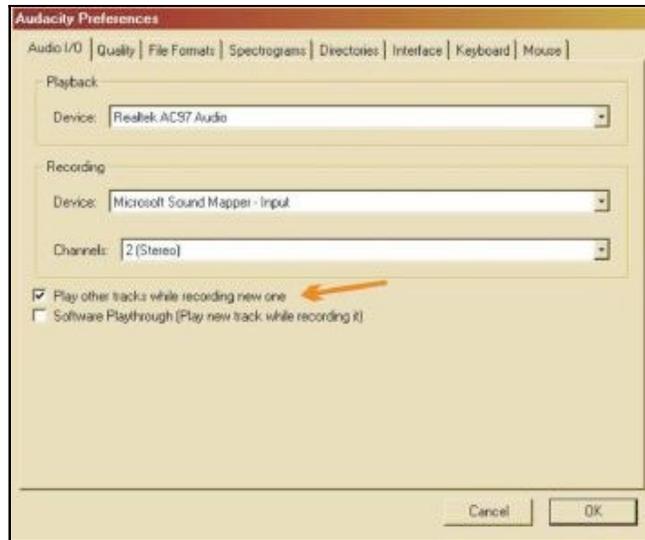
Figure 7. Playing and recording simultaneously

It is important that students put headphones on; otherwise the teacher's utterances will be recorded along with theirs while doing the exercise. It is also essential that students choose a noise-free environment to make their recordings. Once the "Record" button is clicked, Audacity will start playing the teacher's audio and recording the student's performance at the same time, so that students can listen to the exercise through their headphones, and repeat the utterances into the microphone during the allotted periods of silence. When they eventually play the two tracks together, they will hear the two pronunciations consecutively and be able to compare them. Comparing the visual waveform representation of their speech with that of the teacher's model can help students match their pitch and intonation contours with those of the model (Anderson-Hsieh, 1992).

Listening comprehension

Authentic listening materials may present a challenge to language learners, especially at the beginning and intermediate levels. However, according to Robin (2007), one way to help students use authentic texts is to utilize technology to "mediate the script" (p. 110). Online materials are convenient since they may come with transcripts, pictures, and background information. Audacity helps by slowing down the stream of language and allowing students to repeat the audio and insert pauses.
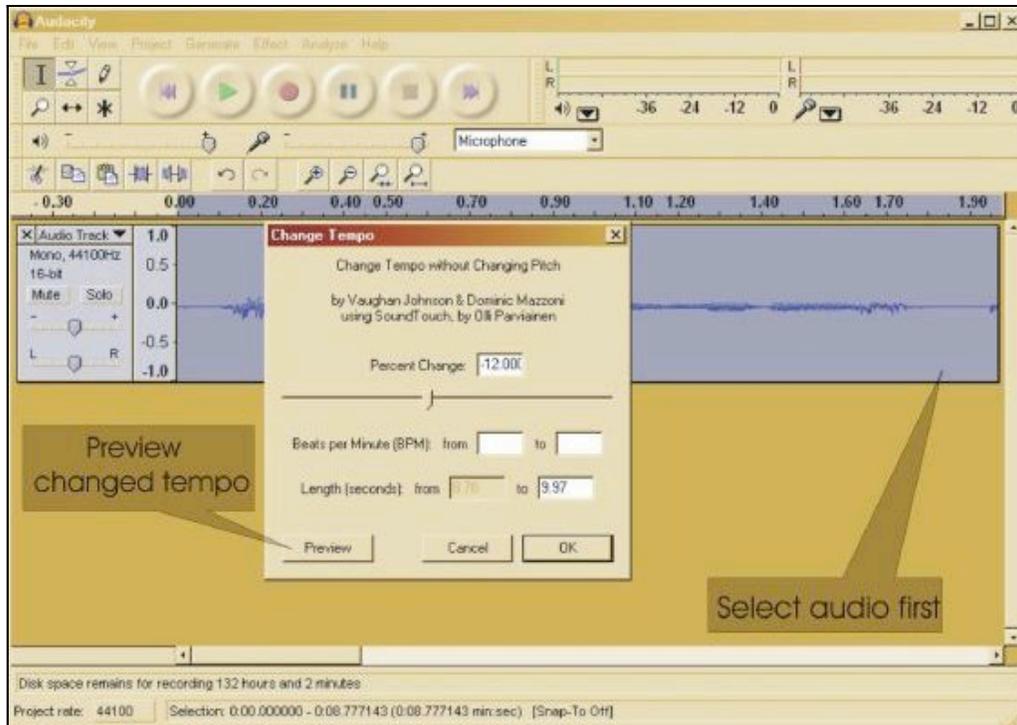
*Figure 8.*Changing tempo (speed)

To slow audio delivery, users select the desired part of the audio and click "Change tempo" from the "Effect" menu (Figure 8), which changes the speed of the audio without changing the pitch. It is important to choose a percentage of change which does not distort the sound, so it may be necessary to experiment. This process will change the length of the audio; hence, users should add a period of silence to the end of the selected audio.

Conclusions

The Audacity sound recorder and editor is a useful free tool that teachers can utilize to create new materials and design learning tasks for their students. Its user-friendly interface makes it equally easy to use for students at all proficiency levels. They will be able to record and personalize podcasts, practice pronunciation, and mediate authentic listening materials to suit their proficiency level. Motivated students can take advantage of the wide array of features the program offers, yet only basic knowledge of control commands is needed to record and convert audio files using this versatile software.

References

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About the reviewer

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