Creating Sound Files with Audacity

Audacity is a free, easy-to-use audio editor and recorder for Windows, Mac OS X, GNU/Linux, and other operating systems. You can use Audacity to:

- Record live audio.
- Edit MP3 and WAV sound files.
- Export MP3s with the optional LAME encoder library.
- Edit easily with Cut, Copy, Paste, and Delete.

Download two items:
1. Audacity http://audacity.sourceforge.net/
2. LAME MP3 encoder, which allows Audacity to export MP3 files.
http://audacity.sourceforge.net/help/faq?s=install&item=lame-mp3

Tutorials and references at Sourceforge http://audacity.sourceforge.net/manual-1.2/
Recording with Audacity at Sourceforge http://audacity.sourceforge.net/manual-1.2/tutorial_basics_4.html
Flash tutorials published on Podagogy.com and hosted at Spring Arbor College. The 5 tutorials include Download Audacity l Download MP3 Plugin l Install Audacity l Set Up MP3 Plugin l Record Audio l Fix Errors
http://campus.arbor.edu/resources/audacity/recording3
Matt's screencast of editing in Audacity. He walks you through several tips and tricks for using Audacity, e.g. deleting sections, adding and mixing tracks, fading out, etc. (Done in Camtasia Studio 2)
http://www.educause.edu/Screencasts/Audacity/Untitled.html
Marsha's enhanced podcast describes how language teachers can import a student recording, record comments and corrections, export the file as an mp3, and teach listeners to hear one or both tracks. (It's called an *enhanced* podcast because it integrates photos with audio, all of which can be loaded onto and played on an iPod. Done in Audacity, GarageBand, and other tools) http://www.ourmedia.org/node/166635
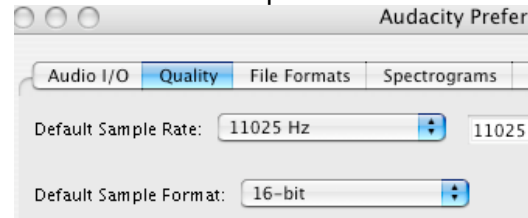
Getting Started

1. Plug in your microphone (or use internal mic).
2. Launch Audacity.
3. Open Audacity Preferences.
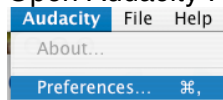
4. Select your recording and playback device(s), e.g., built-in audio or external mic.
5. Select record in Mono.

6. Set the default sample rate at 11025 Hz.
7. Set the default sample format at 16-bit.

8. From the File menu, **Save Project** with an appropriate filename in a place where you will be able to find it easily. *Example: Skiing_with_my_family.aup*

Recording your Project

9. Click Record and other buttons on the main tool bar

    Click on the red **Record** button [●] to begin recording.

    Click on the blue **Pause** button [❚❚] to pause the recording. Press it again to continue.

    Click on the yellow **Stop** button [■] to stop recording. The cursor will return to its previous position, before the recording was started.

    Click on the green **Play** button [▶] to listen to the audio in your project.

    Click on the purple **Go to Start** button [◀◀] to place the cursor at the start of the project.

    Click on the purple **Go to End** button [▶▶] to place the cursor at the end of the project.

    You can now play around with your recording and explore the editing capabilities of Audacity. You can use the Undo function almost without limits.

---

10. Check the amplitude (volume) of your recording. If it is low, select the sound clip (or a portion of it).
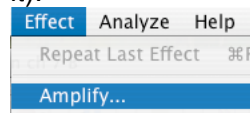
    Then select **Effect > Amplify.** Audacity calculates an appropriate amplification rate with the default Don't allow clipping. Click OK.
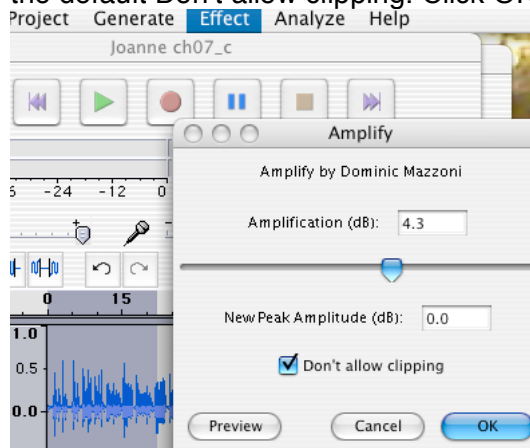
11. **File > Save Project** often.

Exporting your Project as an MP3.

An MP3 file is a compressed file that occupies much less space than the original or a WAV file. For example, an Audacity project of 14.6 MB is exported as an MP3 of only 3 MB.

12. From your Audacity project, select **Edit > Export As MP3**.
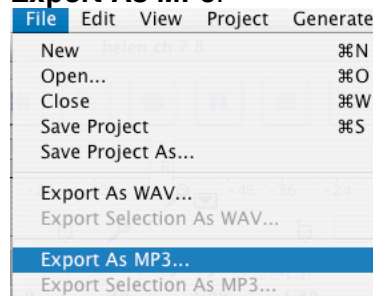
    Name the file. *Example: Skiing_with_my_family.mp3*

13. Now you can upload the mp3 file to a website, import it into a multimedia project, email it to students, and much more.

Using Audacity to Comment on Student Voice Files

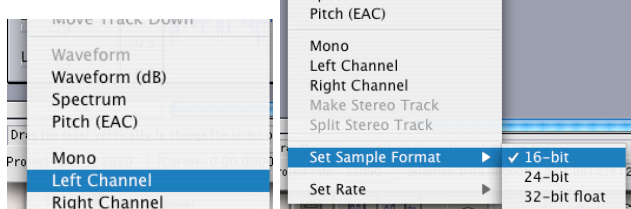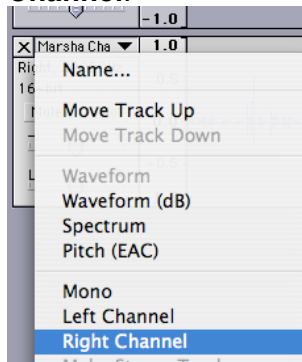|	
Marsha's 2-track convention: Student = Left (original recording), Teacher = Right (corrections and comments) 14. From the Project menu, select Import Audio, browse to the student's sound file, and click Open. 15. From the drop-down arrow, change the student's recording to **Left Channel**. 16. Set **Sample Format > 16-bit.**	17. To add a track, from the Project Menu, click New Audio Track
18. From the drop-down arrow, select **Right Channel**. 19. Set **Sample Format > 16-bit.**	20. If desired, click Name the channel by clicking Name. Enter your name. 21. Record, check and save as described in the previous steps.
Exporting your Project as an MP3. 22. From your Audacity project, select **Edit > Export As MP3**. Marsha's file naming convention: Add my initials to the end of the student's filename, e.g. *Dariana_Ch02-mc.mp3*	**Transferring your MP3 files** ▪ Send as an attachment in email. ▪ Upload to a digital drop box (Angel, Blackboard, Yahoo Groups, etc.). ▪ Transfer the files to students' computers in a lab with a classroom control system (Genesis). ▪ Burn to CD and give the CD to each other. ▪ Copy to a USB flash drive and give the media to each other. ▪ Copy to a floppy disk (if < 3 minutes) and give the disk to each other.
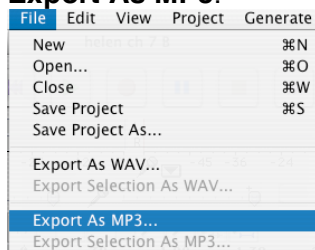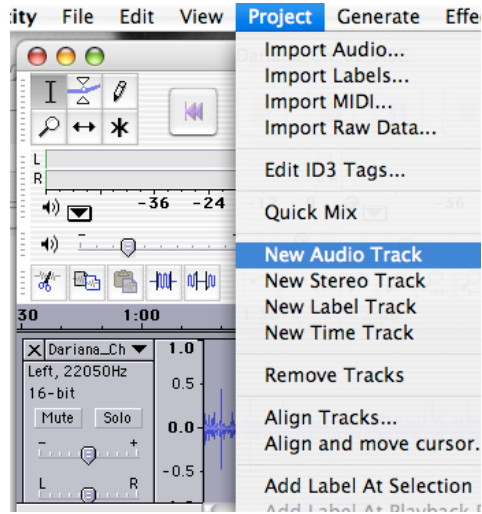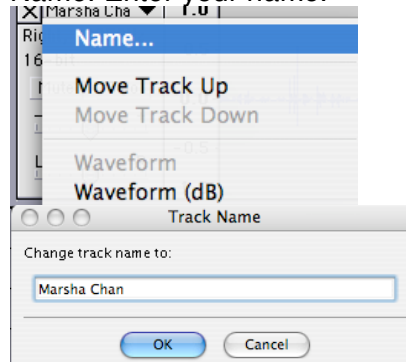
OralSkillsandTechnology@yahoogroups.com

Week 5 Distance Education and Oral Skills: Using Audacity to create voice files

My name is Marsha Chan. I teach ESL to adults aged 18 to 75 (average age around 30) at a community college in California. I've taught at Mission College for over twenty years. Previously I taught a year each in Hong Kong, Chongqing, and Beijing, China, and at elementary and adult schools in California. I own a small business, Sunburst Media for language learners.

I'm female. I posted my photos on our site:
http://ph.groups.yahoo.com/group/OralSkillsandTechnology/photos

I will be a Guest Speaker for Week 5: Distance education and oral skills

My teaching assignments at Mission College vary from one semester to another. Among my classes, I always choose to teach oral skills. Currently, I am teaching intermediate pronunciation and listening, low-intermediate listening and speaking, and clear communication for advanced learners who are health care employees at a hospital. In addition, I have been teaching an online advanced grammar and editing class since 1997.

I enjoy enhancing learning activities with current technology. Over the years, this has included audiotapes and recorders, videotapes and cameras, CD-ROMs, DVDs, email, voice mail, PowerPoint presentations, overhead projection, online chatting, collaborative writing with computers, using and creating websites, digital voice recording, and so on. I used to employ an audiotape laboratory in the past. In 2003 I led the drive to procure the college's first interactive multimedia language laboratory for the ESL Department. The classroom management software is great.

I have published a few books, articles, videos and audio CDs, mostly about pronunciation and teaching with technology. I give presentations at TESOL and TESOL affiliate conferences and at schools and businesses.

I am interested in discussing with our TESOL friends around the world about teaching and learning oral skills with the help of technology. During Week 5, I'll present some information about Audacity sound recording software.

A little background on my experience in distance education:

I have been teaching ESL to adults at Mission College, a public community college in California for over twenty years. In the past, I taught at elementary schools and adult schools in California and a few schools in China, but those all experienced occurred before the digital era. I own a small business, Sunburst Media for language learners.

My first distance learning class used one-way video, two-way audio through phone lines. That was in the late 1980s and did not last long. Through my business and through Mission College, I've been teaching classes in an online web-based environment since 1996. So far, the only solely online class I've taught through Mission ESL Department is an advanced grammar and editing class. I have been using the web to enhance all of my on-campus courses for a long time, including listening-speaking, pronunciation skills. I would like to offer these oral classes either as hybrid or online classes if I can get department and college approval. Through my business (where the approval process is easy!), I've offered pronunciation and accent modification by web and telephone.

This week I'll present some information about Audacity. I will explain what Audacity is, direct users where to download what, describe how to use the software for voice recordings, and describe and provide examples of use with language learners.

Week 5 Distance Education and Oral Skills: Using Audacity to create voice files

What is Audacity?
Audacity is a free, easy-to-use audio editor and recorder for Windows, Mac OS X, GNU/Linux, and other operating systems. You can use Audacity to:
* Record live audio.
* Edit MP3 and WAV sound files.
* Export MP3s with the optional LAME encoder library.
* Edit easily with Cut, Copy, Paste, and Delete.

What can I use Audacity for?
My husband uses Audacity to record and edit his music. I use Audacity to record and edit spoken voice recordings. Most of these are teaching materials for my students. I convert the recordings into .mp3 files, which are compressed and much smaller than .wav files.

Why use Audacity?
I have used other sound recording software, too. I used to use PureVoice, which is also free, but I stopped using and promoting it when Qualcomm confirmed several years ago that they would not update PureVoice to work on Windows XP or Macintosh OS X. I still use Media Master/Language Player on Windows (98/2000/XP), which is easy to use for recording, but it is proprietary, not free. I am experimenting with GarageBand on Mac OS X, which is cool and powerful, but since most of you are using Windows, I advocate using Audacity because it is free, cross-platform, and not hard to use.

Web support
There are nice tutorials and help pages on the Sourceforce web page. However, since their audience includes musicians who do more complex things, I thought it might be easier if I distilled some information for our purposes – spoken voice recordings.

How to use Audacity to record your voice
Today, I'll tell you how you can get started using this software with some basic steps. In the next few days, I'll explain how to convert the original file, which is big and ends in .aup, into a small .mp3 file to use on the Internet. Later, I'll elaborate on how I use the files in a distance learning environment or for web enhancement of a face-to-face class. I'll include procedures for teacher and student recordings and teacher comments and corrections. Stay tuned!

Downloading the software
You'll need to download two items:
1. Audacity
http://audacity.sourceforge.net/
2. LAME MP3 encoder
<http://audacity.sourceforge.net/help/faq?s=install&item=lame-mp3> , which allows Audacity to export MP3 files.

http://audacity.sourceforge.net/help/faq?s=install&item=lame-mp3

Getting Started
You'll need to set up your preferences and device:
1. Plug in your microphone (or use internal mic).
2. Launch Audacity.
3. Open Audacity Preferences.
4. Select your recording and playback device(s), e.g., built-in audio or external mic.
5. Select Record in Mono.
6. Set the default sample rate at 11025 Hz,
7. Set the default sample format at 16-bit.
8. From the File menu, Save Project with an appropriate filename in a place where you will be able to find it easily. Here's the example that I give on my handout for students: Joanne_ch07c.aup

Recording and Saving your Project

1. Click Record and other buttons on the main tool bar
2. Click on the red Record button to begin recording.
3. Click on the blue Pause button to pause the recording. Press it again to continue.
4. Click on the yellow Stop button to stop recording. The cursor will return to its previous position, before the recording was started.
5. Click on the green Play button to listen to the audio in your project.
6. Click on the purple Go to Start button to place the cursor at the start of the project.
7. Click on the purple Go to End button to place the cursor at the end of the project.
8. File > Save Project often.

You can use the Undo function almost without limits.

What to do now:
Download the software, plug in your microphone, and record a short passage. Save it to your hard drive. Let me know if these instructions are clear/unclear, easy/hard to follow, and if you were successful in recording and playing back your passage.

Tomorrow I'll explain how to make some simple edits on your file, and why and how to format your file as an .mp3 file.

To download my file with these directions in text and pictures, go to our YG site Files section and click on the folder Week 5 Distance education and Oral Skills.

Week 5 Distance Education and Oral Skills: Using Audacity to edit your voice files

Today, I'm going to assume that you've recorded a bit in Audacity. Some of you have used Audacity before, but perhaps you have not been aware of the various settings and features to enhance your recording. I'll refer you back to Message 724 for prior instructions just in case.
http://groups.yahoo.com/group/OralSkillsandTechnology/message/724

Editing your voice file with Effects
You can now play around with your recording and explore the editing capabilities of Audacity. Here is where Audacity is superior to PureVoice (which I loved for its simplicity when I used older operating systems).

Amplitude
Check the amplitude (volume) of your recording. If it is low, select the sound clip (or a portion of it). Then select

Effect > Amplify. Audacity calculates an appropriate amplification rate with the default Don't allow clipping. Click OK. This feature is nice because sometimes you record something and the volume is not great enough. This way, you don't have to record again with a bigger voice, you just adjust the recording in the software. Often I find myself recording comments to students at home at night when my family is sleeping and I don't want to use my broadcasting, or public speaking, volume. In addition, if you record bits and pieces – phrases, dialogs, paragraphs at a time - sometimes they're at different volumes. You can take the low bit and increase the amplitude so that it matches the others. I use this when I receive my students' recordings, too, because some have a big voice and others have a tiny voice. I'll talk more about students' recordings later. Stay tuned.

You don't want to allow clipping because that distorts the sound. It clips, or cuts off part of the sound information.

Noise removal
If there is a constant sound, like static, throughout your recording, you can remove it from the whole recording like this: Select a bit of recording that has just this static, like a place that is supposed to be silence between your utterances. Then select Effect > Noise Removal. Click the Get Noise Profile button. That will tell Audacity what to filter out. Then select all of the audio that you want filtered, choose how much noise you want filtered out, and then click the Remove Noise button. You'll have to play around with the Less and More slider. If you select More, it'll alter your lovely voice, too. So experiment and decide at what point it distorts

your voice too much and back the slider to the left towards Less.

I use the Noise Removal feature only if I'm being picky about my own recordings for publication/broadcast. I don't fuss with this feature on student recordings because it takes time out of the content, that is, responding to what my students say.

I recently made a recording in my living room, and I can hear the water in our fish tank gurgling in the background. I haven't tried to see if the Noise Removal will get rid of the gurgle. I'm probably more sensitive to stuff like this. I noticed that none of my students said, Hey what's that gurgling noise? They were concentrating on my voice and practicing the intonation patterns of questions in that recording. So you be the judge about the need to remove noise or not.

You can play around with the other options, but I think Amplify is the most useful for language teaching purposes.

Setting the Sample Format
Audacity is for musicians, but I'm not using it for music. I can't speak in stereo, nor can I provide an orchestral range in my voice. Neither can my students. So, why take up any more bandwidth than necessary?

Ensure that the sample format is 16-bit. This makes the file size half the size of 32-bit. That's all we need for spoken recordings. If necessary, from the drop-down arrow, select Set Sample Format > 16-bit.

Ideally, you'll have set the sample rate for 16-bit in your Preferences, but you can always change it before or after you record. When importing

students' recordings (more about that to come), they often come in as 32-bit, and then I change them to 16-bit.

Exporting to mp3
When you create a file in Audacity, it saves as xxx.aup (where xxx is the name you give it). It's big. Very big. When you want to use the finished file to send as an email attachment or post on a website or load onto an iPod, you want to make a small file. An mp3 file is very small and compressed. For example, an Audacity project of 14.6 MB is exported as an MP3 of only 3 MB.

Using LAME MP3 Encoder
If you followed the directions I gave in Message 724, you downloaded two items: The Audacity software and the LAME MP3 encoder. If you missed it, don't worry. Just go here and get it: <http://audacity.sourceforge.net/help/faq?s=install&item=lame-mp3>. It doesn't matter where you save it, but here's my file management tip: Inside your Applications (Mac) or Program (Win) folder, create a folder called Audacity, and put both Audacity and LAME inside. The first time you make an mp3 file from Audacity, it'll ask you to point it to the LAME mp3 encoder. Now you'll know where to find it!

Open your recording, xxx.aup, and choose File > Export as MP3. Keep the same name (or change it, as you like), and it'll add .mp3 at the end. Point it to the folder where you want to save your file, and click SAVE.

Compare the file sizes of xxx.aup and xxx.mp3. What do you see?

Using iTunes to reformat as MP3
Now, let's say you saved your project as a .wav file, either from Audacity or from another sound recorder. Itunes

is a free download available for Mac and Windows.
http://www.apple.com/itunes/ Maybe some of you use this already to play your music. (If not, you should!)

Open iTunes > Preferences. Click the Advanced button. Click the Importing tab. Choose Import Using MP# Encoder. Choose Setting Good Quality. Close the Preferences. Drag your xxx.wav into the iTunes main window to rip it (add it) to your iTunes Library. Select it from your Library. Choose
Advanced > Convert Selection to MP3. Done! If you want to do something else with the file besides play it, such as send it as an email attachment or upload it to a website, you'll need to follow its path, which might be something like this: HD > YourUser > Music > iTunes > iTunes Music .

Now you've got your lovely voice recording. It is nice and compact. You can copy a 3-minute recording to a floppy disk if it is properly compressed like this – you cannot do that with a .wav or .aup file, which is tooooo big. You can play your recording for your students in class, you can ask them to copy it to their floppies. Of course if you have a USB flash drive (memory stick), that's even better, because they can store so much more data. And you can burn them to CD. And you can upload them to your course management system.

Okay, give it a try. Let me know if these instructions are clear or not.

Next time, I'm going to describe how to work with student files.

Marsha

Week 5 Distance Education and Oral Skills: Using Audacity to comment on students' voice recordings

Earlier this week, I sent out instructions on how to use Audacity, a free cross-platform sound recorder, to do simple voice recordings. Refer to Message 724 in case you missed that.
http://groups.yahoo.com/group/OralSkillsandTechnology/message/724

Following that, I sent out instructions on how to do some simple yet valuable editing to voice files and how to compress them to MP3 files in two ways. I also gave some suggestions on what you might do with your voice recordings. Refer to Message 743
http://groups.yahoo.com/group/OralSkillsandTechnology/message/743

What about using Audacity to give feedback to students? Here's what I usually do.

Collecting student recordings
Students can record their files using whatever sound recording software is available to them, whether at the college or at home – their home. I may teach them how to use Audacity, or I may let them use whatever program they are familiar with. I collect their files in various ways: if it's a totally distance learning environment, they either drop their files in my digital drop box in our course management system or email them to me as attachments. For a web-enhanced face-to-face course, I may collect the files from the computers in our lab, or they may provide their files to me on a CD, a USB storage device, or a floppy disk.

Different channels for student and teacher voice tracks

After you collect their files, open a new Audacity file. In the Preferences menu, select Play other tracks while recording new one. From the Project menu select Import Audio, and browse to choose one or more student files. You may want to use this convention, which I find quite nice: I designate the left channel for the student's voice, and the right channel for the teacher's voice. So after laying down the student track, go to the Audio Track drop-down menu and select Left Channel. Listen to the student's recording and make notes on paper (or in your head). Then go back and add comments and corrections. Click the purple Go to start button to place your cursor at the start of the student's recording. From the Project menu, select New Audio Track. Then go to the Audio Track drop-down menu and select Right Channel. If you want, from the Audio Track drop-down menu, you can rename each track. Press the red Record button and record your comments and corrections in the second track while playing the first track. You may wish to leave some summary comments to the student at the end, too. Save your project, and then export it as an MP3 from the File menu.

Listening to two tracks
You may wish to teach students to listen to only one track at a time because listening to both tracks at first provides cognitive overload for most students. Have them listen to their voice alone, to your comments and corrections alone, and then listen to both their voice and yours together. Show them how to open the control panel for sound on your Mac or PC and move the balance slider from left to right and back to center again. That way they can control how they listen to your file and hear a comparison of

their pronunciation, sentence structure, or word choice and yours.

Sample file
To hear a file with a student track and my teacher track in separate channels, go to the Files area of our yahoo group
http://groups.yahoo.com/group/OralSkillsandTechnology/files/
Open the **Week 5 Distance Education and Oral Skills** folder, and select the file described as Student voice in left channel, teacher voice in right channel.

Comments and feedback
Have any of you been using Audacity (or other sound recorders) in this way to give feedback to students? I have been doing this for pronunciation classes for eons (first with analog tape and later through a series of software), and I find that giving voice feedback that is like instant correction is a big enhancement to returning a paper with marks on a script.

Marsha

Week 5 Distance Education and Oral Skills: Recording in two channels in Audacity

What are some uses of two-channel recordings? Here are a few. I invite you to add more!

Student voice in one channel, teacher's voice in another
In Message 776, I described a way to give feedback on a student's pronunciation / oral language by recording in a second channel and creating a stereo effect, with instruction on how to play one at a time:
Student's recording in the left channel

Teacher's comments and corrections in the right channel

Music in one channel, narration in another
When I did pilot recordings for **College Oral Communication 1,** I laid a dance tune in the left channel and the call (i.e., directions on the steps) in the right channel. To hear it go to
http://www.missioncollege.org/depts/esl/coc/940ls.html
College Oral Communication
Chapter 1 The Power of Music >
Activity 29 Dance: Arkansas Traveler, with Caller
(The final version from Houghton Mifflin uses original music and the call and the music are blended into one channel. You can't mute a channel.)

Instrumental in one channel, vocals in another
Music without lyrics in one track.
Singing in another.
Students practice it with the model recording.
Turn off (mute) the vocal track - or provide a separate file - and sing with the instrumental track -
Karaoke

Click track in one channel, language in another
Click track sets a rhythmic beat.
Voice track contains a poem or chant spoken with this rhythm.
Students practice it with the model recording, then recite/perform it live or record it.

Click track sets a rhythmic beat.
Voice track demonstrates the stress-timed nature of English, e.g.,
The Dean addressed the students. (5 words/3 beats)
The students were addressed by the Dean. (7 words/3 beats)

Then, students create their own sentences.
(From Carolyn S.)

How to use Audacity. Message 724
http://groups.yahoo.com/group/OralSkillsandTechnology/message/724
Using Audacity to edit your voice files Message 743
http://groups.yahoo.com/group/OralSkillsandTechnology/message/743
Using Audacity to comment on students' voice recordings Message 776
http://groups.yahoo.com/group/OralSkillsandTechnology/message/776

Have any of you been using Audacity (or other sound recorders) in this way to give feedback to students? I have been doing this for pronunciation classes for eons (first with analog tape and later through a series of software), and I find that giving voice feedback that is like instant correction is a big enhancement to returning a paper with marks on a script.

Marsha

Becky Dauer replied:
In comparison to having a student recite something in front of the teacher, the main advantage of technology is feedback: the student can hear what he/she has recorded (waveforms, spectrograms, and fundamental frequency curves can provide other kinds of feedback). Of course, I hope that I am giving them useful comments, but I think that most of the learning goes on when the students record, listen, then rerecord to try to get it better, listen again, rerecord, etc. I think the technology creates a practice-feedback loop.

Thanks for your comments, Becky. You pointed out some excellent ways a teacher can guide the listener (student) and reasons why a teacher should record comments. From the work that you and I have been doing for many years, I'd like to bullet for our readers a few important points for accent modification or general oral skills improvement:

• Have students record their voice. A few minutes is enough.
• Have students listen to their voice, live with you or recorded in analog or digital format
• Focus students' attention on key points of intelligibility.
• Provide comments on students' strengths and areas for improvement.
• Provide clear instructions for modifying selected aspects of their pronunciation.

Marsha

OralSkillsandTechnology Electronic Village Online Description

This EVO session provided a forum for discussion of technologies used to teach Speech, Pronunciation and Listening. Participants discussed their experience or interest in using old and new technologies.
This Session ran from January 16 to February 26, 2006.
Moderator: Christine Parkhurst, USA
Producer: Buthaina Al-Othman, Kuwait
Guest Speakers: Randall Davis, Christine Bauer-Ramazani, Jim Duber, Marsha Chan, .Elizabeth Hanson-Smith, Jeff Lebow