

Effective Technology for ESL Student Listening Practice

Presented at CoTESOL November 10, 2012
by Peter Schmitt



This paper will discuss considerations, experimentations, and experiences applying technology to the challenge of ESL student listening practice. The ideas I outline are not the only approaches to the issue, and may not suit all situations and organizations. Although the examples involve immigrant students in a “community ESL” program, there are many aspects that may be transferable to other, quite different situations. The hope is that these notes will spark reflection and perhaps a desire to jump in and give things a try.

The first two sections “Matching technology to need” and “The digital divide” apply to the use of technology in general, and are important starting points for what follows.

Matching Technology and Need

Over twenty years’ experience working in Information Technology, with a wide variety of industries and user communities have shown me that danger begins as soon as you mention the word “technology.” Depending on the people involved reactions may include negativity such as:

- “It’s too expensive”
- “We never needed it before, why bother with it now?”
- “I know someone who tried technology once. It didn’t work.”

Perhaps even more dangerous are seemingly positive reactions including:

- “Great! Let’s start buying some stuff!”
- “I know a vendor working for a company that can do this!”
- “Let’s do this on an iPad.” (or whatever the sexy tech toy of the day is!)

Analysis should always start with the identification of a problem or challenge to be addressed, not with a commitment use technology. If there is no problem, why would we look to expend money and energy on a solution? Only after the identification of a specific problem, does the consideration of the approach to a solution come into play. It is quite possible that the best solution may not involve “technology” at all.

Technology should match the identified need. I have seen a strangely common tendency to seek out complex expensive solutions, that may not even be the most efficient or effective remediation to an issue.

It is also important to consider that the introduction of technology may introduce the need for training. In our case this may be teacher training, or student training.

The “Digital Divide”

One cannot consider use of technology without conscious consideration of the “Digital Divide” and how it may affect the selection of technology options. There are very real gaps in practical familiarity with technology, and in access to technology equipment. Some pertinent aspects to think about are:

- Teacher comfort using technology:
There are many teachers who would like to use technology but have never had training or experience. There are others who quite honestly do not have the time or inclination to focus on learning new technology. Program directors need to keep this in mind.

- Tools available to teacher:
What equipment is available to the teacher? A personal computer? Laptop? Printer? Scanner? Does the instructor have access to the Internet? Is equipment available at home? Or only in the organization offices? Is the teacher OK using personal equipment for class? What software applications are available to the teacher?
- Classroom resources:
What equipment is available in the classroom? Internet access? A computer for teacher use? Computers for student use? A printer? An LCD projector and screen? “Smart board”? Audio speaker system? DVD player? CD player?
- Student comfort using technology:
How comfortable are students using DVDs? CDs? Handheld electronic devices? A personal computer? The Internet? Web browsers? Word processor? Printer?
- Student access to technology outside the classroom:
Does the student have a DVD player at home? CD player? A personal computer? Access to the Internet?
- REAL access to technology outside the classroom:
We must be realistic. Some say that students can always go to the library and use a computer without charge. Is it reasonable to expect students to go to the library between classes and wait in line to use a computer? What if the student has a computer (or DVD player, etc.) at home? Does the student have free use of the device? Or is it shared among competing needs in the household? For example, perhaps the computer is there, but mostly used by the children or spouse.
- Organizational budget:
Some programs are very well-funded, and others are not. Well-funded programs will have many more options and greater flexibility than those who struggle to get textbooks and dry-erase boards.

Three components of a listening practice system for “outside the classroom”

Let’s enumerate three critical components:

Content

Design and creation of the audio files and any supplementary printed documents is the single most important piece of this puzzle. Luckily this is where a teacher’s experience, expertise, and knowledge of the class’s specific current needs are crucial. There are also a variety of professional papers and publications outlining the various (sometimes contradictory!) theories related to listening practice materials.

Detailed information about how to search out suitable existing audio material, and instructions on the tools needed to create and edit audio files is outside the scope of this presentation. Some brief notes on this topic can be found on the web site.

An important issue to keep in mind is that of the use of copyrighted materials. Even when ESL textbook publishers provide audio materials, they generally place rigid restrictions on the manner in which they can be used, and they prohibit delivering the

material in forms that might have increased their usefulness to students. This is fairly analogous to restrictions on use of publishers' printed materials; except that there are certain textual materials that indicate they can be reproduced for class use. I have not yet seen similar permissions stated for audio files.

ESL publishers aside, there are provisions for limited "fair use" of copyrighted materials. There is a link on the web site to more information.

Non-copyrighted material can also be found, and there is more info on the web site.

Delivery mechanism

This refers to the equipment or media needed by a student to "listen" to audio practice segments. Important considerations include cost, convenience of use, and the comfort level of the student group with any given technology. This will be covered in some depth.

Distribution mechanism

For a student to use the chosen delivery method, we must also consider how we can distribute the audio material for use by that method. Often this becomes an area where teacher comfort level with technology is an issue, or where there are potential pitfalls involving time consuming processes.

Podcasts and RSS

The use of podcasts to periodically distribute a series of files has great potential. The term "podcast" has such an allure and catchiness that it is sometimes applied in a manner that clouds its meaning, and therefore makes discussion of its value more difficult.

Podcast: (Noun)

- A digital audio or video file or recording, usually part of a themed series, that can be downloaded from a Web site to a media player or computer. ("Digital Technology -Dictionary.com)
- A program (as of music or talk) made available in digital format for automatic download over the Internet. (Merriam-Webster)

RSS: (Noun)

- Acronym for "Really Simple Syndication" (Formerly for RDF Site Summary) which is computer/networking standard and format used to distribute recent news and other frequently updated content appearing on a Web site. It is also the underlying protocol used to distribute Podcasts.

Notice that a key aspect of a podcast is that it is downloaded from the web, not played from the web. A PowerPoint presentation is not a podcast. An interactive web-based application or lesson is not a podcast.

The “syndication” model of podcasts for the distribution gives it great potential for ESL class audio files. The drawback is that this mechanism exposes the problem of the “Digital Divide”. If all students have “smartphones” or “personal digital assistants (PDAs), great! Otherwise podcasts provide only a partial solution, that must be used in conjunction with other mechanisms to be able to reach all students.

Audio Delivery Mechanism Comparison with distribution notes

| Mechanism | Advantages | Drawbacks |
|--|---|--|
| <p>Portable tape player</p> <p>Distribution: Instructor must be able to copy tapes. “Dual” cassette tape recorders used to be fairly common in homes. But today it is unlikely that instructors would have this equipment. In class distribution of tapes.</p> | <ol style="list-style-type: none"> 1. Low-tech. Reliable. This is a “gold standard”. 2. Very portable. 3. Tapes are re-writable and could be reused for later assignments. 4. Can do partial rewinds to repeat segments within a particular “track.” | <ol style="list-style-type: none"> 1. Use of cassette players is becoming extremely rare to the point that they may be considered “obsolete.” Very few students have these devices. 2. It is difficult on a tape to just “advance” to the next track, or “go back” to a previous track. 3. Production of tapes would be very time consuming. |
| <p>Portable CD player including car stereo</p> <p>Distribution: Instructor must be able to “burn” CDs. Most PCs are equipped for this, but teacher may not want to use their PC for this. In class distribution of CDs.</p> | <ol style="list-style-type: none"> 1. Most (though, surprisingly, not all!) students have access to a device that can play a CD. 2. Very portable. 3. The skill set needed to play a CD is minimal. 4. Cost of writable CDs is very low: about 10-20 cents per disc. When purchased in bulk | <ol style="list-style-type: none"> 1. Copying CDs is fairly time consuming. 2. Use of a CD for a single track is somewhat wasteful use of the disks. 3. CDs may be “on the way out” as more consumers use various MP3-type devices such as mobile phones, iPods etc to listen to music. Due to MP3 distribution models, fewer people buy CDs now. |
| <p>Home CD players such as home theater, desktop, personal computer, or use of DVD player (connected to TV) to play CD.</p> <p>Distribution: As above</p> | <ol style="list-style-type: none"> 1. Similar to above, however with no effective portability. | <ol style="list-style-type: none"> 1. There may be competing family members wanting to use these devices for entertainment. |

| Mechanism | Advantages | Drawbacks |
|---|---|---|
| <p>Audio files resident on a home computer¹.</p> <p>Distribution: Podcast</p> | <ol style="list-style-type: none"> 1. Podcasts are essentially of no cost. 2. If a podcast server is available, the process is very easy. 3. Client podcast “catcher” software provides easy and organized access to the audio files. 4. Users could choose to load these tracks on their own iPod, Phone, or MP3² devices if they have them. (for example by syncing a podcast on iTunes with an iPod. | <ol style="list-style-type: none"> 1. Student may not have a PC. 2. Student may not have the Internet connection needed to receive podcasts 3. Teacher / organization may not have access to a podcast server. 4. There may be competing needs of other family members for use of the PC. |
| <p>Audio files resident on a home computer³.</p> <p>Distribution: Email audio files to students via email.</p> | <ol style="list-style-type: none"> 1. Low cost. Audio files can be easily attached to an email message that could be sent to multiple recipients. 2. Once downloaded via email, the audio file can be listened to without requiring continued access to the Internet. 3. Requires less technical sophistication than posting to a web site, and does not require the same web-site infrastructure. 4. Users could choose to load these tracks on their own iPod, Phone, or MP3 devices if they have them. | <ol style="list-style-type: none"> 1. Organizing the files for easy access is not trivial. Potentially the student will have to hunt through email messages to find the audio file each time they want to listen. 2. Student may not have a PC. 3. Student may not have the Internet connection needed to receive email. 4. There may be competing needs of other family members for use of the PC. |

¹ For all mechanisms that require student use of laptop PCs for audio, they should be advised to consider using headphones. I have had interesting reports where students say that the sound quality is much better with cheap MP3 devices than using their computers. I believe that the real issue is the small speakers on most laptops.

² In this paper I have used “MP3 devices” and “MP3 players” as generic terms referring to devices that can play digital audio files. There are other formats besides MP3, but it is used widely and is usable in the greatest number of situations.

³ See previous notes regarding laptop speakers and headphones.

| Mechanism | Advantages | Drawbacks |
|--|---|--|
| <p>Audio files resident on a home computer⁴.</p> <p>Distribution: Give files to students on USB drives.</p> | <ol style="list-style-type: none"> 1. USB drives can be reused. 2. Students would possibly have their own USB drives. | <ol style="list-style-type: none"> 1. The cheapest USB drives cost about \$5 each. 2. Loading the files onto the USB drives is moderately time consuming, though much faster than burning CDs! |
| <p>Audio files accessed over the Internet from a personal computer⁵.</p> <p>Distribution: Files placed on a class web page.</p> | <ol style="list-style-type: none"> 1. The cost to post a file is negligible. 2. Posting on a site can provide audio content to anyone with access to a computer and the Internet. | <ol style="list-style-type: none"> 3. Posting the files is not trivial.⁶ 4. Unless a web host is already available to the teacher / organization, there are monthly fees. 5. Many students do not have the requisite real-time access to a PC and/or Internet. |
| <p>Audio files on (standard) mobile phones (this section refers to phones that are not "smartphones")</p> | <ol style="list-style-type: none"> 1. Currently the mobile phone is the technological device with near universal access. Even the poorest students have phones 2. Students are generally very adept at the use of their own phone. 3. Mobile phones are generally of good quality, and are reliable. | <ol style="list-style-type: none"> 1. In general, this is not a practical audio delivery mechanism. 2. Few people use headphones with their mobile phones. Listening to audio material with built in speaker may not result in a quality listening experience. 3. The difficulty is getting the file to the devices. 4. There is a wide variety of physical devices, and calling/data plans among students. 5. Depending on phone and plan, the file: <ol style="list-style-type: none"> a. Could be sent via email to the phone. b. If student has an appropriate data plan, could be downloaded to the phone. c. Would need to be loaded on a chip that is then physically inserted into the device- often behind the battery. d. Would be transferred via a cable between a computer and the phone. e. Would be transferred via Bluetooth. |

⁴ See previous notes regarding laptop speakers and headphones.

⁵ See previous notes regarding laptop speakers and headphones.

⁶ Student accessed content on the Internet should be easily accessed and follow normal interface standards. An organization I used to work with had a student web site hosted by a third party with special software to make it simple for teachers to post content. However the resulting page as accessed by students provided a clumsy interface that does not allow simple clicking on things such as PDF documents, Videos, sound files etc.

| Mechanism | Advantages | Drawbacks |
|---|--|--|
| <p>Audio files on “smart phones” (such as Android, iPhone, Blackberry, etc.)</p> <p>Distribution: Theoretically email or file transfers can be used with these. However all smartphones are podcast capable, so that is the mechanism to use.</p> | <ol style="list-style-type: none"> 1. Smartphones typically have “WiFi” Internet access that can be used wherever a wireless access point is found (such as libraries and many homes) 2. Smartphones generally can also access the Internet via the mobile carrier’s phone network. 3. Smartphone are all podcast capable. | <ol style="list-style-type: none"> 1. Not all students have smartphones. 2. Some students have the phones but lack the phone-network data plan. 3. Students would have to install the appropriate podcast “catcher” software on their phone, and then configure it to know about the class site. 4. See previous notes about podcast infrastructure. |
| <p>Audio files on PDAs “Personal Digital Assistants” (such as iPod Touch, Samsung Galaxy Player, etc.)</p> | <p>Same as smart phone except no carrier phone network.</p> | <p>Same as smart phone</p> |
| <p>Audio files on tablet devices such as iPad and Android tablets</p> <p>Distribution: Podcast</p> | <ol style="list-style-type: none"> 1. Most can use essentially the same mechanism to receive podcasts as smartphones. | <ol style="list-style-type: none"> 1. Expensive. 2. Some specialized Android tablets, such as the new Kindle Fire may or may not support podcasts. 3. Some Android tablets may run older versions of Android or may not support download of additional applications. |
| <p>Consumer MP3 players (not including iPod Touch. For that see PDA)</p> <p>Distribution: file transfer</p> | <ol style="list-style-type: none"> 1. Extremely small and portable. 2. Student may already own one of these. 3. Generally have a simple interface. 4. Some models allow addition of memory using an extra TF memory card. 5. Some allow use as file storage. (see future options for reasons this is useful) 6. Some are low cost. | <ol style="list-style-type: none"> 1. The mechanism to transfer files may be time consuming or awkward. 2. The Apple line of iPod MP3 players only allows file transfers through the iTunes mechanism. 3. Sandisk Sansa models may require an additional chip to provide flexible file transfers. 4. Not all provide a display showing the audio track being played. |

Experimentation, Experiences, Observations

Content

Content in both phase one and phase two consisted of these types of exercises:

- Brief stories
- Stories with missing words as “partial dictation”
- Stories with comprehension questions and / or discussion starters
- Sentences with “what’s next” multiple choice completion options
- Vocabulary review

Phase One

Description

- Audio file links on Internet site
- Burned and provided CDs to students without PCs/Internet at home

Details

- Student web site provided through my organization was unworkable.
- I built web pages on a different server
- Some students who had PCs also wanted CDs
- Students generally kept CDs for one week.
- Web site files were never removed, so students with computers were able to access a growing number of audio segments.

Assessment

- Significant skills were needed for web page maintenance.
- There is an underlying risk because there is no control over how a student PC is configured, and how their browser is configured. One student with a PC could not play the files. This was resolved by providing a Google Chrome browser that I had preconfigured on a USB stick.
- Burning CDs was labor intensive.
- It was difficult to predict how many CDs would be needed each class.
- The student desire for CD even though a PC was available indicated a need for greater portability than PCs provided.
- In general I had a feeling of great waste creating so many CDs that only theoretically might be used in a future class.
- Program was well received by students who indicated it provided value.

Phase Two

Description

- Each student was provided with a very low cost MP3 player kit.
- Files were updated by swapping out removable memory chips.

Details

- I had a single student try out system for several weeks before rolling out to the whole class.

- Each student was given a mini-clip MP3 player that used removable TF cards as their memory. Kit included the player, a memory card, “earbud” style headphones, a USB adaptor, and a wall charging unit.
- Memory card capacity was deliberately kept very low: 64mb to 512mb. This was far more than needed for the size of files involved.
- Full cost of kit was under \$10 per student.
- Students were presented with graphic instruction sheets. However operation of the devices was so simple that the instructions were really not needed.
- I loaded files on replacement TF cards before class using my PC and a multi-port USB hub with TF card adaptors.
- Four to five audio tracks were kept on each device at a time, to allow review.
- The MP3 players were so small and portable they could be used in any setting.
- A goal of this trial involved assessment of whether these very low cost devices were of adequate quality to meet the need, and whether the device would fail at an unacceptable level.

Assessment

- The level of student interest and participation greatly increased in phase two.
- During class students provided self-initiated explanations about how they were using the devices due to the extreme portability.
- All students either returned the devices or asked to purchase them (for \$10) at the end of the semester with the exception of a single student who came to two classes and never returned.
- The TF chips are very small, and initial efforts to manipulate them keeping new chips in one baggie and the chips that were removed in another was very awkward. I built a chip organizer that kept the chips upright, separate, and classified (through color coding). This made the chip replacement process quick and easy.
- The most problematic component was the TF memory card. My search for cheaper and cheaper components was part of the problem. I bought a group of used cards that had been removed from old cell phones. Many of these did not work properly.
- Only a single MP3 player failed. It was quickly determined that the battery had been overcharged, and instructions were given to students to disconnect the players from chargers after two hours. After fully depleting the battery, the “broken” unit began working again.
- There was one charger unit that failed and needed to be replaced.
- Copying files to the chips was very time-consuming and required more expertise than a teacher should expect to contribute.
- System required twice as many chips as students due to the swapping.
- This system did not leverage any existing equipment that a student might have had.
- At the end of the semester students filled out program evaluation sheets and gave the listening practice implementation very high marks. (more details on web site)

Phase Three (Future Trials)

Phases one and two showed that out-of-class listening practice was enthusiastically received by students and technically feasible.

However it is reasonable to try to make significant improvements to the plan to:

- 1) Minimize the degree of technical knowledge/expertise required of the teacher.
- 2) Greatly reduce the level of effort for teacher.
- 3) Increase participatory “buy in” of students by increasing their involvement in the process.
- 4) Leverage a variety of devices that students may have in order to reduce program costs and allow students that already have more sophisticated devices to use them.
- 5) Expand the number of classes and students to a point where there is some potential to begin assessing any increase in level gains that might be attributed to the listening practice.
- 6) Try out some diverse but not mutually incompatible deployment mechanisms.

Audio Kiosk / BYOD (Bring your own device)

Description

- A “Kiosk” device becomes the in-class central hub for file loading.
- Students can use their own devices, which can be of many different types.

Details

- Move the process of loading files to MP3 players from pre-class by teacher to in-class by students.
- The “Audio Kiosk” is a small netbook or a tablet computer that would be used in the classroom. It should probably not be the teacher’s PC which may be needed for classroom presentation.
- The teacher would pre-load the Kiosk with the audio file(s).
- Students would load their MP3 players before class, during break, or after class by attaching their device to the Kiosk and using a simple interface.
- Because files are transferred to the MP3 player rather than directly to the chip, a great variety of MP3 players, including those with non-removable memory can be used.
- Each device can carry a configuration file that may customize the way files are loaded (as well as recognize the student’s name!).
- (A prototype character-based version of the application has already been developed and runs on Android sub-netbooks)

Podcasts

Description

- Use podcast technology to distribute student audio materials to smartphones, computers, and tablets.

Details

- A customized open-source podcast management application has been tested for deployment on web servers.

- Loading audio files is through a simple browser interface after teacher has identified self using admin account.
- Application also provides a rudimentary class page showing the files and providing class notices.
- Students need to load the podcatcher software on their smartphone, and then configure the application with the URL for the class podcast.
- A demo environment has been set up for any teacher who wants to experiment with the podcast mechanism.

“Piggy-backed” Podcast Download

Description

- Use unsophisticated MP3 player as a podcatching device when attached to a Windows PC.

Details

- Many MP3 players (especially the inexpensive ones!) can provide file storage, acting as if they were simple USB drives when plugged into a computer.
- Using that mode, load a “portable-app” podcatcher called “Juice” onto the device.
- Student can plug the device into an Internet connected Windows PC and then “run” the Juice application from the PC screen.
- This will download the podcasts onto the MP3 player.
- Player can then be unplugged and used as an MP3 player to listen to the podcasts.

Ready to try?

Listening practice outside the classroom can be a valuable addition to the student learning experience. Why not give it a try in your class?

I have presented some ideas and experiences. There are a variety of approaches to implementation.

I will post some additional information on the website listed below within the next week. Contact me if you have questions or need further information about how you might jump in.

Supplementary materials will be made available by November 16th at:
<http://www.ESL-Class.net/Schmitt-CoTESOL-2012>

About Peter Schmitt

Peter Schmitt has over 20 years’ experience working in Information Technology. He has worked as an ESL instructor in volunteer and staff positions since 2007 in the Denver Area. Peter earned his Bachelor of Science degree in Computer Information Systems from Regis University, and completed his LIA through the Colorado Department of Education in 2011. He has made presentations on effective use of technology for ESL at several conferences and over the Internet. He can be contacted by email at SchmittESL@yahoo.com.

Podcast feed used in CoTESOL presentation:

<http://esl-class.net/CoTESOL-Demo/feed.xml>