Abstract

Middlebury College is developing tools for creating language learning audio assets that use ID3 tags to embed pedagogical metadata and can interface with iTunes and iPods. We are researching ways of using the rating field to track knowledge and Smart Playlists to create dynamic study lists. We are also experimenting with iPod audio recorders as a way of capturing language in context and for podcasting language lessons and authentic usage. Finally we would like to integrate tracking data from iPods and iTunes with our Crescendo knowledgebase management system to create language learning communities.

Capture

Technically, from the perspective of digital technology, capture refers to the process of converting analog forms of audio or video to digital form using an digital to analog converter. This is how the Language Schools have digitized language use in the past, by using an analog recorder that saved audio to magnetic tape, which was then captured on a computer by converting the analog signal to digital form, a process that needed to happen in real time. Thus a one hour recording would take one hour to digitize. This is true too of early digital recorders such as MiniDisc devices, even though these devices record in digital form, because they have no standardized interface to computers, these recordings are actually converted from digital form to analog form back into digital form!

Portable MP3 players and recorders simplify all this considerably by recording into standard digital audio formats and providing an interface for downloading audio recordings to your computer in a fraction of real time. The implication of these new technologies is that the concept of capture can evolve from describing how to capture in digital form analog recordings to how to digitally capture reality itself.

Collect

There needs to be a way to describe all this captured reality so that it can be found and collected. Ideally, this description or metadata should be an integral part of that which it describes. To this end, in 1996, ID3 tags were invented specifically for embedding metadata into MP3 music files. ID3v1 had tags for a song's title, the artist who performed the song, the album that contains the song, the year it was written, its genre and comments. In 2004, Middlebury College remapped these fields to tags for pedagogical metadata appropriate to language learning assets (LLA) as shown in Figure I below:

Language Learning Asset Tags		ID3 tags (for music files)
text/title	=>	Song title
textbook/speaker/context/	=>	Artist
lesson/unit/date/context	=>	Album
language	=>	genre
translation	=>	comments

Figure I

Context

Both mobile and computer-based MP3 players such as iPods and iTunes are capable of reading ID3 tags and using this information to create navigational interfaces for searching audio files. Most media players will allow users to create custom playlists, ordered lists of audio files that can be saved for later playback.

Some media players also allow users to rate audio selections and keep track of when audio files were last played and the number of times they were played. iTunes and iPods have well-developed user interfaces that also allow users to save particular search criteria and sort order in what are known as smart playlists. For example, a smart playlist may consist of all songs whose rating is between 4 and 5 stars that a user has not listened to in the last 2 weeks. In the context of knowledge acquisition in general and second language acquisition in particular, the rating field becomes a way to track knowledge or understanding and smart playlists become a powerful means of creating study lists such a lists of least known items, least studied items, recently studied items and so on.

Community

ID3 tags like all standardized metadata schemas will continue to evolve and eventually may be adapted for use in other media types such as images and video. As important as standard metadata however is custom and individual metadata. This is data about the relationship between an individual and a media file, be it their rating of a song, their knowledge of a given Chinese character, the particular words, phrases, lectures they have studied or events they have witnessed.

Currently emerging on the web are music communities where individuals have uploaded all the metadata about their music collections to be shared with others through collaborative filtering techniques that compare the music preferences of many individuals in order to recommend new music to community members.

This same technology can be used be used in second language acquisition to find what Stephen Krashen has described as comprehensible input +1, those words and phrases that

combine the familiar with the new[1] and what I have referred to elsewhere as "comprehensible peers,"[2] those individuals whose knowledge is just beyond one's one, who challenge us without overwhelming us or undermining our confidence.

To this end we are continuing to develop StudyDB, a new tool for second language acquisition, designed for the information age. The next version of StudyDB will be known as Crescendo and will integrate with iTunes and iPods and eventually other media players allowing for the creation of drills and exercises based on each student's particular knowledge base. Crescendo will allow individuals to compare their knowledge bases with others and find both material and peers that help them to deepen and expand their knowledge.

Culture

These dynamically evolving learning communities will challenge traditional pedagogies making possible the organic growth of instructional material out of a wide range of language learning assets and authentic material captured in context.

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[1] Krashen, S. We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. The Modern Language Journal, 73, (1989): 440-464.

[2] Chapin, Alex. "Memory in the Information Age: New Tools for Second Language Acquisition." ADFL Bulletin, Winter 2003.