COMMENTARY: YOU'RE NOT STUDYING, YOU'RE JUST…

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ABSTRACT

As often as language teachers lecture about the importance of continual practice to adolescent learners, the dullness of homework exercises designed primarily to be educational has difficulty competing with popular media designed solely to be entertaining. Recently, numerous attempts have been made to develop "edutainment" titles that seek to merge educational goals with entertainment content; oftentimes, however, they fail to achieve either goal and fall instead into niche markets.

Rather than seeing entertainment-focused media forms as adversarial to educational content, educators should instead embrace them. This commentary examines how content originally designed for entertainment purposes can be modified to provide natural and context rich language learning environments, without sacrificing its entertainment value. First, I examine a modification to the number one selling video game *The Sims* that intelligently combines game data from the English edition with data from editions of other languages to form a bilingual gaming environment. This exposes learners to abundant L2 vocabulary, yet still provides enough L1 support not to detract from the game. This principle is then extended to other applications such as music videos, typing tutors, and voice-navigated games. Finally, areas of otherwise wasted time are identified, such as waiting for Web pages to load or walking to class, with suggestions of how technology can facilitate language learning during these times.

In a single week, I met five people each claiming to be the world's worst language learner. Having legitimately claimed this title for myself long ago, it's obvious they were only exaggerating. Still, in listening to their various language learning histories, it seems we all reached this conclusion from similar experiences: Frustration with our old high school workbooks, a sense of helplessness when confronted with lists of isolated vocabulary to memorize, and little connection between assignments and our everyday life. While changes in classroom environments over the past century have allowed in-class learning to evolve considerably, the guidance students receive on how to continue learning a language outside of class has remained relatively the same. In general, beginning students are advised to set aside dedicated study time for completing practice exercises and to rehearse vocabulary items with techniques such as flashcards. However, as the current dot-com generation grows up submerged in captivating and dynamic media forms, educators will likely need to adapt their conceptions of homework to match if they wish to capture the interests of adolescent students. While recently numerous suggestions have been advanced for enlivening the language learning experience with interactive activities and online collaboration (e.g., LeLoup & Ponterio, 2003), much of the potential for the integration of entertainment media with mainstream language learning remains untapped -- something that would have been pivotal for my own early language learning experiences.

Finding my high school German homework assignments frustrating and dull, I rarely managed to complete assignments. Naturally, as the course progressed it became increasingly difficult for me to remain an active participant in class -- in turn, making homework assignments yet more frustrating. At the end of the year, I left the course with only two things: an ability to irritate my teacher enough never to be called upon in class and an "F" in German 1. It was at this time I dubbed myself "the world's worst

language learner" and publicly declared that I was well satisfied with my monolingual status, with full intentions of keeping it throughout my life.

Fortunately, the Internet later provided a perspective on foreign language and culture considerably more appealing than the one I received in ninth grade. Far from the German "She'll be Comin' Round the Mountain" we used to open each morning, sites like audioscrobbler connected me to modern commercial songs by analyzing youth in Germany with the same musical tastes. Rather than spending my free time on "find the conjugated form" word-search puzzles, I practiced contextualized conversation and grammar by loading learning materials found on the Internet into my cell phone and listening to them in my spare time while walking between classes. Surprised and encouraged by how much I learned from such a simple system, I enrolled in further German study and set about developing more complex ways of using technology to increase my foreign language exposure in practical and entertaining contexts.

YOU'RE NOT STUDYING, YOU'RE JUST PLAYING THAT SIMS™ GAME OF YOURS

For many adolescent language learners, the suggestion of playing an edutainment software title unfortunately conjures up images of simplistic space invader games, re-programmed to solicit foreign language vocabulary before being able to be able to shoot at a screen of sketchily drawn aliens. For students in a class only because of a mandated requirement, the temptation to forego all educational value for a modern software title instead designed solely to be entertaining is far too enticing. Upon a closer look, however, some of these same entertainment-focused titles possess much of the basic content desired in an educational title. For example, if we look at the number one selling game (Croal, 2003) *The Sims,* we see a lot of the same content one might find in an introductory language textbook.

The Sims is a game designed to simulate normal everyday life. Players control the daily routines of a virtual family, guiding them through tasks such as managing personal hygiene, cooking food, finding jobs, entertaining guests, and so forth. After assigning professions to their characters, players then manage the family finances, deciding how to best purchase furniture and appliances to develop their house based on analysis of the emotional states of their characters. In playing the English version of the game, I noticed the vocabulary for the tasks contained many of the same words as the German homework I should have been studying instead. Finding that the language of the game could be changed to German simply by switching a single registry setting, I placed a laptop with a translation tool beside my main computer and continued playing the game in German. When the vocabulary items then came up in class, I was already familiar with them and could recall the relevant associated contexts and animations used in the game.

While there have already been numerous suggestions for using commercial simulation games as language learning contexts (see, e.g., Coleman, 2002), most are based on designing external activities without modifying the games themselves. Traditionally, modifying a commercial game's interface or language data was an impossible task, as its programming was often locked away in compiled binary code. Today, however, most game designers separate game data into external files and actively encourage third-party customizations. For games like *The Sims*, this has led to an explosion of enhancements for the entertainment value of the game, though so far little has been done to take advantage of this customizability for educational extensions. One freely available customization tool provides users with direct access to the language data used in the game. By using macros, or scripts, educators can rapidly extract the parts of the first language (L1) game data they feel necessary for scaffolding learners and then integrate them as available translations within the second language (L2) version of the game (see Figure 1).

Figure 1. *The Sims* German Edition, annotated for English speaking students

In Figure 1 we can see an edit in which the main interface uses data from the German version of the game, yet includes tool tip data from the English dataset, so that if a player does not know a German word such as "Kochen," s/he can leave the cursor over the word and receive a pop-up explanation which includes an English translation. Also, enough keywords are glossed for the prompt "Do you wish to save before quitting" (literally: "Wants you save, before you the game quit?") to ensure a player would not get frustrated trying to understand, but makes it likely they will first read in the L2.

This method of modifying video games offers a powerful vehicle for further exploring recent work on incidental learning. Hulstijn (1992), suggests that vocabulary retention can be improved if new words are glossed with multiple choices in which the learner must then decide the most appropriate choice (Figure 2).

Figure 2. Players are presented two meanings for the word "Post," making them evaluate which most likely combines with the word "*angestellter*" and fits in the context of being their Sim's profession.

Unfortunately, in a traditional reading environment this can have adverse effects for both reading comprehension and vocabulary retention if learners make the wrong choices (Watanabe, 1997). In a video game, however, some incorrect assumptions by learners can be recovered through the interactions present in a typical gaming environment. For example, one of the variables players must keep track of is their Sim's energy level -- represented in the German version by a bar labeled *"energie."* If a poor learner were to guess the meaning of this word incorrectly, her/his character would take steps to notify the player until the energy variable was addressed: First, the character would act sleepy and think about beds (Figure 3).

Figure 3. Sleepy Sim

If the learner still failed to recognize and improve the Sim's energy level, the game would take control and show the learner how by having the Sim fall asleep on the spot (Figure 4).

Figure 4. Asleep Sim

Besides interactivity and flexibility, video games provide content that is naturally rich in associations. Numerous studies report on how glossing reading passages with images and videos can enhance incidental vocabulary acquisition better than can text-only glosses (Al-Seghayer, 2001). Creating images for glosses, however, also requires more work than simply writing text -- and videos yet even more. By using video games as content platforms, images and animations become an automatic and effortless part of the environment. In *The Sims*, anytime a player clicks to receive elaboration on variables they need to monitor, it presents a window already containing images of all the game items relevant to that variable (see Figure 5).

Figure 5. Detailed view provides both textual and pictorial information

Another challenge in incidental learning is that materials should be personally relevant and useful to the learner (see Huckin & Coady, 1999). In a gaming environment, content is generally presented to the user because of its direct relevance to their task. Should a player in *The Sims* choose to ignore messages about the variable *harndrang* ("bladder") and any game cues (e.g., how their Sim starts running when by the bathroom), s/he would later be embarrassed when the Sim becomes unable to control him/herself (Figure 6). This would hopefully encourage the learner to take interest in and learn more about that variable.

Figure 6. Failure to respond to game cues can have embarrasing consequences

In their review of studies on incidental vocabulary learning, Laufer and Hulstijn (2001) conclude that "learner involvement" is the main factor influencing overall effectiveness. They highlight three core components comprising learner involvement: "need" -- ensuring a word is relevant to the learner; "search" -- providing a means by which a learner can work to discover the meaning of an unknown word; and "evaluation" -- assessment by the learner of how the meaning does or does not fit into the current context. An entertainment-focused video game such as *The Sims* can be modified to not only fulfill each of these criteria, but do so in a manner that minimizes extraneous effort and stress on part of the learner, provides repeated interactive exposures to words, and automatically generates rich contexts for associations. Additionally, by making direct changes to the game data files themselves, educational designers can make their modifications instantly deployable by teachers worldwide.

Looking Ahead

Besides game customization tools, today's educators enjoy a wide variety of other gaming innovations for building pedagogical solutions. Previously, a typical commercial game would consist only of a weapon and a target -- leaving educators little room for inserting educational enhancements. Fortunately, as designers are forced to come up with more creative game elements, technologies useful to educational designers will naturally make their way into entertainment media (Squire, 2003).

Perhaps the most successful innovation in game designs is the development of modern massively multiplayer online games -- MMOGs. In these games, rather than playing within a pre-programmed environment, players exist as characters in a virtual world formed through their interactions with other live players on the Internet. The unparalleled success of these games should be of interest to anyone trying to understand adolescent motivation and attention. In stark contrast to the high school language teacher sometimes struggling to receive 30 minutes worth of homework from students, the alarming success of MMOGs has prompted the establishment of government organizations to control their use and psychological addiction (Yee, 2002) after a set of players neglecting to break for food collapsed following up to 84 hours straight at their keyboards (Farrell, 2002; Gluck, 2002). Makers of the popular online game "Everquest" (commonly referred to as "Evercrack" for its addictive properties) found the average player spends over 20 hours a week playing the game (Everquest or Evercrack?, 2002).

While it might be nice to get teens to spend 20 hours a week solely on their Spanish homework, we should consider the educational potential for leveraging the phenomenal ability of MMOGs to capture the attention of adolescent audiences and bring them into a manipulatable world with players from all over the planet. Some studies have reported success at integrating MOOs, the historical predecessor to modern MMOGs, into the language classroom (Von der Emde, Schneider, & Kötter, 2001), although the educational potential for MMOGs is only just beginning to be examined (Coleman, 2004; Squire & Jenkins, in press). Simply by having such an international population together in a virtual community based on communicative interaction, motivated players have access to countless native L2 speakers and tasks to discuss with them -- though much could be done to extend this possibility to encourage shy learners to find and interact with players speaking their L2. For example, in a game like *The Sims Online* -- the MMOG version of *The Sims* -- players begin by choosing a city to live in, finding a house, then chatting with and getting to know their roommates. Besides merging international editions to form bilingual versions, another almost effortless modification game designers could make to interest language learners would be to create incentives and ways in which players could find and partner with native speakers of their L2 trying to learn their L1. This would not only provide the above-mentioned benefits of playing a bilingual game, but also provide learners with an L2 native from whom to learn about culture and language while performing a series of entertaining tasks requiring communicative exchanges. Alternatively, teachers could collaborate with classes in other countries and assign their students L2 speaking roommates.

Besides multiplayer interaction via the Internet, speech recognition is another advancement often regarded as a promising candidate for making CALL truly interactive, though to date the number of successful applications has been limited due to its poor performance and high system demands. The Learning Company provides one of the better examples of speech recognition technology in their Learn-to-Speak product line and freely available VirtualTalk Web site. These programs allow learners to engage in a simulated conversation by presenting them with a list of possible responses to choose from whenever they have a turn to participate in the conversation. The program then simply has to match the learner's response to the closest of the available responses and provide corrective feedback.

While pre-programming each of the expected responses greatly improves functionality -- such that even foreign accents can be somewhat accommodated -- it significantly increases the design complexity. As a result, participatory conversation designers targeting the foreign language market often need to simplify interactions in ways that impair both the entertainment and educational value. For example, in response to a question such as "Would you like some coffee?" designers may need to force learners down a single prepared path ("Yes, please/I'd love some/Sure, thanks") rather than creating distinct paths a learner can meaningfully choose between ("Yes, please/No thanks/Do you have decaf?"; Hubbard, 2002).

While in the foreign language software market it may not be feasible to create lengthy and complex dialogs -- a typical VirtualTalk conversation generally lasts only a couple of minutes; games targeting the larger entertainment market should begin incorporating spoken interfaces in the near future. While U.S. releases have only just begun to do this, such games have been available in the Japanese market for some time: *Seaman* takes the old tomogachi virtual pet craze to a new level by presenting players with a virtual baby fish-creature, which they must nurture into adulthood by conversing with it about its life and conditions. Raising a creature from birth to adulthood is expected to take about a month, with about 10 minutes of interaction a day. For more advanced students a game such as *Operator's Side* (*Lifeline* in English) includes all the elements of a typical action/adventure game, though instead of directly controlling the main character, players are challenged to direct her entirely through vocal instructions based on over 100,000 phrases.

While there are numerous other commercial gaming innovations that could be discussed, the ability to easily edit international language files combined with advances like MMOGs and speech interfaces should be incentive enough for us to begin considering how entertainment focused games can be used for language learning, rather than needing to develop an edutainment title from scratch. For researchers, modifying commercial games offer a quick way to develop rich content for examining student motivation, task-based learning, context effects, incidental learning, and simulated immersion; additionally it could prove useful in rapidly creating content for less commonly taught languages (Figure 7). For commercial game designers, selling foreign language expansion packs provides a simple way to further capitalize on investments already made into creating versions for different languages and, in the case of MMOGs, the collection of a large multi-lingual community of players.

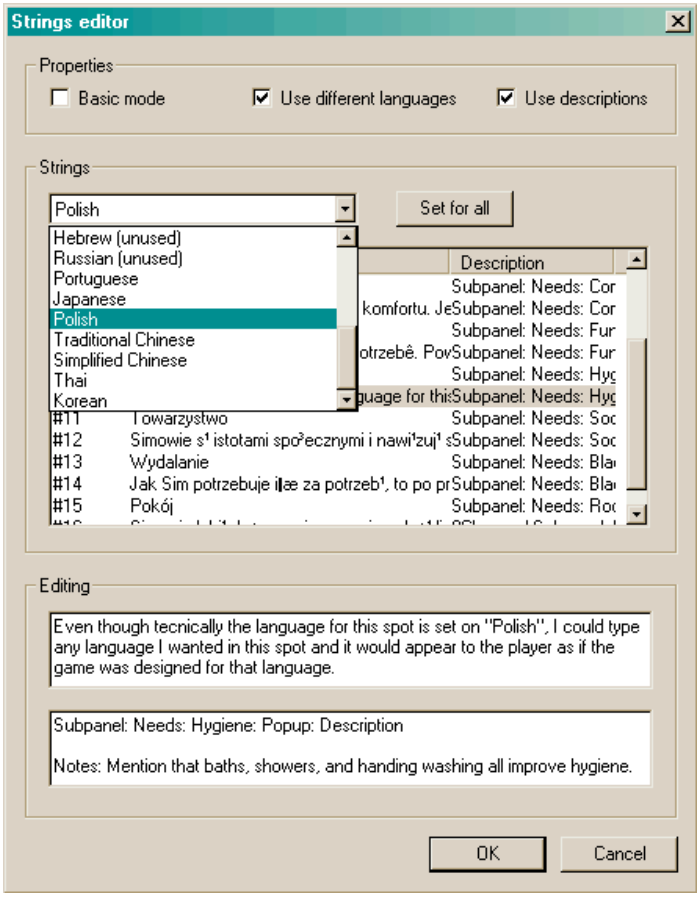

Figure 7. Games can be edited to support entirely new languages

YOU'RE NOT STUDYING, YOU'RE JUST BROWSING THE WEB

As game design develops further, even more opportunities for practicing foreign languages within entertaining contexts will become available; the main challenge for educators will be to fold the value added by games in with the structure provided by a traditional learning environment. A beginning classroom playing a bi-lingual *The Sims* needs a way of focusing student attention on learning the most relevant words and an intermediate Japanese class playing a bi-lingual *Operator's Side* needs a way of preparing students for all the vocal commands expected in the game. One possibility might simply be to assign exam words as vocabulary homework for students to memorize during independent study time. This, however, may lose some of the interest of the less motivated or less organized students.

Being the world's worst language learner, it always took me far longer to learn foreign vocabulary than any of my classmates. In asking some of my more successful classmates how they approached vocabulary, they mentioned that they studied flashcards during television commercials. Lacking either a television or index cards, I set about to instead make an equivalent system for browsing the Internet.

Much like the language data for *The Sims,* the user interface descriptions for the latest Mozilla and Netscape Web browsers are stored in editable files. This allows anybody with knowledge of XUL, a language similar to HTML/XML, to rapidly reconfigure the layout and design of the browser interface. In most browsers, the upper right hand corner includes a logo known as a "throbber" which animates while loading a Web page. During my German class, I replaced my throbber with a small frame pointing to a Web site containing a randomized vocabulary word from the current chapter of my textbook. Instead of displaying a corporate logo, the throbber in the top right corner displayed a German word and image

while loading a Web site, followed by the English translation when loading was complete.In my case, this simply served to flash new vocabulary words while I was waiting for Web sites to load, although such a system could be extended in any number of ways (see Figure 8).

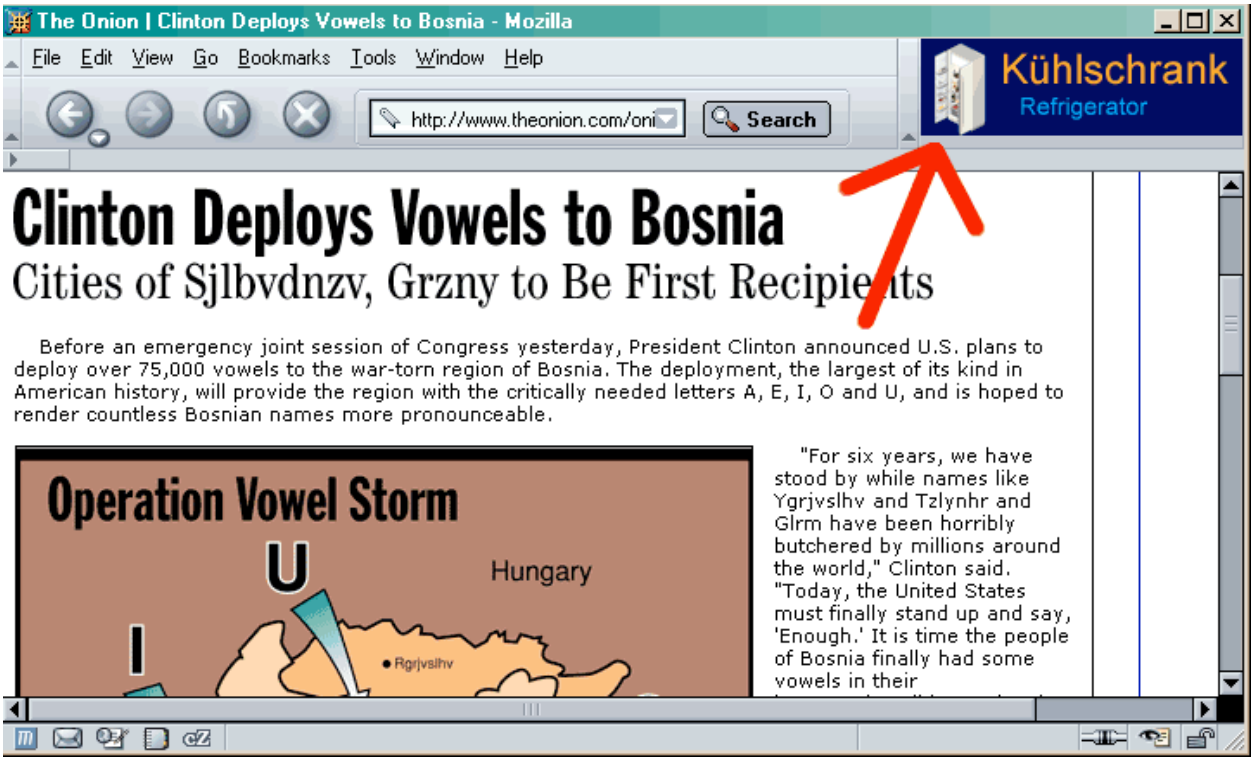

Figure 8. Top right corner is replaced with an online flashcard system for when pages are loading

Being part of the browser, the internal frame used in this example naturally inherits the ability to display HTML -- making the implementation of rich media annotations a simple process using commonly available authoring programs. Furthermore, this opens possibilities for direct authorship by students. Nikolova (2002) shows how vocabulary retention is best when students author their own personalized annotations, yet cautions that logistics and time-on-task can actually outweigh such advantages. With this in mind, an innovative textbook publisher could offer a Web gallery where students who enjoy authoring could share any multimedia annotations they develop (Figure 9) would then provide those students not inclined to authoring with a large point-and-click repository, allowing them to personalize their annotations in a time efficient manner.

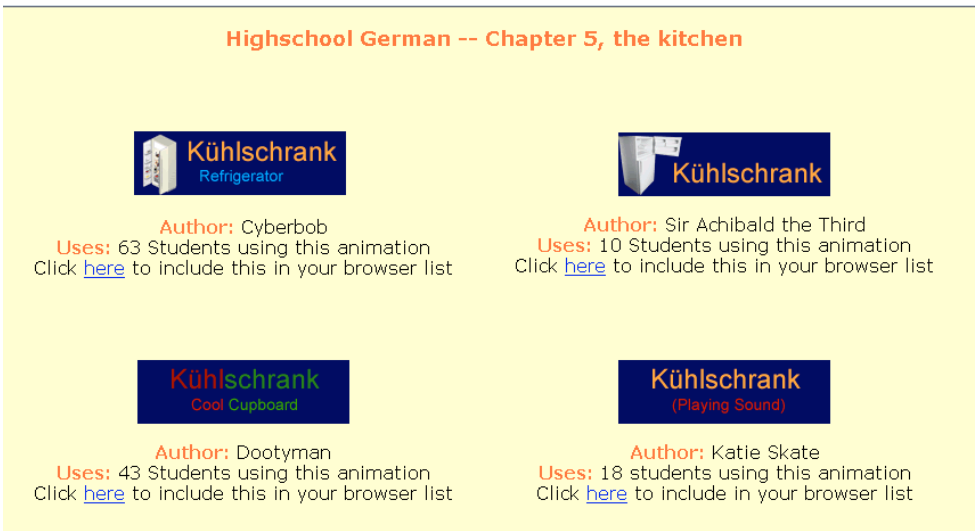

Figure 9. Possible gallery for classrooms who choose to author their own annotations

Besides inheriting the rich media capabilities of an HTML renderer, an internal browser frame also has access to the same scripting environment and programming capabilities as the main browser frame. This allows it to interact with the user and other components of the browser. For example, it could adaptively adjust its content based on which site the user is currently visiting. Another script may be able to monitor language-learning exercises students perform online and then automatically update its content according to their mistakes. For users who consent, a script could additionally allow the browser to automatically transmit data about student's usage back to a researcher. As an example of the numerous possibilities available to creative educators, the Mozilla browser includes a feature that replaces advertisement banners with blank images; rather than blank images, advertisements could be replaced with vocabulary images.

Although learning vocabulary phrases while waiting for Web sites and programs to load fragments a student's studying into numerous quick flashes, it features many advantages over dedicating a set block of study time. For adolescent learners, the clearest advantage is that little else can compete for the learner's attention. While a 10-minute study block could also be redirected towards Friends™,[1] flashes integrated into Web site loading have a more captive audience. Furthermore, a digital delivery system centralizes the logistics behind studying away from each individual student to the teacher or textbook publisher. By having content stored on a Web site, teachers can specify the current vocabulary words and deliver them directly to the student's browser interface -- such that even the least disciplined student is forcibly saturated with material of the teacher's choice.

Besides logistical advantages, a more fragmented vocabulary exposure system could also aid the long-term retention of words. Numerous studies show long-term advantages when items to be remembered are spaced out in their presentations (Bjork & Bjork, 1992; Forester, 2002). Other studies show the importance of a learner being in the same mood when trying to recall an item as when learning it (Forester, 2002). By distributing and repeating exposures of a target vocabulary phrase across the whole time a student is using a computer, the student is more likely to have seen a given word in a wider range of moods. In a dedicated study time, students are likely to stop studying as soon as they can successfully recall an item from memory. Researchers suggest, however, that if an item is to remain accessible in the long-term, students must continue studying a word even after it appears to be learned (Bjork, 1999). Keeping study content in the periphery of a student's browser interface encourages continued rehearsal.

YOU'RE NOT STUDYING, YOU'RE IN TYPING CLASS

Another possibility for getting students to engage in more rote forms of practice without needing to compete for their free time is to piggyback foreign language practice on time spent working with a typing tutor. Many high schools already include classes where students practice with a typing tutor, though there is little value in repeatedly telling them about how the quick brown fox jumped over the lazy dog. One simple modification could be to set a typing tutor to use sentences in the language the student is learning. The Online Spanish Tutorial and about.com German offer a series of model sentences students can memorize in order to learn grammatical concepts such as differentiating "*por*" and "*para*" or dative versus accusative prepositions; however, students may find memorizing so many sentences tedious and boring. Williams and Thorne (2000) report on how students learning foreign language subtitling acquired impressive language skills simply as a byproduct of their subtitling practice. By using the customize sentences feature available in most typing tutors to include key L2 sentences, students could likely gain similar language learning side effects from their keyboarding classes. For typing tutor programs that offer further customization, high school language teachers could work together with keyboarding teachers to supply sentences synchronized with the current course material, bi-lingual games, or pop-music lyrics.

YOU'RE NOT STUDYING, YOU'RE JUST LISTENING TO MUSIC

In every language classroom I have attended or observed, there has been some attempt to use music as a medium of engaging students. While music has strong potential for sharing foreign culture with students, its use in classrooms has numerous challenges. Foremost, musical tastes are often very individualized, making it impossible for a teacher to find a single song that can similarly engage all students. Though I had numerous German teachers, each preparing lessons on songs ranging from traditional folk to punk-metal, it was not until I found artists for myself that I was able to appreciate German music enough to voluntarily listen to and study it regularly on my own free time. Another challenge is that song lyrics can often be difficult to recognize accurately -- even for native speakers. Also, it can be difficult for a teacher to provide instruction while a song is playing. Often this requires students instead to first exclusively listen to a song and then switch to studying a printout of the lyrics to try to understand what they just heard.

Previously, the only access students had to foreign music was often their teacher's personal CD collection. Today, however, resources like MTV international, net radios and audioscrobbler allow learners to independently explore modern music worldwide – with services such as iTunes and Napster emerging to provide affordable and legal purchases. Now that most digital songs are using ID3v2 or higher, one feature useful for language learners is that synchronized lyrics can be embedded directly into MP3 files. Combined with an OCR-capable translator, this allows learners to follow along with a foreign song as it is playing (see Figure 10). For older songs, synchronized lyrics can easily be inserted or retrieved from online databases.

following_synced_lyrics.avl

Figure 10. A listener follows a song through syncronized lyrics and uses an OCR translator to look up unfamiliar words

In an ideal world, rather than clicking each word for an electronic translation, we would simply have a bi-lingual friend or teacher always standing beside us whenever we wanted to listen to a foreign song -- ready to translate any unfamiliar words for us. While always using a friend may not be so realistic, it can be simulated practically using 3D spatialized sound technology. By delaying the timing at which a given sound is delivered to each ear, insertions can be made to songs that sound as though they are coming from a physical location different from the ambient song. This allows educators to embed instructional content directly into a song (or other audio content) while still maintaining a clearly audible distinction so as not to detract from the main song. (see Figures 11, 12, and 13).

fur_mich_ans_lickt_4_meters_right_translation.mp3

fur_mich_ans_licht_4_meters_right_translation.wav

Figure 11. Example of song with spatialized translation simulating a translator standing 4 meters to the right of the listener (please use headphones; creation details)

fur_mich_ans_licht_innerear_halfm_left_translation.mp3

fur_mich_ans_licht_innerear_halfm_left_translation.wav

Figure 12. Example of song with spatialized translation simulating a nearby source to the left

luftbalons_innerear_5m_right.mpg

Figure 13. Example of a music video combining both spatialized translations and captions in order to maximize comprehension (please use headphones)

YOU'RE NOT STUDYING, YOU'RE JUST WALKING TO CLASS

In recent years Simon and Schuster Corporation has been developing a language learning solution known as the Pimsleur series, receiving widespread popular reviews throughout the Internet. Despite the $725 price tag, Amazon.com user surveys[2] for their comprehensive Spanish series give 60 out of 72 perfect 5-star ratings and overall enthusiastic reviews (Amazon Reviews, 2003):

> I was a definite beginner with Spanish; now I speak more and better than my husband who took Spanish for years in school.
>
> If you enjoyed Spanish in high school, you probably won't like this course. This one is easy on your mind, fast, and doesn't require repetition of the same old stuff over and over ... and over. I used the course while commuting and was surprised at the amount of retention in just a short period of time.
>
> The comprehension level is amazing. And the one thing that is so great about it is that you don't need to study a book … even if you do prefer visual learning, you would benefit greatly from this system.

Most distinct about this series is the exclusive use of auditory materials on cassette or CD. Personally, I found listening to the comprehensive German series I had loaded onto my cell phone while walking between classes to be a stress-free way of incorporating an hour of practice into my daily routine. Following these 50 hours of instruction, I felt more than comfortable enrolling in UCLA's second level German -- despite my previous failed attempts at first level German. Unfortunately, unlike my prior listening while walking, completing assigned written exercises was always in competition with studying my other textbooks -- rarely allowing me time to do more than temporarily memorize the contents of the next quiz and ultimately requiring some of the other learning strategies discussed in this paper by the time I finished third level German.

In the past, written print has generally been the more practical medium for introductory level language homework; whereas a textbook could always be taken anywhere and studied at any time, auditory materials sometimes required a dedicated trip to the language lab. This partially encouraged written assignments to become the primary medium for practicing grammar and vocabulary -- with accompanying auditory material usually provided only to supplement listening practice where necessary. Today, however, an entire day worth of non-stop portable audio can fit on a common one inch flat memory chip. Furthermore, simply for entertainment purposes, portable audio players are rapidly

becoming ubiquitous in the life of the average adolescent -- with predictions that by 2005 it will be possible to directly purchase, receive, and play music all by cell phone (Digital Media, 2003). As both the next generation grows up fully accustomed to portable media technologies and professional digital audio production tools become more widely available, researchers should work to find the best balance between auditory and written practice materials and examine the impact of providing students materials similar to Simon and Schuster's Pimsleur series that are synchronized with course topics and examinations.

YOU'RE NOT STUDYING, YOU'RE JUST DOING WHAT YOU ENJOY -- WOW

Proponents of Content Based Instruction (CBI) have done a great service to students by bringing authentic and personally relevant materials into the classroom. Still, when we consider the enormous range of media forms and different literacies present in a digital society, we really have only begun to explore the possibilities for how authentic materials can be used. For each learner in a given country, there is literally a world of different popular media items they would be exposed to had they grown up in the country of their L2. For those aspects of popular culture with a technology component, accessing the corresponding L2 versions for the different media forms in one's daily life is often easier than might be thought. For example, simply by changing the location setting, users of the English version of the Yahoo mail service can optionally access mail and receive their advertisements in 12 different languages.

Many of the more successful CBI paradigms have been those using academic content, perhaps because they manage to blend so naturally into a classroom environment. For adolescent learners, however, academic content may not even be able to capture their attention to begin with, let alone sustain it for an hour of instruction in an unknown language. In this case, rather than finding what is suitable for classroom use and then working to capture student attention with it, we should instead begin with the popular media forms that students would independently be interested in had they grown up in the country of their L2 and then find better ways of integrating them into the language learning process. Certainly, no teacher could be expected to independently design lessons that provide language instruction for all their students' different media preferences. Rather, by devising ways to embed language instruction directly into popular media, curriculum designers can offer students highly adaptable learning environments to explore and teachers cutting edge curriculum that can be implemented as simply as assigning textbook pages.

While this paper has provided examples of embedding language instruction into games, Web browsing, and music, the same potential is likely to be found in virtually any digital media form. Most media technologies include accessibility features for the blind or deaf. As demonstrated with music videos, using these extra modalities to include the L1 can be a powerful way to modify them for language learning. Advances in internationalization programming place most language data for software outside the main program so it can rapidly be translated to other languages. In fact, when Squaresoft entertainment announced their intention not to create an English translation of their popular *Final Fantasy V,* a group of volunteer fans was able to create one without assistance from Squaresoft. By understanding how to merge and take advantage of multilingual datasets, researchers can rapidly generate engaging learning content from any internationalized media. Finally, meta-description developments such as XML give us power and flexibility when annotating content with instructional extensions. By understanding how these and other upcoming innovations fit together, curriculum designers should have enough flexibility for embedding instructional extensions into authentic media to alleviate either extensive teacher preparation for using commercial media resources or the need for artificial edutainment materials.

Often as a follow-up to content based lessons, assigning at least some explicit study of linguistic features can be useful. Lankshear and Knobel (2002) suggest that assignments should be evaluated within an economic framework of how much attention a student must invest in completing it. Within this perspective, we can identify two areas for improvement when assigning explicit study to adolescent learners: First, explicit study tends to consume 100% of a learner's attention while performing it, making

it costly for the learner to invest more than is necessary to receive a satisfactory grade. By embedding language instruction into learning to type or any daily routine, students are able to make a double return on any attention they invest. Second, students naturally consider their free time precious, making it difficult for educators to persuade them to direct it towards studying. Embedded language instruction allows us to capitalize on moments where attention is less scarce. Similar to how a roadside billboard manages to attract our attention to a product we might have ignored when busy, pushing materials at students while waiting around for a parent's car to arrive or waiting for a Web site to load allows us to engage them when their attention is less valuable.

In 1989, Brinton, Snow, & Wesche wrote, "CBI aims at eliminating the artificial separation between language instruction and subject matter which exist in most educational settings" (p. 5). In the past 15 years, technology has advanced into a new epoch, requiring every academic discipline to re-evaluate its possibilities. By fully understanding the convergence of language instruction and digital media, we should now be able to eliminate the artificial separation between language instruction and everyday life -- allowing even the world's worst language learner to enjoy learning a foreign language.

NOTE

1. Friends™ is a popular U.S. television show

2. These are self-selected participants, see other amazon.com reviews for a comparison baseline.

ABOUT THE AUTHOR

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