Children Learning English as a Foreign Language
Addressing Multiple Learning Styles with Technology

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"For the things we have to learn before we can do them, we learn by doing them."

Aristotle

■ School

"School," says Mannoni, "after family, has become the place where neuroses originate—neuroses that are later 'treated' in parallel schools, otherwise known as hospitals." Francois Dolto writes, "It needs to be said that school adaptation, with rare exceptions, is currently a widespread symptom of neurosis." Analysts are being confronted with a new disease that does not need to be "treated." It consists of the refusal to adapt to school, which is in itself an indication of the health of a child who rejects the crippling lie that school imprisons him or her." (Fernandez, 1987: 100).

In these pessimistic—although in many ways, bitterly realistic—visions, these two celebrated French psychoanalysts highlighted an abhorrent facet of late 20th century school life: adults preoccupied with content that never or infrequently challenged their students; and methods ranging from seduction to desperation, appeasement to repression, never managing to win over young students in the latter years of the last century, let alone the so-called "digital natives." A mutual deception occurring in one of the places where there is one of the greatest disagreements between the generations: the classroom.

A very positive aspect of education in the 20th century was democratization—the possibility of a greater proportion of the population having access to the benefits of training. Consequences of this development were varied; most were positive, but others were not. One of the negative consequences was that in light of this opening up of access to education, standardization and the search for middle ground became the norms, in an attempt to reach everyone by offering the same content in the same way.

We need to remember that until the Industrial Revolution, parents at home were responsible for educating their children. In the beginning, the wealthiest social classes managed education informally. Children learned at home with tutors who were hired for the purpose of teaching them. Those were times when education was truly personalized; this was lost with democratization. Teachers worked in concert with their students, knowing each of them extremely well, synchronizing content, pace, and learning styles accordingly. When schools opened, they became the places where students met together in order to learn the various skills needed for entering into the adult, industrialized world. What is certain is that no teacher or professor, as good as he or she may be, is capable of reaching all students in a single, large class in the same way and with a single method. No student learns in exactly the same way as the next. Everyone is aware of these variables, but even so, education has been managed on these terms, which deny these basic principles of pedagogy, for decades.

Children at the edges of the Gaussian curve get lost. In standardized classes, they do not make as much progress as they could; this applies to both those who are having trouble keeping up as well as to those who are moving along more rapidly than the rest of the group. When we begin to recognize these limitations, they help us to move away from the traditional model of education. Each child learns at his or her own pace, in his or her own style, engaging their multiple intelligences and predominant learning styles.

In this article we will review multiple intelligences and some of the theories about learning that can be useful in thinking about the world of multimedia and its effects. We will also cover some of the differences among learning styles, selecting tools from the so-called Web 2.0 that can help to not only personalize learning according to the pace of each student, but also to recover some of what was lost in the mass approach to education. We will also select activities that can take into account the distinct learning styles among students.

■ Multiple intelligences

Howard Gardner (1997) has put aside the concept of a sole, general kind of intelligence in order to think about it as a structure with multiple components that act as semi-autonomous cerebral systems. For Gardner, the seven intelligences are: *musical, logical-mathematical, linguistic, intrapersonal, interpersonal, bodily-kinesthetic*, and *spatial*. Interpersonal intelligence combined with intrapersonal intelligence would seem to be equivalent to what Daniel Goleman (1998) has conceived as *emotional intelligence*.

When we take these different kinds of intelligences into account, we recognize that having only one way of reaching students is insufficient to educate them effectively. At the same time, we are prompted to begin thinking about new ways of approaching students to bring them closer to knowledge, taking their personal variations into account.

QUESTION: If we were to ask teachers about the intelligences that primarily come into play in traditional education, which ones do you think they would choose?

■ Getting to know the special ways in which your students learn

Visual, auditory, and kinesthetic (VAK) are the three main learning styles identified by **neuro-linguistic programming (NLP)**. Each of us has our own profile in relation to the three principal routes to learning. How can we learn about our own profile or that of our students? A **VAK online test** is available at http://www.vaknlp.com/vak.htm. The test will enable the teacher and the student to know more about each student's own special way of learning, and facilitates a better approach to students' personal learning processes, which is a key aspect of the fundamental metacognitive concept of *learning to learn*.

The Internet, and Web 2.0 in particular, provide countless opportunities to put different learning styles into practice. The world of multimedia and the Web offer a universe that is much more varied and multifaceted than that of the book. All of the learning styles may be engaged through navigation and the use of different Web sites, beginning with the act of Web navigation itself, which is basically visual and kinesthetic (touch is also important on the Internet, although *a priori* it would not seem to be). Surfing the Web offers various ways of approaching all kinds of problems. Is this good? Let's see.

In May 1991, R.J. Sprio, P.J. Feltovich, M.J. Jacobson, and R.L. Coulson published an article in *Educational Technology* in which they developed the Cognitive Flexibility Theory (CFT). This theory proposes that learning about complex subjects is benefited by approaching the material from different perspectives. The authors recall

the analogy of the "physical landscape," understanding that the best way of getting to know one's surroundings is to explore them in different ways—by revisiting them, crossing through them, walking on all of them, etc. (Noo, 1991). While the findings of this theory may be inconclusive, one may argue that offering different ways of visualizing problems helps them to understand various situations better.

■ Different learning styles and their tools

Transferring all of the foregoing to the different learning styles identified by NLP, the following Web sites and computer programs engage the **visual learning style**. There is the archetypal **PowerPoint** program as well as other types of presentation software, such as **Prezi** (www.prezi.com), which incorporates a very appealing way to organize information spatially. **PhotoShow** (www.photoshow.com), **Slide** (www.slide.com), and **Empress** (www.empress.com) are three Web sites that are typical of Web 2.0; images and text can be uploaded, and aesthetically pleasing presentations easily put together without a need for higher technical knowledge. Images can be downloaded from photo networks such as Flickr (www.flickr.com), Picasa (www.picasa.google.com), and Photobucket (www.photobucket.com) into all kinds of contexts and themes, and then used in presentations, animations, etc.

The use of these tools must not only be considered from the perspective of the teacher organizing the material (something that many times stirs up resistance from the teaching staff due to the time it involves); it must also lead to students creating different projects by using various tools. In addition, many times the process of creating projects requires following instructions, and involves a level of reading comprehension that can be significant in the context of teaching a second language.

In addition to projects, students can be asked to put together their own **tutorials** (combining images and sounds) that focus on these different tools. They can make presentations in which each person engages his or her own learning style (visual, auditory or kinesthetic), thereby creating tools for learning. This may seem like a play on words, but it isn't; it goes substantially deeper.

In addition, it must not be forgotten that many times these presentations function as *tools for thinking*, since they not only encompass a way of presenting materials, they offer a way of ordering and organizing scattered knowledge. One learns by doing and by teaching. On the other hand, the **kinesthetic** learning style is engaged to the extent that students are making presentations in which they must *do things*; this is essential to a kinesthetic learning style. As mentioned above, performing tasks on the Internet puts touch into play, from the use of the mouse to the "drag and drop" function seen in many programs. This greatly helps students with a kinesthetic profile.

All of these styles work together in the process of **learning by doing**, something that Aristotle, in the quote that appears at the beginning of this article, demonstrated as fundamental to meaningful learning. Furthermore, the results of meaningful learning can be carried out **collaboratively**, which is one of the most important aspects of Web 2.0. Through collective and institutional accounts, many tasks can be done in a group setting: learning can take place with and from others in the process of constructing learning.

Google Docs (one of the many tools of Google) can be tapped for collaborative work, leading to the creation of p2p (pair to pair), DIY (do it yourself), or DIWO (do it with others) projects—all of which are in tune with the spirit of Web 2.0.

Wikis (www.wikispaces.com; www.wik.is; and www.wikizoho.com are three sites that host wikis) and **blogs** (Wordpress and Blogger are the most frequently used) are tools that allow students to engage their creativity as they learn.

Wikis and blogs allow the hosting of **multimedia and hypertext materials** that will once again allow students to emphasize their learning styles.

The use of these tools for storing or creating can also be varied. For the teacher, this may be a blog with a theme relating to a specific topic that he or she wants students to explore (for example, the North Pole, water, or the Olympic Games), a blog for each class that the teacher is in charge of; or a teacher's blog that can be used in different contexts and with different groups (for example, Professor X's blog).

■ Eyes that see . . .

Within the visual learning style, **semantic maps** are also useful tools for working with concepts, vocabulary, or taxonomies. A **mental map** is a diagram that can be useful in organizing knowledge with words, ideas, concepts, images, and sounds that are grouped and organized around a key word. Semantic maps allow us to visualize taxonomies and ways of understanding concepts; they can assist in the comprehension of various phenomena, permitting us to observe the structure and order of a given situation. **Inspiration, Kidspiration, CmapTools, FreeMind,** and **Visual Mind** are some of the many different, powerful tools that facilitate the organization of **semantic** or **mental maps**.

Taking the activity of simultaneously **visualizing and doing** a step further (something that is especially useful for **kinesthetic** learners), we encounter **infographics**—visual tools used more and more to organize knowledge in ways that are more comprehensible and easily grasped within the context of the 21st century. Our exposure to *infotoxication* leads us to search for mechanisms that are more effective in displaying available information and the relationships that exist within it. Magnitudes and numbers alone do not reflect the real dimensions of phenomena. Through graphic representations, infographics help us find relationships that better illustrate the differences between phenomena. Sites such as **Many Eyes** (www.958.ibm.com/software/data/Cognos/manyeyes/) or **Wordle** (www.wordle.net) allow us to create images that are based on data or text information—images that are highly appealing, especially to "digital natives."

■ Are you listening to me?

The use of **podcasts** or audio files by students who learn predominantly through the **auditory** learning style is an extremely important resource facilitated by the Web. **Odeo Studio** and **Audacity** (www.audacity.sourceforge.net) are two software programs that can be used to edit sounds and audio content. They also offer the possibility of mixing different types of audio content that are already on the Net with other materials that students can work with.

If one is working with small children or intelligences that are linked to artistic talents, **Tubeoke** (www.tubeoke.com) offers short films that make classrooms fun, pleasant, and musical.

It's also possible to have fun with the videos on **YouTube** (www.youtube.com), which can be subtitled or re-titled, creating new productions in the best tradition of the Web: "rip, mix, and burn." YouTube also allows a user to edit uploaded videos (albeit in a rudimentary way).

Various kinds of animations and short films that add dimension to classroom themes can be created using software, such as **Moviemaker, Cyberlink** or **Adobe Premiere**, resulting in material with high student appeal.

In addition, the existing videos on **YouTube, Vimeo** (www.vimeo.com) or **YouTubeEdu**, which is the area of YouTube that is dedicated specifically to education, provide material for practically any theme that one would want to exploit in multimedia mode:
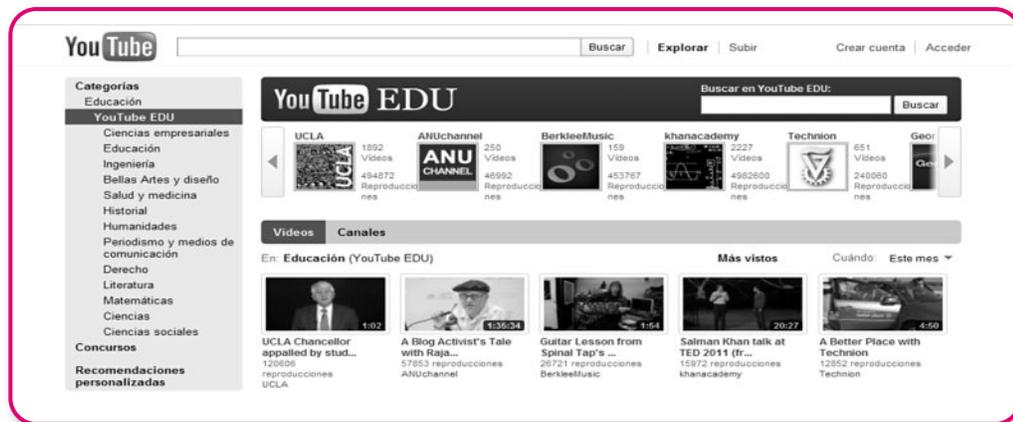
Finally, **XTranormal** (www.xtranormal.com) is free online software that facilitates the creation of animations with characters in different surroundings, and dialogs that have a certain, continual level of humor. For those who seek to make something or do something while they learn—kinesthetic learners, according to NLP—this kind of software is important since it keeps learners constantly in motion, engaged, and creating.

And for those who like literature or the movies, **Celtx** (www.celtx.com) allows users to create stories, comics (**Strip Generator**, www.stripgenerator.com is also available), and scripts for films, making the writing task fun.

■ Social networks and their role

Social networks offer a great way to put **collaborative learning** into play, and to construct knowledge through the conversations that can take place in those contexts. "The wisdom of crowds" (Surowiecki, 2005), "collective intelligence" (Levy, 2004), or "connective intelligence" (De Kerckhove, 1997), is put into action on social networks, where users basically learn from others.

- **Facebook** can be used to create groups and group work. Within the past two or three years, Facebook has come to serve as a great platform for digital literacy.
- **Twitter** can also be used, either by "following" or consulting experts on various themes, or through different hashtags or labels (key words preceded by the "#" sign). Groups can be created along the lines of themes or key words as time goes on.
- It's possible to create one's own social network on sites such as **Osum** or **Ning**. These sites take the creation of community learning groups a step further.

Many of these ways of learning are in harmony with the spirit of Web 2.0; that is, students are *producing* instead of *passively consuming*; and they reflect the critically important model of sharing information and knowledge, and also knowing how to go about doing this.

Wikipedia (www.wikipedia.org), the controversial online encyclopedia, is an example of unavoidable collaboration and production.

Similarly, there is no better way of motivating students than by helping them in a task that, instead of being relegated to the small realm of the classroom, can be made accessible to millions of users and be seen as many times as one likes from anyplace in the world.

Collaborative magazines and Web sites can be produced through **Formatpixel** (www.formatpixel.com), **Magazinefactory** (http://magazinefactory.edu.fi/index.php), or **Wix** (www.wix.com); these sites transcend classroom walls, and do not require advanced technical skills.

In conclusion, here are some other highly interesting multimedia resources to bear in mind:

- **Google Body Browser** (a human body navigator);
- **Google Earth** (navigates the surfaces of the Earth and the Moon);
- **Slideshare**, www.slideshare.net (can be used to share PowerPoint presentations); and
- **Del.i.cio.us**, www.delicious.com, a directory of Internet bookmarks.

■ A final word

There are traits that distinguish generations in their predominant ways of learning, and there are areas having to do with general human cognition that apply equally to everyone. There are different intelligences and learning styles that come into play in the classroom. **Web 2.0** offers possibilities for visualizing, listening, using the senses, and making it possible for students to find different ways of accessing knowledge. **Flexible Cognition Theory (FCT)** suggests that information that is repeated in various contexts helps to improve the transfer of knowledge. The use of multiple perspectives in educational programs is a critical element in FCT:

- Using mini-cases or small segments of information is a strategy that facilitates the restructuring of knowledge, as well as access to complex matters.
- Reusing material in different, restructured contexts, with changing objectives and distinct conceptual perspectives, facilitates the acquisition of advanced knowledge.

Today, the digital school—informal learning through computers—can help in the process of reverting to personalized education. It can strongly collaborate in the process of adapting education to the rhythms and styles of students, by not subjecting them to the pace and forms of the kind of education denounced by Dolto and Mannoni in the quotes appearing at the beginning of this article.

We hope that all of the resources described in this article will be useful in creating schools that can be places of enjoyment, learning, and personalization, and not places that accommodate the goals of "normalization and standardization." The school / factory must leave room for itself as a space for creativity and research. In order for this to occur, it is not necessary to be acquainted with all of the tools; it is important to know of their existence and to learn, together with the students, the best ways of making use of them. These tools can teach us and remind us that one of the keys to good teaching is to always be in the position to learn.

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