

## Preparing for the Future in CALL

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Computer Assisted Language learning (CALL) has witnessed many changes over the past two decades. It is assumed that this trend will continue in the future. Just what can we expect to see within the next decade? How will it alter our daily lives as instructors? What can we do to meet the new challenges and opportunities that these technological changes will bring? These are just some of the questions we may ask when trying to put these changes in perspective.

### **What trends have we witnessed in the past two decades?**

#### **Increasingly Tech-Savvy People**

Technological innovation over the past two decades has dramatically altered human life in most of the world. These advances have certainly amazed all who have followed them. Not only can we communicate with one another at such great distance in such a variety of ways, but we can also communicate with technicians and engineers about technology needs. We may not be fluent speakers of this language, but most of us are now at least literate speakers. We have become so literate, in fact, that Internet access and e-mail are considered to be basic utilities and a current predominant concern with technology is the environmental degradation caused by the rapid rate of discarded hardware.

#### **Analog to digital**

One primary and obvious development is the move from analog to digital. The analog to digital shift has been underway since the invention of the CD in 1982. As analog tape or film has disappeared from your VCR, your camera and your music collection, it has also disappeared from instructional technology. Digital media is less susceptible to degradation and more flexible than analog media.

While technologies like OHPs, Videotapes and Cassette Players have played an important role in language instruction, it is evident that new digital replacements are superior in performance, reliability and quality. Users of digital media can access any point of a recording immediately, insert information *within* a recording (without recording over the existing information) and transfer recordings with little to no degradation. Future developments in this area will include improved compression, allowing media files of lengthier discourse to maintain integrity while occupying less disk space.

#### **More Media Intensive**

This digital shift has increased our desire for a media-rich environment. While the creation, viewing and exchange of audio and video files today is quite impressive, we are generally limited by bandwidth for exchanging these memory-intensive items. Today's users can reliably create elaborate and impressive videos, view brief movie trailers online and exchange compressed audio with others. However, streaming full-screen video overwhelms most infrastructure today. Recently, a major education publisher hosted a web-cast with a famous author during which the speaker's image melted, pixelated and contorted into an indistinguishable mess. While such delivery should be more reliable in the near future, prudent instructors will avoid overextending their abilities.

### **Improvements in Interface and Interconnectivity:**

Two decades ago personal computers were just beginning to incorporate color and a Graphic User Interface (GUI), allowing non-programmers to become computer users. This advent is noted by Wired magazine (1997):

Released in 1984 and billed as "insanely great," the Macintosh caught the public eye with one of the most famous commercials ever. This immortal television advertisement depicted users of IBM's PC as Orwellian drones trapped in the maw of a monochromatic, brutally mechanical, command-line interface, and dramatized their symbolic liberation by a woman bearing a new tool for home computations.

It would be another decade before the first GUI interface would be available for use on the newly established World Wide Web (Berners-Lee, 1998; Abrams, 1998). Early instructional use of the Internet was limited by the amount of information available, but the information was likely to be valuable and relevant since most servers were educational or governmental. This was soon to change. Estimates suggest that 66% of all Internet servers were exclusively commercial by 1996 and 90-95 % of Internet traffic was commercial by 2000 (Barber, 2001; Motavalli, 1996). This development meant that research done on the Internet would require more careful information gathering techniques. While the development of GUIs had made Internet access easier and more media-rich, the resulting commercial popularity forced one to *learn* to use the Internet for instruction.

We have seen many improvements in interface as well as a growing appreciation for its refinement. Critical approaches to evaluating interface, such as employing objective checklists, gathering student feedback and incorporating usability testing have resulted in greater user predictability (Boling & Soo, 1999; Kessler & Plakans, 2001). It can only be assumed that interface will continue to become more intuitive in the future. Perhaps we will achieve the ultimate in intuitive interface: an immersing virtual reality (VR) that is nearly indistinguishable from reality itself. If not, we will certainly see advancements in this direction.

## **More Dynamic Interactivity**

The use of CALL materials has consistently moved toward a more dynamic and meaningful ideal. While early materials relied heavily on mimicking drill work, many now integrate materials within a virtual community, thus increasing the students' interactivity with one another. Increased interactivity with the computer itself has improved, but users often expect more than they receive.

As artificial intelligence (AI), and programming progress we can expect to see great improvements in VR and speech recognition (SR) that will enable a more richly contextualized and responsive environment in which teachers will easily embed instruction. While an appreciation for VR has been recognized over the years, a great deal of imagination has been necessary for the user (Insert something here about this from the article (Iannou-Georgiou, 2003)). An elaborate three-dimensional fully navigable world that will further enhance and authenticate a learner's experience without such need for imagination will be realized in future design. This new VR will be more responsive not only to text and audio input, but will also incorporate the ability to respond to impulses of touch and sight. Success with SR has been achieved on a limited scale, but advances must be made in a system's ability to *learn from* and not simply react with pre-programmed responses before SR will live up to its promise. It must also better accommodate multiple users since most sophisticated systems have gravitated toward tailoring themselves to an individual user's voice. Systems for language applications should be expected to overcome this barrier in the future and allow us to rely on providing rich oral/aural interactive experiences for our students.

## **Increased Mobility**

Up to 15% of American Universities require students to own laptops. This approach alleviates universities of the burden of outdated equipment, environmental degradation and technological lag accompanied traditional computer labs. Some universities have also purchased virtual labs: carts consisting of a wireless hub, a number of wireless computers and appropriate peripherals such as a printer or projector. These units allow any classroom to become a CALL lab, thus increasing the efficiency of valuable resources such as dedicated space, expensive networking and staffing as well as the aforementioned issues of traditional labs (Opp-Beckman, 2001; Kessler, 2003). As more ISPs add wireless capability, we are certain to see a rise in the use of wireless technologies outside the classroom.

The proliferation of distance Education has increased expectations of instructional mobility. Course Management Systems (CMS) such as Blackboard®, WebCT® and Nicenet® have become quite commonplace in ESL programs. It is difficult to identify a college level institution that does not offer some sort of distance learning today. As more people become familiar with distance education, the division between traditional and distance methods of instruction is likely to blur. In fact, I have heard predictions that brick and mortar universities will soon be a thing of the past.

We have recently seen a sharp rise in the availability of other portable computing devices such as Personal Digital Assistants (PDA), ATMs, Cell phones and Global Positioning Systems (GPS). These devices, which have become increasingly smaller and more powerful, may most influence the design of future instructional technology. They perform tasks as divergent as identifying an individual's location on the planet to organizing her appointments. Many have also begun to integrate a number of functions into a single device. Such functions as text-messaging, calendar-sharing, digital photography and geo-caching (see [geocaching.com](http://geocaching.com)) currently incorporate activities and skills transferable to language instruction. With wireless connectivity, a portable device provides much more flexibility than a desktop system.

Users should expect traditional desktop systems continue to be replaced by more portable devices, including those that are wearable, and even implantable. The potential for CALL use of such devices will only be limited by the imagination of instructors.

### **Greater Teacher Control**

Teachers now have much more control over students' use of CALL activities. Teachers have developed a better understanding of available resources and are therefore better prepared to make decisions regarding their use. It has become easier to create a web page of online resources, or add relevant links within a CMS enabling teachers to customize their students' use of such material. Teachers have also become more competent at creating their own instructional materials. In part this has been due to the development of technologies that allow regular users to design everything from basic web pages to dynamic media intensive extravaganzas. By following simple step-by-step procedures, today's users can easily crossover into the realm of developer without any knowledge of programming languages. This development has resulted in a shift in popular music, a new age of independent film, and a general populace that sees itself as capable of participating in a meaningful way in the digital dialogue. An instructor who wants to make the most of this shift will not only create materials for student use, but also encourage students to be creating materials as part of their language development. Such individual control has also fueled the advent of open source software, allowing users to customize and contribute to the ongoing development of a software title. In the future we will certainly see a rise in this individual empowerment.

### **What Can Instructors do to Prepare for These Expectations?**

As the Internet, World Wide Web, Email, or other forms of interaction-enabled wide area communications expand, it is expected that we will see an adaptation of what are now considered conventional teaching techniques. Most of the many accumulated techniques included in the essential "E-mail for English Teaching" (Warschauer, 1995) have become second nature to instructors. Many can be adapted for a range of instructional settings and purposes. The breadth of application can only be enhanced by the introduction of new technologies. New means of both synchronous and asynchronous communication such as chat, discussion boards and digital audio exchange have added new wrinkles to

such exercises. It is anticipated that new approaches including streaming video exchange and improved voice recognition will further expand the application of these and similar techniques.