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Emerging Aspects of Language Teaching and Learning: The Role of Technology

The beginning of the 21st century was marked by a worldwide proliferation of various technological accomplishments. Continuously developing technologies find expanding applications in all facets and activities of life, including education. Computers and other instructional technologies find their way into elementary and secondary classrooms. Several technological options are adopted and integrated in second language acquisition environments. The contemporary trends in language education utilize state-of-the-art high-technologies, including sophisticated multipoint videoconferencing equipment able to connect multiple sites, such as universities across the world. However, there are also creative ways to use more readily available technologies for language teaching and learning, such as email, chat rooms, and the Internet, which have grown to be a part of everyday life worldwide, even in less technologically advanced countries. This paper introduces a number of computer-assisted language learning tools available to address various language skills. Ultimately these practical suggestions apply to the training of prospective teachers at the college level. However, they also equip those emerging professionals to use technology with their future school-aged students. It is obviously impossible to discuss even briefly all possible technological solutions for language teaching and learning. Therefore, this paper endeavors to cover just a few current trends in foreign language acquisition research and practice.

In their book *CALL Dimensions: Options and Issues in Computer-Assisted Language Learning*, Levy and Stockwell [1] dedicated a special chapter to discussing the impact of existing theories on the use of technologies in language learning. Acknowledging numerous applicable theory choices, they refer to the following four as the most frequently used ones:

- The Interaction Account of Second Language Acquisition [2], which emphasizes the role of interaction and negotiation of meaning as "the learner and the interlocutor(s) engage in an ongoing process of interactional adjustments" [1, p.113];
- Sociocultural theory [3], which highlights learning from engagement and social interaction with others;
- Activity theory [4], which focuses on cultural and technical mediation of human activity; and

- Constructivism [5], which provides a set of assumptions about the individual nature of human learning where the learner constructs knowledge from his/her own experiences.

Technology encompasses great potential to provide language education principled in the aforementioned theories. Learner-directed discovery through hyperlinks, simulations, and reading authentic materials encourage active exploration and language acquisition. Students in technologically enhanced environments do not rely as heavily on teachers as authoritative figures, although direct instruction still takes place. Technology provides students with individual, self-paced tutoring support. Furthermore, various language learning software programs and web-based activities present information in an interactive, multimodal format addressing students' individual learning styles, including visual, auditory, and kinesthetic [6]. Several computer-assisted learning tools ensure students' social interaction with peers, teachers, and/or native speakers in the knowledge construction process. Technologies are believed to provide the content-based learning opportunities, from which many students studying foreign languages may benefit [7]. Regardless of the language, several options can be used to enhance instruction in discrete language skills and support an overall inquiry-based learning process. Computer-assisted technology can be found integrated in teaching and training in various language skills (e.g., listening, speaking, reading, and writing) as well as in different language areas (e.g., vocabulary, grammar, and pronunciation) [1].

Instruction in listening skills was historically associated with technology. Language instructors used tapes and cassette players for teaching listening skills long before they evolved into more advanced options. Eventually the audio tape format was replaced by various video technologies. Current DVD technology offers opportunities to watch foreign language films closed-captioned in the target language. Close-captioning in the target language is determined to be more effective as compared to common subtitles in the native language as it visually reinforces students' listening skills [8, 9]. Video technologies can further be enhanced with low-tech tools like graphic organizers created in Microsoft Word, serving as pictorial representations of information [10]. Furthermore, language learners now have access to web-based resources where they can listen to words, phrases, and passages read out loud by native speakers [11]. Some examples of such websites include:

- Focus On English.Com – free resource focusing on learning idiomatic and everyday expressions. Each dialogue is accompanied with appropriate exercises (see http://www.focusenglish.com/dialogues/conversation.html for more information)

- ESL Gold – free resource where learners can find audio clips created for different ability levels as well as other activities in speaking, reading, and writing skills (see http://www.eslgold.com for more information)
- BBC Languages – multidimensional website that includes formal and informal opportunities for learning language at levels from entry to advanced across different language skills including listening (see http://www.bbc.co.uk/languages for more information)

Audio- and video-conferencing offers another valuable technological tool that enables language learners to engage in authentic learning experiences with native speakers even if they are separated by geographic locations [1]. Recent developments of the Internet-based technologies enable students to engage in listening and speaking practices with language interlocutors that may otherwise be unavailable [12]. While the quality of audio and video messages is still the subject of scrutiny, high-speed Internet connections allow for relatively large amounts of information to be transmitted over broadband. Prospective teachers should carefully watch these technologies as they continue to evolve and become more affordable and widely used. Even now, there are affordable options available to meet teachers' budget constraints. Some examples include:

- CUWorld.com – free video chat rooms (see http://www.cuworld.com for more information)
- PalTalk – free video and voice chat rooms (see http://www.paltalk.com for more information)
- Skype – (see http://www.skype.com for more information)

Specific aspects of speaking such as pronunciation, intonation, and vowel contrasts can also be addressed through technology. As a matter of fact, technology eliminates constraints in teaching pronunciation associated with the necessity of having the "teacher's voice" repeated multiple times [13]. For a long time technology offered a one-way only pronunciation instruction. That included directions on how to produce a specific sound in the form of graphic annotations, illustrations, photographs, or multimedia. "Multimedia refers to computer-based systems that use various types of content, such as text, audio, video, graphics, animation, and interactivity" [14]. Current development in the area of speech recognition software enables computer-based pronunciation tutors to offer feedback to learners based on their input [15, 16]. With speech recognition software programs, the pronunciation input is scientifically compared against models, evaluated, and reinforced by the appropriate feedback. Programs based on discrete speech recognition distinguish only short utterances while continuous speech recognition software allows the learner to read passages in a normal voice and speed and still receive corrective feedback as errors occur. One of the

examples of current language learning software utilizing speech recognition features is Tell Me More Online by Aurolog (Price: $200 see http://usstore.auralog.com/home.html for more information a free trial). It provides pronunciation and intonation practice and feedback. The correct intonation is reinforced by the waveforms and pitch curves [13]. However, speech recognition software does not need to be expensive. PRAAT, a web-based program developed by the Institute of Phonetic Science at University of Amsterdam, is a free tool for acoustic analysis (see http://www.praat.org for more information).

The Internet offers easy access to enormous amounts of authentic reading materials. While it is sometimes hard to choose appropriate materials, language teachers should not neglect this resource for providing students with opportunities for linguistic development and cultural understanding. In addition, computer technology is a valuable tool for motivating students to read in a foreign language [17]. Numerous multimedia packages are available to provide guidance and scaffolding for students engaged in web-based reading activities. Programs that enhance written text with electronic reference resources, such as dictionaries and thesauruses, are widely used to adapt online authentic reading materials as well as to provide additional vocabulary acquisition practice. Words are usually linked to definitions in the native or target languages. However, some of the recent programs hyperlink words to picture, audio, and even video segments [18, 19]. Some available resources include:

- WordChamp - a free tool that offers such resources as vocabulary drill activities and the Web Reader. Web Reader allows learners to browse various websites with authentic reading materials and get pop-up definitions and pronunciation examples by pointing at words (see http://wordchamp.com for more information)
- Semi-Fluent – a free language learning resource that allows the user to hyperlink each word in any electronic text to dictionaries in order to ease dictionary fumbling (see http://www.semi-fluent.com for more information)
- Visual Thesaurus – an interactive dictionary and thesaurus (see http://www.visualthesaurus.com for more information)

In addition, it is relatively easy to create and customize hyperlinked documents connected to other files and/or external websites using tools available on any computer like Microsoft Word or Microsoft Power Point.

The World Wide Web is also heavily populated by various grammar tutorial activities (e.g., drill and practice, fill-in-the-black, or multiple choice questions). However, it has been determined that grammar learning can be further enhanced with activities in a contextualized format [20]. Learner-centered grammar instruction places great emphasis on the learners to deduce the rules for themselves by making comparisons of the way in which target expressions are used [1].

Communicative grammar instruction is based on constructivist principles where learners assemble knowledge and skills from authentic communication activities.

Vocabulary and grammar can also be acquired peripherally, for example engaging in authentic tasks through some form of computer-mediated communication (CMC). There are two different forms of CMC: synchronous and asynchronous that can be used to enhance specific language skills. Synchronous communication tools (e.g., chat) require real time interactions in the online environment. Asynchronous tools (e.g., email) imply delayed transmitted interactions [21]. Recent research demonstrated that asynchronous forms of CMC, such as emails, bulletin boards, threaded discussions, and mailing lists, are more beneficial for the development of grammatical and syntactic skills as they enable students to produce more accurate and complex language as compared to traditional face-to-face instruction [22, 23]. A Pen Pals project is one of the ways to make writing tasks more enjoyable for students. Providing opportunities for learners to practice language, to learn about the culture, and to make friends around the world is very motivating and can be very beneficial for students from elementary school all the way to the university level. Language instructors can organize monolingual email exchanges (e.g., communication is in one language, so that students on one side are learning foreign language while students on the other side study culture) or bilingual tandem-learning exchanges (e.g., when each student learns a different foreign language from his/her partner). Both ways require quite extensive planning between universities and/or groups of students, but they have proven to be effective in language teaching and learning [24, 25]. Several websites exist that connect students from all over the world in pen pals projects. Some examples include:

- Abroad Languages, Pen Pals sign up service (see http://www.abroadlanguages.com/penpal for more information)
- My Language Exchanges – international pen pals (see http://www.mylanguageexchange.com/penpals.asp for more information)
- Linguistic Funland! – pen pals and email pals opportunities for students (see http://www.linguistic-funland.com/teslpnpl.html for more information)
- Email Tandem Learning Network (see http://www.slf.ruhr-uni-bochum.de/etandem/etindex-en.html for more information)

Some forms of synchronous communication (e.g., chat, short messaging system) bear little resemblance to written language due to the broken nature of messages and abbreviations [1]. However, these forms of CMC have their own benefits. Indeed, communicating through chat does not allow much time for editing the language, but students demonstrate improved performances in lexical skills and oral proficiency after using synchronous communication tools (e.g., online conferencing, chat) [26, 27]. Examples of some synchronous tools can be found at:

- My Language Exchange – online chat rooms in different foreign languages (see http://www.mylanguageexchange.com/TextChat.asp for more information)
- 1-language.com – chat opportunities with English as a Second Language (ESL) teachers (see http://www.1-language.com/chat/index.htm for more information)
- MSN Messenger (http://messenger.msn.com) and Yahoo Messenger (http://messenger.yahoo.com/chat.php) – closed chats where participants need an invitation in order to enter

In addition to the aforementioned CMC tools, several emerging audio- and video-conferencing web-based programs incorporate text chat, a whiteboard, space for concept mapping, a shared word processor, sub grouping rooms for students to discuss matters in smaller groups, file sharing, and file transfer [1]. All these tools can be successfully integrated into language teaching and learning activities in authentic, content-based environments. Some of the examples of such programs include:

- Lyceum developed by Open University (see http://lyceum.open.ac.uk for more information)
- NetMeeting by Microsoft (see http://www.microsoft.com/windows/netmeeting for more information)
- Adobe Connect by Adobe (see http://www.adobe.com/products/acrobatconnect for more information)

The nature of computer-mediated instruction in an authentic, content-based environment implies language acquisition and error correction through various methods. Stockwell and Harrington [23] suggest that students correct their mistakes by viewing the correct forms provided by the native speaker. In some cases the native speaker must be responsible for explicit corrections or learners may notice their own errors and correct their language accordingly. However, there are several factors that need to be taken into consideration prior to engaging into both synchronous and asynchronous language learning experiences. Language instructors must remember that conventional grammar may suffer, so it is critical to establish a priori rules about the use of abbreviations, informal language, as well as operationalized conventions for proof reading. Certain technologies have their advantages and disadvantages. With audio- or video-conferencing students are engaged in the most interactive process of authentic communication but as a result of over preparedness they may end up memorizing their questions and responses. Integration of email technologies has many aforesaid benefits, but it may be difficult to notice imperfect models of language, especially if learners are using password protected mail boxes and do not share their correspondence with the

instructor. Chat options may create more informal language acquisition, but the logs of learners' interactions can be printed for monitoring and further discussion. Regardless of the communication form, it is critical to establish a focused and purposeful experience [28]. In summary, instructors should have a clear idea of what they want to achieve in the classroom, what technological options are available to them, and how those tools can be utilized to meet the instructional goals while accounting for learner's backgrounds.

Technology is developing rapidly, continually offering new means for completing common activities almost daily. New developments in mobile technology, including Personal Digital Assistants (PDAs), small notebook computers, MP3 players, and iPods, are ripe with new possibilities for the field of language teaching and learning. However, we need to remember that technology is just a mean and not an end [29]. Similar to any other area of education, technology in language acquisition should not replace instruction. The aforementioned tools are capable of enhancing language learning opportunities while supplementing instruction under the guidance and supervision of qualified professionals. "Technology alone does not create language learning any more than dropping a learner into the middle of a large library does" [7]. Language instructors should not jeopardize their pedagogical practices in favor of a surge towards new technological trends.

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