
Technology and Foreign Languages: A Brief Overview

Advances in consumer electronics and personal computing—combined with a growing interest in media-enhanced instruction—are causing educators to reevaluate the role of technology in language instruction and learning. New ways to present voice, image, and data are discussed, together with their implications for the development of language curricula. Relevant technological applications in foreign language pedagogy include microprocessor-controlled language laboratories, the repurposing of commercial video materials, and computer software developments, which for the most part, remain embryonic.

The proliferation of a wide range of “high tech” consumer products for home and business applications is prompting educators to examine more closely potential use of technology in foreign language pedagogy. Advances in audio/video techniques and computer-enhanced instruction challenges foreign language teachers to consider both methods and equipment customarily associated with the “hard” sciences. The bold line separating scientific inquiry with technology from traditional humanistic teaching without technology is fading. In fact, McCorduck (1985) maintains that the perceived barrier between the so-called technologists and others is an archaic construct; he supports his assertion by recounting impressive computer applications where artificial intelligence intersects with creativity in the fine arts.

Range of Relevant Technological Applications

Many aspects of language pedagogy are suitable subjects for information processing. The

organization, description, storage, and classification of the units and structures of natural language all lend themselves to computer-aided management. Innovative technological means can also be applied to the inventory and delivery of instructional texts, print, audio, and videographic data information and processes. Furthermore, applied linguistics and language teaching methodology can also be affected by technological applications. Of special significance in this regard is the man-machine interface and the relationship that evolves among student, teacher, and machine.

The range of relevant technological applications available to the foreign language educator is wide indeed. Applications that are emerging more and more prominently have recently been compiled by Stevens et al. (1986), and fall into the following general areas:

Audio and Video Technology. These are most prominently displayed in language laboratories and in learning centers where computer-aided language learning (CALL) and audio/video utilization intersects.

Broadcast Technology. This area includes not only satellite transmissions but also all aspects of radio transmission.

CD-ROM. An emerging area, CD-ROM is most often associated with multi-media possibilities such as compact disc (CD) interactive and audio/video on CD.

Data Base Management. Applications in this area are most often applied to automated dictionaries and the cataloging of the semantic features of language.

Parsing. Natural language parsing and random state morphological generation are areas emerging into prominence.

Computer Enhancement. Applications are

evolving around courseware and lesson design, authoring languages, systems and templates.

Programmed Learning. Applications in this area revolve around learning theories and models of man-machine interaction.

Artificial Intelligence. Although work is being done in such areas as synthesized speech, both in production and recognition modes, and developments in “intelligent tutoring” systems, there are major obstacles to overcome.

Telecommunications. Fiber optics have made possible new areas of research and innovation.

Computerized Statistical Analysis. Promising applications as applied to educational testing and evaluation are emerging in this area.

Such a topical listing may hold great inherent interest for course designers and programmers; we, who are engaged in language teaching, may not have such inherent interest. Yet, many of the applications evolving from such areas of research are coming more and more within our field of vision; many of the applications hold promise for the improvement of teaching and learning.

Voice: The Language Laboratory

The language laboratory gained popularity as a component of the audio-lingual method and has played a central role in language instruction for nearly three decades. While housing the entire range of instructional media, Johnston and Seerly (1958) maintain that the primary function of the “classic” language laboratory is to provide students with samples of authentic speech for practice in listening and repeating after the target language speaker. Thus, the magnetic tape recorder has been the technological focal point of the laboratory, and its evolution epitomizes the interaction of instruction with technology.

According to Stack (1971), criteria for a “fully equipped” laboratory entail the ability of students to physically control their own tape; work at their own pace; and select their material freely. Such recommendations necessitate individual tape decks; the costs associated with the purchase of the machines initially prevented many institutions from buying full-functioning laboratories. Furthermore, first generation machines were very costly, difficult to maintain, and often

troublesome to operate. In many instances, imperfect technology thwarted methodology for about a decade.

The mediation of the microprocessor and simplification of the audio tape recorder were in large measure responsible for the incorporation of learning activities in the language laboratory over which the learner could exert more control. For example, the “bookmark” feature available on some models of laboratory recorders permits the learner to index the audio tape with electronic tabs or “bookmarks.” During the first listening, the learner selects specific audio segments for later repetition by simply pressing a key on the control pad of the tape recorder. Once set, the segments at the specified tabs are quickly accessible for practice.

Image: Videography

The trend in language laboratories toward an open, individualized learning environment is being realized through the incorporation of video technology into the once “audio only” laboratory. However, the dearth and high cost of quality video materials produced specifically for foreign language instruction is often an impediment to the expansion of media-enhanced teaching. A promising alternative is the strategy of “repurposing” commercially produced video segments as suggested by Lonergan (1984).

Appropriate foreign language videotapes as well as English language videotapes can be dubbed over into a given target language. In addition, drills and various supportive learning activities can be devised to accompany the dubbed voices. The imagination races with possibilities: *Miami Vice* in Russian, *s’il vous plaît*?

A discussion on video inevitably leads to the subject of interactive video. The late 1960s and 1970s witnessed the linking of audiotape players, slide projectors, and videocassette recorders (VCRs) with the computer. Unfortunately, initial attempts at integration of computers with instructional video suffered from design flaws, making the early products of the marriage between video and computer unsatisfactory. Recent generations of hardware—as described by Miller (1985)—have significantly improved interactive video systems.

Unlike conventional video used by educators since the 1950s, video augmented by computer can be non-linear. This allows learner-controlled selection of the order of the filmed sequences that are accompanied by a series of questions presented via the computer program. Depending upon the choice of segments and the accuracy of student responses, several branched learning tracks are available and permit individualized pacing. Although the linking of VCRs with computers imposes limitations, many of them are alleviated by the rapidly developing technology of the laser-optical media. Although authors like Lambert and Ropiequet (1986) depict the culmination of interactive teaching materials, various problems continue to frustrate the adoption of such interactive technology including cost, complexity, and lack of industry standards. The future for interactive video disc technology is not quite here yet.

Data: The Computer

The literature on CALL has burgeoned; at least eight major publications in the course of the last four years have surveyed the field. Given the rapid growth that characterizes the current state of software development, it is virtually impossible for professional journals to report on all new releases and updates. The CALICO Database and the TESS annual bibliography—while extremely helpful—do not provide comprehensive reviews for the purpose of evaluation and recommendation.

The prolonged embryonic state of foreign language software development is widely known. This can be partially explained by a lack of commitment from publishers who hesitate to undertake marketing until most classrooms and homes are equipped with PCs. Editors of foreign language instructional materials at major publishing companies often fail to see beyond the stigma attached to software that can be labeled as drill-and-practice. The unsettled conditions of the marketplace, complicated by continually changing hardware standards, provide a rationale for a wait-and-see attitude. Regarding the evaluation of computerized drill-and-practice software, Frommer (1987) points out the flaw in the stigma associated with drill-and-practice: "Although it has become fashionable to criticize drill-and-practice software, such criticism ignores the more sophisticated versions of this type of

software and disregards the importance of drill in language learning."

Conclusion

France remains the best place to learn French. Having had few new means to simulate cultural and linguistic target language immersion, foreign language educators have had to "make do." Today, the existing and emerging information technologies offer innovative opportunities for closing the enormous gap between the traditional classroom and the living language.

Computers and related technologies can help simulate the communication experience. Microprocessor-controlled recording technology can provide representative samples of authentic speech on widely ranging topics with which students interact in novel ways. Videography can help integrate language with sights and sounds. In spite of this, not even the most advanced and progressive technology can take the French student to France and deposit him or her under the Arch of Triumph; however, the emerging computer technologies, carefully integrated into pedagogy, can take the student well beyond the limits of the traditional classroom lecture.

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