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New Wave Computer Technology and the Administration of Speech Communication Performance Courses

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SOME years ago, Behnke and O'Hair (1984) reviewed some of the innovative applications of emerging technologies to communication instruction. Published articles on computer-assisted instruction (Waldrop, 1984) computer-based testing (Dusseldorp, 1983), reinforcement of performance-related skills and attitudes (Book, 1983), improvement of writing skills (Behnke & King, 1986), and computer-aided evaluation of nonverbal communication skills (Behnke & Beatty, 1979) help to demonstrate the continued interest that the speech communication field has in technology-supported instruction.

According to the *Chronicle of Higher Education Almanac* (1994), college and university administrators expect continuing enrollment increases for years to come; consequently, efficiency advantages provided by computer-based systems for teaching and evaluation should continue to grow in importance. This cost-effectiveness is particularly noteworthy in clinical or one-on-one instructional settings (Helmick & Behnke, 1984). Moreover, learners themselves profit from exposure to technology in learning environments, reporting greater employability as one result (Behnke & Sawyer, 1986). Finally, efficiencies are multiplied when a large number of sections of a course are involved and when there are multiple instructors (Sawyer & Behnke, 1997). It is the responsibility of communication administrators continuously to monitor and anticipate changes in the needs of their courses and programs and to find contemporary ways to accommodate paradigm shifts of the magnitude as those produced by current technological revolutions (Sawyer, Miller & Behnke, 1994).

THE EVOLUTION OF INSTRUCTIONAL COMPUTERS

Earlier detailed descriptions of teaching/learning laboratories in speech communication are based upon older computer-assisted instruction (CAI) models and such laboratories were financially out of reach for most small-to-average sized departments (Derry & Behnke, 1983; Behnke & Derry, 1984). But as micro-computers simultaneously increased in power

and decreased in cost, CAI became a simpler, more cost effective option (Behnke & King, 1984). From an historical perspective, computer technology appears to have moved in phases from mainframe or very large computers, through mini-computers, to micro-computers, and now hand-held computers. The centralized processing phase was most restrictive while the hand-held computer provides the most flexibility for field work in which the instructor and the computer are fully mobile.

The connectivity of hand-held computers has been increasing dramatically, thereby providing remote access and full communication with files and databases stored on larger, remotely located machines, with the entire system supporting performance instruction and evaluation. Because such approaches are largely paperless, except, possibly for final reports, further economies are realized. Moreover, access to electronically posted evaluations and learning materials is immediately available to distanced learners, whether they are in the next building or the next town. Finally, while earlier teaching support technologies generally were associated with high maintenance costs, this is not true of the more reliable modern computer-based systems.

RATIONALE AND COMPUTER APPLICATIONS FOR INSTRUCTORS AND ADMINISTRATORS

Recent, dramatic enhancements of the memories and processing speeds of microcomputers has made them ideal for recording, editing, and replaying sound supported motion picture clips of speech presentations. This capability makes it possible for an instructor to insert clips of appropriate or inappropriate behaviors in a computer-stored speech criticism. Students can retrieve their evaluations from any computer that can access the Internet. The retrieval can be implemented at any time of day and as soon as the criticism is posted by the instructor. The implications for distance learning are dramatic and some combination of videotape exchanges and computer-based speech criticism are certainly possible at the time of this writing. Live audiences, at least for final presentations, can be utilized and video evidence of their existence and/or participation could be required.

A number of published papers have appeared describing an electronic teaching aid called the ComET System (Behnke & Beatty, 1977; Jurma, 1982; and O'Hair, 1984). The chief characteristic of this computer-based teaching machine was that it provided immediate instructional video feedback to student speakers from an instructor located in an adjacent room. Connecting all participants by the Internet makes it possible to operate a ComET System remotely. In effect, the ComET System and the Internet combine to make possible an electronic teaching aid that integrates the technologies of television, computerized remote control, and the connectivity of the Internet for purposes of distance learning in performance-based speech communication courses.

Prior to the mid-1980's, instructional technology for the basic speech communication course was mainly comprised of devices for presenting or highlighting lecture materials in a traditional classroom environment (Wulff & Nyquist, 1990). King (1985) observed that although computer simulations were commonly used in business and the social sciences, they were essentially nonexistent in speech communication courses.

Expansion of basic course enrollments and the integration of new instructional technologies encourage development of innovative methods of delivering instruction. Many institutions have embarked on distance learning initiatives aimed at providing college credit to students who are unable to attend classes on campus. Proliferation of microcomputer technology among home users permits course planners to combine cable television broadcasts of course lectures and e-mail communication between instructor and student. Recently, new developments, such as the growing popularity of the Internet, make computer delivered instruction of speech communication courses more practical. Operating through a

departmental web site, students can receive self-paced, multimedia presentations of course content, on-line access to individualized performance evaluations and test results and will be able to solicit additional guidance from faculty through e-mail.

Recently, Knapp (1990) argued that increases in course enrollments require greater use of multimedia to enhance the traditional lecture format. Computer-aided delivery of a communication course permits students to repeat presentations, download supplemental course materials (such as study guides or case studies), and inspect video examples or models of communication strategies or phenomena. For example, a student could pause during a lecture on interviewing to review an employment interview video vignette in which a prospective employer asks an illegal question. After returning to the presentation, the student could select a case study illustrating the impact of illegal questions in the employment process.

During a subsequent session on the course web site, a slower student might choose to access a self-paced learning module on interviewing. Video segments of employment interviews are intermittently displayed and the student is asked to identify illegal questions used in the example. An unsure student can send an e-mail question to the course instructor. During the student's next session on the web site, an individualized response to that question is provided with additional materials attached; or, if the instructor is on-line, the question can be answered immediately.

Completion of a requisite number of on-line learning experiences documents progress toward course objectives and qualifies students to take a unit examination. Examination scores and grades are recorded and feedback concerning the student's performance is immediately available. If the course involves mastery learning and a student failed to achieve satisfactory performance, the web site provides extensive feedback concerning areas of improvement, prescribes additional readings and learning activities, and schedules or administers new tests when appropriate.

Freed from conventional, temporal constraints, the cyberspace classroom creates several advantages over traditional approaches. For example, allocating classroom space requires that administrators observe strict adherence to institutional guidelines for scheduling classes and assigning faculty. Such limitations inherently restrict the available pool of students to those who may attend class at a particular time and place. Some college students must work to support a family, or to sustain a career path, while pursuing a degree. Often these demands create time conflicts with conventional course offerings. Using computer-delivered instruction, students can reconcile their school and work schedules.

Traditional class schedules can work against the achievement of higher level learning objectives. Educators and cognitive psychologists point to group collaboration as a means of facilitating cognitive complexity during problem solving (Watson & Behnke, 1994). Classroom-based instruction can impede the emergence of cognitive complexity when discussions must conform to tightly scheduled class times. Computer delivered instruction permits extended group discussions through on-line "chat rooms" provided at the course web site. Unlike the traditional classroom environment, in which the instructor must slavishly repeat the same lecture to multiple sections, the course web site delivers routinized learning materials on demand while, at the same time, freeing faculty to specialize in the professorial roles of advisor and consultant.

Examples of URLs for communication courses on the internet are contained in Table 1. Both undergraduate and graduate studies are delivered interactively through these web sites. In many cases, the Internet is used to provide a catalog of course offerings or to supplement classroom instruction. A growing number of creative webmasters have begun to employ course web pages as a solution to the problem of distance learning. URLs listed in Table 1 were selected because they illustrate the diversity of courses and information currently being delivered through the Web.

TABLE 1

Internet Addresses for Speech Communication Web Sites

Course Description	Internet Address
Oral Interpretation	sorrel.humbolt.edu/-jmf2floss/344/
Communication Theory	www.nmhu.edu/academics/commart/spch/
Public Speaking	www.olivet.edu/Department/Speech/course/
Basic Course Homepage	ukanaix.cc.ukans.edu/-sypherh/bc/
Interpersonal Communication	mosquito.frcc.cccoes.edu/faculty/dwignal/
Communication Science	www.shef.ac.uk/uni/academic/R-Z/spsu/
Doctoral Studies	www.speech.kth.se/courses/gradtal.html/
Forensics	www.registrar.uca.edu/under/Artsletters/speech/sptacourse.txt

Clearly, evaluating student performance and providing substantial and prompt instructional feedback can easily be accommodated by the course web site. Aside from the interactive testing and automated grading features described above, computer-assisted grading and evaluation of speaking performances are supported by specialized forms software and the personal data assistant or PDA (e.g., the *Newton* or *Pilot* for the Macintosh and PC environments respectively) connected to a server. Instructional associates, such as teaching assistants or adjunct faculty, can either observe live presentations at remote locations or scan video recordings of these presentations and record their evaluations on hand held computing devices or PDAs. These faculty can then transfer their observations to the course server computer via modem or several wireless modes of connection. Data collection and forms generation software can then assemble an elaborate performance evaluation, export the evaluation to a database, and post the student's score and comments on the course web site. Students can retrieve the evaluations by entering their individualized password, downloading and printing a hard copy of the evaluation on their home printer.

Finally, two practical caveats must be advanced. Course planners must ensure the online security of various facets of computer-aided or delivered courses. Recent acts of the Congress of the United States, such as FERPA (Family Educational Records and Privacy Act), mandate that institutions must protect the confidentiality of academic records, including private communications between faculty and students regarding evaluation and grading of the student's performance. On the other side of the coin, unauthorized access to lecture materials and examination questions, presents additional concerns.

Simple and effective security tactics, sometimes called "internet firewalls," are currently available at modest cost (Chapman & Znicky, 1991), and publishing a web page is no longer a burden on departmental budgets. In fact, many Internet providers will supply assistance at reasonable cost. In some cases, expert help is available on-line and some software packages permit computer novices to produce very professional-looking web pages without having to learn conventional authoring languages such as HTML or JAVA. More seasoned and/or ambitious course developers are referred to excellent reference materials currently available in print (Stanek, 1996; Stauffer, 1996; Swank & Kitter, 1996).

CONCLUSION

The development of a new wave of computers, some characterized by their small size and portability and others noted for their powerful capabilities to record and edit electronically stored motion pictures, suggests a wide range of new applications of these technologies to the teaching and administration of performance-based communication courses. Special emphasis has been placed on applications that facilitate efficient evaluation and grading of oral performances. A new wrinkle is that the instructional flexibility of the new handheld computers permits their use in the field as well as in the classroom, thereby greatly expanding their scope of use. Finally, examples of the contributions to speech performance instruction that can be made by the new video-editing computers, in distance-learning contexts, are provided.

Adventurous readers should examine models of on-line courses and software described in this essay currently available on the internet. For example, WebCT, a set of authoring tools, enables college professors to deliver instruction through a site. More than 70 courses at the University of British Columbia are now interactive because of this software. Presently, one may download WebCT from <http://homebrew.cs.ubc.ca/webct/> and test the software without fee. In addition, some initial efforts at delivering speech communication instruction through the internet have begun to emerge, such as a public speaking course offered by the American Academy of Nutrition. Students register for the course by e-mail <aantn@aol.com>. Future researchers should monitor the development of this emerging educational trend. Evaluation of authoring tools used to develop interactive speech courses and compilation of an extensive listing of on-line course offerings would contribute valuable insights to teachers attempting to apply and administrators striving to manage the new wave of computer-delivered instruction.

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