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## INNOVATIONS IN CURRICULUM: THE USE OF PERSONAL COMPUTERS IN TRAINING PROFESSIONAL PSYCHOLOGISTS

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We are witnessing the dawning of the electronic age in higher education, and there is no reason to believe that graduate psychology will be left behind. Most graduate students these days are aware that word processors can simplify the task of writing papers and dissertations. Most departments have access to a new generation of powerful computers for data storage and analysis. Anyone returning to formal education after a hiatus of several years cannot help but be impressed and overwhelmed by the way in which computer-search strategies have replaced card catalogs in research libraries. Yet few psychology programs are taking advantage of the full range of educational services that personal computers are now able to offer, and indications are clear that these services will expand dramatically in the near future. In this chapter, I summarize and briefly describe applications of this technology to the training of professional psychologists.

### **Electronic Seminars**

Several universities, such as the New School for Social Research (New York), the New York Institute of Technology (Old Westbury, NY), and Nova University (Fort Lauderdale, FL), have struggled with the dilemma of serving students whose geographic inaccessibility or scheduling conflicts prevent them from attending classes on a regular basis (Meeks, 1987). One solution has been to offer the same course work both as an on-campus course and as a teleconferencing course. A teleconferencing course is not the same as the packaged video presentations that sometimes substitute for the live presence of an instructor. It is on-line mentoring that makes use of computer conferencing systems, personal modems, and on-line data bases.

In the Fielding Institute Psychology Program, which serves 450 midlife, midcareer doctoral students who reside throughout the United States and Canada, one function of computer conferencing is to offer seminars electronically. Students throughout the system enroll to take a seminar in one of the curricular areas offered by the program. The seminar has a set starting and ending date and lasts about 4 months. The faculty member guiding the seminar communicates the course requirements on an electronic bulletin board that is accessible to all faculty and students within the system no matter where they reside. A typical seminar requirement might consist of preparing responses to and discussing 8 to 10 questions on the topic. A seminar on legal and ethical bases of behavior might require answers to the following questions: "What are the legal, ethical, practical, and moral backgrounds to the question of 'informed consent,' and what are their ramifications for practice in today's social and legal climate?"

One question is transmitted by the faculty mentor every few weeks. The students then prepare answers by going to the library, reading, and researching the topic. Each student prepares and transmits an answer to the question to the bulletin board. In this way, every student in the seminar is able to read every other student's response. The course also requires the students to discuss each other's answers, so that the seminar becomes an engaging and scholarly discussion. Because a new question is presented on a regular basis, the seminar can cover a range of topics. Of course, the faculty member also is able to present on-line input to the students. Moreover, other students in the program who have not registered for the seminar are able to look in on and even download (i.e., audit the seminar), but may not participate in the dialogue without being enrolled formally.

A primary advantage of electronic seminars is that they allow students to cover material at their own pace and timing. Students seem to be particularly motivated because their work is also viewed by their peers. This method allows time for research and thoughtful reflection, the full use of group resources, easy dissemination of written materials, and a permanent record of the proceedings and of each student's contributions. Interestingly, students who are relatively inactive in the traditional classroom environment have more opportunity to participate in electronic seminars. Furthermore, it is not possible for the seminar to be dominated by a small number of students, which is often the case in face-to-face meetings.

## Communication Network

The electronic network at the Fielding Institute initially was introduced to provide a cost-effective and rapid means of communication and information sharing with the faculty-student community rather than to conduct distance learning seminars. Each user in the network has an electronic mailbox, which enables that person instantaneously to send messages to or receive messages from the Fielding Institute offices, faculty, students, and alumni who are users. The system is operated using U.S. Sprint's SprintMail Service. The content and features, however, are determined by Fielding Institute's needs and are frequently updated. Any brand of computer will operate within the system, and the only additions that are required are a modem and a communications software program. It takes very little computer knowledge and typing ability to plug into and use the system. However, we do retain a strong in-house support and training system to help faculty and students overcome difficulties and increase their facility with using the network.

A host of communication functions are now available to our students and faculty by means of personal computer:

1. Notice boards provide schedules for seminars and residential sessions, faculty and student rosters, faculty assessments, course requirements; minutes from faculty committee meetings, reading lists, dissertation topics, and instant access to other needed information.
2. The entire academic community can contribute to and has access to common data bases of test instruments, articles, internship sites, jobs, and so forth.
3. Faculty and students can review a paper, critique a thesis or dissertation draft, or engage in supervision. They also use the network to solicit support and advice, deal with crises, and quell rumors.
4. There is the opportunity for individuals in different locations to involve themselves in joint projects, such as sharing resources regarding research topics or clinical approaches. We are currently exploring the use of the system for conducting multisite research.
5. The network makes it possible for faculty to discuss major policy changes without waiting for a scheduled face-to-face meeting. It is also easy to solicit student input before making important program decisions. Faculty committee meetings are regularly conducted through electronic conferencing.
6. It is not uncommon for faculty and students to engage in informal discussion on a variety of provocative topics from their offices at work or at home.

There is also, of course, potential for intercommunity networking and discussion among academic groups at different institutions. The National Council of Schools of Professional Psychology has committed itself to establishing a learning resource center, including information on interactive computer technologies. A next step might be to have such resources available electronically. It would not be difficult for programs throughout the country that share common goals to communicate with one another in this manner. In some instances, electronic communication could be used to conduct low-cost meetings, thereby eliminating travel expenses. It would also go a long way toward eliminating "telephone tag."

## Other Applications of the Personal Computer

There are other, less ambitious applications of computer technology that can be recommended to graduate students in professional psychology programs. First, on-line data bases can be used for research and curriculum development. As libraries become transformed into electronic data banks, they become increasingly accessible from the personal computer in the home or the office. Both CompuServe and Dialog, commercially available information services, access major data banks that contain *Psychological Abstracts* and reference to virtually every important psychology journal and book. These systems make it possible to conduct an electronic search based on key words, obtain a list of relevant references on any psychological topic, and even create a personal journal library. *PsychNet* now has the full texts of most psychology journal articles available overnight by electronic mail.

Second, the personal computer has tremendous implications for self-learning and data analysis. Software is currently available to help master decision rules in psychodiagnostics using the revised third edition of the *Diagnostic and Statistical Manual of*

*Mental Disorders* (DSM-III-R; American Psychiatric Association, 1987). As personal computers have become increasingly powerful, most major statistical procedures can now be accomplished without a major investment in research consultants or mainframes. Statistical Package for the Social Sciences (SPSS) is available currently at a number of levels of complexity for the personal computer user, as are programs for determining sample size and power, revising manuscripts and papers into American Psychological Association format, producing professional quality tables and graphs, checking spelling and grammar, searching text, and developing bibliographies.

Just several years down the road, an enormous array of opportunities will emanate from developing information technology in higher education. The amount of information in libraries and data bases is doubling every 8 years, creating a pressing need for better systems of information management and use for scholars and researchers. At Fielding Institute, we envision an adult learning community in which electronic communication will integrate textual and numerical data and voice and visual information into a single medium and a single message. In response to a portion of a student's dissertation, for example, a faculty member could send one message that included typed bibliographical references, a reproduction of a diagram from a book, and a spoken response to the student's work. Through this communication network, students, faculty, alumni, and visiting scholars would be able to participate in a rich series of on-line seminars on topics related to the training and development of professional psychologists.