Integration of Computer-based Learning in a Medical Curriculum

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Integration of computer-based learning into the curriculum is an objective of the USC School of Medicine. To this end our educational computing plan specifies the application of a systematic instructional development process to identify instructional needs and to design, develop and evaluate computer-based instructional programs. This activity is carried out by the Instructional Development Service within the Department of Medical Education in consort with the Curriculum Office, faculty members, Norris Medical Library, Biomedical Communications, and the University Computing Services.

During the first two years of medical school instruction students are divided into six groups of approximately twenty-three. Each group is assigned to a multidiscipline laboratory (MDL) equipped with desk units that provide a place to study and to store personal belongings. These MDL's are available to the students twenty-four hours a day. Within the MDL's the students perform the majority of their self-directed educational activities, i.e., reading, writing, general study and discussion. This arrangement continues for the first two years.

Beginning in 1989 IBM PC workstations were installed in each of the MDL's. Currently each MDL has two IBM computers, each with a 30 mb hard drive, mouse, and a Pioneer videodisc player. Half of the computers are configured to use the IBM InfoWindows and EGA display while the other half have the M Motion Video Adapter and a Zenith VGA display. All workstations are connected via a Novell local area network to the university Ethernet network which is the bridge to the medical library, main campus, and nationwide networks. Using the workstations students have access to: wordprocessing, Microsoft Windows, year one and year two interactive instructional programs, MEDLINE and other databases, E-mail, and dot matrix and laser printers.

Utilization data have been collected since 1991 through a survey of first and second year medical students and Saber Meter, a computer program that records utilization data by individual program. The Saber Meter program records the number of times a program is used and the length of each use. Survey data includes a self-reporting of the number of uses per week, use by type of program (e.g., wordprocessing, practice exam, instructional programs, etc.), reasons for using the programs, and suggestions to improve the computer facilities and computer-based instruction. With an average response rate of 43%, the survey results indicate that students most often use the computers for the instructional and quiz programs to promote their learning of curricular material. Suggestions from the students for improvement include: better instruction on how to use the computers, availability of Macintosh equipment, more computers and interactive programs, and greater access to printers.

Utilization of the computers in the MDL's and the instructional programs has increased significantly as students and faculty become more computer literate and the number of instructional programs increases. During the past three years the percentage of students using the network computers increased from 64% to 93%. The number of locally developed programs has increased from 69 to 125, and the number of hours logged while using the tutorial and quiz programs has increased from 736 to 5,183.

Utilization statistics from the most recent academic year will be presented at the poster session as well as an update on the use of a newly opened Macintosh classroom and plans to incorporate CD technology.

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