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Considerations in Planning a computer learning lab for nursing students

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Abstract

The leadership of the nursing program at Grant MacEwan Community College recognized the need to facilitate students' learning with computer-assisted programs and interactive videodisk software. In a special four-month project, one of the nurse educators committed to the use of computers in nursing education was hired as a consultant and asked to write a proposal for a computer learning lab. The Grant MacEwan Nursing Program is a Collaborative Baccalaureate Degree Program partner with the University of Alberta in Edmonton, Alberta, Canada.

The purpose of this article is to describe the steps taken in developing the learning lab proposal. The assessment process, as well as the considerations of the project, are presented. Interim strategies for sustaining interest in computerization and developing student and faculty awareness are outlined. To encourage widespread availability of computer-assisted instruction, interactive videodisk software, CD ROM programs, and Internet connections, a portable multimedia cart was designed as a first unit for the learning lab.

This article will be of interest to nurse educators wanting to promote teaching methods that involve computer technology. It will also be of interest to those involved in the development of computer lab facilities.

Key Words: computer assisted instruction, nursing education, computer learning lab, technology, teaching strategies



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Introduction

When the leaders and educators of a nursing program decide that computers could be used to enhance student learning, what steps need to be taken to ensure that student needs will be met and educators will be comfortable with the process? This article is a report of the planning stages of a now functional computer learning lab developed at Grant MacEwan Community College in Edmonton, Alberta, Canada. At the time of the project, this large urban nursing program enrolled approximately 300 students in years one and two of a collaborative Baccalaureate Degree program. The planning process and considerations of the proposal development are described in an attempt to encourage others that the task, although initially overwhelming, can be done.

Preliminary Considerations

A technology committee, consisting of four nurse educators and a nursing learning lab assistant, had been active for several months determining the computer needs of students and faculty. They requested that a consultant be hired to provide a concentrated focus on the future computer requirements for the nursing program. The consultant hired was a nurse educator with previous experience in computer lab development and a commitment to computer applications in the nursing education environment. This consultant was to provide a proposal for the development of a computer learning lab, identifying necessary equipment, software and related considerations. Four months were allotted and subsequently used for the proposal development in the spring of 1995.

The first major step was assessment. Literature surrounding the implementation of computer technology into nursing education guided the direction of the assessment (Bolwell, 1992; Cambre & Castner, 1992; Knippers & Rizzolo, 1992). Experiences of others were reviewed to try to avoid pitfalls they had discovered (Shockley & Longcrier, 1992; Whitman, 1992). Areas for assessment included:

- Knowledge base of nurse educators and their current use of computer technology as a teaching strategy;
- Instructor preparedness and attitudes toward further computerization;
- On-site resources within the computer systems and multimedia resource departments of the larger institution;



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- Current and future student needs;
- Imposed limitations to the project, including financial and institutional support for the project; and
- External examples of other nursing institutions with functioning computer equipped labs.

Throughout the project, the consultant maintained an ongoing review of literature and input from several expert resources (Gleydura, Michelman & Wilson, 1995; Khoiny, 1995; and Tomaiuolo, 1995).

Two goals were identified as ongoing tasks for the consultant: to develop the proposal for the computer learning lab and to communicate steps of progress toward the lab development. To facilitate the future acceptance of the computer learning lab, the consultant sought to remember who was to be served with this project; namely, the students, the faculty, and the institution as a community. Input from all levels was sought, and opportunities for exploration of the options for the future project were consistently given to the stakeholders. Communication with the previous technology committee consisted of four monthly written reports including proposed time lines for implementation and feedback on interim findings.

Assessment of the Nurse Educators and their Perception of Student Needs

When any change is about to occur, it is very important to keep people informed, seek their input, integrate their ideas, and foster their enthusiasm for the change. Several of the key nursing faculty, curriculum advisors and program heads were interviewed to determine their perceptions of what this computer lab could mean for them. It was important to understand the degree of familiarity with computers, computer software, and related teaching strategies. The nursing literature surrounding computer-assisted instruction emphasizes that what nurse educators do not know about they cannot use, that what they do not trust they will not employ in their teaching, and that what they have not seen they cannot be excited about. Although the leadership of the nursing program had identified a need for this lab and had recognized a window of opportunity within the institutional climate in which to promote this development, the nurse educators had little time to think about computer resources and ways of changing their approach to education. The task of the consultant was no longer just fact finding and proposal developing; it included the roles of technology advocate and change agent, a seller of ideas.



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Assessment of the Institutional Climate and On-site Resources

Simultaneously, with the assessment of faculty and students, the consultant chose to take the technological pulse of the institution. Within the institution, other independently functioning programs existed with varying degrees of commitment to and involvement with technological advances. The consultant found pockets of technological expertise within the institution at large that were completely unknown to the nursing department. Other programs were providing well-equipped labs for their students with interactive software and advanced computer applications. It was time for the consultant to capitalize on support personnel already in place and to inform the nursing program of other programs and their resources. There was also a pressing need for the intentions of the nursing program to be made known to computer support personnel who were soon to have their workloads affected by more than 300 nursing students coming on line. Detailed and regular communication was imperative and welcomed in all departments.

Assessment of Imposed Limitations to the Project

Closely related to the exploration of other programs and computer support personnel was the need to determine the realistic limitations for the project, which would originate from administrative levels of the institution. The Nursing Department would need to articulate its needs and desires for advancing the computer use of faculty and students, but this had to be done within the context of the reality of space availability, commitment to technological support, ongoing financial commitment to the acquisition of equipment, and payment for expert involvement. The consultant was instrumental in stimulating discussion and guideline development for the project both inside and outside the Nursing department.

Assessment of Other Facilities and Literature Examples

A major part of the research for the proposal included investigation of the facilities of other nursing programs. Based on items identified in articles focusing on the implementation of computer equipment in nursing programs, an interviewing checklist was devised to encourage thorough investigation of other computer lab sites (Cho et al., 1992). Four other facilities were visited, and lab coordinators at several other institutions were interviewed by telephone.

Toward the end of the four-month project, the consultant was able to articulate the recommendations for the development of the computer learning lab. Based on the



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assessment, the proposal was designed to provide both a long-term plan for the development of the learning lab and interim recommendations for strategies to facilitate a successful change process. The next part of this paper will outline the interim strategies recommended and carried out during the proposal development stage and immediately following.

Interim Strategies: Increasing Computer Awareness and Support

As an advocate for the use of computers to facilitate nursing education, the consultant sought to expose the nurse educators, administrators, and nursing students to the best of computer-assisted instruction. The computer learning lab was expected to be functional within two years, but what about the meantime? A project named "Demo Days" was planned and carried out.

Planning the Previewing Event

This was a planned opportunity for the key decision makers and the students to experience the benefits of these learning tools (Knippers & Rizzolo, 1992). Several activities in the planning of this previewing event are outlined here:

- Dates were chosen that would allow a high concentration of students and faculty to be present to visit the nursing lab and try out four kinds of computer-assisted programs.
- Technical support for set-up and demonstration of the programs was arranged.
- Advertising was done through several media, including e-mail messages, bulletin-board announcements, posters, and memos to departments.
- Consultation occurred with the technology committee and key nurse leaders in the program. They were asked what courses they felt would most benefit from the use of computer learning.
- Catalogs and software directories featuring products especially designed for nursing programs were carefully examined and selections of software were made based on reviews in nursing literature, recommendations from other schools, and reviews of product literature.
- The companies marketing these software programs were contacted, and more than twenty software programs were ordered for preview for a three-day period of intense focus on the best programming available.

The "Demo Days" were not without stress, as the software had to arrive from distant



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companies, and four learning stations from other programs were borrowed and set up in the nursing lab. The consultant had prepared evaluation questionnaires for the students and educators to fill out as each of the software programs was trialed in the lab. More than eighty evaluations of the software products, their ease of use, applicability to the program, and value to the students¹ learning were gathered over the three-day period. These were valuable later in preparing lists of software for the project proposal.

Description of the Previewing Event.

The first station featured the two computers already in place in the institution. They were equipped with interactive videodisc recorders. Here the faculty and students were able to review new software titles. At a second station, several software titles were loaded onto a computer with a projector that could be used for large-group and classroom teaching. Here, students in groups of three and four were able to work their way through computer-assisted software that examined a broad scope of concepts: pre- and post-operative issues, math for nursing problems, pharmacology terms, and issues surrounding family violence. Faculty would find portions of the programs they saw as useful to illustrate existing lecture materials. At the third station, students and faculty were able to view segments of a laserdisc program, projected on a large screen. With a bar-code scanner, students were identifying portions of an anatomy and physiology course they wished to have illustrated. The fourth computer station was equipped with CD ROM capabilities. Students were able to once again interact with the learning materials, making choices of subject material based on interest and program directions.

At the conclusion of the demonstrations, excitement over the computer lab project had definitely heightened. Students interacted very easily with the programs, and faculty were surprised with the user-friendliness of most of the equipment. An interesting observation at the software event was the expressed desire of the students to begin using the technology. When administrators and educators were able to see students working with the programs so easily, they were encouraged to think about the future benefits but also were faced with the current deficits. Two of the computer stations had been rolled in on movable carts from other parts of the institution. They were equipped with a large-screen projector and all the hardware needed to run several applications. When the consultant saw the ease with which these units could be transported into nearby classrooms, the idea of proposing a multimedia cart as an interim measure was suggested.

Providing a Portable Multimedia Cart. Administrators who had seen the interaction of students, faculty and the learning opportunities at the demonstrations were eager to sustain interest and enthusiasm. At the conclusion of the proposal development phase,



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a decision was made to seek immediate approval and funding for one multimedia portable unit.

Other Interim Strategies. The immediate purchase of one portable fully equipped cart, which later could be housed in the lab, was only the first suggestion. Ongoing software evaluation and new purchases for existing computers was recommended. In addition to these acquisitions that needed to be made, attention was given to increasing student exposure to computer use. Sessions were proposed, beginning in the next term, to provide e-mail and word-processing opportunities. The appropriate technical support for teaching these skills was already present at Grant MacEwan Community College. Staff from Computing Services were alerted to the need for these 300 students to be given accounts for e-mail and word-processing functions. They were prepared to provide support in the following term to help the nursing students get on line and begin communicating with faculty who were already using their e-mail functions. Faculty were encouraged to attend workshops and related teaching sessions on computer use for several functions, including computer-assisted instruction, word-processing and e-mail programs. In addition, the technology committee from the Nursing Department was challenged to begin encouraging faculty to integrate these computer skills and capabilities into existing courses.

Overall Considerations for the Proposed Learning Lab

Based on the findings of the assessments done during the consultation phase and observation of student and faculty involvement, several considerations were identified that would require implementation, pending approval and acquisition of funds. The specifics of the proposal are not included here because they are linked to the individual requirements of the nursing program for which they were developed; however, the general categories of recommendations included the following areas:

- Size of cohorts and actual lab specifications.
- Environmental concerns: making the lab conducive to learning.
- Ergonomic concerns: making the lab comfortable and efficient for students.
- Security aspects: protecting the property and ensuring safe operation.
- Security of information transmission: ethical considerations for student and faculty confidentiality.
- Storage and other space needs.
- Institutional support: immediate and ongoing.



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- Computer technology support: taking responsibility for the lab's functioning.

The proposal also included an anticipated time line for learning lab development, an annotated reading list to be made available to educators, contact names of other nursing programs using computer technology, and future concerns to be addressed. Although the cost of hiring a consultant for assessment and proposal development was considerable, both the administration and nurse educators of the program acknowledged the benefits of having such a concentrated piece of work done without overtaxing the already heavy planning and teaching loads. A commitment to preparing their students to understand and utilize the tools of nursing informatics to meet the expanding needs of health care was a motivating factor for this program. As the proposal took shape, the project moved from an acknowledgement that "something had to be done" to a concrete plan of action, including interim steps, that made the anticipated lab a desired and attainable goal.

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About the Author

R. Marjorie Drury completed a Masters of Nursing Degree at University of Alberta in 1993, where an interest in Nursing Informatics was fostered. At the time of the consulting project, Ms. Drury was hired by the Nursing Program at Grant MacEwan Community College, Edmonton, Alberta to develop the proposal for a computer learning lab. Currently, Ms. Drury is an Assistant Professor on the Nursing Faculty at Trinity Western University, Langley, British Columbia, Canada. She is on the Academic Computing Committee of Trinity, which is committed to advancing the use of computer technology for classroom teaching and student development of skills. The author welcomes dialogue about the integration of nursing informatics into the curriculum.