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AUTHOR Lever-Duffy, Judy
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ABSTRACT

At the Homestead Campus of Miami-Dade Community College (MDCC), in Florida, one barrier to fully integrating technology in the classroom was identified as the low-level of student computer skills. To address the problem, the campus undertook a project to establish a technology basic skills workshop for all students. In informal interviews to determine basic technology skills, faculty indicated that all students should be able to use a word processor, use spell- and grammar-checkers for proofing and editing, use computer tutorials, and use CD-ROMs for research. The technology workshop was then designed as a one-credit, facilitated course consisting of the following five self-paced modules: (1) an introduction to the facilitated learning format; (2) an introduction to technology lab skills; (3) a guide to Microsoft Works software; (4) an introduction to MDCC's computerized advisement and registration system; and (5) a guide to using the campus library. In implementing the program, the campus had to overcome issues related to logistics, such as tracking students, and to making the workshop economically productive. Additional benefits of the workshop were that students gained skills necessary to function on campus and in the workplace, faculty have begun to assign more computer-based work, and both the campus and the technologies have been made more accessible to the community. (KP)

The Technology Workshop:

Empowering Students with Campus Technology

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Judy Lever-Duffy
Director, Information Technology Center
Miami-Dade Community College
Homestead Campus

Introduction

Preparing students for their role in an Information Age society has forced a shift of focus from the transfer of a defined knowledge base to the transfer of the skills to search an ever-widening base of knowledge. In order to function effectively in this information-rich environment, learners must prepare to be active and integrative not passive and fragmented as they manage and use information resources (Breivik, 1992). Perelman (1988) suggests that such information mastery not only empowers the student to learn within an academic framework, but also as prepares him or her for learning in the workplace. Since information technologies are the tools of the trade for future knowledge workers, exposure to such technology while in an educational environment can enable the student to enter the Information Age workforce prepared. Educational institutions therefore frequently recognize the integration of technology into the curriculum as an appropriate and timely goal.

The integration of technology into the classroom is a complex and challenging process for both teacher and technologist. When technology that is abundant on campus is not widely used in the teaching/learning environment, the educational technologist must discover why there is resistance. Levinson (1990) notes, when dealing with technology in education, "the most essential step in the successful implementation of change is identifying the problem to be solved." The technologist must take a hard look at the technology environment he or she has created for the end user in order to assess the causes of the underutilization.

As every technologist knows, faculty members can and will raise very valid arguments as to why technology is not integrated into their teaching strategies. For most who recognize

the usefulness of multimedia, on-line access to information, and the variety of other instructional technologist, the arguments against integration frequently center on simpler logistic difficulties. These include such objections as a lack of technical support, insufficient access to technology for evaluation and review, and the lack of skills not only on the part of the faculty but also on the part of the student expected to use the technology. This paper addresses the latter objection and provides a solution currently being piloted at the Homestead Campus of Miami-Dade Community College.

A campus committed to integrating technology in the classroom often focuses first upon the obvious and very real need to acquire appropriate technology and then on training faculty to use it. Overlooked however, is the need to provide students with similar training. Too often students have low to no-level computer skills. Faculty assigning students to word process a paper, do a search in a library equipped with CD-ROMs, or review content via computer tutorials are faced with serious, justified resistance from their students. Valid objections can be made against the inclusion of technology intensive assignments. Students intent on mastering content area competencies may not be able to spend sufficient time gearing up to use the technology that delivers those competencies. Even if one agrees that the use of technology is an enhancement to learning, the entry skills of the learner may preclude its use. How can one ask a student carrying a full academic load to instantly have and use technology skills to complete an assignment? Should faculty first provide students with instruction as to how to use the technology assigned? Is it really the role of the content expert, the faculty member, to take instructional time to teach these skills?

These questions initiated the development and piloting of a technology basic skills program for all campus students. Concerns raised by faculty regarding the integration of unfamiliar technologies were valid. Indeed, most students lacked technology skills sufficient to accomplish the types of tasks desired by instructors. While some had a computer course in high school, few used the same types of technology available on a community college campus. In fact, only those whose program required them to take a computer literacy course could be counted on to possess adequate word processing skills. Clearly, student technology skills were an obstacle to the integration of technology in instruction. This obstacle could only be removed by the creation and implementation of a cohesive effort to provide students with the appropriate technology entry skills for all campus courses.

Identification of Skills

Once it was evident that technology entry skills were needed, the logical next step was to identify the specific skills necessary to accomplish faculty objectives. An informal interview of the faculty resulted in the identification of these skills. English faculty were particularly helpful in this interview process. Since all academic areas require some type of written communication, English faculty helped to isolate the technology skills they felt would be appropriate to both their own and other areas. The discussion with faculty focused on the following assumptions: (1) the technology team was available to assist them in integrating technology into teaching; (2) students often do not possess the skills they need to use computers and other learning technologies; and (3) it is not appropriate to expect faculty to take content area time to teach computer skills. Faculty members were asked to identify the technology skills they felt should be entry skills for their courses.

In response, the faculty indicated students need to be able to (1) use a word processor, (2) use a spell checker for proofing, (3) use a grammar checker for editing, (4) use computer tutorials and (5) use CD-ROMs for research.

Since the campus technology labs were organized to support technology intensive academic assignments, the lab staff added some additional "computer survival skills" so that students coming to the lab would not require one-on-one help to begin their work. The skills identified by the lab staff included: (1) identification of and ability to use lab hardware, (2) care and use of disks and drives, (3) saving and retrieving student work, (4) printing student work and (5) logging in to the academic network.

Once the concept of a basic technology literacy course was discussed in campus staff meetings, additional campus departments added to the list of skills. Student services requested that competency in the computer-based registration and review of transcripts be included. In order to ensure that the frequently self-advised student was in the right course to start with, the student services director asked that all campus students be sufficiently competent to review and print their computerized program requirements. Student services thus added the following competencies: (1) use of the college computerized advisement service, (2) printing out of individualized academic summaries, and (3) use of the telephone and computer registration systems.

The library added its technology to the list of basic skills. Research via CD-ROM services and on-line services were necessary skills for many academic classes. These too were identified as entry skills for all students. Thus, a library technology component was added to the list of desired competencies.

The need for specific, entry level technology competencies were thus defined. The challenge was then the creation and implementation of an educational scenario that would provide opportunities for all campus students to achieve these skills.

Flexibility through Facilitated Learning

As part of the distance education initiative on this campus, the writer developed an instructional design referred to on campus and *facilitated learning*. A component of the multi-access education model (Lever, 1993), facilitated learning provides learners with a technology-intensive, faculty-designed learning environment that is open entry/open exit and flexible in its format. This design became the basis for the implementation of a course to provide the opportunity to gain the technology skills identified as necessary by campus faculty and staff.

The technology basic skills course was named Technology Workshop. It was assigned a course prefix relating to a one credit course in word processing, since a major component of the course was related to word processing skills. The course had to be flexible, reasonably independent, available to both existing and new students, easily modified as technologies and desired skill areas changed, and provide competency in the skills identified in the instructional time appropriate to a one credit course. These requirements required a non-traditional, innovative approach. The format of the Technology Workshop evolved in response to these needs.

Delivery Format

Technology workshop was designed as a one-credit facilitated course offered during every term. Existing students could register as soon as their schedule allowed and at any time during a term. New students were encouraged to take the course during their first term. Once

enrolled, students had two full academic terms to complete the course. This was done to avoid penalizing students who enrolled late in the semester, during one of the college's half terms (8 week terms). The result of this flexibility was a steady stream of students into the course any time during a term.

The facilitated format provided a flexible delivery format. Courses that are facilitated use both faculty, technology and paraprofessional support to provide a learning environment. Faculty may choose to meet a given number of hours or they may tape their lectures to be viewed at the student's discretion. Technology acts as both a delivery vehicle and as a patient, interactive teacher. Paraprofessional and student tutors are always available in the Technology Lab to respond to content area or technology questions. This format was ideal to provide flexibility that a campus wide initiative to provide all students technology skills would need.

Technology Workshop Curriculum

Technology Workshop curriculum consisted of five modules. A study guide was created for each module. The first was a general introduction to the facilitated format, a new experience for most students. This module attempted to answer the basic logistic questions of the learner and to ease their fear that they would have to gain technology skills entirely independently.

The second and third module, the bulk of the course, related to Technology Lab skills. These included being able to identify and operate a computer system, operating instructional technologies including VCR, video disc player, and CD-ROM, using a word processor and grammar checking a document. Since an integrated program (Microsoft Works) was selected for the course, the modules also contain optional opportunities to explore spreadsheets, data

base and telecommunications. These applications were not identified as entry skills by faculty and are currently not required. Students who already have any of the competencies identified in these guides can demonstrate them via observation or evaluation in order to be given credit for those packets. The modular format allows the guides to be easily updated as technologies or faculty requirements change.

The fourth module relates to student services. The director of student services identified to competencies necessary to help the student select the correct course. These included using AGIS, Miami-Dade's computerized advisement system and using the computerized phone registration system. Since all faculty assist in the advisement of students, each student being able to access, print and read his or her AGIS report made advisement easier. It also resulted in less errors when the students self-advised.

The fifth module relates to the campus library. The library provides students with CD-ROM search capabilities, microfiche, and access to the state library network. The guide provided the student with an exercise in each of the library's current systems and allowed them to get hands-on experience in conducting research.

Together the study guides give the student necessary information and hands-on experience in each technology intensive area of the campus. Each module focuses on very specific competencies to be obtained and provides experiences that will allow the student to gain mastery. The curriculum is essentially a technology survival skills course customized to the campus, the goals of the faculty, and the needs of the student.

Upon successful completion of all of the modules' activities, the student is evaluated via an objective test. A score of 80% or better on the test gives the student credit for the

course. Upon completion, the student is then issued a Technology Passport. Possession of a Passport assures those responsible for the various campus technologies that the student can use the equipment and software with a minimum degree of competency. The student's Passport provides them access to the campus Technology Lab to use any of the hardware or software available in the lab. The back of the Passport contains a bar coded label that allows the student to easily login to the academic network.

Issues and Obstacles

This course is in its second year as a pilot program. During implementation, a number of unanticipated obstacles and issues were encountered. At this point in the pilot process, these have been overcome to varying degrees of success.

Logistics

Tracking students in a facilitated delivery format requires either an electronic or hard copy tracking system. When the course was first implemented, the campus academic network was not yet in place. A hard copy tracking system was created. It is currently being replaced by a network-based electronic tracking system.

Upon registration, the student is sent the first guide which contains the course information. It is orientation to the facilitated delivery model and to the goals and objectives of the Technology Workshop. Students must then come to the campus to complete a Student Information sheet, the first step in the tracking process and to pick up the additional modules.

As students work through their modules, they are supported by the technologies in the lab, the lab staff, and their instructor. They can come to the lab to work during any open lab hours. They can work individually, with tutors, or by appointment, with any of the lab staff

or their instructor. The objective of this format is provide maximum flexibility for the student while providing quality assistance and support.

Upon completing each module, they place their work in their folders. These are checked weekly and competencies are recorded. When all work is completed, the student either comes to the lab to take his or her course test during scheduled test times or makes an appointment with a proctor for an alternative time.

Most of the modules require a demonstration of competency by the student. In the computer lab, in the student services office, and in the library, an individual(s) has been asked to be responsible for observing students' competency and signing off on their assignment sheet. Thus, students' (1) provide evidence of competency in a hands-on fashion and (2) have an opportunity to personally interact with each aspect of the campus included in the Workshop.

Productivity

Additional support technology and personnel use campus resources. To offset the expenses of paraprofessionals, tutors, and technology, the Workshop had be productive to the campus financially. This proved to be relatively easy to accomplish.

After an initial development cost, the system worked smoothly enough so that a single faculty member could coordinate the activities of the program. With paraprofessional and tutor support, the campus found that one faculty could support 300 students in the program as easily as he or she could support 30. The additional productivity could then be used to cover the expenses of the additional support necessary for smooth operation. The program was very quickly self supporting.

Additional Benefits

Students participating in the Technology Workshop are gaining the technology skills necessary to function on campus. Additionally, these students are gaining saleable technology skills for the workplace. Some students might never have taken a computer literacy course. Those taking computer literacy would probably not have been exposed to all of the campus technologies experienced in the Workshop activities.

As expected, once the Technology Workshop became part of the campus environment, faculty began to assign computer-based work. The improvement in readability of student papers and the opportunity for review with technology-supported tutorials further encouraged faculty to use the campus technology in instruction. The unexpected benefit with reference to the faculty was the renewed and even urgent interest in integrating academic technologies. Workshops and one-on-one faculty instruction were requested in the areas of video discs, authoring, and CD-ROMs. Upgrades to office computers, once used primarily for word processing, were requested so that faculty could work on authoring in their own offices instead of the Faculty Resource Center. Even hard-core technophobic faculty attitudes changed. Typewriters, once coveted for a faculty office, ended up on floors and in the way, replaced by computer tools. The Technology Workshop and the academic technology nucleus that it represented contributed to a new mindset on the campus. Faculty Senate validated the significance of this initiative by voting unanimously to make this course an official campus requirement for all students.

From a community standpoint, the Technology Workshop offered another opportunity. A member of the community could come to the college as a special student and register for the

Technology Workshop. In this, he or she could be exposed to not only the current and emerging technologies available on campus, but also to the campus itself. This single credit course provided an opportunity for the community to embrace a college activity. Of course, once the Workshop was completed and the Passport earned, the individual can continue to access campus technologies. This provides both on-going and occasional students access to technologies they otherwise not see or use. Alumni Passports have been proposed that could be earned through additional one-credit follow up courses. These would provide an opportunity to update skills and remain active in a life-long learning process.

Evaluation

During this second pilot year, a formal summative evaluation process is being developed. At this point, formative evaluation through observation and discussion with faculty, staff and students has been the primary feedback method. Now that most of the obstacles in implementation have been overcome in response to this feedback, the program needs to be reviewed and evaluated by faculty. A faculty review committee has been created to monitor this and all courses using the facilitated learning model.

Conclusion

Necessity, being the mother of innovation as well as invention, the Technology Workshop with its resultant Technology Passport evolved. Faculty needed students' to have minimal skills in technology that they could rely on when preparing lessons. Students needed survival skills in technology for campus classes and for the work place they will enter. This writer, with the help of the faculty, the technology staff, and the administration, was able to construct and implement a solution that has successfully met these needs. The implementation

of this one-credit course has additionally generated many positive side benefits for all concerned. As the Technology Workshop is refined and improved, it is very likely to become even more effective in empowering both faculty and students with technology.

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