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ABSTRACT

This article, originally printed in the Technological Horizons in Education Journal online (January 2001 issue), discusses the partnership between faculty and librarians at community colleges. The author focuses on one college, Santa Fe Community College (SFCC) (Florida), and provides examples of faculty-librarian collaboration at this institution. The library provides instructional support through online resources, the digital reference desk for information access, and an entirely new course of instruction: library information science. In support of institutional goals of incorporating electronic resources and emerging technologies into instructional delivery, library staff teach faculty and students how to use the library and its resources. The library's evolving role in a digital age is one that helps facilitate collaborative learning by blending content information, technology, and active learning. Faculty and librarians at SFCC have worked together on many successful tasks, including Project COMPUTE, which built two instructional computer labs with National Science Foundation funds. In addition, SFCC faculty can now sign up for workshops and classes in library instruction via the library's Web site. The author concludes that the internal partnership between faculty and reference librarians at SFCC forms an ideal conduit for realizing a student-centered, learning-centered environment, as well as incorporating technology in traditional classroom instruction. (EMH)

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Faculty and Reference Librarians A Virtual Dynamic Duo

January 2001 - Feature

An Internal Educational Partnership for Learning

In the 21st century, there are new rules, new players, and indisputably new technology. Curricular reform has returned as a buzzword, and a never-ending supply of information has created a need for efficient filters of raw data at virtually any place and any time. The proliferation of distance learning programs in higher education is a direct consequence of the demands of an information-based society. The new literacy for the 21st century and beyond is clearly the ability to utilize appropriate technological tools in an information society (Evans 1999). During the past decade, the use of technology in instructional delivery, both traditional and distance learning, increased at a seemingly exponential rate. At Santa Fe Community College (SFCC) in Gainesville, Fla., continuous steps are underway to facilitate the redesign of teaching and learning environments as a proactive measure for remodeling old styles of instruction in order to blend newer styles of education effectively in a digital age.

All students enrolled at SFCC have access to several state-of-the-art technology labs. The college's primary Technology Lab, which is commonly referred to as the Big Open Lab (BOL), has approximately 150 Pentium computers, set up as independent workstations for student use, six networked printers, and two scanners. Incorporation of technology into traditional classroom instruction reflects college-wide goals of implementing national standards regarding technology usage in the curriculum.

Teaching and Learning in a Digital Age

The digital age has significantly impacted the infrastructure of higher education and its delivery. It is not a coincident that the final decade of the 20th century has been inundated with changes in the mission statements of community colleges, a complete makeover of the college library, and an emphasis on establishing learning communities. Digital technology has had great impact on information access, integration, and management. Chris Dede, professor of Education and Information Technology at George Mason University (1992), discussed the problem of information overload and the commensurate need to structure immersion-centered experiences of interacting with information to prepare students for fully participating in 21st century society. He urged a greater focus on filtering incoming information, rather than simply foraging for data.

Digital accessibility has changed the flow of information (Norton and Lester 1996), and the visibility of the college library has been impacted dramatically. In particular, technological advancement and its impact on an integrated curriculum have merged positively to highlight the role of the reference librarian as an invaluable information professional. At SFCC, as the capabilities of the digital reference desk continue to grow, the 21st century learner enrolled in coursework is interested in boundary-less learning, computer literacy with rapid access to information, and interdisciplinary applications. Remaining proactive, as well as reactive, to student needs, SFCC has encouraged 21st century faculty members to move beyond the textbooks to integrate teaching, learning, and technology into their curricula, and to establish interdisciplinary relationships with other faculty and staff. One of the most visible internal and collaborative relationships that have been formed is the virtual dynamic duo between SFCC faculty and library staff.

The 21st Century Community College Library

The role of the library has undergone a startling, yet important, metamorphosis in the past decade. SFCC's 21st century reference librarian has contributed to the architecture of new teaching and learning environments for faculty and students. Its library provides instructional support through online resources, the digital reference desk for information access and an entirely new course of instruction ó library information science (LIS). In support of institutional goals of incorporating electronic resources and emerging technologies into instructional delivery, library staff teach faculty and students how to use the SFCC Library and its resources. The goal is for the SFCC community to become proficient in using links to external databases to access vast reservoirs of information, to evaluate Web sites for credibility, to filter information, and to forage efficiently for data.

The internal educational partnership that has been formed between SFCC faculty and reference librarians has been a catalytic agent in overcoming roadblocks to information. The utility of the SFCC library's digital reference desk has epitomized the old adage that "knowledge is power." Digital access to information through the SFCC library facilitates students' active learning, enhancement of critical thinking skills and active engagement in information management. Students are afforded the opportunity to pursue focused research in a digital environment and to seek data to support views as expressed in research papers spanning disciplines from English to statistics. The library's evolving role in a digital age is one that helps to facilitate collaborative learning by blending content information, technology and active learning. In the new teaching and learning paradigm that has been so often espoused (guide on the side vs. sage on the stage), SFCC faculty and reference librarians have formed a virtual dynamic duo.

Mathematics and Statistics at SFCC: One Department's Transformation

Early in 1994, the Department of Mathematics and Statistics at SFCC embarked upon a comprehensive review of its curriculum. The decision to enact curricular reform coincided with a change in department leadership, and with the influence of external organizations engaged in a national dialogue on the evolution of instructional technology in mathematics education. Both the change and growth in the department over the past six years have not occurred without challenges. Reduced funding for professional and scholarly activity, along with concerns regarding equity and quality in educational opportunity, have been prominent players in the struggle for advancement. Yet, the department has successfully embraced technology and its valuable role in the mathematics classroom; pedagogy has also been updated so that innovative teaching and learning strategies are commonplace.

The resulting plan to enact this self-reflection of the departmental curriculum was identified as Project COMPUTE (Curriculum Overhaul in Mathematics with Pedagogy Updating and Technology Enhancement). Project COMPUTE provided a clear strategy for ushering the department into a technological era. Although technological innovation and its incorporation in the classroom were goals, these were not the only goals of the project. The implementation of research-based pedagogical changes designed to enhance mathematics learning for all students was equally important.

Six years ago, few faculty members in the department had access to personal computers as a means of incorporating technology in teaching and daily use. At the time, one or two teachers used graphing calculators in the instructional delivery of algebra. The teaching format of the majority of the faculty was fairly uniform,

grounded in the theory of passive teaching and learning that was popular in the classroom of past decades. Classes invariably hosted a chalk and talk lecture, in which mathematics faculty talked while writing on the chalkboard. Students sat passively, listened, and dutifully took written notes.

Project COMPUTE

Faculty in the department applied for and won an NSF grant that became the source of funding for two instructional computer labs, which opened in a blue ribbon cutting ceremony in the fall of 1995. Initially, these department labs were equipped with non-Pentium computers, 15 of which were available for student use in pairs. One was reserved as the lead computer for instructor modeling and on-screen projection of concepts. Due to rapid changes in technological hardware and software, these computer labs were upgraded in the summer of 1999 to state-of-the-art Pentium computers, operating at 400 MHz in the Windows 95 environment. Offering 125 MB of RAM and a 6 GIG hard drive, each new computer is equipped with floppy, CD-ROM and internal ZIP drives, as well as a large screen color monitor. Various software programs, which are specific to mathematics ó MATHCAD, DERIVE, CONVERGE, MINITAB ó are available in these computer labs and are incorporated in the daily instructional delivery of subject matter. Overall, the department has taken a proactive approach to curricular reform. Faculty members have reported feeling empowered to infuse critical thinking skills into the mathematics curriculum for all students; mathematics classes have been revised and restructured, while preserving content integrity. Technology has been integrated as a teaching and learning tool in the classroom environment. Faculty members have generated handbooks and instructor manuals and are working in close concert with one another to ensure that the gains they have made remain in place. Full- and part-time faculty members interact as peer-trainers, mentors, and resource consultants. Students actively engage in the learning process and routinely utilize computer technology and graphing calculators as learning tools in the mathematics classroom. Retention rates in pre-calculus courses are up, and enrollment in introductory statistics (averaging over 2,100 in annual enrollment from 1996-1999) has never been higher.

Today, an observer can routinely visit any classroom in the department and see instructional technology being used actively by faculty and students in the teaching and learning process. Every member of the mathematics and statistics faculty owns at least one graphing calculator. Students are either required or encouraged to acquire a graphing calculator, depending upon the mathematics course in which they are enrolled. Two state-of-the-art computer labs are occupied by day and evening classes (at or above the level of

calculus and statistics) that pursue active learning. Faculty members incorporate a round-robin format in assigning each faculty member to one class period in these labs on a weekly basis to ensure that every faculty member and student has regular exposure to technology in the context of the mathematics curriculum. Many faculty also elect to use a loaner "In Focus Computer" projector system, courtesy of the college's audio-visual department, on those days when classes are not scheduled to meet in the computer lab, but meet instead in a traditional classroom.

The availability of technology exacted many changes in curricular offerings and in the prior mode of instructional delivery. Project COMPUTE enabled the Department of Mathematics and Statistics at SFCC to complete a thorough review of pedagogy and learning strategies, with a focused and deliberate emphasis on adhering to national standards. The effort as a department was greatly advanced by a college administration committed to integrating technology into instructional delivery. As a result, the way faculty members think about and actually teach mathematics at SFCC has changed significantly. These changes have occurred above and beyond the use of technology as an electronic teaching assistant. Multiple pathways are provided through learning materials to accommodate varying learning styles. The current active mathematics classroom is one that is noticeably different from the traditional passive mathematics classroom. It is teeming with interaction, conversation, and meaningful dialogue, and has moved beyond the standard "chalk and talk" lecture.

The department's commitment to keeping pace with the constancy of change in the community college is one that is steadfast. Collaboration with the library staff of SFCC is an ideal example of the manner in which this commitment is actualized through the Introductory Statistics course. The course should utilize an active learning approach with ongoing interaction among students and between students and the professor. The conventional lecture mode of instruction is de-emphasized in favor of group work, student projects, and interactive student discussions in real time, as well as asynchronous, virtual time. Students utilize information technology via the completion of a group research project, an accompanying research paper with full citations in American Psychological Association (APA) format, and a required oral presentation to the class using PowerPoint. The professor of the course works in concert with SFCC reference librarians to guide students in searching for data sources, in establishing reference citations and bibliography, and in submitting papers that use the APA format. A basic goal of the educational partnership is to provide an online network of learning resources, which enable the students to enhance research skills, interact in a collaborative learning environment, and improve oral and written communication skills.

Library Instruction at SFCC

In January 1999, the SFCC library staff began offering online registration for classes in library instruction. Via the SFCC Library Web site, faculty sign up for workshops and classes in library instruction (LI) and are encouraged to schedule a research strategy workshop or LI lecture for students.

SFCC emphasizes the incorporation of electronic resources and emerging technologies in instructional delivery. Accordingly, the college library operates as a learning resource center (LRC) and exists to support student needs for information. The library currently offers two research courses: Electronic Access to Information and Introduction to Internet Research. The SFCC Library research skills course, Electronic Access to Information, is a one-credit course, meeting for 15 contact hours. Initially offered in the spring semester of 1995, the course leads students to a discovery of the many electronic resources available to them through the library databases. A significant portion of the course is devoted to research strategy using Boolean logic. Specific databases studied are LINCCWeb, WebLUIS, FirstSearch, and Britannica Online. The SFCC Library research skill course, Electronic Access to Information, is a one-credit course, initially offered in 1998. This is a Web-based course focusing on methods of accessing information resources available through the Internet, including FirstSearch and LINCCWeb. Those enrolled will learn how to design effective search strategies, retrieve, evaluate, and cite Internet resources.

Reference librarians are available during hours of library operation to guide and instruct students in using library tools, such as LINCC, Florida's Library Information Network for Community Colleges. LINCC provides automated library services to the state's 28 community colleges and to their campus libraries. SFCC Library User Services Coordinator and Reference Librarian, Sherry Dupree, Ed. S., reports, "SFCC librarians have taught more than 260 classes ó by faculty request ó in the 14 months since the online registration for courses in LI began. On average, 16 classes were taught per month in 1999. The 260 classes that have been taught represent a 93% response rate to faculty requests for research strategy workshops or LI lectures" (Dupree, personal E-mail correspondence, February 2000).

Faculty and Student Evaluative Feedback

On the national landscape, the image of the librarian is finally changing (*Los Angeles Times* 1999). At the grassroots level, LI

instruction continues to evolve at SFCC. To be sure, there are growing pains. According to Dupree, feedback from faculty indicates the following problematic areas:

- Classes are too short.
- Computers are too sparse.
- Students need a computer when the librarian teaches a class.
- Library is too small (plans to build a new library at SFCC are underway).
- Handouts should show more Web sites and scientific ways to find Web sites.

Students' complaints center primarily on server downtime and the subsequent inability to access the SFCC home page. On the positive side, both faculty and students consistently rate the library staff as helpful and accommodating in providing holistic, quality education to SFCC students. Evaluations from the research strategy workshops and library instruction classes indicate that the courses are considered useful and important to student participants.

The internal partnership between faculty and reference librarians at SFCC is a collaborative union that forms an ideal conduit for actualization of a student-centered, learning-centered environment, as well as incorporation of technology in traditional classroom instruction. As a virtual dynamic duo, faculty members and reference librarians help to support an active learning environment in which students can enhance their research skills, become familiar with electronic communications, and utilize information technology.

Dr. Ruby Evans *is a professor of mathematics and statistics at Santa Fe Community College, and was recognized in 1998 as an Outstanding Faculty member by the college. In 1999, SFCC selected Evans as a runner-up/finalist for the SFCC Chapter of the Florida Association of Community Colleges Professor of the Year Award. She has been featured as an innovative community college educator in* Scientific Computing and Instrumentation Magazine. *Evans teaches statistics classes in the synchronous classroom, as well as online via the asynchronous distance learning environment. She makes frequent presentations at regional, national and international conferences on the topic of integrating teaching, active and collaborative learning, and technology. Evans recently accepted an Associate Professorship at Florida A&M University.*

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