Transforming Library Spaces into Enhanced Learning Environments: Saint Francis University’s Library of the Future Prototype

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Patricia I. Fitzgerald, Ph.D.  pfitzgerald@francis.edu
Robert E. Griffin, M.S.  rgriffin@cermusa.francis.edu
Patricia B. Serotkin, M.L.S., M.A.  pserotkin@francis.edu

Abstract

The Library of the Future prototype at Saint Francis University was developed to examine technologies and environments that increase access to information resources. The Center of Excellence for Remote and Under-Served Areas (CERMUSA) and the Pasquerilla Library collaborated to test and evaluate new services, technologies, and furnishings that transformed a library facility originally designed to accommodate a 1960’s student body and curriculum into an enhanced learning environment which facilitates the library’s ability to serve the needs of a third-millennium university community. The prototype was divided into three sub-projects: Core Electronic Services, Virtual Reference Services, and Enhanced Access to Information Resources. Each of these projects focused on a different aspect of transforming traditional spaces into enhanced learning environments through the use of e-journals, virtual reference, wireless networking, and assistive technologies at public access computers. The prototype research results provide insight into the future of libraries and how they must adapt to serve students in the third millennium.

What is the Library of the Future?

In the third millennium, libraries are multi-dimensional. Very successful libraries are exciting and adaptable visitor destinations. Library personnel incorporate marketing lessons learned from other institutions and civic spaces, e.g., museums and discovery centers. Their focus is audience-centered. As collections become more virtual, libraries are evolving, and their missions are changing. They are becoming an information commons, providing access to all forms of knowledge. They are also becoming cultural community centers, emphasizing a host of interactive activities, such as information literacy training, shared computing centers, group learning spaces, and wireless computing. Libraries need to integrate new experiences and interactions. Interactive environments emphasize orientation, hands-on activities, and creative patterns of flow. They function as centers for innovation, information laboratories, and more. Libraries need to use these user-friendly techniques to help patrons navigate through the perpetual world of multi-dimensional information.

Libraries function as cultural change agents, encouraging an understanding of the

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world through reading and language arts. Creative learning environments encourage positive user behavior and interactions using such techniques as:

- Visual experience
- Arrangement of resources
- Flexible and mobile furniture

State-of-the-art, creative, library learning environments are multi-sensory, featuring text, graphics, 3-D displays, video and audio. They are responsive to their customer’s needs, e.g., helping first-year students begin the journey through the curriculum, showing upper-level students how to update their information literacy skills, assisting the graduate researcher in information navigation and assisting faculty in the use of online education resources and tools. For these and similar functions, specific knowledge islands may be created:

- Focusing on information literacy skills
- Providing space for project-based learning
- Mapping information routes

The Pasquerilla Library at Saint Francis University was designed, constructed and furnished to accommodate a 1960's student population, curriculum, and faculty. Although various grant projects have renovated and wired much of the facility, many of the original furnishings were still being used in the most public areas of the library. While the library’s collections have begun the transition from print to electronic, much of the environment where these information resources were actually used are not conducive to student learning. The Library of the Future prototype was designed to examine technologies and environments that increase access to information resources. The Center of Excellence for Remote and Under-Served Areas (CERMUSA) and the Pasquerilla Library collaborated to test and evaluate new services, technologies, and furnishings that enhance the library’s 21st century mission.

Three Divisions of the Prototype
The prototype is divided into three sub-projects. They are:

- Core Electronic Services
- Virtual Reference Services
- Enhanced Access To Information Resources

Each of these divisions focuses on a different aspect of transforming traditional library spaces into enhanced learning environments. The following is a brief description of each of these areas.

Core Electronic Services
Saint Francis University, a small, Catholic, liberal arts institution, is located in rural central Pennsylvania. The location is shown in Figure 1.

Figure 1
Location of Saint Francis University

The University has increased the number of graduate programs during the last ten years and external accreditation is required for each of these new programs. Graduate programs typically have a rigorous research requirement for students, which place an added burden on library resources. This added burden was realized during the 1998-1999 academic year at Saint Francis, when the Inter-Library Loan budget was exhausted due to extensive use by graduate students.

The Core Electronic Services portion of the prototype focused on the comparison of electronic journal usage versus print usage at Saint Francis University Library by students.
enrolled in research courses in the Physical and Occupational Therapy programs. Also of interest are the methods students choose to access journal holdings and other sources available through FRANCIS, the library’s online catalog and gateway to resources.

Virtual Reference Services

Due to the proliferation of distance education students at Saint Francis University, additional methods are being investigated to link distance students with library services. Previous distance learning projects conducted by CERMUSA and Saint Francis University have indicated the need for providing traditional face-to-face library reference services for distance education students. The purpose of this portion of the project is to investigate the best methods for providing reference librarian services to these distance students.

Enhanced Access to Information Resources

The final division of the prototype focused on providing enhanced access to resources by mitigating physical and cognitive barriers. Libraries have long been used to search the Internet as well as locate materials within the physical library. In this portion of the prototype, various methods for making better use of library public access computers to deliver multi-media information resources were investigated.

The research focused on expanding the capabilities of the library’s information delivery systems to include cutting edge technologies for experiencing multimedia, especially to enable collaborative learning; and, adaptive technologies that enable access to library resources by all patrons.

With these three directions in mind, let’s take an in-depth look at the research gathered so far in this prototype.

Core Electronic Services

This prototype required many elements that the library did not possess. The following resources were required:

- Students enrolled in graduate level research courses
- Internet access
- Selected Electronic Journals
- Access to library usage statistics
- WebCT
- Computers

Saint Francis University Institutional Review Board approval and student informed consent was obtained prior to data collection. Convenience sampling was used to select the Physical and Occupational Therapy students, enrolled in their respective graduate level research courses, who served as subjects for this prototype. The journals selected for these experiments are shown in Figure 2.

Figure 2
Journals Selected For This Prototype

16 Electronic Journals
- Archives of Neurology
- Breast Cancer Research and Treatment
- British Journal of Sports Medicine
- Clinical Diabetes
- Clinical Journal of Pain
- Clinical Orthopaedics and Related Research
- Current Opinion in Neurology
- Current Opinion in Orthopaedics
- Current Opinion in Pulmonary Medicine
- Epidemiology
- Foot and Ankle International
- Hypertension
- Journal of Human Nutrition and Dietetics
- Medical Education
- Spine
- Sports Medicine

Physical Therapy (PT) students were introduced to the electronic journals during their second semester of research (PHTH 541 Spring 2002). Orientation to the electronic journals was provided by the Associate Librarian for Instruction and Information Service during a regularly scheduled class.
Students were instructed to use the e-journals along with other search strategies learned in information literacy courses taken at Saint Francis. Occupational Therapy (OT) students were also introduced to the e-journals as part of a standard library orientation coordinated by the Associate Librarian for Instruction and Information Services. PT and OT students participated in focus groups after two semesters using the e-journals. Data collection consists of focus group summaries, library usage statistics (e-journal and inter-library loan), and apparent usage data provided in bibliographies of homework assignments.

Equipment used for the research included OVID e-journals, WebCT, various computers, and other library resources (CERMUSA loaners, University, and personal).

Conclusions:

1. Students need to be introduced to electronic resources and then have additional training and printed instructions to feel capable of using these resources effectively on their own.

2. Students prefer electronic full-text journals to print because it is faster and easier for them to get the information. They prefer to use e-journals because at Saint Francis University they don't pay for printing. It is a deterrent to students to be charged for photocopying print journals.

3. Students did not find as much information in the print journals subscribed by the Pasquerilla Library. Students want more full-text e-journals available to them.

4. Some students used the e-journals purchased for the prototype. The frustration of learning a new database in the middle of a process could be defused by addressing the training issue.

5. Because the e-journals were provided only to these students, the prototype team members need to be more proactive in reminding them of the availability of the e-journals.

Virtual Reference Services

Since the “distance” in distance education often prevents even an occasional in-person visit to the library, this project seeks to investigate and test a workable method to achieve student-to-librarian interaction in the virtual environment. To accomplish this task, a Distance Education Librarian was hired as a research associate in September 2002. He has begun to test a variety of technological applications. The bulk of the research in this portion of the prototype will be conducted in Spring 2003 and will incorporate computer applications that enhance library/patron contact. These computed-based tools provide email-like contact, phone contact, instant messenger contact, and video contact with distance librarians. Convey Systems OnDemand software was chosen to be tested for this type of virtual librarian interaction. It provides video and voice links, an instantaneous chat component and permits application and database sharing. With the application-sharing feature selected, a librarian can view the user’s screen and assume control of their cursor to move around and between screens on the user’s computer. This ability, combined with Convey’s multimedia functionality, allows a librarian to tutor a patron in the use of online resources almost as well as being there in person.

During the Fall 2002 semester, the new Distance Education Librarian’s primary task was to implement Convey, and to design and establish a Distance Education website (see
http://www.francis.edu/newsfc/library/Distance%20Education.html) which is accessed through the Pasquerilla Library’s home page and through FRANCIS, its online catalog (http://library.francis.edu).

During the period December 1-31, 2002, the Distance Education pages were viewed 449 times. Though the email and telephone services have been slow at start-up, it is anticipated that requests will increase after the new services are publicized in January 2003.

Enhanced Access to Information Resources

Physical and cognitive barriers to learning exist in the present configuration of the Saint Francis University library building and resources. There is a need to provide varied methods to access multimedia resources. Libraries by tradition are known as quiet places. This attitude is gradually changing. In order to encourage interaction and collaborative learning that creates a minimal disruption for other patrons, approaches to reducing noise generated by multimedia presentations is being investigated.

In order to accomplish this task, four of the Pasquerilla Library’s public access kiosks were equipped with a new computer and a variety of hardware and software designed to enhance access to information. Samples of the equipment are shown below including: the Aladdin Rainbow Pro Video Magnifier shown in Figure 3.

Kurzweil 3000 Text to Speech software and MAGic 8.0 Text magnification software has also been included as part of the experiment. The MAGic text magnification software is shown in Figure 4.

A final device that was tested was the Cone of Silence. This device focuses sound down to the listener and is shown in Figure 5.
The Cone of Silence and the other products included in this prototype were selected for testing after significant investigation by both library and CERMUSA staff.

The new equipment was installed and preliminarily tested during the Fall 2002 semester. In Spring 2003, students will test and evaluate the new library information technologies as a group to determine the benefits of collaborative learning. Surveys will be used to obtain feedback.

**Conclusion**

The Library of the Future prototype is drawing to a conclusion and the results appear to be promising. It is clear that the Pasquerilla Library’s learning environment has been enhanced through the introduction of new technologies designed to enhance access to information resources and to mitigate barriers to their access. This prototype has provided an insight into the future of libraries and how they must adapt to the information needs of university students in the third millennium.