Information Commons

Peggy White
Susan Beatty
Darlene Warren
University of Calgary, Calgary, Alberta, Canada

INTRODUCTION

Information commons are a new type of library facility. They commonly include a large number of computer workstations that provide access to productivity software as well as the Internet and electronic library resources. Often, they are formed through a partnership with IT and the library and employ professionals from both areas. Help is provided for the technology as well as information research. They first appeared in the early 1990s and are being adopted by university libraries at a rapid pace, as they seem to meet the emerging needs of today's students.

EARLY TRENDS

The development of information technology and the growing demand for electronic resources were early predictors of change. Initially, the purview of the expert, software programs such as Excel and Word gradually became accessible to the novice. Concurrently, with the advent of the Internet and the concomitant explosion of electronically available information, expectations for presentation and delivery of academic work that incorporated these tools and information grew. Computer access became critical.

Faced with a growing student demand for computer access, libraries first met this challenge by installing library-based computer labs or, at the very least, a few computers in the library often near the reference desk. As the electronic resource component to the library collection took on greater importance, computer demand escalated, forcing the library to install more computers to provide greater access to resources. While providing access to information was a critical component, it quickly became apparent that more was needed. Users attempting to meet the increased expectations for their academic assignments began asking questions that related to how to use the technology as well as how to access information.

The options for the user were narrow. Information research assistance was available in the library, but technical assistance was limited. Productivity tools and other specialized software needed to complete assignments were available elsewhere on campus in computer labs, usually under the jurisdiction of university computing services or specific academic departments. The infrastructure was present, but there was little in the way of expert help or on-site assistance. Additionally, in computer labs, access to digital library resources or other Internet information was generally restricted. A user searching for information, writing papers, preparing presentations or doing data analysis had to go to several different places. There was little or no integration of either services or technology.

Early in the 1990s, some North American academic institutions began to look at this separation of information technology from information resources and its effect on the user. Many began a series of investigations and discussions. The dominant issue was how the educational and academic experience of the learner might be improved through collaboration and integration of the various units. The earliest results were recommendations that led to the establishment of ''information arcades,'' ''learning commons,'' or ''information commons'' where the emphasis was on the integration of technology into the learning and research of the institution.[1] The user became the central figure, shaping the demands of this new model.

While libraries have always been interested in the needs of their users, organizational structures often established the boundaries around which change could be made. In the case of the development of the information commons, user need explicitly assumed primary importance. What does the user want? What does the user need to access information? What does the user need to effectively use technology? What will enable the user to absorb, deliver, and create new learning? These were and are some of the questions that planning committees, university librarians, university computer services, and academic leaders asked themselves and the users. The forces for integration—user needs, technological advances, affordability, resource expansion, and the ability of a few visionary decision makers to see the need and benefit in collaboration and integration of services—led to a new concept of library services. Still in its infancy, the full impact of this development has not yet been realized.

Encyclopedia of Library and Information Science
DOI: 10.1081/E-ELIS 120020359

DESCRIPTION

A survey of the literature and visits to Web sites reveal that no one model or name for these new spaces exists. Instead, each institution has developed a structure in response to the unique and particular needs of its clientele. Names include electronic resource center, knowledge commons, information hub, and information commons, with information commons being the most widely used term. Size can range from 10 to over 300 workstations. Services and available technology also differ. Despite the variety, three common models emerge.

The Virtual Space

Somewhat peripheral but deserving of mention is the model of an information commons as a virtual rather than physical space. The world of digital information available commonly over the Web becomes the information commons. Physical place is not a factor. Users have access anywhere, anytime apparently seamlessly and without effort. The importance of this model, as a concept, is that in all aspects except service, it is particularly suited to the way in which today's user prefers to obtain and use information. ''Internet use is a staple of college students' educational experience. They use the Internet to communicate with professors and classmates, to do research, and to access library materials. For most college students the Internet is a functional tool, one that has greatly changed the way they interact with others and with information.''[2] Where the information commons model has been most successful, it has emulated this concept while adding a physical place with access to technology and services.

The Library Computer Laboratory

The library computer laboratory model represents the minimalist approach and is the least-inclusive model. In this model, the lab may exist within the library building or in a separate space but under the umbrella of the library. The focus of the computer laboratory model is on the technical infrastructure. A variety of computer and digital technologies, peripherals, software, and network options will exist.[3] Commonly included are the Microsoft Office suite, statistical packages, Web design software, and the Internet. Help is limited if offered at all. In essence, this model represents the nonintegrated, localized approach. It epitomizes a concept in which the client must go to different places to retrieve information, use software, and find help.

Integrated Centers

Integrated centers are emerging as the preferred model. The philosophy behind the integrated center is meeting the client's need for information and technology in one space. The design is user-centered. Service is holistic and is offered as seamlessly as possible by a variety of staff including librarians, library assistants, information technology specialists, and student help. In this model, the information commons integrate resources, service, and technology.

The goal is to provide a common and inclusive experience of information. All computers are able to access the Internet and other library resources. As much as possible, software loaded on the computers is the same throughout. A user can go to any workstation in the information commons and find the same tools to do his or her work. Service is similarly consistent and holistic. Ideally, all staff can provide basic help in all features, whether it is help with using software, resolving technical problems, or searching for information.

SPECIALIZED SERVICES

While successful information commons are holistic, integrating technology and information research, differences do exist. This is most noticeable in the area of specialized services and software. For example, some information commons include instructional centers. Services available may range from basic instruction in productivity software and information literacy to advanced help with instructional design and development. Similarly, areas providing access to advanced statistical, mapping, audiovisual production technology, or other high-end software may exist. Centers such as these add a new dimension to the information commons. They may also be indicative of future directions as the library redefines its role to meet user expectation and need.

The issue is not one of uniformity vs. differentiation. As in the case of other ubiquitous tools and places, ''there must be enough relatively uniform interface features... that the mass of people who encounter them can use them without inordinate training. There also has to be enough differentiation that different models and locales are attractive to relevant cross sections of the population.''[4] This is not an easily achievable goal and requires constant monitoring and adjustment as user demand shifts and changes. Successful models will offer that balance between information resources and information technology, homogeneity, and specialization that best suits the needs of the clients.

MARCEL DEKKER, INC.
270 Madison Avenue, New York, New York 10016

The spontaneous arrival of information commons on many campuses is testimony to their apparent value. Yet the concept is not without its detractors. An opposing view holds that the departure from strict information provision is detrimental to the library and library services. Already scarce resources are stretched further by having to share space and budgetary allocations. In addition, the expectation that library staff should be proficient in providing advice on the use of technology as well as information searching is perceived as unreasonable. Asked to take on a role for which they were not trained, staff resistance is common. ''A related issue is the librarian's loss of professional identity. Staffing a desk where many questions are technical can be demoralizing for a reference librarian whose research skills and professional expertise are being underutilized. Constant training as technology is upgraded is expensive, and inadequate training can result in a librarian feeling unprepared.''[5]

Some users also dislike the high-technology space. They are frustrated by the loss of space for quiet study and the departure from their perception of what a library should be as revealed in the following anecdote. ''Can you tell me, where is the library? I'm trying to find the library. It used to be here.''[4] Additionally, with the utilization of computers for many different purposes, users may find it difficult to obtain one when they only want to do traditional library research. In planning for an information commons, negative as well as positive aspects need to be considered.

Despite the challenges, the model of a one-stop service center where the user can have access to information, technology, and user-support appears to be a winning one. The idea of the scholar's workstation where the researcher can access the resources of the institution plus the resources of the Internet plus have the software to produce a document, chart, or presentation and have expert help when needed achieves the goals of the user and of the institution to advance the integration of technology into the learning environment. The resulting environment truly represents more than its parts. It attracts and retains users.

IMPLEMENTATION

Successful implementation of an information commons involves a number of steps, foremost of which is obtaining commitment from potential partners and user groups including students, faculty, staff, and senior university administration. Collaborating partners should be integrated into the planning process early in the development phase so that the expertise and knowledge that each brings can help shape the outcome. Second, a sound communication strategy soliciting input and feedback from all potential stakeholders should be put in place. Moreover, where applicable, information and ideas obtained from the stakeholder groups should be incorporated into regular progress reports that go back to them. At the University of Calgary Library, these steps were followed faithfully and were a factor in the eventual success of the information commons. In the words of the Head of the Information Commons, University of Calgary Library, ''The result was user ownership; the users knew what was coming, why it was there and how it could be used. From the beginning there was high use.''[6]

PHYSICAL LAYOUT AND DESIGN CONSIDERATIONS

The design of the information commons should be based upon a well-researched service plan that includes a description of the user goals in using the facility and its resources. This will enable the development of detailed descriptions of how users will interact with the spaces, technologies, and services and will inform architects and/or facilities planners about how the facility should be configured. Factors to be considered include the proximity of services such as information or help desks, printers, scanners, and other equipment to workstations; layout of the physical workstations; and the spaces which enable a variety of uses and traffic flow throughout the facility.

Workstation design is extremely important and must take into consideration how users work. ''It is common for students to gather in groups and work in a computer lab for long periods of time. While in groups, students often appear to be working on academic tasks although most often one student is at a computer terminal typing while

Fig. 1 Students at a computer workstation.

Fig. 2 Information commons service desk.

the remaining group members are socializing and contributing information when asked by the typist.''[2] Ergonomically correct workstations and chairs will meet the need for comfort for students who are working for long stretches of time. Spacious work areas will allow students to spread out books or other study materials and accommodate small group work. Finally, well-designed workstations and spaces will accommodate users with a variety of physical abilities, particularly when they are supplemented by specialized workspaces for the use of adaptive technologies (Fig. 1).

Service points should be clearly visible, close enough to workstations to encourage use but removed enough to permit comfortable conversation between staff and users. The design of help desks should accommodate users with quick questions and include space where they can be invited to sit down to work with staff on more complex queries. The space must be comfortable and easily shared by staff of varying sizes and computer use preferences (Fig. 2). Enough printers and scanning stations should be provided to meet demand and should be distributed throughout the facility with appropriate space for queues. Clear signage is a necessity to guide users, particularly if there are multiple service points within the facility.

Flexibility to accommodate changes in demand is a key design consideration. If a classroom dedicated to information literacy instruction is included in the facility, the design should facilitate open use between classes. For example, windowed walls would enable this flexibility with blinds being closed to remove distractions from activity within the information commons during instruction and opened when the space is available as part of the general workstation pool. The open blinds can quickly become a visual clue to users that the space is available for general use.

Library users need to be comfortable in the information commons. The space should be welcoming, safe, and appropriately lit. Collaborative workrooms with glass walls, or large windows, and clear sightlines aid in the provision of a safe environment (Fig. 3). The incorporation of artwork into the facility will humanize the space by providing a balance to the plethora of technology. Comfortable seating for students waiting for workstations, the inclusion of larger worktables, and the wise use of color all contribute to the welcoming atmosphere desired by users and staff.

ORGANIZATIONAL ISSUES

Information commons organizational structures are as many and varied as there are institutions. The primary models are

- Library-owned and operated.
- Library-owned and shared operations (either with units in the library and/or with units within the academic institution).
- Shared ownership (library and academic computing, or other academic unit) and shared service delivery.
- Owned and operated by academic units—not involving the library.

The importance of the models is that they influence the service being offered. In models where the reporting structure and budget are centrally controlled, decisions regarding the operation can be made more simply. As the responsibility for the operation of the information commons is dispersed, either through other units within the library or outside units, the task of coordination increases exponentially. Standards of service, infrastructure decisions, and operational issues are more complex and difficult to resolve. One possible solution is to create a

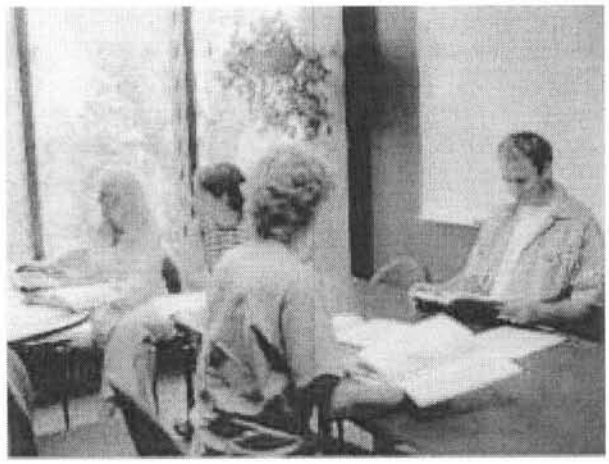

Fig. 3 Collaborative workroom.

position that holds primary responsibility for providing coordination and leadership, ensuring a smooth delivery of services across functional groupings. While this role can be extremely challenging, it has many positive aspects. The partnerships formed through collaboration with other units and the opportunities this provides to integrate more fully into the teaching and learning mission of the university enriches and enhances the place of the library on campus.

STAFFING AND TRAINING

The organizational structure and service program determines the types and levels of staffing and training requirements. Are other units involved in the delivery of service? What is their involvement? Administrative decisions must sort out these challenging questions. Hours of service, the mixture of technology available, provision of reference service, technical assistance, and the level of expertise are service program elements to be considered.

Offering an integrated service, many information commons endeavor to train staff in both technical skill development as well as development of reference knowledge and skills. Methods employed include tutorials, cross-training opportunities, workshops, classes, and, in general, an atmosphere that promotes and encourages self-directed learning and development. Training needs to be seen as ongoing and continuous both by the individual and the organization. As commitment to this philosophy can be costly and time-consuming, managers must look at ways of incorporating training into the basic culture of the service providers. ''Staffing and training are crucial issues. A well-trained IC staff is essential to achieve the best integration of professional knowledge, technology, resources, and services for patrons.''[5] Without the provision of expert help, the central concept of the information commons, as a place where a learner can move along the scholarly continuum from research to production, is hampered. Yet even with excellent training programs, it is unrealistic to expect that all staff in all areas will achieve expertise. Most information commons try to resolve this issue by seeking a balance. They utilize a combination of staff, including professional librarians, library support staff, technology experts, and student assistants. Normally, peak hours of service will see the broadest range of experts available to the user.

PARTNERSHIPS

The development of partnerships and the convergence of service are viewed favorably by the academic administration and the user as they facilitate the development of learner-centered environments. The administration generally views collaboration as a responsible and effective use of resources to the benefit of the user. By providing a good opportunity for libraries to partner with other units on campus such as information technology, student learning centers, media centers, and instructional design units, the information commons can enhance the role of the library in the academic mission. With these partnerships, however, come continuous discussions about administration, budget, service goals, priorities, and meeting user needs as well as the goals of the institution. Challenges as well as opportunities abound.

Collaboration and the convergence of different cultures, while improving the ability of the information commons to meet the needs of today's learner, provide their own difficulties. Different cultures have different perceptions of service and accountability. In addition, there may be different pay scales, degree requirements, and bargaining units. All contribute to the questions that must be resolved to accomplish a unified service.

Consider the example of service provision from a combined point. Who is responsible for what? Should questions of a technical nature be referred to the technical expert or should the first person to receive the question take ownership of it? What about reference questions? When is referral appropriate and how is it made? What is an adequate response time? Expertise in each other's area is often slow to develop and issues of territoriality exist. To ease these issues, clearly defined standards of service and accountability are necessary. Some commons attempt to solve these issues by moving away from a combined service point, dividing desks according to function. One desk provides reference assistance and another provides technical assistance. Debate continues as to which is the most effective, unified, or separate with each group providing cogent and compelling reasons for their choice. In the end, the individual culture and climate of the institution concerned will likely dictate the choice that is made.

Regardless of the final resolution, collaboration in some form is crucial if the information commons is to be successful. Successful collaborations seem to be rooted in the early establishment of common goals and understanding. Additionally, continuous involvement at some level of all interested parties in the design and delivery of the service should be built into the planning and operation.

USE ISSUES

With success comes challenges. In the information commons, these tend to fall into the following areas.

- Demand.
- Depletion of resources.
- Competing needs.

MARCEL DEKKER, INC
270 Madison Avenue, New York, New York 10016

In the authors' experience and from consultation with colleagues managing other information commons, meeting demand is difficult. By providing access to e-mail, the Internet, Microsoft Office, and other peripherals, the information commons becomes the main choice of workplace for many students. Lineups may be frequent, prompting a demand for regulating use. Busy students who perceive that others are using workstations for social purposes want action taken. The challenge is determining the action.

Initially, it may seem that e-mail and the open Internet should simply be removed from the workstations. In reality, this is becoming less and less viable. As more faculty use e-mail, chat rooms, and Web sites as a method of communicating with students and as students increasingly work in groups to complete projects, the line between academic and social use blurs. Furthermore, what may start as a social interaction as one student e-mails another may quickly turn to work as they discuss assignments and other group projects. Rather than looking at elimination of tools, a solution might be to examine ways to provide more even access. Some possible solutions include establishing a fair queuing system, designating some workstations as time-limited, and identifying some stations for specific purposes such as printing or scanning.

Demand also evidences itself in the ever-growing request for specialized software. Both faculty and students may request that particular programs be made available in the information commons. With increasingly tight university budgets, departments and labs may see the installation of specialized software in the commons as a way of relieving pressure on their limited resource budgets. There is a perception that the provision of access at the information commons replaces the need for provision of access within the department. Finally, adding to demand is the adoption of blended learning high-technology solutions to undergraduate education. Because of the ubiquitous nature of the information commons, it is seen as the ultimate provider. The task of those managing the commons is to see that adequate resources back this assumption.

Ultimately, both use and demand lead to a depletion of resources. Because the information commons is so technologically dependent, current versions of software and hardware are crucial. Finding funding to keep current can be an issue, particularly if the original commons was built on special or one-time funding.

Competition among the groups that use the information commons is high. It is the experience of the authors that this may be a difficult issue to resolve. Spaces such as collaborative workrooms or classrooms are highly desirable. Competition may exist between librarians, technology staff, faculty, and students with regard to who will have priority. Spaces that were originally designed for one thing may become adapted for use to another, bringing unexpected elements into the mixture. One example that the authors experienced at the University of Calgary Library was the use of the collaborative workrooms by teaching assistants to hold weekly meetings with their classes. Designed for student group work, these high-demand spaces were being utilized for a different purpose. As groups become comfortable in their use of the information commons spaces, one can expect that this will remain an issue.

BENEFITS

Much has been written about the declining use of libraries as the prevalence of electronic access to information has blossomed. ''Does the academic library have a viable long-term future? Some find reason to wonder and point to slumping book circulation, empty reading rooms and declining door counts on campuses across the country.''[7] The ability to reverse this trend may rest in the establishment of facilities such as the information commons. For example, the University of Calgary Library experienced a 24% increase in reference questions for the period 1998/1999–1999/2000. Technology queries totaled 18,360 for the first year of operation.[6] These statistics indicate that the new facility was successful in achieving its first goal, that of meeting user need for information and technology help.

Other influences at work are more wide-ranging and sociological in nature. It has been noted that as people retreat to ''virtual space for more and more activities and interactions, they are being drawn to 'great, good public places' that satisfy and nurture their needs for community and human interaction.''[8] The information commons has the potential to be this space. With flexible collaborative workrooms, group study spaces, and well-designed computer stations underpinned by knowledgeable technical and information research help, it provides a welcoming learning yet social environment. It is an ideal fit for today's student. ''Today's college student will be well prepared to work in a wired world. Virtually all of them will have experience with email and the Web, and most will be familiar with a wide variety of software packages. Many will also be well versed in peer-to-peer file sharing and online collaboration.''[2] ''So, too will this generation mix work and social activity online thus blurring the line between work and home, work and leisure.''[2] The information commons fills this role admirably, providing a space that meets the needs of today's student and facilitates their transition to the worker of tomorrow.

MARCEL DEKKER, INC.
270 Madison Avenue, New York, New York 10016

CONCLUSION

The information commons is a new and successful development in libraries. It is a strategic fit for today's academic environment where technology is affecting all areas of university life and where the user is demanding more service, access, and accountability. To date, proof of concept has been mostly anecdotal. Many significant questions that focus on the impacts of a changing learning environment remain. For example, what has been the impact of integrated service on the user? What has changed for the learner? What will be the long-term impact on the role of the library? Further study and substantive review will provide answers to these and other questions, assisting in the continued transformational process of libraries in the digital age.

REFERENCES

1. Creth, S.D. The Information Arcade: Playground for the mind. J. Acad. Librariansh. **1994**, *20* (1), 22–23.
2. Jones, S.; Madden, M. *The Internet Goes to College: How Students are Living in the Future with Today's Technology.* Pew Internet & American Life Project, 2002. http://www.pewinternet.org/reports/pdfs/PIP_College_Report.pdf (accessed July 2003), pp. 2, 14, 19, 20.
3. Bailey, R.; Tierney, B. Information Commons redux: Concept, evolution, and transcending the tragedy of the commons. J. Acad. Librariansh. **2002**, *28* (5), 277–286.
4. Halbert, M. Lessons from the information commons frontier. J. Acad. Librariansh. **1999**, *25* (2), 91.
5. MacWhinnie, L.A. The Information Commons: The academic library of the future. Portal Libr. Acad. **2003**, *3* (2), pp. 252, 253.
6. Beatty, S. *Internal Report*; University of Calgary Library, 2001.
7. Beagle, D. Extending the information commons: From instructional testbed to internet2. J. Acad. Librariansh. **2002**, *28* (5), 287.
8. *Creating tomorrow's learner-centered environments today!* Video Conference; University of Calgary, Oct. 22 1998. Produced by the Society for College and University Planning and the University of Delaware. Presented by PBS Adult Learning Service. Participant Packet.
9. Beagle, D. Conceptualizing an information commons. J. Acad. Librariansh. **1999**, *25* (2), 82–89.
10. Cowgill, A.; Beam, J.; Wess, L. Implementing an information commons in a university library. J. Acad. Librariansh. **2001**, *27* (6), 432–439.
11. Dewey, B. *Beyond the Information Arcade: Next Generation Collaborations for Learning and Teaching at the University of Iowa*; 1998. ERIC # ED 428659 (accessed October 2003).
12. Duncan, J.M. The information commons: A model for (physical) digital resource centers. Bull. Med. Libr. Assoc. **1998**, *86* (4), 576–582.
13. Estrella Mountain Community College. http://www.emc.maricopa.edu/library/infocmn.htm (accessed July 2003).
14. Information Arcade @ the University of Iowa Libraries. http://www.lib.uiowa.edu/arcade/ (accessed October 2003).

FURTHER READINGS

Information commons: A directory of innovative services and resources in academic libraries. http://www.brookdale.cc.nj.us/library/infocommons/ic_home.html (accessed July 2003).

Information Commons. Hardin Library for the Health Sciences. University of Iowa. http://www.lib.uiowa.edu/commons/ (accessed October 2003).

McKinstry, J.; McCracken, P. Combining computing and reference desks in an undergraduate library: A brilliant innovation or serious mistake? Portal Libr. Acad. **2002**, *2* (3), 391–400.

Mountifield, H. *Learning...with a Latte. The Kate Edger Information Commons—Providing Student-Centred Learning Support*; Educause in Australasia, 2003. http://www.information-commons.auckland.ac.nz/content_files/publications/educause_article.pdf (accessed July 2003).

Rieh, S. Changing reference service environment: A review of perspectives from managers, librarians and users. J. Acad. Librariansh. **1999**, *25* (3), 178–186.

University of Arizona. http://dizzy.library.arizona.edu/library/teams/pic/pic.htm (accessed July 2003).

University of Auckland, Auckland, NZ. http://www.information-commons.auckland.ac.nz/text_only.asp (accessed July 2003).

University of Calgary Information Commons. http://www.ucalgary.ca/InformationCommons/ (accessed July 2003).

University of North Carolina, Charlotte. http://libweb.uncc.edu/library/infocom/ (accessed July 2003).

University of Southern California. http://www.usc.edu/isd/locations/undergrad/leavey/IC/html (accessed July 2003).

MARCEL DEKKER, INC.
270 Madison Avenue, New York, New York 10016