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Trend Setters: Computers in the Commons Environment

Kim Granath
University of Montana

Sue Samson
University of Montana

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Kim Granath, Reference Manager and Web Site Coordinator
Mansfield Library, The University of Montana, USA
kim.granath@umontana.edu

Sue Samson, Head, Information and Research Services
Mansfield Library, The University of Montana, USA
sue.samson@umontana.edu

Abstract

A multi-year, trend study of public computer usage was conducted to determine use patterns of The University of Montana Mansfield Library public computers before, during, and after the implementation of an Information Center commons environment. Sampling methodology was developed and implemented in 3-year increments beginning in 1999. Analysis provided information for data-driven decisions on staffing patterns, expansion of public computer access, decisions on software and imaging management, and the modification of study design. Results were compared to other library data and underscore the need to embed assessment in academic library services to maintain continuity with the changing needs of library users.

Introduction

The commons environment has been widely accepted as a primary service center in academic libraries as the Web has become the basis for access to networked information resources and the expectations of library users have evolved to reflect this reality. The commons environment is variably described as Information Commons, Information Center, or Learning Commons and, although differences exist from one library to another, they share an identifiable location in which electronic workstations are maintained by qualified staff for the delivery of electronic resources for research and production.[1] It is now imperative to ascertain the continuing effectiveness of these spaces.

Graham and Moore describe the issues of managing computer labs within the academic library based on the increasing demand by patrons for electronic resources and the result that libraries are often host to the largest computer labs on campus.[2, 3] Further research is being explored to determine the number of computers that would be appropriate in an academic library based on local student needs and wireless capability.[4] The computer lab evolution in the academic library is at the center of the Information Commons, the development of which is described in detail by academic libraries of all sizes that have redesigned, remodeled, and adapted services to incorporate the commons environment.[5]

The evolution of the commons environment in academic libraries began in earnest in the early part of the 21st century and has evolved in tandem with the highly analyzed Net Generation. Assessment of the first iteration of library service changes are being reported.[6] This manuscript reports on the analysis of academic public computer usage before, during, and after the configuration of an Information Commons.

The University of Montana as Place

The University of Montana serves a student population of more than 13,000 students, including 11,841 undergraduates, 2,120 graduate students, and over 800 faculty. This study of public access computers in the Mansfield Library was conducted for multiple reasons. First, it was determined early on in the configuration of public computer access that a consistent assessment measure of computer use would provide baseline data for providing service excellence to address the needs of library users. Second, this data provides information to facilitate modifications in the configuration of library services and to assess the effect of these changes. Third, computer use data in tandem with other data measures provides a basis for addressing staffing needs. Fourth, the data provides a window on how library users actually use what has become the most popular computer lab on campus.

The Information Center at the Mansfield Library currently provides library users access to 84 networked computers in the commons environment. In addition, 18 additional computers are available on other floors of the library; and a Media Center provides access to scanners, microfilm reader-printers, and multi-media production software. All computers are networked to a full-service copy center where library users are able to request their print jobs and pay via their university identification card, check, cash, or credit.

Methodology

Building on the methodology described by Konomos and Herrington, public computers were observed on a regular schedule two to four times per day for two

weeks during fall semester 1999 and during the fall and spring semesters during academic years 2001-2002 and 2005-2006.[7] During the academic year observations, each computer was observed 100 times. Sample times were distributed across the high usage times of the day at 9:30am, 10:15am, 10:30am, 12:15pm, 12:30pm, 1:15pm, 2:15pm, and 3:30pm. These times were also reflective of class schedules.

The observations were conducted by library employees who walked past each computer throughout the library and quickly identified the software in use. Each computer is identified by a number for purposes of releasing networked printing. Thus, worksheets were created to match these numbered computers by locations with space for coding software applications in use. Identification of software included: Electronic Reserves (ER), Email (M), Library Databases (D), Library Catalog (C), MS Office Suite (MS), Out of Service (OS), Unknown (U), Vacant (V), and Web (W).

Patron privacy is a high priority; and, at the time of data gathering, signs were posted to indicate that observations were being conducted to determine only what software was being used on the public computers. The data sheets were collected at the end of each observation period and tabulated by the Reference Manager and Web Site Coordinator.

Results

The most recent observations for 2005-2006 identified current computer use in the commons environment at the Mansfield Library. Of 102 total computers available, computer usage was 74%; and during 10,200 observations across all time periods and all days, 105 users were observed waiting for a computer (Table 1). Monday (40) and Wednesday (35) had the highest number of users waiting by day of week; and 12:15pm (20), 2:15pm (20) and 10:15am (19) had the highest number of users waiting by time of day. Although queues appeared to be short-lived, we determined through observation that the average length of queue time during fall semester 2006 was 1.9 minutes. Only 17 observations of over 10,000 (<1%) identified computers out of service.

Table 1. Overall computer use data trends in 1999, 2001, and 2005; percent of uses in parentheses.

Category	1999	2000-2001	2004-2005
Uses	1218 (45%)	2273 (72%)	3765 (74%)
Vacancies	1471 (54%)	877 (28%)	1335 (26%)

3

Users Waiting	NA	45	105
Observations (n)	2689	3150	5100

The largest cluster of computers is located as part of the Information Center on the main floor of the library and accounted for 80% of total usage during the study. Four stand-up computers are located on each of the other four floors of the building. One provides catalog-only access, and three provide full-service access comparable to the main bank of computers; all are networked to the Copy Center. Computer usage on the other floors ranged from 23% on Level 1 to 38% on Level 2. With the advent of wireless access in the building in 2003, it was determined to start counting personal laptop use in one area of the building as part of the baseline data collected in this study. The area used for this count is on the main floor of the building in a newly reconfigured study area, and 91 personal laptops were observed.

Finally, the usage by type of software identified Web browsing (40%) as the most used followed by MS Office Suite (33%) and email (15%). When combined, primary library resources accounted for the next cluster of use at 9.5%: library databases (4%); library catalog (3.5%), and electronic reserves (2%) (Table 2).

Table 2. Computer application use data trends in 2001 and 2005; percent of uses in parentheses.

Application	1999	2000-2001	2004-2005
Web	333 (27%)	748 (33%)	1561 (41.5%)
Office Suite	NA	402 (18%)	1213 (32.2%)
Email	165 (14%)	682 (30%)	569 (15.1%)
Library Catalog	270 (22%)	229 (10%)	145 (3.8%)
Library Databases	311 (26%)	123 (5%)	138 (3.7%)
Electronic Reserves	37 (3%)	45 (2%)	71 (1.9%)
Unknown	7 (1%)	9 (<1%)	67 (1.8%)
Out of Service	4 (<1%)	35 (2%)	1 (<1%)

4

Implications

One of the primary implications for this study is comparing the information to similar baseline data captured in two previous studies. Another important consideration is the fact that the data from this study does not stand in isolation but provides an important overview of services and sources when used in tandem with other data being collected on a regular basis. Throughout the timeline from the first small study in 1999 and the subsequent, very similar study in 2001-2002, service changes and building modifications have occurred. A review of the changes as they are reflected in relevant data provides the opportunity to assess the success of changes and guide directions for the future.

Comparisons with Earlier Studies

The preliminary study in fall 1999 gathered data on 54 computers located primarily in the Mansfield Library but with several in a satellite location. By the time of the second study in academic year 2001-2002, 63 public access computers were evaluated that had been merged into one building location. Additionally, multiple service points within the main library and the satellite location were also merged into the commons environment identified as the Information Center.[8] These two studies compare to the current study in which 102 public access computers were analyzed all within the commons environment.

The Information Center commons environment has facilitated the centralization of services and builds on the integrity of the networked nature of resources and services. All public access as well as staff computers are networked to printing and graphic resources that operate from a central Copy Center. Library users can print in color and black and white in a variety of sizes and formats including photographs, posters, pdf, and maps while also receiving technical support and reference assistance. Print jobs are released upon request and payment is facilitated by use of the university's common charge card, cash, check or credit. Because of the popularity of the computing facilities, a free-standing print-only computer was integrated into the Copy Center so that students can drop in and quickly print a file.

Given the increase in the number of available public access computers during the timeline of the studies from 54 to 63 to 102, the percent of use has remained fairly constant between the last two studies, changing from 45% (1999) to 72% (2001) to 74% (2005). In addition, the study identified preferences for particular computer locations (Figure 1). The most popular computers are those that provide the most space and privacy and are located at the ends of the banks of computers or right in the middle alongside a pillar. This data will be useful in facilitating a redesign of the computer commons with a focus on library user preferences.

Figure 1. Floor plan of computers in the commons environment with those most frequently used highlighted in black.
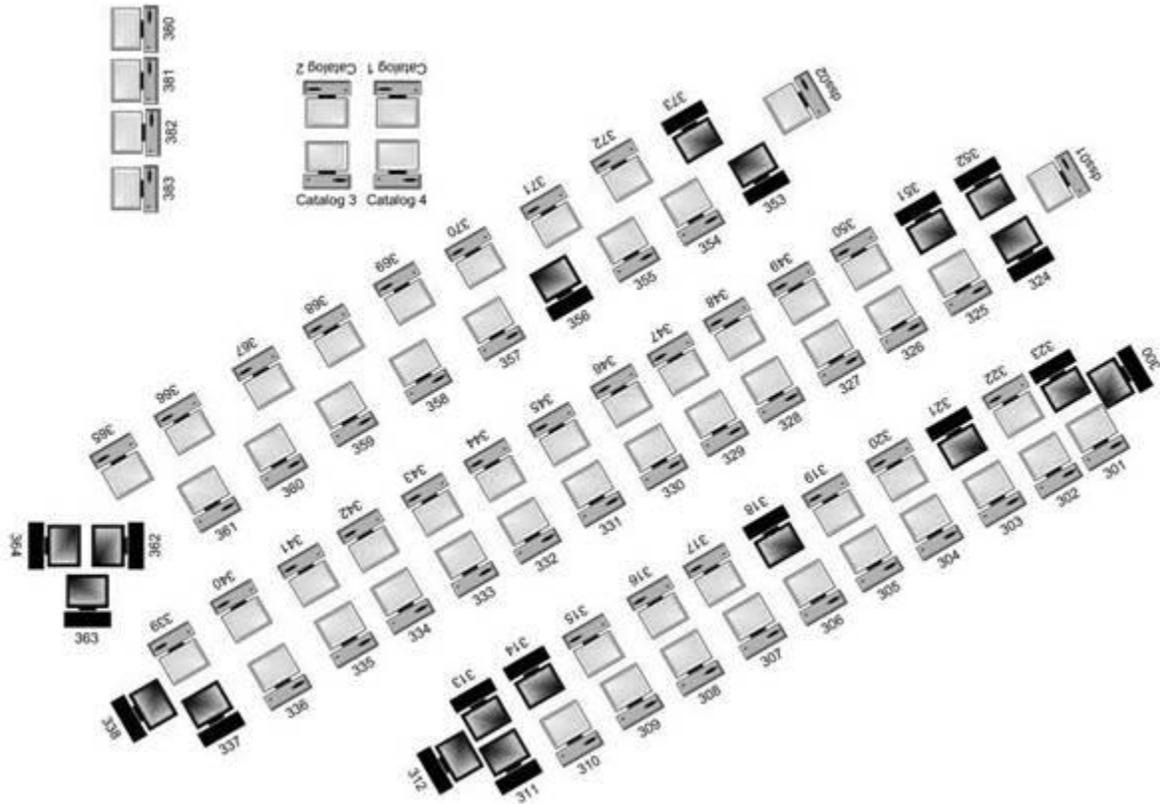
Comparing usage totals by type of software used provides another view of the changing search patterns of library users and also reflects the changes in library services offered (Table 2). The most dramatic differences are apparent from usage types in 1999 at which time internet access was available along with 40 networked library databases and a non-web-based catalog. Software usage provided the following ranked order of use: web browsing (27%), library databases (26%), the library catalog (22%), email (14%), and electronic reserves (3%).

Two years later, the library had reconfigured to the Information Center, provided 65 networked library databases, a web-based catalog, and full-service computers that included production software. The 2001-2002 study provided the following ranked order of use: Web browsing (33%), email (30%), MS Office Suite (18%), the library catalog (10%), library databases (5%), and electronic reserves (2%).

The comparison of the 2000-2001 study with the comparable 2005-2006 study highlights several consistencies and several changes. Both web browsing (41.5%) and the use of MS Office Suite (32.2%) have continued to increase. In contrast, overall

decreases were documented in the use of email (15.1%), the library catalog (3.8%), library databases (3.7%), and electronic reserves (1.9%). The strength of the commons environment is underscored by comparing the number of out of service computer observations in the studies: 4(<1%) in 1999, 35 (2%) in 2001, and 1 (<1%) in 2005.

The consistent usage patterns of 72% and 74% of the computers in the commons have been supported with more technical support training for Information Center personnel and the increase of student employees to provide consistent technical support service during all open hours. Peak hours for computer use are also reflected in staffing patterns at the Information Center that include a triage of librarian, reference technician, and technical support during all high traffic periods.

Training efforts have focused on Web applications and MS Office Suite production software at the same time that the campus has shifted to more reliance on Blackboard as the course container for submitting assignments and completing a full complement of course activities. Library personnel have become very proactive on campus relative to information technology and student support as students seek assistance from the library as the primary information center on the campus. Open seven days a week and 111 hours a week during the academic year far exceeds the availability of any other student support unit on campus with the exception of emergency medical.

Comparisons with Other Data Sources

Annual data is captured on an array of traditional and new services in the library. The use of computers in the commons is one of these measures and needs to be analyzed within the framework of relevant data trends (Table 3).

Table 3. A comparison of services and resources from Fiscal Year 2001 to 2006.

Service/Resource	2000/2001	2005/2006	% Change
Gate Count	562,896	608,868	8.17%
Circulation	132,332*	123,452	-6.7%
Reference Desk Interactions	48,981	43,587	-11.0%
Virtual Reference	NA	604	New Service
Instruction Session	295	342	15.9%
Instruction Classrooms	0	3	Remodel
Interlibrary Loans	33,502	41,335	23.1%

Traditional Reserve Use	41,810	21,164	-49.5%
Electronic Reserve Use	138,745	416,262	200.0%
Electronic Databases	180	290	6.1%
Web Access	262,222	308,008	17.5%

*Data from FY2004.

Among these trends are basic gate count and circulation. While circulation of library materials has decreased by 6.7%, gate count has continued to expand by 8.17%. While reference desk transactions at the Information Center have decreased by 11.0%, the number of library instruction sessions (15.9%) provided by liaison librarians has increased along with the successful introduction of virtual reference and the provision of technical support questions during all open hours.

Traditional reserve use has decreased by (49.4%) while electronic reserve use has grown by 200.0% and the number of subscription databases has increased by XXX%. Use of multimedia equipment, expansion of copy services, growth of interlibrary loan (23.1% increase), and the continuing rise in Web access (17.5% increase) to library resources complete the trends that provide indicators of library use to which library services can be proactively adapted.

Examples of this adaptation include wireless access in the library and laptop circulation, services that evolved in response to the documentation of waiting periods for access to computers in the commons and increased web activity of all kinds. Wireless was installed in the Mansfield Library in 2003. Laptop circulation service began in 2004, with 14 laptops circulating for a 48-hour period. Currently, the service provides fourteen 48-hour circulating laptops and 20 laptops available for 2-hour in-library use. In-library laptop service has been supplemented with a reservation system for group study rooms. Data on each of these services is being collected to document trends for effective service.

Outpost Reference—take laptop, will travel—was piloted at dormitories and central campus gathering points. In addition to the traditional email Ask-A-Librarian and Suggestion Box options, formal virtual reference software was eliminated due to limited use, and Instant Messaging is being piloted as an alternative outreach method during summer and fall of 2007. A Media Center with scanning, multimedia production, and microfilm reader/printer equipment was positioned in the Information Center. With the bulk of print reference sources already transferred to the circulating stacks, a final shift will occur in the near future to further shift the focus of the Information Center into a student-centered computer-friendly social space that

supports group study while providing instruction assistance, technical support, and cutting-edge equipment in support of curricular and research needs.

Conclusions

Prior to data collection, perceptions of computer use and the availability of workstations were based on random observation. Capturing consistent data with a carefully crafted methodology has provided the information necessary to make informed decisions to further refine the public computers that serve as the cornerstone of the commons environment. This data gathering also provides benchmarks for comparison to other data gathered as part of library services and confirms that, in this library, public computers are at the forefront of library service.

Trend studies provide a mechanism for data-driven decision making based on measures of trends, patterns or changes.[9] By embedding assessment into the services provided as part of the commons environment, the Mansfield Library has been better able to position its services based on documenting how its users utilize the resources available to them.

Notes

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Back to Contents

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