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## When and where: Patron use of computer banks and study rooms

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This article details the utilization of student workers to conduct patron population surveys of library computer banks and study rooms at the Clark Memorial Library at Shawnee State University in Portsmouth Ohio. The number of patrons was counted by student employees at hourly intervals over three ten-day periods, garnering 9,295 separate observations with little interruption in day-to-day work flow. The survey resulted in a far more detailed portrait of library usage than is possible with simple gate statistics. Results indicate that usage is heaviest from Monday through Wednesday for both computer banks and study rooms and lowest on Friday and Saturday before climbing sharply on Saturday. Results also seem to show a student preference for study rooms on higher floors of the library.

### Introduction

It has become apparent that libraries play an important role in student retention. As an important “point of contact” for the university, libraries are evolving from research sites alone to safe spaces for students to hang out, surf the web and engage in student organizations. Identifying and understanding patterns of student usage, then, is important to the enterprise of student retention because it enables libraries and universities to tailor their hours, spaces and resources to further encourage patron use. This is in addition to the goal of simply increasing the number of students to enter the doors of the university library, the value of which is self-evident. We highlight the

student retention aspect, however, because it can be an effective strategy when arguing for library funding during a time when state funding to libraries is decreasing.

Studies have shown that students who are successful academically tend to be retained (Mezick, 2007). Several services that the library provides have been proven to improve academic success among students. The number of library instruction sessions a student attends during his/her time at a university has a direct impact upon academic success. According to Wong and Cmor, students who have three to four library instruction sessions in their program are 50% more likely to have a better GPA (2011, p. 574). In addition providing access to more high quality library resources improves retention (Mezick, 2007, p. 564). How often and how early a student uses the library in their career also affects retention. It has been shown that retained students have a higher level of book checkouts, PC logins, and other logins in the university library (Haddow and Joseph, 2010, p. 238). The inverse has a negative effect on retention. The study by Haddow and Joseph also showed that a high proportion of the withdrawn students had “no or low use of library workstations and other resources early in the semester” (2010. p. 242).

With a clear correlation established between library use and student retention, the next step in any retention project should be to look at how to increase the patron population within the library. In order to undertake such a project, however, libraries must first understand when and how patrons are using the library. For example, offering special tutoring or programs on days when patron populations are statistically lower hurts the libraries’ chances of forming a meaningful contact points with students.

Once we begin to establish use patterns, however, libraries can begin to tweak services such as outreach, marketing, as well as hours and types of dedicated spaces, while keeping an eye on how usage patterns are affected.

## Lit review

A number of studies have looked at library computer usage and possible factors affecting that usage. In a multi-year study, begun in 1999 and repeated every three years, Granath and Samson (2008), found that Mondays and Wednesdays saw the heaviest library computer usage, specifically morning and early afternoon usage (p. 3). In addition, they found that despite increases in number of computers each year, student demand for computers consistently outstripped those increases, leading to questions regarding what the ceiling may be for library computer offerings.

Walton (2006), found that the most common motivation for using library computers was not proximity of access to research resources but instead lack of alternative computer access (p. 137). In most studies, the findings seem in-line with common sense regarding increases in patron computer usage. Gust and Haka (2006), found that increasing the number of computers, seating upgrades and installing a café will increase patron visits, although use of reference librarians did not increase at the same rate. They reached a similar conclusion regarding library renovations, indicating that these amenities have the primary effect of transforming the library into a conducive study space or hangout, if not increasing usage of traditional library services.

Malone, Levrault and Miller (2007) found that specialized software on computers is an attractive service for student patrons. In addition, their study found that longer hours of operation positively correlated with use, perhaps reflecting students' tendencies to study late into the night or simply browse in the internet. As of 2007, Jones et. al found that the internet was of great importance to students not only for research, but in that email was found to be the preferred method of contacting professors, despite the fact that only 27% of respondents felt online education was as valuable as in-person instruction (p. 41-42). Their survey also found 68% of student respondents indicating usage of their respective university library's web-site for research purposes.

Ipri, (2011) noted that the increase in student reliance on libraries for computer and internet access is a mixed blessing for libraries, increasing gate counts while forcing libraries to absorb hidden costs (p. 134). While relaxed food rules and amenities like coffee shops make the library a more welcoming, safe place to relax, study and hang out, the cost of ever-more banks of computers and wi-fi access is something libraries will have to factor in as a given. As universities increasingly look to the library as a valuable point of contact for developing emotional attachments among students, expect libraries to look to take on more roles beyond the traditional. The development of library space can increase student use which improves academic success that correlates with retention (Gust and Haka, 2006). This development can be as simple as adding a Starbucks, which at the University of Mississippi increased library usage by 42% (Stephan, 2005 p 3). On average a new facility or a major renovation can see an increase

of library usage by 30% to 70% (Shill and Tonner, 2003 p 433). Idri (2011) found that the majority of library computer users do not access more specialized programs and instead heavily tend toward simple web browsing, social media and word processing.

Research has also looked at other spaces within the library. Loder (2000) found that students heavily preferred study rooms and tables to study carrels, and disliked sharing tables with students they did not know. Further, carrels with no views of windows were found to have been used less frequently than all study locations. In addition, Loder did in 2000 40% of the library space usage was in a group study room while the group study rooms only represented 15.2% of the total capacity of the library (89) These findings lead Loder to conclude that study rooms the best possible option for libraries to offer students (92). The heavy use of study rooms, which make up a small amount of library space, was confirmed by Walton (2006), who surveyed students at Loughborough University and found that 57% of students used study rooms, which made up 5% of the library's total public square footage (140). In addition, 69% of respondents replied that the physical space itself was an important reason in choosing to use the library. Likewise, Applegate (2009), found that study rooms were the "clear favorite among students" when it came to studying in university libraries (p. 344). Applegate's findings lead to a call of a diverse "ecology" of soft spaces for student use, with a preference for study rooms, but also including soft chairs and study tables.

Ryan and Boyer (2011), discussed the implementation GroupFinder, an online system designed to aid students in forming study groups and for book study rooms. Inspired by bulletin boards, Ryan and Boyer write that the program has initiated an

increase in activity around already busy library study rooms. In the Fall 2010 semester alone, the program saw 1,611 posts by 639 unique users. Some of the groups that have been formed through GroupFinder and meet in the library include study groups for specific courses, the campus farmers, markets, religious study groups and musical interest groups.

## Methods

Data was collected by direct student observation in the Clark Library at Shawnee State University, which enrolls 4,300 students in Portsmouth, Ohio. The Clark Library has a collection size of 150,000 volumes. For the 2011-2012 fiscal year, 216,669 patrons entered the library. The library does not have separate computer labs but instead clusters of computers around the first floor, as indicated in the data collection sheet. Initial data collection was completed during three randomly chosen 10 day periods between Jan 30<sup>th</sup> and May 1, 2012. Random.org was used to generate start days. Sample one was collected from February 4 to February 13; sample 2 from Feb 21 to March 1 and sample three from April 16 to April 25. Student circulation staff were provided with a form for recording patron population at 5 computer banks and 10 study rooms within the library. Observations were recorded starting at 45 minutes past the hour of opening and ending at 45 minutes past the hour prior to closing time, at each of 15 the locations. Data collectors counted the number of patrons at each assigned location and recorded them in the form. For each sample, this meant 3,010 possible observations. Of these possible observations, 45 were missed during the first sampling timeframe, for an

observation rate of 98.5 percent. No observations were missed during the second sampling timeframe, and 90 were missed during the third, for an observation rate of 97 percent.

## Results

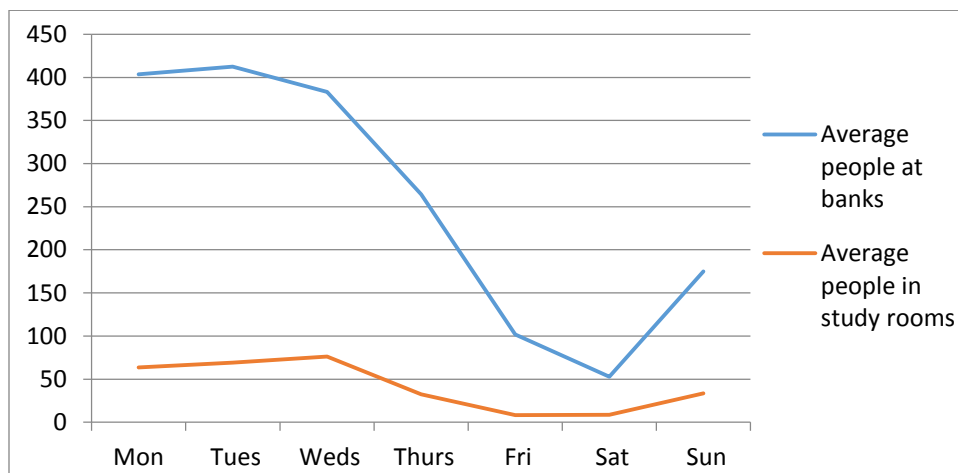
Results indicate that usage of computer banks and study rooms is highest on Mondays and Tuesdays before declining sharply, with Saturday being seeing the least use, before climbing again on Sunday. Computer banks saw heavy use on Mondays, Tuesdays and Wednesdays, with average daily totals of 403, 412 and 383, respectively. Thursdays saw the first large drop of the week, decreasing by 31 percent from the previous day to an average of 264. Fridays saw the largest single decrease of the week for computer banks, dropping 61.5 percent to an average daily total of 102. Saturdays were the least busy day of the week for computer usage, dropping another 48.3 percent to 52.8 students. Sundays saw the single largest increase, however, increasing 331 percent to 174.8 users. Average daily use for all computer banks was 256.

Study room use saw a slightly different pattern than computer banks, with Wednesdays being the busiest. On Mondays, an average of 63 students utilized the study rooms, a number which increased slightly to 69 on Tuesdays and then to 76 on Wednesdays. Thereafter, the trend was similar to computer usage with a decrease of 47.7 percent to 32 for Thursdays and then a sharp decrease of 74 percent to 8.4. This was the largest single decrease of the entire study. Saturday saw study room numbers hold



steady at 8.6. Sundays saw a sharp increase, rising to an average of 33. The overall trends are compared in Figure 1.

Figure 1: Average daily totals of computer bank usage and study room usage



### The busiest time of day

Averaged for all days, mid-morning through early afternoon saw the highest average computer bank usage, peaking 11:45 a.m. [Figure 2]. This is the average for all 5 computer banks in the library. Average study room population for any given hour was always below 1 for all time slots, with a steady distribution throughout the day. For the computer banks, average use for the first time slot (8:45) was 3.2, increasing steadily to 6.28 for the 11:45 a.m. slot. After dipping to 5.25 during the next hour, the average population again increased again to 5.8 by the 2:45. Thereafter the decline in average bank population decreased steadily to 4 by 6:45, holding steady at that number for the next two hours. Average number bottomed out at 2 by 10:45.

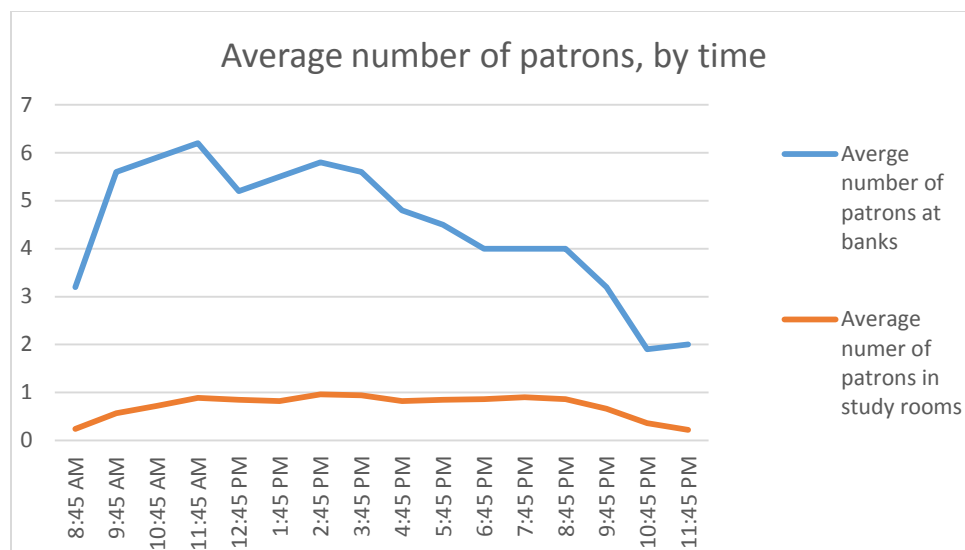


Figure 2

### Study rooms by floor

Results seem to indicate students prefer not to use study rooms in the basement of the library. At the Clark Library, the first floor is the basement and the second is the “main” floor. Data were examined according to the floor on which the study room was located [Table 2]. The average hourly population of a study room on the first floor of the library was .66. The average hourly population of a study room on the second floor was .7 and the third floor .86. As for total daily users, the average for a study room on the basement level was 16.5, while the second floor study rooms saw an average of 35.75 patrons per room. The average for the third floor was 39.5.

#### Average hourly population, by floor

1st 0.66

2nd 0.7

3rd 0.86

#### Average total daily population, by floor

1st	16.5
2nd	35.75
3rd	39.5
Table 1	

## Discussion

There seems to be a weekly “burnout” effect for library usage. Usage of computer banks and study rooms is highest from Monday to Wednesday, then all but disappears until Sunday. It is interesting to note that study room use was highest at mid-week, later than computer bank usage. Further research would need to be conducted to confirm this finding or reject it as an anomaly. This is certainly due to the approach and arrival of the weekend and a sudden awareness on Sunday morning that there is not much time left in the weekend to use for studying. Compounding this effect could be that Shawnee State is a regional university and many student head home for the weekend. The idea that fewer students patronize the library later in the week will be of little surprise to any librarians who have worked the reference desk on these days. These findings offer numbers to support that conclusion. This study provides a good blueprint for libraries trying to determine if computer numbers are sufficient for the patron population. Limiting sampling, to only morning or evening, early in the week or later in the week, would skew the numbers and might lead to either an insufficient number of computers or spending money on computers that aren’t really needed.

Computer usage on the weekend compared to study room usage may indicate that students are primarily browsing for entertainment over the weekend. While study room usage all but bottomed out during the weekend, there was still some computer

usage. A deeper look at how students use computers throughout the week could lead to more informed decision making regarding hardware purchases, such as setting up an iPad program, as was recently done at Briar Cliff University (Thompson, 2011). We would recommend that libraries look for ways to increase weekend study room usage. The free space presented by vacant study rooms provides a perfect venue for non-academic groups. At Shawnee State, one such group gathers in a study room every weekend to play the game Magic: The Gathering.

Further research should be conducted on the possible correlation between floors and library room usage. It appears that students at Shawnee State prefer to use rooms on higher floors. In the case of this particular university, this may be due to a number of exogenous factors including availability of natural light or the fact that the third floor is a designate quiet study area. It could also be that students feel more alone on a higher floor. This would be a great study to undertake in a larger library with rooms on a greater number of floors. Further research could also be conducted to examine usage of computers in the context of offered software packages and proximity to entrances, in addition to a longer-term study looking at usage throughout the semester.

In this article, we have attempted to provide an example of using library student staff to conduct a labor-intensive survey of library usage. Using student employees, we managed to accrue thousands of observations counting the active patron population, with little interruption in daily routine. This provided a much more granular look at library usage than simple gate numbers. It is our hope that this will inspire similar studies at other libraries to the benefit of assessment, programming and budgets.

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