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An overnight success? : usage patterns and demographics of academic library patrons during the overnight period from 11 p.m. – 8 a.m.

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INTRODUCTION

Like many academic libraries, Joyner Library at East Carolina University (ECU) had contemplated expanding its regular hours of operation to 24-hours for several years. Over the previous five years, each semester's gate count statistics increased from the previous year and the library experienced an average annual increase of 41,000 visitors each year. Requests from students that the library remain open overnight also increased. Although the library had expanded to a 24/5 schedule during the final three weeks of the semester, student demand for overnight access during the rest of the semester was still unmet. With a turnover in leadership when the Dean retired in July 2012, the new administration decided to make overnight access a priority. Coupled with the decision to implement a 24/5 schedule was the installation of people-counting cameras at the entrance to record entry/exit data and, at the end of the first semester's pilot, analysis of the demographic data collected from the university ID reader. The findings have been crucial to informing decisions about overnight services, schedules and staffing levels.

LITERATURE REVIEW

Students have increasingly pushed for 24-hour operation for at least the past 15 years and libraries have responded by increasingly expanding operating schedules. In 2008 an Association of Research Libraries (ARL) occasional paper surveyed 113 member libraries and found that 38% (43) were regularly open 24-hours a day during the week (Driscoll and Mott, 2008). Three years later, a 2011 survey of found that 71% (47) were regularly open 24-hours and that only 9% of the 66 respondents did not offer 24-hour access at any time during the year, including finals (Laaker, 2011). The push towards

expanded hours has often originated with student government (DiMarco and Van Dam, 1998; Engel et al, 2002; Smith, 2007). It still rings true that “while information may now live in the ether, students still live firmly on planet Earth” (Albanese, 2005). A 2013 research brief of the Education Advisory Board interviewed library directors and vice provosts at large, public American and Canadian universities. They found that safety, cost and usage were the main factors in deciding whether to extend library hours during the entire academic year, only during exam periods, or never (McDougal, 2013). They also reported from contacts that students typically use the library facility as a venue for study and not necessarily physical access to resources or services.

Planning for 24-hour operation requires examination of a substantial number of logistics. These include staffing, budgets, and security. A recently published article discussed the logistics taken at five libraries that had converted to a 24-hour schedule through in-depth interviews with library professionals (Bowman, 2013). In addition to staffing, budgets, and security, the interviewees – three Library Deans and two Access Services managers – responded to questions about factors contributing to 24-hour access, employee tasks, professional standards, and patron usage. All of the libraries with 24-hour operations indicated that they scaled back their service during breaks, holidays, and summer months. Interestingly however, the library at the University of Denver found that moving to a 24/5 schedule year round was preferable for consistency, to avoid confusion and an “elaborate combination of days and hours” (Sewell, 2013, p. 25). Whether or not 24-hour access correlates to higher academic achievement remains to be determined. The University Library at Kent State University examined patron data collected from 11 p.m. – 7 a.m. and found that building usage was spread evenly across classifications (e.g. freshman, sophomore, etc.). Although users GPA’s were found to be not statistically significant, they did find that users had a statistically significant higher retention rate for both undergraduate and graduate students (Scarletto et al, 2013). The authors also found that 80% of the overnight entries occurred between 11 p.m. and 2 a.m., a finding that aligns with other studies’ observation that use

tends to trail off during the early morning hours until picking back up around 6-8 a.m. (Bowman, 2013; Smith, 2007). Scarletto (p.373) and Engel et al (p.102) also examined the college majors of 24-hour users. This article seeks to contribute to the existing literature by presenting the findings from a fall 2013 pilot of 24/5 operation at ECU. The data illustrates library usage during the days and hours of the overnight period, usage during specific periods of the semester, and the demographic information of overnight undergraduate and graduate student users.

BACKGROUND

East Carolina University is located in Greenville, NC, and is a member of the University of North Carolina (UNC) system. The university offers more 110 undergraduate, 75 master and 16 doctoral degrees. Enrollment is approximately 27,000 students on two campuses. The central campus is home to the main library and most university programs. The health sciences campus contains the medical, dental, nursing, and allied health schools, along with a health sciences library.

Among the 16 sister institutions within the UNC system, six libraries already had some form of a regular 24-hour schedule in place. Plans were developed during the first half of 2013 to pilot the expanded hours of the main library during the upcoming fall 2013 and spring 2014 semesters. The library would open at 10 a.m. on Sunday and not close until 9 p.m. on Friday night. Two departments in the Public Services division would be staffed during the overnight hours – Circulation and Security. The Circulation Department repurposed a vacant position as the Overnight Supervisor who worked a regular semester schedule of 11 p.m. – 8 a.m. The schedule would be adjusted accordingly during holidays, intercession breaks, and the summer sessions. The Security Department would rotate the overnight shift among the guards so that there was no one person responsible for overnight coverage.

Beginning at 11 p.m. a valid ECU identification is required to enter the building and is swiped into a card reader that records the user's demographic information, classification, and major. At 2 a.m. the security guards close all floors except for the first floor which remains open. The first floor has

approximately 180 desktop computers, seven group study rooms with large monitors, vending machines, and comfortable seating for approximately 400 people. Once the basement, second and third floors have been closed, the guards canvass the first floor to perform a quick visual check of ID's to ensure that any non-ECU user who entered before 11 p.m. does not remain in the library during the overnight period.

The library contacted student media which publicized the pilot through a front page feature in the student newspaper and follow up story midway through the fall semester. Students interviewed for the articles were appreciative and positive about the pilot. Based upon quantitative and qualitative data, it appears that the pilot will be implemented permanently during the 2014-2015 academic year.

PEOPLE-COUNTING CAMERAS

The library badly needed an automated and expandable solution for patron counting. Current methods of manual gate count recording were both cumbersome and prone to human error. The head of Information Technology Operations and Lead Application developer embarked upon the task of finding a solution and there were a plethora of vendors and choices. The basic infrared or beam-based counters were no more accurate than what the library already used, and would likely require changes to the library's entrance and theft detection system. There were also no true methods for accuracy testing short of manual head counting. Desired features included automated reporting, Structured Query Language (SQL) database compatibility, directional tracking, and at least 95% accuracy. After some searching, the library discovered an intriguing product currently used in many businesses and libraries from Sensource. The Accutrac Series PC-VID2 uses a video feed to track the direction of patrons for entry and exit counts; can distinguish between adults, children, and groups; and can store information for up to 80 days in the event of a network connection loss. Accuracy is validated by storing the video feed, and processing through external Sensource software which counts traffic that can be compared to the collected data.

A real-time online demonstration was set up with Sensource, where library representatives saw examples of live video feeds, including one in the company's office. Ve Analytics Software, the reporting software included in the bundle, featured the ability to see live traffic stats for the day on a user customized dashboard, and the ability to run custom traffic reports in a graphical format. With Ve, the library could have a system in place to receive daily traffic reports at 8 a.m. that would include a line graph of hourly entrance and exit counts, a weekly traffic summary every Monday morning, and a monthly summary on the first day of the month. This improved efficiency would eliminate manually tracking gate counts for these time periods, and allow staff to concentrate on other areas of need. It also would give us the ability to run a report for any given set of calendar days. After the demo the library purchased two cameras and the software bundle.

There were a few issues encountered upon implementation of the software, which will hopefully be addressed in future updates. First, there is not a working option for the current occupancy count. In order to estimate the current number of patrons in the building, one must manually subtract the number of exits from the number of entries. Another problematic issue is the inability to set a custom report for a specific time frame. For instance, while attempting to gather statistics for the overnight periods discussed in this article, Ve was unable to run a direct report which would display hourly traffic counts for just the evening hours during the semester. Instead, the library was forced to trick the system by setting the library's hours of operation from 11 p.m. – 8 a.m., and run daily reports for each day. This became a tedious task, and we instead had student workers manually compile the stats from our archive of daily traffic reports. Currently, the Ve software must be installed individually for all users, but there are future software upgrades to a web-hosted version, which should improve access. Despite these flaws, the library has been pleased with this purchase, and the ECU Libraries added an additional people counter camera to the health sciences library.

FINDINGS AND DISCUSSION

During the fall 2013 semester the library was open overnight a total of 77 times. According to the SenSource people-counting cameras, during those nights from 11 p.m. until 8 a.m. – defined hereafter as the overnight period - the library received 15,374 visits from 4,720 unique visitors. This equals an average of 3.25 visits per overnight user. Not surprisingly, most of the busiest visits occurred during the final weeks of the semester. Out of the top 25 busiest overnight periods, the top eight occurred in December. However, it was somewhat surprising that the subsequent busiest overnight periods were relatively evenly spread across the months of September (3), October (7) and November (7). It was thought that library visits would increase in a linear fashion as the semester progressed. However, this data indicates usage peaks periodically across the semester's duration. Interestingly, despite finding that almost all days in December were among the busiest, one particular day – the final day of classes – was the ninth *slowest* for overnight visitors. On the other hand, prior perception of low use was confirmed for several dates. Labor Day, the first Sunday of the NFL season, the last day of Fall Break, and Halloween all recorded low use.

Similarly, it was believed that usage would be greatest during the first days of the week and gradually taper off, again, in a linear fashion. However, the data shows that usage is relatively consistent when visits were averaged by day of the week (see Table 1). The difference between the busiest average day (Wednesday) and the least busy day (Thursday) was only 12 visits. This finding was helpful in validating the decision to pilot a 24/5 schedule instead of 24/4 or even 24/3. The average number of visitors during the overnight period for all days was 202.

ECU's total enrollment for fall 2013 was 26,887. This total includes distance education (DE) enrollment that do not meet on-campus. Excluding DE-only enrollment, the on-campus enrollment was 21,269 (Office of Institutional Planning, Assessment, and Research, 2014). Comparing the on-campus enrollment with the number of unique overnight visitors indicates that approximately 22% (4,720) of the on-campus population entered the library during the overnight period (see Table 2). The library was

also able to collect basic demographic data for undergraduate and graduate students from the card swipe used to authenticate valid ECU affiliation. Overnight users were fairly evenly split along gender lines with female and male percentages of 47% and 53% respectively. But when compared to the university's overall gender enrollment of 60% female and 40% male, it appears that males are proportionally more likely than females to use the library overnight – especially as their classification progresses from freshman to senior. The ethnicity of among all library users corresponded within a few percentage points of the university's enrollment percentages.

In terms of classification, freshman constituted slightly more than a third (34%) of overnight visitors with 1,618 out of the total 4,720. Considering that freshman make up 21% of on-campus enrollment, the finding is useful in suggesting that this classification is more likely to use the library overnight than their peers. The increased likelihood could be due to the university requirement that, with few exceptions, freshman live on campus in residential housing. Nevertheless, other undergraduate classifications were well represented during the overnight period. Conversely, only 130 graduate students entered the library during the overnight period. This number represents only a little less than 3% of the total overnight visitors and 6% of on-campus graduate students despite the fact that they make up 10% of on-campus enrollment with a total of 2,194 students. Full-time graduate students were more likely to use the library during the overnight period than their part-time counterparts. More than 83% of graduate student visitors were full-time, while full-time students comprise only 73% of the total on-campus graduate enrollment. One would think that part-time graduate students would be more likely to visit the library overnight in order to accommodate jobs, family and other time-consuming activities. However, although the findings indicate the opposite is true from Sunday – Thursday, it could be that part-time graduate students are more likely to use the library during the daytime on weekends.

The usage findings among different undergraduate majors were informative and yielded some surprises despite the fact that, predictably, majors with large enrollments corresponded to those

represented in the top ten (see Table 3). For example, although ECU has a health sciences library on campus, several health sciences disciplines were strongly represented (i.e. Exercise Physiology, Health Education and Promotion, and Nursing). In fact, Nursing was the top major with 401 unique visitors. Health science majors were also among those with the highest percentage of unique users when compared with the total program enrollment. Elementary Education majors (128) were well represented overall, but only represented 13% of total program enrollment. This finding helps inform whether the library should let other areas of the building remain open, not just the first floor, during the overnight period. On the second floor of the library is the Teaching Resources Center – a curriculum materials collection that supports the College of Education. It could be helpful to students, particularly those in Elementary Education, to also leave the second floor open overnight. Majors in the College of Business (COB) were among those with the largest enrollments that did not correspond to overnight usage. Although Management appeared among the top ten majors, the undergraduate programs in Finance and Marketing, as well as the graduate program in Business Administration, all have enrollments of more than 550 each and yet were not among the highest overnight users. Particularly with respect to the graduate program in Business Administration, this could be a result of the COB's heavy focus on online delivery of courses.

The ECU Libraries uses SpringShare's Reference Analytics software to record service desk transactions. During the fall semester's 11 a.m. – 8 a.m. period only 188 questions were recorded at the circulation desk. Of those, 66 were directional and 122 were reference in nature (see Chart 1). This aligns with several findings that most student support services, including reference, interlibrary loan and reserves, are not frequently requested during the overnight period (Engell 2002; McDougal, 2013; Scarletto, 2013). As Bowman noted, it appears "students just want a safe haven to study and thus, only a security presence is required. First and foremost, patrons want a quiet safe place to study. The patrons appear to understand the 24-hour library service limitations and primarily view the library as a

secure setting to occupy. In essence, patrons recognize that the library is always available to them, no matter how often they actually are using it” (p. 237). Based upon ECU’s confirmation of these observations, the following semester the library decided to shift the overnight supervisor’s schedule earlier in the evening. Instead of working a regular 11 p.m. – 8 a.m. schedule, it was decided that the shift should move to earlier in the evening to work 7 p.m. - 4 a.m. when more people are in the building needing service. During the hours of 4 a.m. – 7 a.m. a single security guard is the only staff member on duty.

There were other interesting findings from the circulation service desk statistics. Despite the small number of questions, October was the busiest month and, surprisingly, Thursday was the busiest day of the week (see Charts 2 & 3). In fact, Thursday received nearly twice as many questions as the other days of the week, which were fairly evenly distributed. However, the most interesting finding was that nearly half of all questions asked from 11 a.m. – 8 a.m. occurred during the 7 o’clock hour. This relates to another change that resulted from the finding that many people were entering the building starting around 6 a.m. and steadily increasing through the 8 o’clock hour. During the 7 a.m. – 8 a.m. hour, 7,191 people entered the building during the semester for a daily average of nearly 100 people. Therefore, it was decided that for the spring 2014 semester all floors of the library would open and permit entry to everyone, without requiring a valid ECU identification, starting at 7 a.m. This alleviated some of the tension from students who arrived early but did not have their ID and, thus, were forced to wait until they were allowed to enter. Thankfully, there were no major security incidents during the fall semester pilot. Only two minor incidents occurred, both involving homeless members of the public who were found to be intoxicated and refused to leave. A call to ECU’s police department, which is located adjacent to the library, quickly resolved the situations.

CONCLUSION

The first semester of 24/5 operating hours at ECU has been a success by all measures. The level of usage and the goodwill cultivated among students by the expanded hours has more than proven that the schedule will be permanent for the foreseeable future. As the library continues to collect and examine the data during the overnight period, it is likely that procedures will continue to be tweaked in response to providing the highest level of service to patrons. Future study could also include usage among faculty, which was not considered for this article, as well as examining the overall grade point averages and retention rates among library users to determine if there is a correlation between overnight library usage and academic success.

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