Wide Awake at 4 AM: A Study of Late Night User Behavior, Perceptions and Performance at an Academic Library

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A B S T R A C T
The expectation for extended library hours including 24 h access presents many questions about late night library users and the value of this service to the library and their corresponding institutions. Using data gathered about patrons who use the library after 11 pm and before 7 am, a study was conducted to discover who the library users were, what services and facilities they made use of, and what, if any, concerns they have regarding the late night library. The usage patterns provide evidence that that while more usage occurs during traditional hours, users who prefer late night do so consistently. The researchers found the late night library was serving patrons who were cross sections of university community with higher than average grade point averages and retention rates when compared to university averages. These figures can have a significant effect on institutional recruitment and retention presenting the library as an indispensable resource to the community.

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Paradoxically, as the use of physical library services has declined (Martell, 2008), the expectation for extended and in many cases twenty-four hour access to library spaces has increased (Albanese, 2005; Driscoll & Mott, 2008; Laaker, 2011). While the implications of these trends raise both curiosities and concerns in the long term (Carlson, 2001), in the near term, they raise practical questions: can an academic library afford to be open twenty-four hours or can it afford not to be? The former became moot and the latter answered by an imperative “No it cannot” at Kent State University Libraries in the fall of 2010. New senior library management, responding to student expectations and a university president pushing an ambitious excellence agenda, began to plan for twenty-four hour access to the main library building, the University Library. By spring 2011, the library piloted a six-week period of twenty-four hour access, opening on Sunday and not closing until Friday evening (24 × 5). This schedule was re-implemented with the start of the fall 2011 term, with University Libraries committing to this schedule during fall and spring semesters henceforth.

Students almost universally praised the extended hours, while librarians, worried that late night use (the benefit) would not outweigh the additional staffing and resources (the cost), remained skeptical. Some recognized the public relations and recruiting implications of being able to tout a 24 × 5 library. As the schedule became the new normal, librarians began to wonder what was really going in their library in the middle of the night. They compiled a list of important questions about the late night library:

- Who was using it?
- What are the use patterns during late night hours?
- What are late night users trying to accomplish in the library?
- What services and resources do late night users need and use?
- Do late night users feel safe?
- Are there ways to connect late night library access to student success or other strategic goals?

This research paper examines these questions by analyzing a mix of user, survey, demographic and student performance data, as it attempts to create a more intimate and deeper understanding of the late night library at Kent State University.

LITERATURE REVIEW

Increased twenty-four hour access to library spaces has been the trend over the last ten years or so, and as Albanese writes, “If your library has yet to be lobbied by students for a 24-h space…. chances are good that someday soon it will be” (Albanese, 2005 p. 44). A 2001 ARL Spec Kit reported that while 83 percent of ARL libraries offer some type of extended hours, “those libraries able to provide 24/7 access in all or part of the library still are in the minority” (Steele & Walters, 2001 p. 9). When Driscoll and Mott reexamined late night hours in ARL libraries in 2008, they found that while the trend in most research libraries is to have occasional extended hours, about 48 percent offered some type of consistent 24-h access (Driscoll & Mott, 2008). An informal survey of ARL directors found that by 2011 over 70 percent of responding libraries offered some form of 24-h access to library or library-connected spaces (Laaker, 2011).
While no previous study has used as broad a mix of data to look as deeply at the late night library of a single institution as this study does, several writers have reported on providing extended hours in academic libraries. These works are predominantly case study-oriented and operationally focused, but several do touch on some of the same questions posed in this study.

Perhaps the most remarkable finding in the literature of the late night academic library is that while research libraries appear to collect a fair amount of user data, including headcounts, gate counts and surveys, over half of the respondents reported not using the data or not knowing if they did (Driscoll & Mott, 2008). Not surprisingly then, few have taken a formal look at who their late night users are. Engle, Womack and Ellis came the closest when they surveyed late night (10 PM to 2 AM) users at the main library at the University of Oklahoma (Engle et al., 2002). They found that late night users in many respects mirrored the demographics of their university — largely undergraduate with majors representing in fair proportion the largest colleges on campus.

Two trends are evident from the use patterns reported in the literature. First, Monday, Tuesday and Wednesday nights are typically the heaviest used late nights (usually in that order) (Engle, Womack, & Ellis, 2002; Laaker, 2011). Second, library use during late night typically tapers off significantly after 2 AM and then begins to increase again around 7 AM (Albanese, 2005; Laaker, 2011; Smith, 2007).

Although several authors have studied which traditional library services are available during late night hours, few have discussed how they are used by patrons, or asked users how those library services can support what they are trying to accomplish in the library. While circulation is the most frequently staffed service point (Driscoll & Mott, 2008; Steele & Walters, 2001), users typically just want to study (Engle et al., 2002) and be comfortable (Bennett, 2007). In general the demand for circulation and other traditional library services is low (Laaker, 2011), even when they are staffed and available in the late night environment.

Issues surrounding late night security have received the most focus in the literature, but these discussions are predominantly operationally focused. Nowhere in the literature is an in-depth discussion of user perceptions regarding security.

Finally, the literature also lacks an examination of how late night hours may connect to student success or other strategic initiatives. Certainly many have discussed the demand for late night access expressed by students (Albanese, 2005; Driscoll & Mott, 2008; Laaker, 2011) and this most surely would qualify as being student-centered, but how do late night students perform and persist on their campuses? A few have also reported or observed that the late night library is “...a good PR move” (Albanese, 2005; Driscoll & Mott, 2008 p.44). Recruitment and retention at the university are often strategic goals and using the library’s availability as a tool to promote those goals strengthens the library’s position at the institution.

BACKGROUND

Kent State University is a large public research university with a Kent Campus enrollment of 27,706 undergraduate and graduate students enrolled in degree programs ranging from associate to doctoral (Kent State University, 2011). Although there is a large residential population, the students often refer to the campus as a “suitcase campus” because many local students return home on the weekends. The University Library has 12 stories and a basement, with 10 of those floors accessible during the late night library hours. It is located in the center of campus, in the plaza with the Student Center, and houses both the library and University administration offices.

The University Library has a history of extending hours for the building and some service points to meet student demand. In 2000, the Kent State University (KSU) Undergraduate Student Senate passed a resolution for the extension of the library’s weeknight closing time from 11:30 PM to 1:00 AM. A Fall 2002 survey of students conducted by the Undergraduate Student Senate showed that over 85% of students surveyed were satisfied with the library’s hours. (M. Jarnicki, Per. Comm.) By 2010, some students were requesting additional hours and the library’s closing time was extended to 3 AM for weeks 11–15 of the 16 week semester as students prepared for exams. The closing time remained 11:30 PM for weeks 1–10.

In the fall of 2010, the university president focused attention on the library in his state of the university address, placing the library “At the Heart of it All” (Lefton, 2010). While it had always been implied, he had for the first time drawn a straight line from the library to his excellence agenda (Kent State University, 2010) in particular, connecting it to strategic goal number one: ensuring student success. In his university address, the president charged the library dean with developing a plan “…to remake our libraries using a 21st century model” (Lefton, 2010 p.5). The president did not mention library hours in his address, but the library dean soon revealed that extending library hours was part of this new model.

With these developments in mind, the library decided to implement a 24 × 5 schedule, with the library opening on Sunday at noon and remaining open overnight for five nights until Friday evening at 10 PM. A six week trial began after spring break in March 2011 and the new schedule was fully in place during spring and fall semesters except for extended breaks, certain holidays, intersessions, and summer sessions. The circulation desk was the only service point staffed during the extended hours. Late night library staffing consisted of a professional librarian (one of the authors of this study), and two classified staff members, who staffed the circulation desk and coordinated aspects of building security. Security aides conducted hourly building patrols, walking around all floors of the building and counting students per floor while looking out for any security and safety concerns within the building.

After consulting with campus police and safety officials, the library decided to restrict access after 11 PM to members of the Kent State community: students, staff and faculty. To manage this the library’s systems department created a Building Monitor System (BMS). After 11 PM, library users show their ID to security and swipe in through a card reader, which enters their university ID number and matches it to the University Library Patron Database.

There are few other 24 × 5 or 24 × 7 operations on campus or in the local community. Rosie’s is a campus restaurant with a 24 h market and diner, with food delivery service until 2 am. It has maintained its current hours for the past several years. In the community, there are a few fast food restaurants that are open until 2 am as well, Burger King and Taco Bell, at least one pizza restaurant open between 1:30 am to 3 am depending on the night of the week, some bars open until 2 am, and a Sheetz market attached to the gas station that is open 24 h. Other campus buildings are locked after 11 PM, with the exception of housing which is key carded during most times. At the time this paper was completed the authors were not aware of any other attempts on campus to provide 24 × 5 or 24 × 7 study or building access for students.

The library furnishings include a variety of soft seating as well as tables and chairs which comprise about 2000 seats. Over the past few years, several areas have seen renovations and new furnishings. In addition, the University Library had a coffee cart serving Starbucks coffee/tea drinks and pastries open Monday–Friday 8 AM–12 AM and closed Saturday and Sunday. There are also two vending machines on each of the first and fourth floors, one with a variety of bottled drinks and a second with packaged snacks.

METHODOLOGY

This study utilized mixed methods approach which allowed the researchers to look at quantitative data for usage and demographics, and framed a clear picture of events over the last year. The qualitative survey methodology provides user feedback and subjective perceptions. We can make use of these comparisons in the data for future
Two different datasets were examined in the study. Dataset One is based on the Building Monitoring Database (BMD) which recorded usage data of the library building during late night hours over the study period. The times and dates of user entry, as well as the associated demographic data of users comprise Dataset One. The results of a web based survey make up Dataset Two.

When users enter the library building during late night hours (11:00 PM–7:30 AM), they present a university id that is recorded using a card swipe machine. When swiped, the identification number of the user and their email address is recorded along with the time and date of entry in the BMD. Any library staff that were part of the BMD were removed if they were members of the late night or early morning staff. As a supplement to the BMD, the identification numbers of users during the study period were sent to the University Research, Planning and Institutional Effectiveness (RPIE) office for associated demographic data relating to department, major, grade point average, class standing, international status, home campus, ethnicity, and gender. All of the demographic data were reported based on the students’ information as of August 2011. Kent State University Institutional Review Board (IRB) approval was received for all aspects of this project and the data received from RPIE was reported without identifying information.

An anonymous web based survey was used to gauge user perceptions and to document self reported usage and demographic information of late night users. Email addresses recorded in the BMD were used to recruit participants for the survey. The survey was created and distributed using Qualtrics Labs, Inc. (2012) survey software.

### RESULTS

**WHO IS USING THE LATE NIGHT LIBRARY?**

Students affiliated with the colleges of Arts & Sciences; Education and Human Services; and Business make up the largest groups of late night users. This was expected as they are the three largest colleges at the university. Undergraduate students make up the bulk of late night library users. Freshmen are more frequent late night users with the remaining undergraduate classes split rather evenly. Fig. 1 describes the college and class standings in detail.

The researchers compared the reported demographic characteristics of late night patrons with the university's demographic fact sheet to see how they compared to the university population. These are reported in Fig. 2. Late night users closely resemble the profile of students throughout the university and are not restricted to one particular cohort. Comparing late night library users with the Kent State student population, a slightly higher percentage of undergraduate students, African American and international students are late night users.

**WHEN ARE THE USE PATTERNS DURING LATE NIGHT HOURS?**

According to the data, 5920 individuals used the library late night during the study period for a total of 22,383 visits. Fifty-seven percent of those individuals used the late night library more than once during the study period, and 39% used the library late night three or more times. Sunday, Monday and Tuesday evenings were the most popular days of the week with about 23% of the responses. The distribution for each day of the week is listed in Fig. 3. Using an hourly count, 80% of the entries are between 11 PM and 2 AM, and 9.7% between 2 AM and 5 AM hours, and the remaining 10.3% are between 5 AM and 7:30 AM. Most of the late night traffic occurs before 2 AM after which it drops off significantly, with a little rise after the 6 AM hour. See Fig. 4 below. Interestingly, survey respondents indicated they used the library 78% between 11 PM and 2 AM, 20% between 2 AM and 5 AM hours, and the remaining 2% between 5 AM and 7:30 AM.

### College

<table>
<thead>
<tr>
<th>College</th>
<th>(N=5800)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Sciences</td>
<td>27%</td>
</tr>
<tr>
<td>Education, Health &amp; Human Services</td>
<td>16%</td>
</tr>
<tr>
<td>Business</td>
<td>16%</td>
</tr>
<tr>
<td>Communication &amp; Information</td>
<td>10%</td>
</tr>
<tr>
<td>Arts</td>
<td>9%</td>
</tr>
<tr>
<td>Nursing</td>
<td>6%</td>
</tr>
<tr>
<td>Public Health</td>
<td>1%</td>
</tr>
<tr>
<td>Technology</td>
<td>4%</td>
</tr>
<tr>
<td>Architecture &amp; Environmental Design</td>
<td>4%</td>
</tr>
<tr>
<td>Undergraduate Studies (Undecided)</td>
<td>7%</td>
</tr>
</tbody>
</table>

The usage over the course of the 16 week semester during Fall and Spring terms in Fig. 5 indicates the last week of the semester was by far the most popular, but relatively steady use is shown over the course of the semester. During the Spring semester, week 12 (Spring Break) is missing from the figure because library does not provide late night hours during breaks or other intercessions.

**HOW OFTEN DO YOU USE THE MAIN LIBRARY BUILDING DURING THE DAYTIME HOURS, 7:30 AM–11 PM?**

The user survey asked the respondents whether they use the library most often during daytime hours, or during late night hours. Even though the survey population was drawn from the late night patrons, the researchers wanted to know if they had a preference. Two thirds (63%) of users responded they most often use the library during late night hours, with one third (37%) indicating a preference for daytime hours.

**WHAT ARE LATE NIGHT USERS TRYING TO ACCOMPLISH IN THE LIBRARY?**

When asked what they are trying to accomplish, late night users chose: study quietly (87%), work on a research project or paper (72%), and study as a group (42%). These were followed by print, scan or copy documents (29%), surf the web (16%), socialize (13%) and other. When users ranked the top three things they are trying to accomplish in the library: 127 (50%) marked study quietly; 84 (34%) said work on a project or paper; and (22%) print, scan or copy documents and (20%) study as a group were the other most popular choices.
WHAT SERVICES AND RESOURCES DO LATE NIGHT USERS NEED AND USE?

When users were asked which services they have used during late night hours, they responded that wireless internet (82%); printers (68%) and computers (61%) are the most used, with online books, journals or other library resources coming in a close fourth (48%). The Circulation Desk is the only staffed service during late night hours and 16% responded they had used this service.

ARE THERE ANY SERVICES THAT YOU WOULD LIKE TO SEE OFFERED IN THE MAIN LIBRARY BUILDING LATE NIGHT BETWEEN 11 PM AND 7:30 AM?

For this question, respondents were asked to identify any services they would like to see added. The 243 responses were examined in a content analysis and several themes were identified. These are listed in Fig. 6. Food and drink were overwhelmingly the most frequently requested services. Comments about space and furniture were the next most requested services and revolved around having more comfortable furniture or spaces more specific to their needs (five requested more quiet study and five requested more group study rooms). The services that were coded as daytime services were those that are not available during late night hours including: multimedia, computer help desk, tutoring and reference help. Several comments were made about extending late night hours to Friday and Saturday nights as well.

DO LATE NIGHT USERS FEEL SAFE?

Security concerns are often a large part of opening a campus building during overnight hours. The researchers wanted to know how users felt about this issue. Ninety-six percent said they “feel safe and secure in the building” when they use the library late night. There were five comments mentioning the security and safety after leaving the building, and this idea was mentioned as well in the open ended questions about desired services. Seven of the comments which mentioned security as a concern, asked for more escorts from the library to other places. Other comments pertained to the visibility of the existing security in the building. Overall, this was less of a concern than expected. Some of the requests for additional security are out of the library’s hands, such as university escort services, and the state of security on the campus outside the library. University Escort Services, mentioned in some of the comments, are not available after 4 am.

Selected security quotations from both the security question and additional services free text answers are listed below.

○ This is a must! It is unsafe to leave the building late at night.
○ A friendly security guard escort to walk with me to my car.
○ security guards to walk people to the parking lots.
○ More available security, to help escort.
○ No security once you leave the building.
○ In the library is safe, its leaving the library that’s a little unsafe when its pitch black in the middle of the night.
○ Not enough administrators on each floor.

CAN WE FIND WAYS TO CONNECT LATE NIGHT LIBRARY ACCESS TO STUDENT SUCCESS OR OTHER STRATEGIC GOALS?

Of the students who were using the library late night and who had a grade point average to report, more than half maintained a grade point average above 3.0. The researchers wanted to know if this was leading to other kinds of success, such as persistence or graduation, or other areas such as leadership and community involvement. The researchers found a significant correlation between students who used the library late night and their persistence as well as their decisions to graduate. The researchers also found a significant correlation between students who used the library late night and their decisions to participate in leadership activities and their decisions to be involved in community service activities.
point average of 3.0 or higher. The cumulative average undergraduate GPA of late night users was 2.7 (N = 4688), and the university average undergraduate GPA is 2.67. For graduate students, the late night users had a cumulative GPA of 3.645 (N = 207), while the university average for graduate students is 3.67. For both undergraduate and graduate students who use the library during late night hours, the difference in average GPA was not statistically significant when an independent-samples t-test was calculated to compare them to the university average. Student success can also be measured by looking at persistence or retention rates. Of the undergraduate students who have not graduated since the Spring of 2012, 84.6% were still enrolled during Fall of 2012, while the overall university retention rate is 80.2% for those students. Using a Pearson Chi-Square test, late night user retention rates and non late night users’ retention rates for both undergraduate and graduate students were compared for statistical association. When the critical values were compared (χ² = 61.162, df = 1) for undergraduates and (χ² = 4.471, df = 1) for graduate students, the critical values indicated that the null hypothesis was not the explanation for the observed differences. The differences in retention rates are statistically significant regarding late night library usage for both groups.

**DISCUSSION**

As mentioned in the background, Kent State Library has a history of offering later hours during exam weeks and during the second half of the semester. However, being open between 2 AM and 7 AM is new. According to the literature, these hours are also the least used hours and the data in this study corroborates that finding. This finding is not enough to determine whether they should be eliminated from the library schedule. Several other questions might also be considered: do the public relations value and the value to those students who use the building justify the cost? Probably not in dollars and cents, but survey respondents say they are using the building during this time. The perception of use may be more important than the actual numbers thereby making the library seem more indispensable to the library users.

Patrons also make use of the late night hours more often during the midpoint of the semester and the end, rather than at the beginning of
the term. The rates of use are fairly steady after week five of the semes-
ter. These peaks in usage correspond to the times students prepare for
midterm and final examinations. Using the previous scheduling,
.extending later hours during only the last five weeks of the semester
might have denied quite a few users. The current scheduling, beginning
late night hours with the semester, seems to fit the needs of users more
fully. Consistent scheduling may even encourage the habit of using
the library late night as students are aware of the schedule at the begin-
ing of the term when they are establishing study habits.

The usage patterns for days of the week were also fairly predictable.
More students used the late night hours Sunday through Tuesday. This
matched the librarians’ expectations of usage. Students tend to use the
library at a higher rate at the beginning of the week than at the end of
the week. Thursday through Saturdays seem to be the more social
evening for students, with fewer students seen in the library. The
library’s decision to close the 24 × 5 schedule on Friday and Saturday
evenings at 10 PM also reflects that observation or assumption on the
part of the library.

More than two thirds of survey respondents use the library and its
accompanying services more often during late night hours than day-
time hours. Some technical help was desired for multimedia, reference,
and computer trouble shooting, that was not a high priority for the
users surveyed. Indeed, in the open ended questioning, refreshments
and furnishings rated much more important that staff services or expe-
tise. While the Circulation desk is open for late night hours, only 16% of
students surveyed had used the service and Laaker (2011) also found
the service was used less frequently than supposed during late night
hours. We did not examine circulation statistics during late night
hours for this study; they could be another layer of assessment for
staffing and usage indicators in a future study.

The library building houses an array of services including: the
Writing Commons, Math Tutoring, the Student Multimedia Center,
Reference, Reserves, and Interlibrary Loan services. Obviously, the late
night time period discussed in this study does not offer the complete
array of services available during certain daytime hours. While we did
not study the student usage of those services during daytime hours,
most of these services were not requested in large quantities during
late night hours. Another interesting question for future research
would be to ask daytime patrons how often they use these services in
the library.

Perceived safety in the library rated very highly in the survey,
though several ideas about campus security were brought up. In partic-
ular, escort service availability on campus and security outside the
building were seen as lacking. This might be an indication that the
library needs to coordinate more closely with campus security to ensure
that the area around the library is patrolled more often. In addition, the
library seems to need to make the interior security more visible, or to
communicate the current security to users. While most respondents
indicated they did feel safe, the lack of recognition of current security
provisions was surprising.

There are many possible assumptions about those who request
nontraditional library hours. We might assume they are a small minor-
ity with different study habits from the majority of students, or a very
limited part of the student body. What the researchers found through
this study was that the students who make use of late night hours are
a cross section of the university population. They proportionally repre-
sent the colleges, ethnicities, undergraduate to graduate ratios and
international students at the university. They tend to carry average to
higher achieving students make use of the library during late night
hours, or perhaps higher achieving students are drawn to institutions
with this opportunity, or other contributing factors that have not yet
been examined. However, the study did identify a correlation that
could be tested with additional research. In addition, there could be
questions about whether more frequent library usage overall contrib-
utes to higher grade point averages, student retention and higher
academic achievement. Could library contact, including instruction,
reference, or use of library materials provided virtually be contributing
factors to these goals? These are all questions that could be explored
by additional research and the results compared with this data illustrating
library impact more broadly. As libraries are asked to provide more
evidence of impact on student success these questions are increasingly
important to the community.

The cohort of students (5822) using the library late night represents
21% of the Kent Campus population. While librarians might think that
late night users are a small group, the percentages shows that a good
proportion of students have made use of the service at least once. In
addition, two thirds of these users prefer the late night hours. It is
reasonable to assume that eliminating this service would create a
vacuum for these users. According to the survey, they are most often
studying and working on papers and projects. Providing space for
these academic pursuits actively contributes to the strategic goals of
the university regarding academic success and persistence. We noted
that users tend to be at or above university averages for grades and
persistent rates, and this service seems to be serving those users or pos-
sibly contributing, to this success. Also, users indicate a variety of needs
to accomplish these tasks, both quiet and group study space. The library
building is uniquely able to provide both kinds of spaces as well as other
desired features: computer and wireless access, and printing and scan-
ning services. Revisiting these data periodically could show the long
term impact of the service and increase the Library’s support within
the community. As more and more academic libraries are asked to
provide measurable outcomes for services, these numbers provide
data that the service is supporting high achieving student success.

**FUTURE STUDIES**

Assessment of late night services seems inherently necessary, and
yet there is a lack of documentation of that assessment in the literature.
In this study the researchers attempted to touch on both the percep-
tions of users and the usage data. Other questions have also come to
light through the process of this research. How often is the Circulation
Desk used during late night hours? And how is the Circulation Desk
used? Are students using that service because it is the service desk
that is open, or is the demand for borrowing materials high? In addition,
how would examining building counts, not just entry counts change the
outlook of this data regarding use patterns? In this survey, several ques-
tions about space specific to the University Library were asked to gauge
the perceptions and use of newly renovated spaces in the building.
Other libraries may assess their spaces to see how they are meeting
requests for quiet and group study as well as comfort.

In the future, user surveys could also be distributed at different times
during the semester to generate different kinds of feedback based on
the changing needs throughout the academic calendar: do students
feel differently during midterm and finals weeks than they do at the
start of term; are different services needed or used, at different times?
Late night users seem here to stay, and if the library is not adopting a
24 × 7 schedule, then another option would be need to accommodate
campus needs. Librarians need to develop communication avenues to
keep in touch with these users and their needs. Because librarians are
less likely to interact with late night users directly, perhaps we should
approach providing services as we do for distance learners whom we
might also rarely “see.” Whether we interact with them as librarians,
or only pass them on the way out the door, these patrons are using our libraries, even at 4 AM.

REFERENCES


