Improving the student experience of a 24/7 academic library space

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Description and Learning Objectives

What are the standards for excellence when providing 24/7 study space in academic libraries' Surprisingly, few publications have laid out best practices or analyzed data in this realm. This session will discuss issue identification, data collection, data analysis, and the planning and implementation of solutions to increase attendance and satisfaction with 24/7 study space in an academic library.

Learning Objectives: One approach to a program review of a space-related academic library service; Integration of LibCal and Alma is easy!; Opportunities for future research.

Choices

Included: Mistakes / Misjudgments

Not included: Every single detail.

Questions welcome!

Background – Central Michigan University

- Fall 2024 Enrollment ~ 14,500

   Main campus ~ 11,300

- Library employees ~ 44 + several embedded OIT colleagues

The Central Michigan University Tartan

CMU Libraries Building - 200,000 square feet

Open 98.5 out of 168 hours/week during fall and spring semesters.

1 North 24/7 Study Room 2,000 square feet

Remodeled Summer 2024

- 28 computers (14 Macs, 14 PCs)
  - After: Reduced to 18 (12 Macs, 6 PCs)
- 80 chairs (lots of carrels)
  - Reduced to 46 spaces + 20 chairs (no carrels)
- Special software
- Printing (Black and White, Color)
- Scanning
- ID Scan is always required to enter.

Before

Initial Questions

(2023 and before)

- **Library staff** observations and occupancy sensor data indicate that the space rarely used. Why isn't the space used more?

- **Student** feedback is that the space is crowded. Is there anything we can or should to about this feedback?

Before

After

Initial Data Gathering (2024)

LOOK AT OCCUPANCY SENSOR DATA

OBSERVE 1 NORTH IN PERSON

IDENTIFY WAYFINDING ISSUES

Fall 2023 Occupancy Data – Occupancy Sensor

SPSS Frequency Analysis

Average Occupancy: 15-minute increments
- 37.2% - Zero occupants
- 98% - 16 or less people

Question:
Is the Occupancy Sensor Accurate?

Frequency Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3864	37.2	37.2	37.2
	1	1569	15.1	15.1	52.2
	2	823	7.9	7.9	60.2
	3	643	6.2	6.2	66.3
	4	543	5.2	5.2	71.6
	5	504	4.8	4.8	76.4
	6	489	4.7	4.7	81.1
	7	434	4.2	4.2	85.3
	8	345	3.3	3.3	88.6
	9	281	2.7	2.7	91.3
	10	227	2.2	2.2	93.5
	11	154	1.5	1.5	95.0
	12	99	1.0	1.0	95.9
	13	69	.7	.7	96.6
	14	67	.6	.6	97.2
	15	38	.4	.4	97.6
	16	42	.4	.4	98.0
	17	39	.4	.4	98.4
	18	29	.3	.3	98.6
	19	25	.2	.2	98.9
	20	18	.2	.2	99.1
	21	12	.1	.1	99.2
	22	17	.2	.2	99.3
	23	15	.1	.1	99.5
	24	10	.1	.1	99.6
	25	8	.1	.1	99.7
	26	7	.1	.1	99.7
	27	4	.0	.0	99.8
	28	10	.1	.1	99.9
	29	3	.0	.0	99.9
	30	4	.0	.0	99.9
	31	2	.0	.0	99.9
	32	1	.0	.0	100.0
	33	2	.0	.0	100.0
	35	1	.0	.0	100.0
	39	1	.0	.0	100.0
	40	1	.0	.0	100.0
	Total	10400	100.0	100.0	

Data – Occupancy Sensor vs. Observed (Spring 2024)

Date	Time	Observed Peak Occupancy	Occuspace Peak Occupancy	# difference	% difference
16-Feb-24	7:45 - 8:00 PM	13	13	0	0.00
16-Feb-24	8:00 - 8:15 PM	17	19	2	11.76
16-Feb-24	8:15 - 8:30 PM	16	20	4	25.00
23-Feb-24	7:45 - 8:00 PM	13	12	-1	-7.69
23-Feb-24	8:00 - 8:15 PM	14	15	1	7.14
23-Feb-24	8:15 - 8:30 PM	15	12	-3	-20.00
23-Feb-24	8:30 - 8:45 PM	17	13	-4	-23.53
22-Mar-24	7:45 - 8:00 PM	10	9	-1	-10.00
22-Mar-24	8:00 - 8:15 PM	13	16	3	23.08
22-Mar-24	8:15 - 8:30 PM	14	19	5	35.71
5-Apr-24	7:45 - 8:00 PM	7	5	-2	-28.57
5-Apr-24	8:00 - 8:15 PM	9	9	0	0.00
5-Apr-24	8:15 - 8:30 PM	9	8	-1	-11.11

Pearson Correlation

Correlations

		OBS_PEAK	OCCU_PEAK
OBS_PEAK	Pearson Correlation	1	.825**
	Sig. (2-tailed)		<.001
	N	13	13
OCCU_PEAK	Pearson Correlation	.825**	1
	Sig. (2-tailed)	<.001	
	N	13	13

**. Correlation is significant at the 0.01 level (2-tailed).

Confidence Intervals

	Pearson Correlation	Sig. (2-tailed)	95% Confidence Intervals (2-tailed) [a]	
			Lower	Upper
OBS_PEAK - OCCU_PEAK	.825	<.001	.503	.946

a. Estimation is based on Fisher's r-to-z transformation.

1 North and Library Café Wayfinding Analysis

Physical space

- 2 Step process to enter the 24/7 study room.
- Library Café entrance is not obvious.
- Restrooms/water/vending is not clearly marked.

Website

- 1 North is not listed as a 24/7 space.
- Website does not mention Library Café hours.
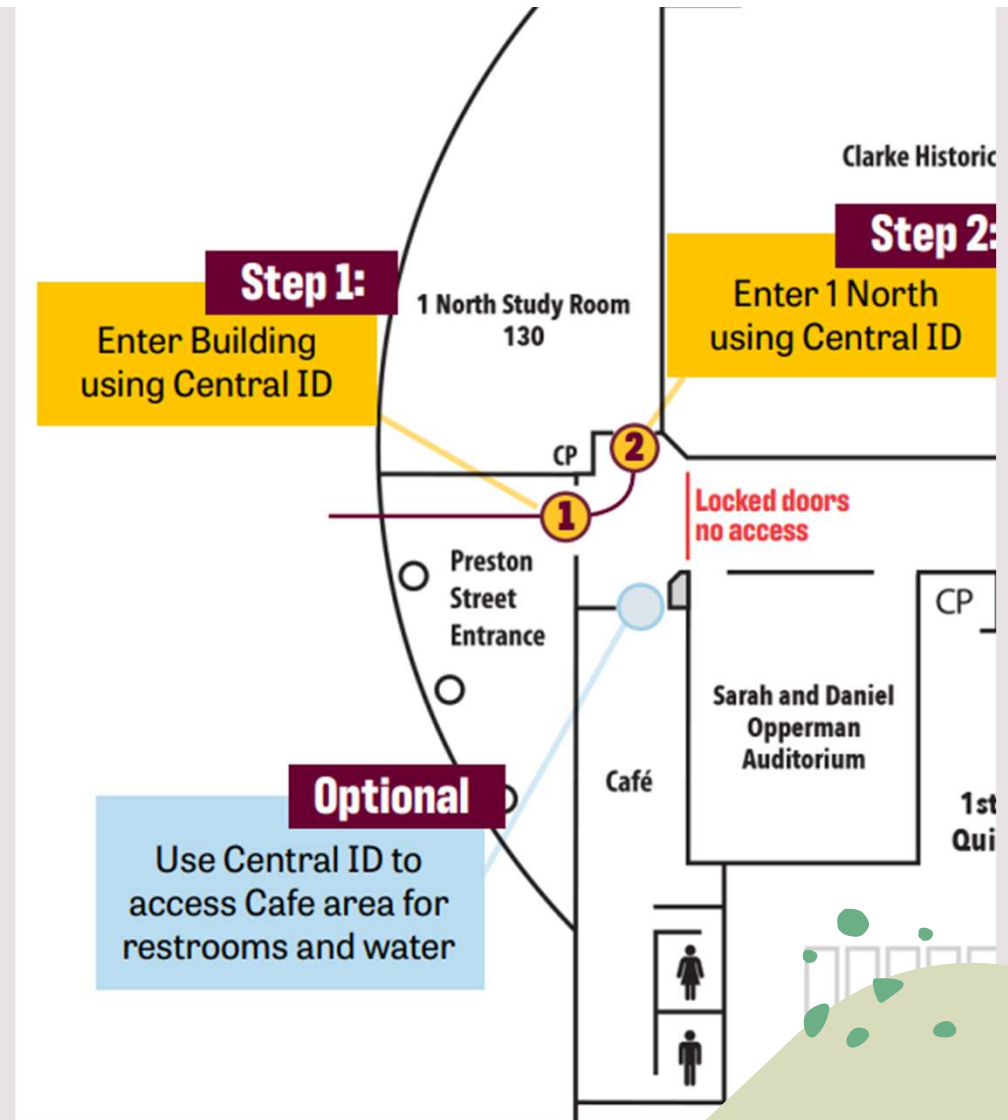
Questions after data gathering

- Are students aware the Libraries provide a 24/7 study space?

- Do students know where the restrooms and vending area are in the Library Café?

- Can we address the surges of use that students complain about?

Before

After

Completed Communication and Wayfinding Improvements

Library Website

- Implement LibCal and Alma integration on library hours page.

CMU LIBRARIES HOURS

« PREVIOUS NEXT »	MAY 04 SUNDAY	MAY 05 MONDAY	MAY 06 TUESDAY	MAY 07 WEDNESDAY	MAY 08 THURSDAY	MAY 09 FRIDAY	MAY 10 SATURDAY
Park Library Building	12pm – 12am	7:30am – 12am	7:30am – 12am	7:30am – 12am	7:30am – 12am	7:30am – 5pm	Closed
Clarke Historical Library	Closed	9am – 5pm	9am – 5pm	9am – 5pm	9am – 5pm	9am – 5pm	Closed
1 North Study Room	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours
Library Cafe	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours
Ask a Librarian	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours	24 Hours
Extended Hours Study Entrance/Exit	9am – 12pm	Closed	Closed	Closed	Closed	Closed	Closed

LibCal and Alma Integration is easy!

Contact me for more details.

- **In Alma:** Add libraries for each space that needs hours.

- **In LibCal:** Create a library or department for each space that needs hours

- **In LibCal:** Navigate to the Alma Integration tab and map the Alma Library to the LibCal library

- **In Alma:** Maintain the calendar

    - Easiest if there are no entries on the institution calendar.
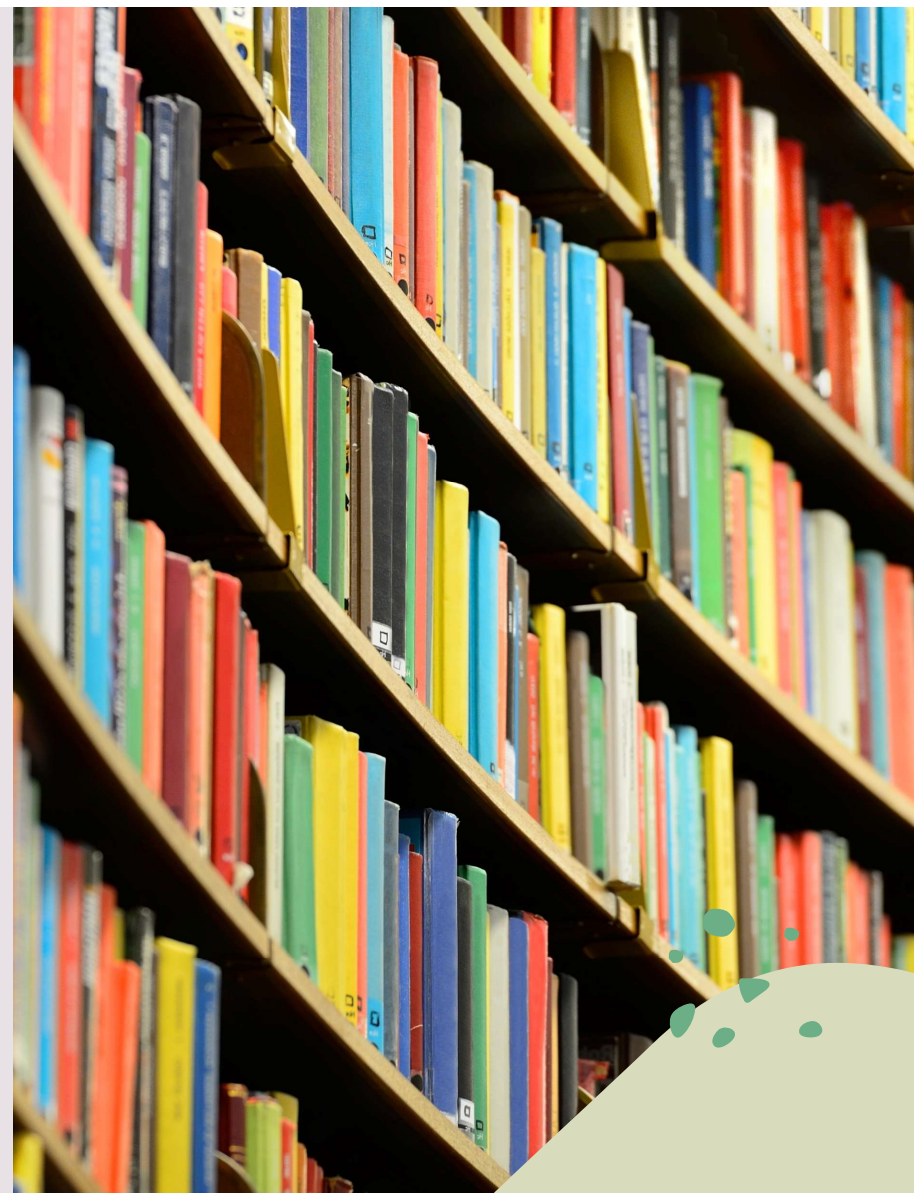
Completed Communication and Wayfinding Improvements

Library Café

- Use 'Library Café' instead of 'Ponder Coffee area'.

- Add Library Café / Ponder Coffee sign

- Add restrooms – vending – water – seating sign

Welcome to the:

Library Café

featuring

PONDER C COFFEE

This space is great for eating and conversations with friends!

Study Spaces

scan the QR code to visit **library.cmich.edu/StudySpaces**
to see all the study space we offer in the Library.

Welcome to:

1 North

This space is great for quiet study and is open 24/7 making it an ideal late-night or early morning study spot.

this space features:

Printers - B/W and Color

Scanners

Individual Study Spaces

Need Help?

scan the QR code to visit
library.cmich.edu/1North
for help, policies, and more.

Study Spaces

scan the QR code to visit
**library.cmich.edu/Study Spaces**
for more places to study.

Assessment – Perception, Satisfaction, and Technology

Online survey in Spring 2024 to gather baseline satisfaction data.

Follow up survey in Spring 2025 to gather comparison satisfaction data.

Data Threats

- History

- Errors of non-observation (low number of responses)

- Inadequate sample size/inadequate coverage of population
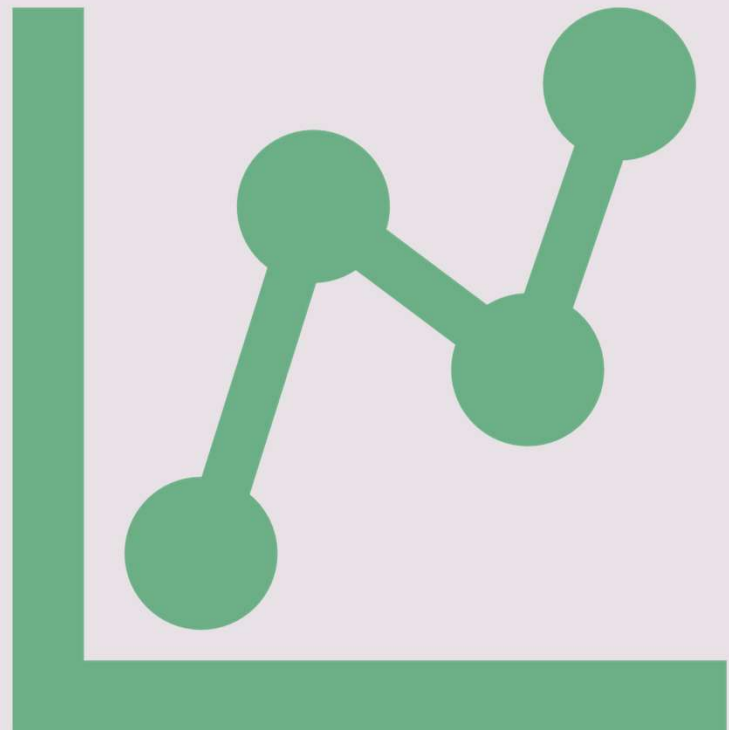
Survey Question 1 (Spring 2024): Is the 1 North Study Room busy now?

Possible answers

- No (14)
- Yes (8)
- I'm not in the room right now (8)

Date/Time Reported 1 North was Busy	Occuspace Peak Occupancy (15-minute interval)	Main Library was open at this time? Y/N	Day of week
3/29/24 6:35 PM	7	Y	Friday
4/12/24 3:00 PM	4	Y	Friday
4/12/24 7:47 PM	13	Y (about to close)	Friday
4/12/24 8:34 PM	2	N	Friday
4/13/24 9:25 PM	7	N	Saturday
4/18/24 5:02 PM	3	Y	Thursday
4/19/24 9:01 AM	1	Y	Friday
4/26/24 1:22 PM	11	Y	Friday

Question 2 (Spring 2024): 13 of 28 or about half of respondents use the computers in the space

2. Did you bring your computer today to study in 1 North?

More Details   💡 Insights

- Yes   12
- No   2
- No - I don't usually need a com...   4
- Yes - and I also plan to use one ...   11

Question 3 (Spring 2024): 20 of 28 either use a Mac or have no preference

1 North will have a total of 18 computers (12 Macs and 6 PCs). Reduced from 28 total.

More Details

|		
🔵 Mac		14
🟠 PC		8
🟢 Either		6

Question 5 (Spring 2024): Top 4 features - Open 24/7, Black and White Printer, Quiet Space, Double Monitors

5. What are the most important features of the 1 North Study Room when the main library is closed?
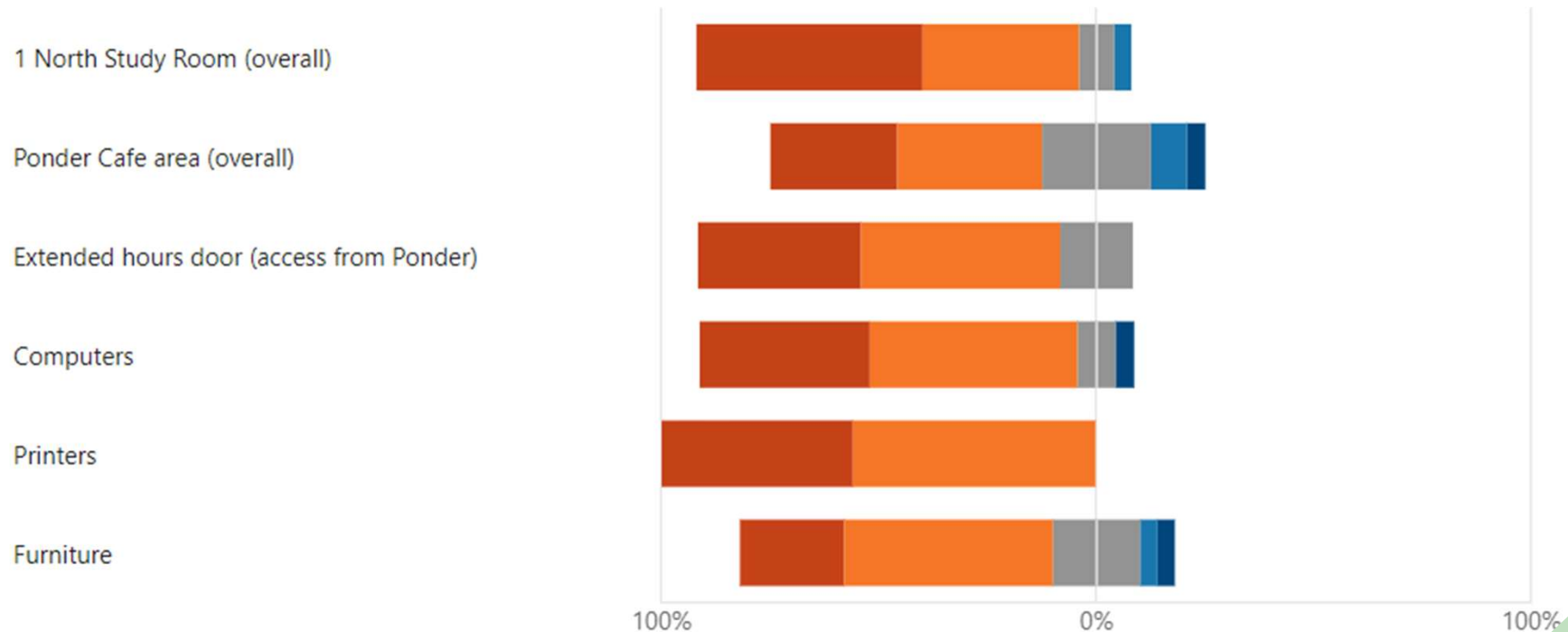
More Details

● Computers	13
● Double Monitors	15
● Black and White Printer	19
● Color Printer	9
● Scanner	3
● Quiet space	16
● Space to work with someone else	1
● Space to spread out work	11
● Open 24/7	22
● Other	0
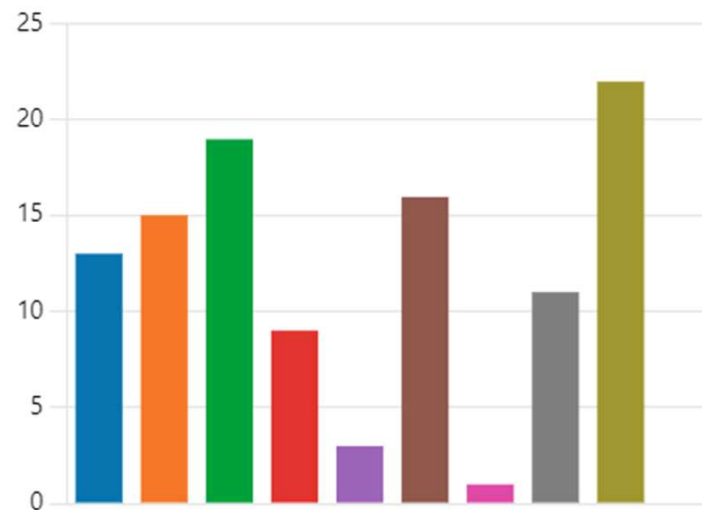
Question 6 (Spring 2024): Overall Satisfaction

Legend: ■ Very satisfied ■ Satisfied ■ Neither satisfied nor dissatisfied ■ Dissatisfied ■ Very dissatisfied

- 1 North Study Room (overall)
- Ponder Cafe area (overall)
- Extended hours door (access from Ponder)
- Computers
- Printers
- Furniture

100%   0%   100%

Question 7 (Spring 2024): Comments summary (11 total)

Complaints of note

- Others talking loud, complaint was not addressed

- Long walk from Towers

- Wish it were bigger

- Clean at the beginning of semester, then gets dirty

- Considers it dark and dreary

- Broken mice and keyboard supports

Positive Comments (7)

- Like view outside

- Good space to be productive

- Likes it the way it is

- Grateful for 24/7 aspect

- Likes wooden chairs

Assessment – Usage

Occupancy sensor data – average daily occupancy per semester (currently 3)

Threats

- History

- Instrumentation Threat (Occupancy sensor could be inaccurate)

Hypothesis: Outcomes of changes

- Both use and satisfaction will increase when survey is repeated in Spring 2025.
  - New furniture in 1 North will make it seem less crowded and allow more use even though there will be fewer computers and fewer seats.
  - Better communication on website and improved physical signage will make the spaces easier to access and use.
    - Make sure people know to go to Library Café for restrooms, water, and lively conversations

- Is 1 North busy now? Respondents will be less likely to report 'yes' when there are only a few people in the room.

Follow Up Data Gathering (2025)

Look at Occupancy sensor Data

Review Camera Screenshots of 1 North

Follow up survey

Spring 2025 Occupancy Data – Occupancy Sensor

SPSS Frequency Analysis

Average Occupancy: 15-minute increments
- 17.6% - Zero occupants (down from 37.2%)
- 50.6% - 4 or less (down from 71.6%)
- 95.2% -16 or less people (down from 98%)

Average daily occupancy went from 3 to 6 people

AverageOccupancy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1969	17.6	17.6	17.6
	1	941	8.4	8.4	26.0
	2	1211	10.8	10.8	36.8
	3	850	7.6	7.6	44.4
	4	698	6.2	6.2	50.6
	5	631	5.6	5.6	56.3
	6	623	5.6	5.6	61.8
	7	613	5.5	5.5	67.3
	8	597	5.3	5.3	72.6
	9	539	4.8	4.8	77.4
	10	446	4.0	4.0	81.4
	11	421	3.8	3.8	85.2
	12	308	2.8	2.8	87.9
	13	282	2.5	2.5	90.4
	14	229	2.0	2.0	92.5
	15	184	1.6	1.6	94.1
	16	124	1.1	1.1	95.2
	17	105	.9	.9	96.2
	18	78	.7	.7	96.9
	19	50	.4	.4	97.3
	20	54	.5	.5	97.8
	21	42	.4	.4	98.2
	22	34	.3	.3	98.5
	23	24	.2	.2	98.7
	24	25	.2	.2	98.9
	25	21	.2	.2	99.1
	26	11	.1	.1	99.2
	27	7	.1	.1	99.3
	28	14	.1	.1	99.4
	29	15	.1	.1	99.5
	30	5	.0	.0	99.6
	31	11	.1	.1	99.7
	32	9	.1	.1	99.7
	33	7	.1	.1	99.8
	34	1	.0	.0	99.8
	35	6	.1	.1	99.9
	36	5	.0	.0	99.9
	37	5	.0	.0	100.0
	38	1	.0	.0	100.0
	39	2	.0	.0	100.0
	40	1	.0	.0	100.0
	Total	11199	100.0	100.0	

Spring 2025 Occupancy Data – Camera Review

Invalid Data

Plan – Compare occupancy sensor data with camera screenshots (# of people observed) at 8:05 and 8:40 on selected Friday evenings.

Problem – Cameras are motion activated and do not turn on unless someone moves in the space.

Date/Time Reported 1 North was Busy	Peak Occupancy from sensor (15 minute)	Main Library was open at this time? Y/N	Day of week
4/16/2025 11:01	10	Y	Wednesday
4/16/2025 11:42	14	Y	Wednesday
4/19/2025 19:35	8	Y (about to close)	Saturday
4/21/2025 14:30	18	Y	Monday
4/21/2025 14:48	13	Y	Monday
4/21/2025 17:31	15	Y	Monday
4/22/2025 12:20	11	Y	Tuesday
4/22/2025 17:27	9	Y	Tuesday
4/23/2025 0:32	9	N	Wednesday
4/23/2025 11:12	18	Y	Wednesday
4/26/2025 13:36	14	Y	Saturday
4/30/2025 0:12	47	N	Wednesday
4/30/2025 10:50	7	Y	Wednesday
4/30/2025 23:58	16	Y (about to close)	Wednesday
5/1/2025 18:03	13	Y	Thursday
5/4/2025 12:10	21	Y (opened at noon)	Sunday
5/4/2025 12:25	18	Y (opened at noon)	Sunday

Survey Question 1 (2025):
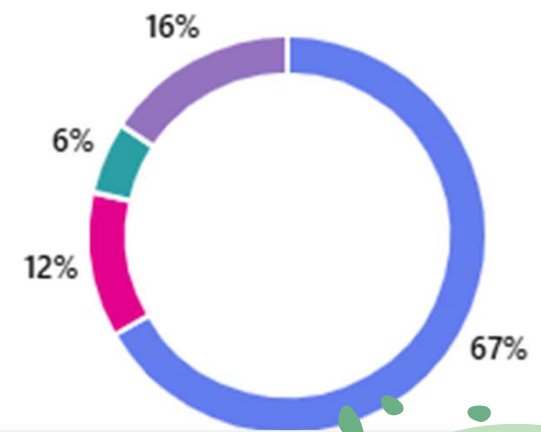*Is the 1 North Study Room busy now?*

Possible answers

- No (29)

- Yes (17)

- I'm not in the room right now (5)

Question 2 (Spring 2025): 14 of 51 or about 27% of respondents use the computers in the space

2. Did you bring your computer today to study in 1 North?

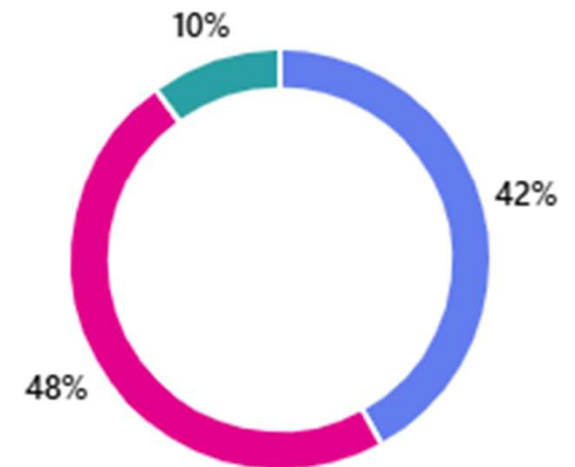|	
● Yes	34
● No	6
● No - I don't usually need a computer when I study here.	3
● Yes - and I also plan to use one of the computers in the space.	8

16%
6%
12%
67%

Decreased from about 50% of respondents in 2024.

Question 3 (Spring 2025): 29 of 51 either use a PC or have no preference

Currently 12 Macs and 6 PCs. Consider 6 of each.

3. If using a computer, I typically use

- Mac — 21
- PC — 24
- Either — 5

42%

48%

10%

Question 5 (Spring 2025): Top 3 features - Open 24/7, Quiet Space, Black and White Printer

Quiet space increased from 3rd to 2nd position this year.

Feature	Count
Computers	18
Double Monitors	15
Black and White Printer	23
Color Printer	17
Scanner	1
Quiet space	28
Space to work with someone else	4
Space to spread out work	15
Open 24/7	40
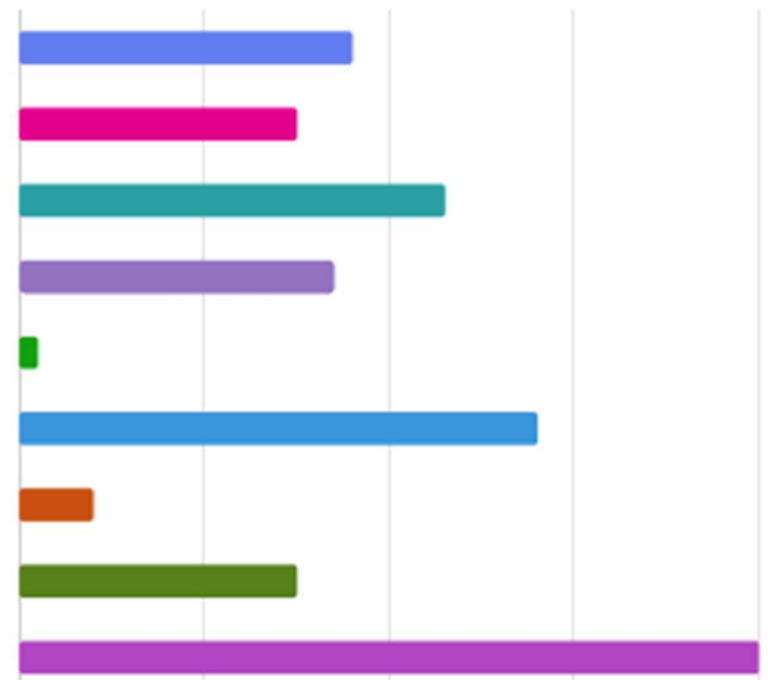
Question 6 (Spring 2025): Overall Satisfaction

6. What is your overall satisfaction with the library spaces and technology available to you when the main library is closed?

● Very satisfied   ● Satisfied   ● Neither satisfied nor dissatisfied   ● Dissatisfied   ● Very dissatisfied
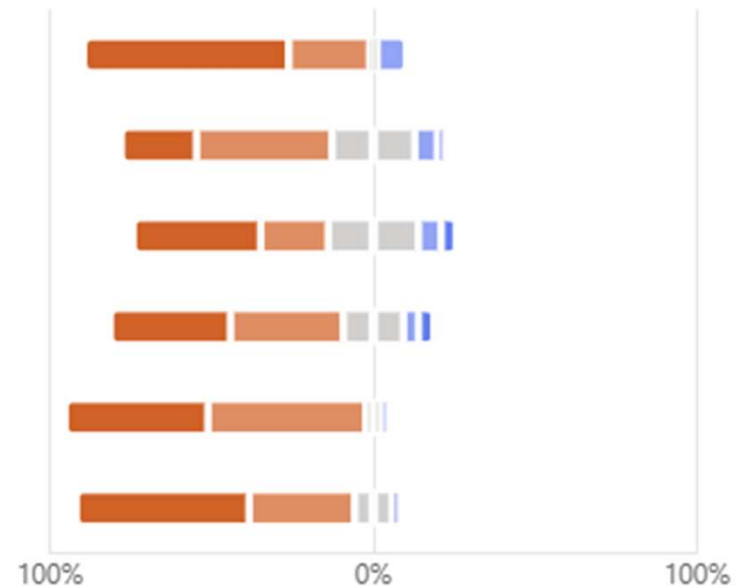
- 1 North Study Room (overall)
- Library Cafe area (overall)
- Extended hours door (access from Library Cafe)
- Computers
- Printers
- Furniture

100%   0%   100%
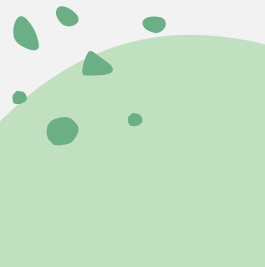
Question 7 (Spring 2025): Comments summary (22 total)

Positive Comments (7)

- The best tool to use and truly helped my experience and study habits so much!

- Amazing space for late night studying or early mornings

- I love the new chairs in the study room. Very comfortable and private.

- I love the variety of furniture in 1 North. I have used this space more since it has been re-modeled compared to before.

- I really appreciate the renovation to the north study room. I love the study pods, I often use them when the main library is closed and I need to focus.

- Like the desks that are bigger and the really privet sections

- Love the tables that can be adjusted to stand or sit!

Question 7 (Spring 2025): Comments summary (22 total)

Complaints or Suggestions (Part 1)

- Mac Computers – logged in to another person. Can't tell how to re-start.

- Would love for there to be a space with a whiteboard if possible (+2)

- I wish it was cleaned adequately

- I would love to see dimmer more moody lighting and potentially more outlets by the PC's

- Half the computers aren't connected to the printers in the room and it's very upsetting trying to print stuff before class

- Staplers should be added.

- would love for some dual monitor macs

- If you're going to install a space where students can sit and work and there's a charging station. At the very least find some way to plug it in. I'm tired of hauling my stuff back and forth until I can find somewhere to charge my laptop. Fix it.

- There should be "couple" designated spaces as well, to give privacy to the couples.

- More of the library should be open 24/7. I know that can only happen if their are enough workers available to work late hours but only having the worst section of the entire library open is just not great for students who work and need the library at later hours.

Question 7 (Spring 2025): Comments summary (22 total)

Complaints or Suggestions (Part 2)

- There should be a sign saying that this room is supposed to be completely quiet, there are always people that end up talking and disrupting others.

- Sometimes it gets loud in here, so if it's a quiet study maybe make that clear with a sign.

- Some of the computers don't work. When you log in the screen just turns black or the screen doesn't turn on at all

- All of the PCs have been moved to a single part of the room. This is usually the most used spot, and it's really awkward to have 8 people crammed in one spot while the rest of the space is open. Also, the keyboards for the PCs are some of the jankiest in the library. I have needed this space as a student (I'm graduating), and I cannot emphasize enough how frustrating it was to have had my only consistent workspace closed through the whole summer and then re-open both late and worse than it was before. Please take this into consideration. People need these spaces in the summer months..

Ideas for Future Research

- Is there a ratio of full-time equivalent students to 24/7 capacity that works for most academic libraries?
- What are the best practices for ensuring student safety?
- What are the best practices for enforcing student preferences related to how quiet the 24/7 space is?
- What is the best way to use data produced by the occupancy sensor service?
- Would it be useful to analyze data from occupancy sensor that excludes times when the main library is open?
- Is there a ratio of full-time equivalent students (and what are their signed majors) to computers (PCs or Macs) that works for academic libraries?

References/Further Reading

Clarke Historical Library. *Park Library*. https://www.cmich.edu/research/clarke-historical-library/explore-collection/explore-online/cmu-history/buildings-on-cmu-campus/existing-buildings#a39

Thank You!

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