



Science Students' Council
Research & Policy Committee
Report on Student Space Design
NCB Second Floor Renovation Project

November 2017

Authors:

Kyle Ma
Research & Policy Committee Member

Maham Rehman
Research & Policy Committee Member

Jacob Ferguson
Research & Policy Commissioner

Executive Summary

The upcoming renovation of the North Campus Building's (NCB's) second floor presents an excellent opportunity to create a new student space on campus. Student spaces are versatile areas that support a variety of student-related activities, from individual studying to collaborative group-based work^{1, 2}. Student spaces can also function as general hubs of student life, providing a welcoming area in which to relax or socialize^{3, 4}.

According to recent data, University of Western Ontario (UWO) students feel that the existing study space and student space infrastructure on campus ought to be improved, highlighting the beneficial impact that a multipurpose student space in the NCB could have on the student body. The 2016/17 University Student's Council's (USC's) Strategic Planning Survey, completed by 4990 respondents, found that 57% of students felt that study space availability needed improvement and 36% felt that student space availability needed to be improved⁵. As the location of some of the UWO's largest classes, the NCB is well-suited to host an accessible and high-traffic space that fulfills studying and student-life-related roles. Canadian universities such as the University of British Columbia and Dalhousie University have recently constructed collaborative and multifunctional student areas, so the creation of a similar space at the NCB would fit into the broader Canadian post-secondary landscape^{6, 7, 8}.

The purpose of this report is to provide actionable input on the design of the NCB's second floor and to add a student perspective to the renovation planning process. The following recommendations are informed by evidence-based student space design principles and considerations of design features that are important to students. In particular, the Science Students' Council's Department Representatives, Advocacy Commissioner, Mary Yao, and Vice-President Academic, Matthew Yip, hosted discussions that provided valuable insight into the features that students would like to see in their student spaces. The report is divided into two sections:

1. **Overall Layout:** provides recommendations regarding general design features that will foster usage of the space, enabling the floor to act as a multifunctional area that supports a wide range of student activities.
2. **Materials & Resources:** describes the specific items that should be available to maximize the value provided to the student body by this new space, and outlines how these materials can best be organized and distributed.

¹ Susan Painter, Janice Fournier, Caryn Grape, Phyllis Grummon, Jill Morelli, Susan Whitmer, and Joseph Cevetello. "Research on Learning Space Design: Present State, Future Directions." *Society for College and University Planning* (2013).

² Scott Anderson, "How Building Design Can Make Collaboration Easier," U of T Magazine, Winter 2017

³ Painter et al., "Research on Learning Space Design: Present State, Future Directions"

⁴ Nelly Bouevitch, "Campus spaces designed by students," The Globe and Mail, October 18, 2016

⁵ Academia Group, *Western USC Strategic Planning Survey* (University Students' Council, 2017)

⁶ Bouevitch, "Campus spaces designed by students"

⁷ "AMS Student Nest," Student Society of UBC Vancouver, accessed Nov 4, 2017,

<https://www.ams.ubc.ca/nest/aboutthenest/>

⁸ Matt Reeder, "A New-Look Sub, A More Collaborative Student Hub," Dal News, January 20, 2017

Section 1: Overall Layout

Overview

- *UWO students desire increased study space and student space availability*
- *The NCB's second floor can be designed to foster both the academic and social aspects of student life*

Study Space

- *Technologically integrated study areas support individual and group-based studying*
- *Transitional spaces can be used to support informal learning activities*
- *Customizable study areas enable students to reconfigure a space according to their personal studying preferences*

General Student Space

- *The provision of a homely, welcoming space on campus will improve the student experience*
- *Open design elements and furniture arrangements can foster incidental socializing*

Atmosphere and Ancillary Services

- *The inclusion of visually appealing artistic elements, sociable furniture arrangements, and natural lighting contribute to an inviting atmosphere*
- *Ancillary features such as washroom, food, and drink availability incentivize extended usage of the space*

The design of a space impacts both the traffic that the space receives and the purposes for which it used. Student spaces are increasingly being designed with multifaceted use in mind, functioning as hubs that support both the academic and social aspects of student life. A multipurpose student area may be the most effective use of the NCB's second floor, enabling the space to simultaneously address the study area and student space area concerns expressed in the USC's 2016/17 survey data⁹.

While the overall space should be flexible and multifunctional, distinct regions within this space should be designed for specific roles, as students often categorise their spaces by assigning a particular purpose to a particular area¹⁰. Design elements such as atmosphere, furniture type and arrangement, and tolerated noise levels can be employed to incentivize a specific portion of the overall space to be used for a certain purpose¹¹.

⁹ Academia Group, *Western USC Strategic Planning Survey*

¹⁰ Kendall Hobbs and Diane Klare. "User Driven Design: Using Ethnographic Techniques to Plan Student Study Space." *Technical Services Quarterly* 27(4) (2010).

¹¹ Robert Fox. "Longitudinal Assessment of "User-Driven" Library Commons Spaces." *Evidence Bases Library and Information Practice* (2013).

Study Space

Study spaces are a vital part of the campus infrastructure, enabling students to complete important academic tasks on campus. The importance of study spaces ought to be reflected in the spatial layout of the NCB second floor renovation, with available floorspace being designated as study space when possible. Currently, the Academic Counselling waiting area is disproportionately large compared to the function that it serves. Especially with the eventual shift towards electronic queuing for student issues, this space would be more effectively used if it was redistributed to include a section for study space.

Evidence suggests that students prefer study rooms over individual or open area study spaces.¹² Study rooms should be bookable spaces, as is currently the case for UWO library study rooms, enabling students to plan their usage of the space in advance. Additionally, students prefer reconfigurable furniture, as it enables customization of the study room to meet the needs of different group sizes, as further described in the Materials & Resources section^{13, 14}. Technological integration is a key feature for study rooms and could be implemented in the form of projectors or monitors that enable students to display their work¹⁵. Relevant adapters that students would use to connect their computers to these digital display devices, such as HDMI and mini-display port adapters, should also be provided.

While study rooms are popular, open study spaces are also valuable areas in which individual and group-based studying can occur. When designing an open study space, two factors that impact usage are congestion and ambient noise levels. Regarding congestion, the furniture present in a space influences the space's effective capacity level and can result in the effective capacity being less than the actual capacity. A study of the Clough Undergraduate Learning Commons at the Georgia Institute of Technology found that small group tables with 4-6 seats were often perceived as wholly occupied even if just one person was sitting at the table¹⁶. Given this, it is recommended that open study spaces contain larger-capacity tables that lend themselves to simultaneous use by multiple groups, mitigating the discrepancy between actual and effective capacity of the space. Congestion can also be mitigated by making use of transitional spaces and corridors, such as by building alcoves into corridor walls¹⁷. This increases the capacity of the floor and permits areas otherwise restricted to thoroughfare movement to support informal learning activities.

A second major factor that influences open study space usage is the area's ambient noise level. Some students prefer to work in silence, while others prefer to work in the presence of low-level ambient noise. Given that students often deal with a lack of silent study spaces on campus and that much of the NCB's first floor is a noise-friendly environment, the inclusion of a designated silent study area on the NCB's second floor would be beneficial. This silent study area could be placed in the common lounges on the South wall of the building, and could include dividers such as carrels to facilitate individual, silent

¹² Rachel Applegate. "The Library Is for Studying: Student Preferences for Student Space." *The Journal of Academic Librarianship* 35(4) (2009).

¹³ Hobbs et al., "User Driven Design: Using Ethnographic Techniques to Plan Student Study Space."

¹⁴ Fox, "Longitudinal Assessment of "User-Driven" Library Commons Spaces."

¹⁵ Painter et al., "Research on Learning Space Design: Present State, Future Directions"

¹⁶ Doshi et al., "Does Space Matter? Assessing the Undergraduate "Lived Experience" to Enhance Learning."

¹⁷ Painter et al., "Research on Learning Space Design: Present State, Future Directions"

work¹⁸. As some students prefer to work in environments with mild background noise, the inclusion of open study spaces that tolerate low ambient noise levels may also be beneficial¹⁹.

Finally, the majority of students regularly use computers for school-related tasks, so this space must have the electrical infrastructure to support computer usage²⁰. For instance, there should be convenient access to power outlets and a reliable internet connection. The space may also benefit from computer banks and access to printing services²¹.

General Student Space

The primary function of a general student/lounge space is to provide a welcoming area in which students feel comfortable to socialize and spend downtime. A recent USC survey identified student interest in lounge-like areas, with one student stating that *"it would be really nice if there were more areas like the Mustang Lounge and the couches on the 2nd and 3rd floors of UCC and in the Physics and Astronomy Atrium across campus"*²². While areas designated for relaxing are certainly beneficial, these areas should remain flexible enough to accommodate students who would like to study there as well.

To encourage talking and a lively atmosphere, the furniture should be colorful, varied and comfortable²³. Additionally, the space should feel open and be easily accessible from high-traffic portions of the floor. This could be accomplished via a recessed space near a central area, such as the main entry to the second floor, or by building a sociable couch/furniture area, possibly surrounding a café. Like the study spaces, lounge areas should satisfy technological needs, providing access to power outlets and a reliable internet connection^{24, 25, 26}. It may also be beneficial to include phone charging stations, as are currently present in Ryerson University's Student Learning Centre²⁷.

Atmosphere and Ancillary Services

Atmosphere plays a vital role in determining the use of a space. Students prefer a space that feels homely rather than "sterile and institutional," and this preference is reflected in utilization of student spaces^{28, 29}. Students report that an inviting atmosphere can be achieved through décor, such as the inclusion of artistic elements or interior design features such as indoor plants³⁰. Additionally, a study of student experiences in a flexible learning space at the Georgia Institute of Technology Library found that

¹⁸ Academia Group, *Western USC Strategic Planning Survey*

¹⁹ Doshi et al., "Does Space Matter? Assessing the Undergraduate "Lived Experience" to Enhance Learning."

²⁰ Fox, "Longitudinal Assessment of "User-Driven" Library Commons Spaces."

²¹ Hannah Gascho Rempel, Uta Hussong-Christian, Margaret Mellinger. "Graduate Student Space and Service Needs: A Recommendation for a Cross-campus Solution." *The Journal of Academic Librarianship* 37(6) (2011).

²² Academia Group, *Western USC Strategic Planning Survey*

²³ Doshi et al., "Does Space Matter? Assessing the Undergraduate "Lived Experience" to Enhance Learning."

²⁴ Hobbs et al., "User Driven Design: Using Ethnographic Techniques to Plan Student Study Space."

²⁵ Rempel et al., "Graduate Student Space and Service Needs: A Recommendation for a Cross-campus Solution."

²⁶ Painter et al., "Research on Learning Space Design: Present State, Future Directions"

²⁷ "Ryerson Student Learning Centre: Frequently Asked Questions," Student Learning Centre Blog, accessed Nov 4, 2017, <http://slc.blog.ryerson.ca/frequently-asked-questions/>

²⁸ Hobbs et al., "User Driven Design: Using Ethnographic Techniques to Plan Student Study Space."

²⁹ Painter et al., "Research on Learning Space Design: Present State, Future Directions"

³⁰ Hobbs et al., "User Driven Design: Using Ethnographic Techniques to Plan Student Study Space."

a contemporary and practical design which keeps spaces “*defined yet open*” makes students more comfortable working in that area³¹.

Lighting also has a large impact on the character of a space and is considered an important feature by many students³². The NCB’s second floor should be well lit, using windows to provide natural lighting. This design concept has been implemented in the Ryerson University Student Learning Centre, which uses large windows in conjunction with soft lighting fixtures to create a bright lighting environment³³.

Lastly, the NCB second floor space should contain ancillary features that support primary student functions. For instance, proximity to washrooms and water fountains would make the space much more appealing and likely to be used. Inclusion of eating-friendly areas (possibly the student lounge and the common lounges along the South side of the building) should also be considered, as they contribute to the warm feel of the space and support studying and lounging functions³⁴. Microwaves should be incorporated into eating-friendly areas, as they allow students to bring hot meals from home. While there is currently a microwave available on the NCB’s first floor, wait times to use the microwave are often long and without the addition of further microwaves the wait time issue will likely be exacerbated due to the anticipated increase in traffic after the second-floor renovation. This highlights the need to include additional microwaves to support healthy student eating habits in the NCB.

Finally, nap pods should be incorporated into student spaces to allow students to recharge and catch up on sleep. Sleep is critical to student success, and providing students with opportunities to nap between classes would be a valuable and well-utilized design feature. Nap pods have been included at Canadian institutions such as the British Columbia Institute of Technology and Algonquin College, so their inclusion on the NCB’s second floor would fit into a broader shift towards the provision of on-campus sleep opportunities^{35, 36}.

³¹ Fox, “Longitudinal Assessment of “User-Driven” Library Commons Spaces.”

³² Painter et al., “Research on Learning Space Design: Present State, Future Directions”

³³ “Ryerson University Student Learning Centre,” Snøhetta, accessed Nov 3, 2017, <https://snohetta.com/project/250-ryerson-university-student-learning-centre>

³⁴ Doshi et al., “Does Space Matter? Assessing the Undergraduate “Lived Experience” to Enhance Learning.”

³⁵ Lien Yeung, “BCIT installs new sleep pods in library,” CBC News, Aug 2, 2016

³⁶ Hillary Johnstone, “Algonquin College students get 2 nap pods to sleep on campus,” CBC News, Nov 14, 2016

Section 2: Materials & Resources

Academic Resources

- *Resources such as flashcards, chart paper, and handheld and wall-mounted whiteboards will make the space suitable for students with a variety of learning styles and studying preferences*

Electrical Infrastructure and Technological Resources

- *Technological resources such as a reliable internet connection, widely available power outlets, phone charging stations, and media players/projectors will support the computing needs of UWO students*

Furnishing

- *Flexible furniture enables students to configure a space according to their own preference*
- *Décor elements such as colour, artwork, and interior plants would contribute to the welcoming feel of the space*

In addition to carefully planning the overall layout of a space, it is vital to consider the specific design components that a space requires, ensuring that students are equipped with the resources they need to facilitate and enhance their learning.

Academic Resources

A major aspect of university education is the shift from a pedagogical to an andragogical learning style, in which students become largely responsible for their own education. Given the important role of self-directed learning in the university experience, the student space of the NCB should provide a wide range of academic resources that enable students with different studying preferences to engage in the type of self-directed learning that works best for them. To achieve this goal, resources for all types of learners (i.e. visual, auditory, etc.), must be readily accessible. This includes access to tools such as:

- Flashcards: an effective learning aid used for self-testing and revisions
- Chart paper: used to create visual representations of learning that identify links between concepts or categorize information in a hierarchical manner
- Whiteboards: support collaborative and diagrammatic roughwork

Whiteboards in particular are a highly effective learning tool. They encourage students to consolidate their thinking in a flexible manner³⁷. Definitions, concepts, and key ideas can be drawn in the form of diagrams, charts, or tables. Students can use the whiteboards collaboratively to work with group members and share ideas. Whiteboards can also be used individually to brainstorm, visualize thought

³⁷ Zevenbergen, Robyn, and Steve Lerman. "Learning environments using interactive whiteboards: New learning spaces or reproduction of old technologies?" *Mathematics Education Research Journal* 20(1) (March 7, 2017)

processes, and self-test. In application to the NCB second floor renovation, access to easily maneuverable handheld whiteboards and markers will be a useful study resource. In addition to handheld whiteboards, having large wall-mounted whiteboards or whiteboard tables, as are currently present in the C.B. “Bud” Johnston library, will be beneficial for group work. Given their versatile ability to facilitate individual and group-based learning activities, whiteboards are an important study tool that should be easily accessible to students in this space.

Electrical Infrastructure and Technological Resources

Technology is an essential component in education and is thoroughly integrated into the UWO student experience. For instance, the UWO uses websites such as OWL as a platform for communication between professors and students. Moreover, many classes involve online submission of assignments and tests. As the student body becomes more digitally involved over time, the role of technology in student life is likely to continue increasing. To support the virtual component of learning, it is essential to recognize that students *“treat education as a social experience, with smartphones, iPads and other devices to connect to each other”*³⁸. In recognition of this idea, it is recommended that this space provide technological features including reliable access to internet connection, widely available electrical outlets, mobile phone charging stations, and media players/projectors available for student use.

When designing the new space in the NCB, it is essential to include multiple modems on the floor to ensure that wireless signals are strong and the risk of losing connection is minimized. Students will be more likely to use the space if it is reputed to be strong internet hub. In conjunction with access to reliable internet services, it is important to have access to mobile phone charging stations in individual and collaborative study spaces as well as student spaces. Charging stations have been successfully incorporated into student spaces at York University, Ryerson University, and the University of Toronto³⁹. Their inclusion on the NCB’s second floor will enable students to easily charge their phones or laptops, a convenient feature that will incentivize space usage. Given the substantial benefit and high anticipated usage of these charging facilities, they are fairly inexpensive, with the York University stations costing \$643/unit⁴⁰.

Furnishing

Aside from resources, furnishing is arguably the most crucial component when developing a study space. Students in other Canadian universities have expressed an interest in flexible learning spaces. For instance, Wilfrid Laurier University recently renovated their Middle East and Islamic History classroom⁴¹. The classroom was modified to include round tables, swivel chairs that enable a 360° view of the room, and brightly painted walls. The change was positively received, and students reported being more attentive during lectures and retaining more information. Though this is an example of a classroom design, the use of flexible furniture and incorporation of color reinforces the notion that effective learning is achieved in a configurable and engaging setting.

³⁸ Jennifer Lewington, “What universities are doing to create a more exciting learning experience,” The Globe and Mail, October 21, 2014

³⁹ “YFS sets new charging stations.” Excalibur Publications. September 25, 2013. Accessed November 06, 2017. <http://excal.on.ca/yfschargers/>.

⁴⁰ Ibid

⁴¹ Lewington, “What universities are doing to create a more exciting learning experience”

Based on this principle, the redesign of the NCB should include flexible components that allow students to use the space however they see fit. This could be achieved by incorporating moveable chairs and tables whose layout can be freely changed by students. Flexible furniture provides students with both the option to study individually, in which case the furniture could be arranged in a traditional independent desk manner, or to combine their desk and chair with others to study in a group setting. Furthermore, borrowing from the Wilfrid Laurier example, it is recommended that the NCB study space include color schemes that contribute to the perceived energy of the space.

Moreover, décor pieces, such as artwork and interior plants should be incorporated into the space. Though this does not conform to the traditional understanding of a study space, a recent report published in the *Society for College and University Planning* highlighted the importance of creating informal learning spaces that reflect a family room environment⁴². In the report it is argued that such a design makes students more comfortable in the space and thereby stimulates non-linear and creative thinking. Taking into consideration the modernization of education, when designing learning spaces it is vital to incorporate academic and technology-based resources, and to use design elements such as furniture and décor to enhance the student experience of the space.

⁴² Painter et al., "Research on Learning Space Design: Present State, Future Directions"