<u>A Post-Occupancy Evaluation</u> of the Sidney Smith Student Commons

ENV 461 /1103 Fall 2018

University of Toronto

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BACKGROUND

The SS Commons is the first of its kind on campus. It was intentionally designed to facilitate student well-being and productivity by encouraging informal, collaborative learning. Some of the characteristics that make up an ideal learning space include convenient space that have zones delineated by barriers, specifically for different activities, such as group work for collaborative work, different noise environment, such as not too quiet or loud, and technology access, such as computer access (Cunningham & Tabur, 2012). Building characteristics, such as indoor environmental quality, such as thermal comfort, noise level in the space and indoor air quality is also found to significantly impact occupant satisfaction and performance (Perkins, 2017).

In addition, Walton and Matthews (2013) discuss how learning spaces on university campuses should motivate students and promote learning by supporting collaboration, and providing an inclusive environment. The importance of evaluation of the space and knowing how the space is used by students is emphasized as it is a way of collecting data and using the results to improve the space for students (Walton & Matthews, 2013). The Sidney Smith Commons POE was conducted to evaluate the space by obtaining direct feedback from students in order to use the results to make improvements.

Assigned by our clients Heidi Pepper and Erin McMichael, the purpose of our research project is to determine how students are using and engaging in and with new Sidney Smith (SS) Student Commons at the University of Toronto, St. George Campus.

Topic Area

A post-occupancy evaluation (POE) is an assessment conducted on a building's occupants to obtain feedback on the building's performance. The POE determines whether a project's objectives have been met and seeks to identify areas in which improvements can be made. A specific focus of POEs is to determine the effects of building elements on occupant health, functional performance and psychological/physical comfort (Preiser, White, & Rabinowitz, 2015). Our project takes this specific focus.

<u>Scope</u>

For activity mapping, we only looked at what students are primarily engaged in while using the SS Commons. This means that we excluded all secondary activity. For example, if students were studying and socializing, we only recorded what the students were primarily doing at the moment we observed them. This means that if a student started studying after we recorded them as "taking a break," we did not go back and change our record. During observation, it wasn't always clear how many students were in a group in each of the sections, because some sections overlapped. For example, there was a group of three, with two users in one section and the third user in a different section.

For the purposes of our study, well-being is defined as a sense of community and belonging (Perkins Eastman, 2017). While there are other definitions of well-being in psychology literature, our research is on assessing how the SS Commons contributes to student well-being based on the above definition.

As mentioned by Professor Robinson, sustainability is often centred around the environmental aspect. In other words when we think about sustainability, we think of "how people can limit their use of resources to preserve for future generations." What is often missing in this definition is human well-being. That is, a sustainability project should seek to increase ecological and human well-being (Robinson, 2018). Our project specifically focuses on the human well-being element of sustainability.

Objectives

The report aims to answer two main questions, using multiple sub-questions as supportive pointers:

1. How students are using and engaging in and with the space?

- What are the primary activities happening in the space?
- Ae users mostly working individually or in groups?
- Does the space enable productivity?
 - Is there a shift in the primary activities compared to last year's PREOE?
 - Has the space improved? (i.e more productivity?)

2. How is the space affecting student well-being?

- Do students experience low well-being as the semester progresses due to the student life cycle of more assignments and exams nearer the end of semester?
- Does well-being in the space follow the pattern of student life cycle?

The Sidney Smith Student Commons



Figure 1. Sidney Smith Commons location

The Sidney Smith Building is located on St. George Street, between Harbord and Willcocks. The Sidney Smith Student Commons, highlighted in red, is located on the west side of the building, looking onto St. George Street (Fig. 1).

Before

The previous space did little to enhance student learning and engagement. According the the pre-occupancy evaluation (PREOE) completed last year, the space offered limited options to students. There were limited and unmoveable tables and chairs which did not facilitate collaborative learning. The space had an insufficient number of outlets and did not offer any technological equipment to users. Crook and Michelle (2012) found space design with comfortable furnitures and collaborative technologies to encourage collaboration and allow for student engagement. Users had also remarked on the poor lighting and the need for more open space. Furthermore, according to the PREOE, although reading and studying were predominant activities, the space was also being used inefficiently for eating and sleeping.





Picture courtesy of clients

<u>After</u>

The newly renovated space implemented the PREOE's recommendations and considered previous limitations. The new space is efficiently designed to suit both independent and group study, with movable modules of furniture and slidable divider walls depending on students preferences at the time. Electrical outlets and rentable equipment for charging personal electronic devices were added to support student needs. Large white boards and advanced technological equipment such as smart boards and televisions allow visual projection of work, which especially enables group collaboration and discussion. The Commons is now also bookable for groups, similar to other designated study spaces on campus, to ensure efficient and productive use of the space. As a one-stop resource hub offering facilitated study groups and "Ask a Registrar" sessions by Student Commons Ambassadors, the space fosters a more comfortable and welcoming atmosphere.





Figure 2. Current layout of the Sidney Smith Commons

The current layout of the Commons (Fig. 2) is divided into 5 sections: A, B, C, D, and the windows section. Section A is lounge area with modular moveable couches and tables, and an information desk managed by student staff. Section B and Section C has large group tables and chairs, intended to be collaborative space with reservable seating for groups. Section D is also a lounge with modular, moveable couches, also reservable for groups. On the East side is the window section lined with large open windows, with a seatable ledge. The West wall is lined with communal whiteboards and big screen televisions. In between each section are slidable divider walls.

METHODS

To be consistent with the PREOE, our research was conducted using two methods: an in-person survey, and activity mapping through on-site observation.

Survey

The survey created by Dr. Sylvia Coleman consisted of 21 in total including both quantitative and qualitative questions. Questions were divided into three topic sections: 1) room usage, 2) room conditions and 3) well-being.

1) Room Usage

The room usage section included questions that asked users what types of activities they engaged in the space, how long their average visit was, and where they were sitting.

2) Room Conditions

The room conditions section recorded users ratings of overall temperature, air quality, noise and comfort.

3) Well-Being

Users were asked to compare their experience in the Commons to other spaces on campus in terms of productivity and well-being. Users were also asked if they felt a sense of belonging in the space. Personal well-being and mood over the past two weeks were also recorded using the World Health Organization (WHO) well-being index. The complete survey can be found in the appendix.

The online version of the survey was distributed on iPads by the Student Commons Ambassadors who were given specific instructions and a verbal script detailing how to go about the survey distribution (See survey script in appendix). Surveys were distributed from October 12-19, October 22-26. October 29- November 2 and November 12-26. We aimed to collect a total of 30 surveys per day, 10 surveys being distributed in each time slot, 11am, 3pm and 6pm, respectively, totalling 150 surveys per week (and 450 surveys over the course of three weeks). However, the number of surveys collected was less than planned each day due to reluctance of busy students. The data from the completed surveys will assist us in assessing how factors, such as room usage and room conditions contribute to student well-being.

Activity Mapping

During our observation, we mapped out the activities of all students in the Commons by categorizing each student based on the primary activity they were engaged in, and whether they were alone or in a group. Primary activities, such as reading and studying or taking a break, were categories based off question 3 in the survey, to allow for consistency for later data comparison between the survey and observations. Observations were recorded using a Google form created for each of the Commons' five sections: A, B, C, D and Windows (Fig. 3).

Individual group members conducted a 30 minute on-site observations in the Commons twice a day (at 11am and 3pm) on Monday, Wednesday, Thursday and Friday during the weeks of October 29-November 2 and November 12-16. Tuesdays were excluded due to scheduling conflicts. A total of 8 hours of observation data was collected by the end of the project.

Section A (Lounge/ Info Desk)
How is the student primarily using the space?
O Reading and studying
O Asking staff a question
O Taking a break (primarily on their phone, has headphones on, entertainment like watching YouTube)
O Socializing (at least 2+ students talking about entertainment topics)
O Eating (other)
O Sleeping (other)
Is the student using the space alone, or in a group? Individual Group (at least 2+ students)
SUBMIT

Figure 3. One of the five Google forms used for activity mapping

MAIN FINDINGS

Based on our research, we have concluded that the new SS Commons has been successful in benefitting its users because it:

- 1) Enables productivity
- 2) Enables well-being

Main Finding 1: Enables Productivity

Primary Activity: Self-Reports from Surveys vs. Observations from Activity Mapping

Self-reported activity from the survey, and observed activity through activity mapping was compared to see if there was a discrepancy. The primary activity of users was compared between two weeks (Oct.29-Nov.2 and Nov.12-16) to see if there were changes in the primary activity due to the student life cycle transitioning to the beginning of the semester to midterms season. Although the weeks of our observation are different from the survey week, the dates are the same. An overall comparison of the primary activity of both weeks was also drawn to find the primary activity in the space. Our findings show that regardless of the week, the top three activities were reading and studying (89% self reported through the survey and 67% observed through activity mapping), followed by taking a break (9% self reported through the survey and 22% observed through activity mapping), and socializing with others (2% self reported through the survey and 10% observed through activity mapping) (Fig. 4).



Figure 4. Comparing user's self-reported activity from the survey and observed activity from activity mapping.

Working Individually or in Groups: Self-Reports from Survey vs. Observations from Activity Mapping

Results from the data collection as a whole shows there was slightly more individual work than group work. Figure 5 shows individual work is most common self-reported at 69%, followed by group work at 29%. Individual work is also most common when observed at 78% followed by group work at 22%.



Figure 5. Comparing Individual or Group Work from Self-Reported Survey and Observation.

As we see in Figures 4 and 5, there is no significant discrepancy between the self-reports and observed use of the space individually or as a group. The primary activity that users are engaged in remains to be reading and studying regardless of whether they are working in groups or individually. This finding elucidates that there is an improvement in both perceived and actual productivity, post-renovation. The quality of group work is also enhanced now, as users have commented on how "the writable surfaces are really conducive to group work and visualizing discussion".

The improvement in productive activities is compared to last year's PREOE, where there was a discrepancy between observed activity and self-reported activity from surveys. PREOE users self reported much more studying than was actually observed. Instead, sleeping and eating were observed to be common, whereas our POE found little to no sleeping and eating, as they are not allowed in the Commons. This means that the newly renovated SS Commons is being used for its intended purpose which is to enable student productivity. When the self-report and

observed activity matches, the feedback becomes much more helpful when trying to improve spaces on campus. In other words, if users are observed as sleeping when they report they are studying, and at the same time ask for more furniture, the question becomes: "why should there be more chairs added when users do not use the space productively?"

Main Finding 2: Enables Well-Being

To determine whether the Commons was facilitating a sense of well-being, we compared two different survey measures: scores on the WHO Well-Being Index, and scored answers from on a Likert scale to the question "Compared to your experience in other study spaces on campus, do you find your sense of personal wellbeing lower or higher when you are in this space?"

As personal well-being declined over time, well-being in the SS Commons increased (Fig. 6 and 7). We noted that the decline in personal well-being was expected towards the end of the term given that stress tends to increase with the pressure of final assignments and exams due. However, a continued high sense of well-being while in the Commons increases quite significantly. Therefore, the data suggests that the space itself facilitates the respondents' high sense of well-being.

Our research measured subjective well-being. At the most basic level, this is defined as the presence of positive emotions and moods (e.g., contentment, happiness) and the absence of negative emotions (e.g., depression, anxiety) (Ryan & Deci, 2001). More nuanced definitions of well-being include life purpose, personal growth and feelings of vitality (Ryan & Deci, 2001).



Figure 6. The percentage of survey respondents who reported a low general mood increased over time. This graph depicts the percentage of individuals who scored below 50 on the WHO Well-Being Index; scores of below 50 are indicative of low mood (Topp, Østergaard,





Figure 7. The percentage of survey respondents who reported high well-being in the Commons relative to other spaces on campus. This increased over the four weeks of surveys, relative to users' general well-being.

Evidence of the Common's unique features impacting well-being is further explored below as we aim to understand what specifically contributes to a high sense well-being in spaces. Existing academic research and student's comments on the space taken from the survey responses show three main explanations as to why well-being in the Commons remains high relative to users' general low mood.

Access to window view.

A significant proportion of research has espoused the benefits of the access to a window view (Dreyer et al., 2018). Windows are important because they provide sunlight and an outside view. With the large windows in the Commons looking out on St. George, students have access to sufficient sunlight and a view looking out to nature. (The effect of sufficient light on well-being can be quite significant. For instance, light therapy remains a successful treatment for seasonal affective disorder [SAD]. Wirtz et al. [1996] even suggests that exposure to natural light may help treat SAD.) In fact, some users acknowledged the "nice view" in the survey. One user notes, "the windows make me feel like I'm not in prison". Menzies et al. (2005) found that building occupants prefer to be closer to windows due to the desire to be contact with nature. In addition, psychological research has shown that workers with a window view looking to nature have been

found to report less stress and greater well-being (Dreyer et al., 2018).

Ambient room conditions

Studies showed that satisfaction with university's facilities services positively influence life quality of college students (Muhammad et al., 2013). As students mainly conduct their academic activities within the academic buildings, the indoor conditions of these buildings can exert effects on the students (Muhammad et al., 2013). On the survey, the students were asked to report their satisfaction with various elements of the indoor environment in the Sid Smith Student Commons on a Likert scale of one (*very low satisfaction*) to seven (*very high satisfaction*). These elements were temperature, lighting, air, noise, accessibility of space, and comfort. For each element, we calculated a median. (Like averages, medians summarize data. With Likert-scale data, though, it does not make sense to report averages and therefore, we report medians.) We obtained sixes out of seven across the board, which indicate high user satisfaction with ambient room conditions.

A previous study stated that indoor environmental conditions are important factors for user performance, satisfaction and well-being (Vimalanathan & Babu, 2014). In addition, indoor air quality-air quality within buildings as it relates to comfort of building occupants and thermal comfort-condition when a person wearing normal amount of clothing feels neither too warm nor too cold have been extensively studied and emphasized as the most important factors that influence well-being (Vimalanathan & Babu, 2014). Overheating or under-heating indoor room temperature and poor air quality can dissatisfy the building occupants and also create health problems (Vimalanathan & Babu, 2014).

Belonging

The SS Commons is facilitating a sense of belonging. Our clients had designed the space with this goal in mind. Our data shows that 97% of survey respondents reported feeling a sense of belonging in the space.

The experience of belonging - essentially, the sense of being part of a community - is central to feelings of well-being (Osterman, 2000). Psychologists have long maintained that individuals have three fundamental needs that must be met in order for individuals to experience well-being. Positive relatedness, conceptualized by Osterman (2000) as the experience of belongingness or the sense of community, is one of these basic psychological needs. In educational settings, a lack of a sense of belonging tends to predict academic engagement, school adjustment (adapting to the role of being a student), and academic achievement (Won, Walters, & Mueller, 2018). Furthermore, users who feel a sense of belonging in a given space such as the Commons, might increase their chances of productivity in the Commons, but not in other spaces on campus.

Based on research, we believe that the following two aspects of the Commons contribute

to facilitating a sense of belonging. *The Commons is responsive to student needs.* Firstly, the Commons is responsive to student needs. For instance, in response to survey comments that indicated that the Commons was too cold, room temperature was adjusted. Moreover, modular couches, seats, tables and outlets can be reconfigured by users. By being responsive to student needs, the Commons is emphasizing the users have control over their study space. The psychological literature has emphasized the importance of user control over the aspects of the environment (e.g., Lee and Brand, 2005). Why is perceived control so important? We suggest that perceived control may significantly increase feelings of belonging. If users feel that their opinions and responses have an impact on how the space evolves, as opposed to having no control whatsoever, users may feel as if the space is truly *for* them. In this way, users may feel like they belong in the Commons. *Social Control.* Secondly, the Commons is facilitating social interactions. Individuals cannot experience positive relatedness (or a sense of belonging) without socially interacting with others. The Commons was designed as a informal learning space conducive to not only individual work, but collaborative discussion. One user takes note of the "respectfully quiet [yet] not unsociable atmosphere". Users have compared the Commons to libraries which are "stuffy", "stressful", and not conducive to discussion. Although we do not have any statistics from other spaces on campus, 59% of respondents reported interacting with others in the Commons. This statistic suggests that the Commons is indeed facilitating social interactions and in this way, may therefore be contributing to a sense of belonging.

We emphasize the context-specific nature of the fulfillment of belongingness needs and the effects of belongingness on student engagement. Given that a sense of belonging predicts student motivation and engagement (Won, Walters, & Mueller, 2018), this is not only having positive effects on student well-being but may be leading to other positive outcomes. For instance, we have discussed the high levels of productivity in the space. Might this increase in productivity be attributed to a collective sense of belonging in the Commons?

Finally, we do note that other aspects of the Commons may be facilitating a sense of belonging and thus, a sense of well-being. Our clients have emphasized that student staff, rather than non-student "outsiders", may help students to understand that the Commons is *their* space. Perhaps the technological equipment is allowing students to better engage with course material. Additionally, it may be that students are responding favorably towards the Commons simply because it is a new space. Given that a lot of survey respondents were first-time users, this may be a significant hypothesis. However, additional research must be conducted in order to assess these claims.

CONCLUSION

Based on our findings, we conclude that the Commons is serving a therapeutic function meaning as individuals report a high sense of well-being in the space even when they are experiencing low moods outside the space. Compared to last year, the newly renovated space has clearly increased student productivity. There is no sleeping in the new space and the self-report survey and observation data show no discrepancies, which sheds light on the huge level of productivity. In other words, users who report to be studying/reading were actually doing so. Since reading and studying was the predominate activity, the SS Commons has become a space where users choose to socialize, collaborate, and study and save time for sleeping and eating elsewhere on campus.

LIMITATIONS

The first limitation that our research had is the timespan available to collect survey and observation data. The data collected only shows student well-being and productivity in the Commons from October to November of the Fall 2018 term. Therefore, our data by no means accounts for student well-being throughout the entire school year. Users who reported high well-being in the space may have a different perspective in the Winter 2019 term, especially if they have a full-year course in which exams happen in April rather than December.

The second limitation was that users were only allowed to fill the survey once. Therefore, it is not known whether the same users who continued to use the space had their well-being change overtime. For example, a user may have reported high well-being in the beginning but it may have lowered later. Because they did not have the option to redo the survey, any changes to well-being can't be confirmed.

RECOMMENDATIONS

Recommendations to improve the SS commons are grouped into two categories: 1) How to improve the Commons and 2) recommendations for future studies.

1) Considerations to Improve the Commons

- a) Add more chairs and tables. Users want more tables and chairs in general, but also want more chairs with back support in section A and D. In addition, users want cushion in the window seating. However, the addition of more furniture, limits accessibility in the space. With the space already busy, it would be a good idea to expand it. Since users want more furniture and there isn't enough space means the Commons is not a big enough space.
- b) Allow food in a designated area. Some students wanted food in the space whereas some students did not want food as they were concerned with cleanliness. A designated area would ensure that the smell and remnants (if any) of food to remain in the specific area.
- c) Longer hours both in the morning and evening. Our findings show that more students are in the Commons in the afternoon rather than morning. Therefore, when students reported wanting longer hours, we concluded that extendING closing hours should be considered first. However, earlier opening hours would also accommodate commuter user's schedules. Another consideration could be to only implement longer hours when needed such as during exam season, similar to other study spaces on campus.

2) Recommendations for Future Studies

- a) Add the following question on the survey: "Are you a commuter or do you live on campus?", along with a follow up question: "If you circled yes, how long is your commute?" Although the Arts and Science study body is largely a commuter school, it does not mean that the space is used mostly by commuters. It could be the case that the users are mostly students living on residence. This question could help determine why users want longer hours, whether it is based a desired preference or a need due to commuting.
- b) **Define "sense of belonging" on the survey.** The current survey asks "Do you feel a sense of belonging in the space? Why or why not?" This leaves the user to decide what belonging means to them, rather than how the study has defined and is measuring belonging. Therefore, there could be a disconnect between how users perceive belonging and how the study is concluding actual belonging in the space.

- c) Exclude the window section from the observation form (fig. 3). We realized that each section (A, B, C, and D) all have the window section included. Therefore, for future students considering observation, it would be easier to include the window section within sections A, B, C, and D rather than a separate section on it's own. When section A ends, the window area within section A also ends. This makes data recording more concrete. For example, if one user is in section A with two by the windows all in one group, they would fit into section A on the observation form.
- d) Assess how students are using the technology within the space. Because the survey only asked users whether they needed an outlet, there was little data available on how users used the different technologies in the space such as the television. Adding a question to the survey that helps record user technology use would be useful The question can be as follows: "What technology do you need to use today?"
- e) Allow users to fill out a survey twice. This would allow the SS Commons to determine change (if any) in personal well-being and well-being in the space of users who have used the space before. By adding the the survey question, "Have you filled out a survey with us before" (with the options yes or no) would allow group comparisons of personal well-being and well-being in the space of first time users and second time users.

ACKNOWLEDGEMENTS

Heidi Pepper Associate Director, Student Success Programs Sylvia Coleman Postdoctoral Researcher Alyssa Graham Student Success Program Officer Erin McMichael Associate Faculty Registrar & Director, Student Affairs John Robinson Professor, University of Toronto Anjali Helferty Teaching Assistant, University of Toronto Student Commons Ambassadors Sidney Smith Commons, University of Toronto

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APPENDIX

Survey

https://sidneysmithcommons.artsci.utoronto.ca/post-occupancy-evaluation-poe/

Survey Script for Student Commons Ambassadors

https://docs.google.com/document/d/1Z5EeybWrlql7hfyaIuXnPpXrUhsrlJhfVgYQ3oAe4_M/edi t

Survey Collection Schedule

https://docs.google.com/document/d/1dhfPjHGcgtwrFnN_4F6XN2q7NpYMZ9GfV1rrChodjcY/ edit

Survey Data

https://docs.google.com/spreadsheets/d/1n01HREhCFIpn4eOH7GOwcsfQQY7H2_xzeypvI-CQz -c/edit?usp=sharing

Observation Data

https://docs.google.com/spreadsheets/d/1-TpNSMgyIK-JsT5vZfBamY5MfjozZa8xBnXvrDhxX-Y/edit?usp=sharing