

**Student Preferences in Learning Spaces and Classrooms**

**Adam Aichmair, Ashley Hoekstra, Charlie Zhang, David Goosenberg, Hannah Talbot**

**University of British Columbia**

**PSYC 321**

**April 19, 2016**

Disclaimer: "UBC SEEDS Program provides students with the opportunity to share the findings of their studies, as well as their opinions, conclusions and recommendations with the UBC community. The reader should bear in mind that this is a student project/report and is not an official document of UBC. Furthermore readers should bear in mind that these reports may not reflect the current status of activities at UBC. We urge you to contact the research persons mentioned in a report or a SEEDS team representative about the current status of the subject matter of a project/report".

## Student Preferences in Learning Spaces and Classrooms

Anotha One: Adam Aichmair, David Goosenberg, Ashley Hoekstra, Hannah Talbot, & Charlie Zhang

### **Executive Summary**

The primary intention of this study was to see how students at the University of British Columbia (UBC) prioritize various amenities in the classroom versus in study spaces. Data was collected from a sample of 63 UBC students. An online Qualtrics survey was distributed, allowing students to rank their preferences for basic learning space amenities in order from most important to least important. Our list of amenities was assembled in collaboration with the University client, Steven Lee. The specific focus of our analysis is on the accessibility of electrical outlets in different learning environments on campus. Other amenities were included for consideration in the survey, but were not relevant to our specific analysis. Importantly, we wanted to investigate how students' preferences varied depending on two main factors: whether the room is a classroom or a study space, and also whether the respondents live on- or off-campus. Further, we assessed how the length of an off-campus student's daily commute impacts their preference ranking. Results indicate that students value electrical outlet accessibility more in study spaces than they do in classrooms, in a statistically significant way. The discrepancy in preference for electrical outlets between on-campus and off-campus students was found to not be statistically significant; though there was a small negative relationship between length of commute and preference for outlets. Results indicate that electrical outlet accessibility in academic spaces on campus is of crucial importance to all UBC students.

## **Research question and hypothesis**

The purpose of this study was to examine amenity preferences among students attending the University of British Columbia at the Vancouver campus, with the goal of examining how preferences differed in the classroom compared to informal learning spaces on campus (i.e., study halls, libraries). Our list of amenities was made in collaboration with the University SEEDS client, Steven Lee, who provided us with key essential amenity suggestions from past data collection and experiences. Although the use of personal electronics (laptops, tablets, etc.) in the classroom has been shown to decrease measures of learning, many students still choose to use them (Fried, 2008). The implications being that learning space designers have to start taking electrical outlets into consideration when building new rooms. Do off-campus students prioritize the accessibility of outlet plugs as a more important amenity feature in a learning environment more than on-campus students?

From this we created three hypotheses: firstly, because students are only in classrooms for a relatively short and set amount of time (50 minutes or 75 minutes) compared to a learning space where there is no defined time limit, it was hypothesized that outlets would be rated as more important in learning spaces (i.e., classrooms, study halls, etc.) than in classrooms. Secondly, it is hypothesized that off-campus students would rate electrical outlets as more important than on-campus students. This is because students living on-campus have more available access to power sources (as they can just return home) whereas students living off-campus may find accessibility to power outlets as more scarce. Delving deeper, we hypothesize that the further away from campus that a student lives (measured in minutes), the more importance (higher rating) will be given to electrical outlets. The reasoning is that students who have to travel farther to gain guaranteed access to an outlet will be more aware of outlet accessibility; thus, giving it a higher rating.

## **Participants**

All participants ( $N = 63$ ; 36 females, 21 males, 6 did not respond) were students currently attending UBC, with an average age of 20.65 years ( $SD = 2.08$ ). More participants lived off-campus ( $N = 39$ ) than on-campus ( $N = 21$ , 3 did not respond). Reflecting the diversity in fields offered at UBC's Vancouver campus, participants' majors were highly varied (e.g., linguistics, commerce, engineering, etc.). Participants also varied in years attended at UBC, from 1 year up to 7 years. Participants were recruited in person at two locations on UBC campus (Place Vanier, a first-year residence, and the Buchanan courtyard), as well as online through Facebook. Members of our team went to busy areas on campus during lunch time to ask students to complete the survey. Participants were rewarded with a donut as compensation for their time when recruited in person. As additional incentive, and primary incentive for online participants, it was explained that the data being collected would be shared with our client and could potentially help improve learning spaces on campus.

## **Conditions**

For the first hypothesis, regarding outlet preferences in learning spaces and classrooms, the predictor variable is whether participants are ranking amenities in study spaces versus classrooms. The predictor variable for the second hypothesis, regarding outlet preference and living situation, is whether the participants live on-or-off-campus. The final predictor variable is the estimated amount of time needed to travel between campus and home (measured in minutes). The criterion variable for all the hypotheses was the ranking preference value given to each feature, with a focus on electrical outlet accessibility.

## **Measures**

An online survey was created using Qualtrics, where participants were asked to rank a list of classroom and study space amenities in order of greatest to least importance. The provided list of amenities included in our survey were: seat comfort, desk/table size, windows/natural light, personal space, room temperature, electrical outlets, brightness, plant/animal life, and wall colour. For each participant, the most important feature was ranked first, and given a value of 1. The second most important ranked feature were given a value of 2, and so on, until the least important ranked feature, which was given a value of 9. The rank order format of the survey aimed to tell us which amenities are most desired by UBC students in study spaces and in classrooms. These amenities were chosen by speaking to our SEEDS client about which amenities were most important to collect data on. In addition we chose the feature of wall colour because of previous research on colour and emotion. We thought that because of the emotional aspect of colour, wall colour could be important to some people in learning spaces (Chen 292). The survey also contained demographic questions, notably including whether students live on-or-off-campus, as well as how far away from campus (operationalized by an estimated number of minutes) each student lives. This part of the survey was meant to distinguish predictor variables (i.e. if students that live off-campus place higher value on electric outlets in learning spaces).

## **Procedure**

Participants were contacted either online through Facebook or in person at Place Vanier and the Buchanan courtyard. Consenting participants were asked to complete an online Qualtrics survey (Appendix A). They were first asked to imagine their ideal classroom. In order to control for the type of classroom imagined, participants were asked to picture their ideal classroom for a large, introductory level, lecture-based class, and provided with an image of an empty, large classroom (Appendix B). They were also provided with the names of exemplary classrooms on UBC campus that fit the description (i.e., CIRS 1250 and HENN 100). All of this information was included as the template because most UBC students would have had some level of experience in a classroom of this type. Participants were then asked to rank a list of 9 provided learning space amenities in which they consider to be most important to their learning experience.

After providing rankings for classrooms, participants were asked to imagine their ideal learning space and were presented with a photo of an empty learning space (Appendix C), as

well as names of exemplary study spaces (IBLC, Woodward Library) on the UBC campus. The photos and examples were provided in order to ensure that all participants had a similar idea of a study space before ranking amenities. Again, participants were asked to rank the amenities by what they considered to be most important in the designs of study spaces. The same amenities and rankings were used as for the classroom section.

Next, participants were asked to answer some demographic questions to give us an indication about who we were receiving data from. Lastly, participants were asked to provide qualitative responses to open response questions regarding why they made the ranking choices that they did, and what amenities they would like to see in future classrooms and learning spaces. As this was simply a correlational study, no debriefing was performed.

## Results

First, a paired-samples t-test was conducted to compare the importance placed on the accessibility of electrical outlets in the “classroom” and “study space” conditions. There was a significant difference in the value placed on electrical outlet accessibility in the “classroom” and “study space” conditions;  $t(62) = 5.995, p < 0.01$ .

Next, a point-biserial correlation was conducted to determine if students who live on-campus have different rank order preferences than students who live off-campus, specifically with regard to the importance placed on the accessibility of electrical outlets. The difference in preferences between the two groups was not statistically significant;  $r_{pb} = -0.195, p = 0.134$ .

Lastly, results from a Pearson correlation indicate a slight negative correlation ( $r = -0.0850, p = 0.599$ ) between the amount of time it takes students to get to campus and their preference ranking for electrical outlet accessibility.

## Discussions

Our results suggest that students’ amenity preferences vary depending on the type of academic space in question. It is clear that electrical outlet accessibility is important to UBC students in general, but the results specifically suggest that outlets are more highly valued in study spaces than in classrooms, which supports our first hypothesis. This may be because students are in a classroom for a fixed amount of time; whereas students may be in a study space for an indefinite amount of time. Notably, approximately 20% of respondents indicated that they do not use any type of personal electronics (e.g., laptops, cellular phones, etc.) while in class, which may help explain why students value electrical outlet accessibility more highly in study spaces on campus.

A large portion of UBC’s student body lives off-campus (McClanaghan, 2009) and must commute to and from campus each day. We expected students living off-campus to value electrical outlets more so than those living on-campus. Yet, inconsistent with our second hypothesis, no statistically significant difference in preference ranking for electrical outlets between on-campus and off-campus students was found. This suggests that there is a demand for electrical outlets among all UBC students, regardless of their living location.

We also decided to assess how the length of an individual's campus commute may further impact the degree of importance placed on access to electrical outlets. A negative correlation was found between the length of students' commutes and their ranking of electrical outlets. Although these results are insignificant, they are still interesting to consider. These results - if they had been statistically significant - would suggest that the demand for electrical outlets may be even more present in students living further away from campus. Because previous studies have shown that electronic usage may be a common form of behavioural addiction (Sapacaz, Rockman & Clark, 2016), one possible explanation for the negative correlation that we found may be that students are addicted to their electronics. Thus, people who have a longer commute to campus may use up more battery during the trip, meaning that they will more likely need access to an outlet when on campus.

Some limitations to our study include a small sample size, due to lack of time to collect participants, as well as unequal group sizes of on-campus versus off-campus participants. There are also some questions about the generalizability of our study. Because we only had participants picture larger classrooms, the results may not apply to smaller classrooms. A major limiting factor is that both the orders of amenities to be ranked, as well as the order of learning space type that participants provided rankings for, were not randomized. This shows the importance of randomization and order effects, and future studies should take this into account. A final limitation is that it is not possible to be sure that all participants were imagining the same type of space when giving their rankings. Pictures, descriptions, and exemplary rooms were given in order to control for this factor, but differences may still exist.

### **Recommendations for your client**

We recommend that the client emphasize the importance of accessibility to electrical outlets in both classrooms and study spaces. A greater number of electrical outlets should be available to students, especially in study spaces. Often times, the addition of one amenity to a learning space or classroom comes at the cost of including another. Our results suggest that, especially in learning spaces, electrical outlets should be prioritized. Although the results do not show a statistically significant relationship between students living off-campus and electrical outlet preference, we found that electrical outlets are important to all UBC students. These results should be applied to both currently existing and future learning spaces. Power bars and extension cords can be used to increase the availability of outlets in older classrooms and learning spaces where new outlets cannot be feasibly installed. In addition to results on the electrical outlets, there is a large amount of data that the client can use that we were not able to analyze given the scope of this project. For example, seat comfort was ranked first for both study spaces and classrooms in students on and off campus. Also, answers to the short response question were not able to be analyzed, but may contain significant information.

## References

Fried, C. B. (2008). In-class laptop use and its effects on student learning. *Computers & education*, (50)3, 906-914.

Sapacz, M., Rockman, G., & Clark, J. (2016). Are we addicted to our cell phones?. *Computers in Human Behavior*, 57, 153-159.

Ou Li Chen, M. Ronnier Lou, Andree Woodcock, and Angela Wright. *Color Research & Applicatioin* 29.4 (2004): 292-98. Print.

McClanaghan & Associates. UBC Student Housing Demand Study (Final Report). (2009): 8-9. Retrieved from <http://planning.ubc.ca/sites/planning.ubc.ca/files/documents/planning-services/policies-plans/UBC%20Student%20Housing%20Demand%20Study.pdf>

## Appendix A



## Appendix B



## Appendix C

