

How the Consumption Habits of Students on Dalhousie Studley Campus Would be Impacted by the Implementation of More Sustainably Operated Food Organizations

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Table of Contents

EXECUTIVE SUMMARY	3
INTRODUCTION	4
METHODS	8
ONLINE SURVEY	9
INTERVIEW	10
RESULTS	1010
SURVEY RESULTS	1010
INTERVIEW RESULTS	14
DISCUSSION	16
PURPOSE AND FINDINGS	16
LIMITATIONS	17
CONCLUSION	18
LITERATURE CITED	20
APPENDICES.....	22
APPENDIX A	22
APPENDIX B	26
APPENDIX C	30
APPENDIX D.....	32

Executive Summary

The objective of this research study was to understand how the implementation of more sustainably operated food organizations at Dalhousie University would influence the consumption habits of students on Studley campus. In this study, sustainable food organizations are referred to as places that source their food locally, aim to reduce food and packaging waste, and make a positive difference in their community. This study also refers to sustainability as operating in such a way that meets the needs of the present without compromising the needs of the future. Both qualitative and quantitative research methods were used in this study. Qualitative research methods consisted of an online survey to be completed by the target study group and an interview completed with a local organization which met the study's description of "sustainable food organization". The online survey was targeted towards students on Dalhousie's Studley campus through a Microsoft office form and consisted of questions surrounding student opinions of the campus's food environment, and their personal values when it comes to selecting where to spend their money on food. This research method aimed to answer the question of whether the behaviours of students would change depending on the availability of options which aligned with their values. The interview was conducted by a member of the research team with a representative of the Loaded Ladle, the sustainable food organization chosen as a model in this study. This interview aimed to help understand the logistics behind running a sustainable organization and the impact of such an organization on the university community.

The results from the survey were analyzed through various statistical analyses methods including Pearson's correlation test, student's t-test, and a regression analysis using R studio. After analyzing these results, the study found that environmental impact was among the least important to respondents, while affordability was ranked the most important determining factor when it came to consumption choices. From these results, it was concluded that the implementation of more sustainable food organizations on Studley campus would have a positive environmental impact given the consumption habits of students.

Recommendations surrounding the steps Dalhousie could take to improve campus sustainability were then created in response to these results. The first recommendation is to push for the creation of more sustainable food options in the form of student-run organizations. The next step in this process would be to phase out current contracts with the major food providers

(Chartwells and Aramark) to make space for new partnerships with organizations and companies that better align with Dalhousie's commitment to a sustainable future. It would also be recommended that Dalhousie encourage more student movements to help mobilize this change.

Key Words: Sustainable; Food; Students; University; Food Environment; Campus

Introduction

The food consumed by university students has a significant environmental footprint due to the way it is commonly produced, packaged, and distributed. Currently, the food industry is responsible for more than 30% of anthropogenic greenhouse gas emissions worldwide (Jazbec et al., 2022). The processing of food alone has destructive environmental impacts due to the industry's heavy use of fossil fuels, as well as high waste output from the packaging and the production of wastewater (Chung et al., 2021). Consumers, in the scope of this study university students, have the ability to choose where their food comes from; however, choices are dependent on the limitations set by their food environment. *Food environment* is a term used to encompass “the physical, social, economic, cultural, and political factors that impact the accessibility, availability, and adequacy of food within a community or region” (Rideout, 2015). The more options and variety a consumer has to choose from, the more diverse the food environment becomes which provides more freedom over choice. University students are often entering a new phase of their life where they have more freedom over their diet and their food consumption. This is an important factor in this study as the food environments that universities provide are often restrictive and are characterized by “low availability of healthy foods and higher cost compared to unhealthy options” (Li et al., 2022). This review goes on to discuss the impacts of low availability and how restrictive food environments push students into making unhealthy and unsustainable decisions due to “the close availability of junk foods and costly fruits and vegetable options prevented them from reaching for healthier dietary choices”.

Dalhousie's Studley Campus food environment is no different to the food environments mentioned in the review by Li et al. (2022). A quick glance at the *Dalhousie Food Services* website reveals that the on-campus food options are dominated by chain and fast-food restaurants,

including Pizza Pizza, Subway, Tim Hortons, Second Cup, and more. While there are some other options for sustainable food on campus, they are not always accessible or convenient. For example, the Killam Library, a popular study spot on campus, has a food courtyard that is entirely catered by chain businesses. This limited food environment leaves students with little to no choice over how to spend their money and what businesses to support while on campus in that area. The presence of these fast-food chains on campus also directly and indirectly contributes to Dalhousie's fossil fuel use and waste production. Most of the products these chains sell contain meat and/or dairy, which are the primary products that contribute the most to food-related emissions (Jazbec et al., 2022).

It is important to acknowledge that universities have a social and ethical responsibility to operate in a way that is sustainable for the environment and students' health. Although Dalhousie University has said that they are "committed to expanding understanding and adherence to the core principles of sustainability through our teaching, research, and service that are consistent with the important work of fulfilling the United Nations Sustainable Development Goals (SDGs) for 2030.", the operational practices demonstrated by the large chain restaurants currently available on campus do not reflect these responsibilities and commitments.

These chain restaurants serve highly processed foods that are not only bad for the environment, but for students' health as well. It has been demonstrated in numerous studies that a diet comprised of highly processed foods can lead to the development of noncommunicable diseases such as hypertension, obesity, and cancer (Barbosa et al. 2023). These issues are only made worse in instances where the impact a student's consumption is having on their health and the environment is not well advertised. Information on the nutrition of the food offered at these locations on Dalhousie's campus, as well as how their ingredients are sourced and manufactured, is not easy to find. Unless students have deep background knowledge of the effects of unsustainable food practices, these issues could be easily overlooked. Cinzia et. al (2023) speaks on the importance of the food environments saying they are "the main determinants of people's food choices as it refers to the physical, economic, socio-cultural, and policy conditions that shape access, affordability, safety, and food preferences." Therefore, if students are unaware of the hidden consequences of their purchases, they cannot make informed choices about their food consumption. These blind spots can lead to decisions which negatively affect students' quality of

life. This problem, though, is not unfixable. Cinzia et. al (2023) concluded that students who are more aware about the environmental impacts of their choices are more likely to think about sustainability when making choices surrounding food compared to those who are uninformed. Due to the fact that food options on campus are very limiting however, this reduces the choices available to students to be able to make informed decisions. The literature review in this background prompted the belief that implementing more sustainable and local businesses on campus could broaden the food environment on campus allowing students to make more healthy and sustainable choices.

After reviewing Cinzia et. Al (2023), the study found several other universities successfully changing their food environment to one that is sustainable and accessible. There are other university campuses that have already implemented sustainable food initiatives in order to improve food environments for students. Peggy f. Barlett's *Campus Sustainable Food Projects: Critique and Engagement* covers many such initiatives currently implemented on campuses worldwide. These initiatives range from campus farms to strict food sourcing policies. Campus farms can be found on many campuses across Canada and the United States. These farms allow for fresh, local, and sustainable food sources that are close at hand and accessible for students. Barlett also gives many examples surrounding sourcing policies. For example, Iowa State University's goal to source 35% of food from sustainable sources and Yale's purchasing guidelines which provide a tiered ranking of different sources for meat and dairy (Barlett, 2011).

There are many issues that prompted this study's interest in food environment research on Dalhousie's Studley campus. Firstly, Dalhousie's campus predominately offers chain fast-food restaurants, and therefore lacks sustainable food options in terms of prioritization of student health as well as the environment. This limitation in the campus food environment takes power away from the student population as it prevents them from making informed and healthy food choices. It also creates a barrier as it does not allow students to make these decisions even if they are informed. It is likely that there are students who would like to make food consumption decisions that are not only healthy for them, but better for the environment; however, they are limited in doing so due to the current unavailability of establishments that fit these criteria on campus.

Chain restaurant companies also have operating standards that apply to all their locations as they may have franchises across Nova Scotia, Canada, and even the world. Jonathan Maze

(2015) writes about the impacts this can have on the ability to make sustainable choices, saying chain businesses can struggle to maintain consistent products and standards while implementing new practices. He notes that while many large chains have promised to make changes, these limitations slow their progress. These barriers preventing large changes toward sustainable operation leads to the perpetuation of unsustainable and limiting food options on university campuses. This then also contributes to the large amount of waste produced on campus by these fast-food restaurants. Chain businesses must uphold company standards meaning that the opportunity to reduce waste, use local food, and overall become a more sustainable business becomes difficult and near impossible to implement. Phasing out sustainably inefficient chain restaurants and introducing more local and sustainable food options could help Dalhousie better its food environment.

This study often refers to sustainably run food organizations and chain/fast food restaurants. To offer more context on these terms two organizations, the Loaded Ladle and Tim - Hortons will be looked at more closely. The Loaded Ladle is a sustainable food organization and is a student-run collective on Dalhousie's campus which serves free locally sourced and sustainable meals to the student body 4 afternoons a week. They aim to lessen food insecurity in the community and to be an alternative to capitalistic food services. As stated in the Loaded Ladles website in the about us/our roots section, their movement started in 2009 as the Campus Action on Food. Offering pop up serving on campus to oppose monopolized food services, however, would often be removed by Dalhousie's security for providing food outside of their food service contracts. In 2010 they were finally allowed to serve food outside of Dalhousie's contract and The Loaded Ladle was established and became the organization it is today. Alternatively, Tim Hortons first opened in 1964 and is now a chain food restaurant located in 15 different countries serving coffee, pastries, and sandwiches. They have a capitalistic food model and do not run their business in a sustainable manner. Their website states that they source their coffee beans from regions such as Columbia and Guatemala which produces a large carbon footprint. Their business also produces a high volume of waste. When chain/fast food restaurants are mentioned in this study, restaurants with similar business models are what is being referred to.

After further researching these issues, the impact of increasing availability of sustainable food options on campus on student's consumption choices became the interest of this study. To combat the problematic food environment currently on campus, it is suggested to add more sustainably run food distribution organizations that can address environmental concerns faster by utilizing shorter supply chains. These shorter supply chains can help limit packaging and pollution caused by transportation, as well as providing more accountability and familiarity to the consumer. The shorter supply chain allows consumers to be more aware of where the different ingredients and materials are coming from and what the impacts of that are (Galli and Brunori, 2013). The suggested broadening of the food environment would allow students to make choices that better represent their values and protect their health and the health of the environment. This led to the formulated study research question as follows: *How would the introduction of more sustainably operated food organizations at Dalhousie University impact the food consumption habits of students on Studley campus?*

The study objective is to determine if a more sustainable food environment were available on campus, would students be likely to use these services. The overall research goal would be to understand how this would impact the student population and encourage more sustainable food service implementation on Dalhousie Studley campus.

Methods

This study assessed the current consumption habits of students and their attitude towards having more sustainable food options on campus through qualitative research methods. Data collection was performed through an online survey on Microsoft Forms (see Appendix A for survey questions). An interview was also conducted (see Appendix B for interview questions) with the Loaded Ladle to acquire firsthand information on the logistics of operating a sustainable food organization on Dalhousie's Studley campus. A research ethics board application form (see Appendix D) was filled out to ensure that the study was in line with the Dalhousie University's ethics guidelines and that all participants were fully aware of the purpose of this research and of any risks associated with completing the online survey and interview.

Online Survey

The first portion of this research was a 15-question online survey to help understand in part what students value in the food on campus, where they frequently buy food, what food services they use and their level of satisfaction with the food options available on campus. This survey was created on Microsoft forms and participants could answer the survey questions through this platform. This online survey was completely anonymous, as the participants were not asked to share any identifying information such as names, age, gender, etc. This survey included a mix of single response questions, ranking, and Likert scale questions. It was decided to use an online survey as the main data collection tool to be able to disperse data collection to a wider variety of students. For the dispersal of the survey, instructors on Studley campus were contacted via email to ask if they would share the survey with their class. It was shared in Dr. Mui's ENVS 3100 class and in one of Dr. Franklin's second year classes. This survey link was also shared among ENVS 3502 and with peers on campus in hopes they would complete it and share it with those they know. This survey collected data from March 14th, 2023, at noon until March 21st 2023, at 11:59pm.

The research population is Dalhousie's Studley campus, and the sample population is the students on this campus. We chose to include all students on Studley campus instead of specifying a certain demographic because it would be hard to ensure that only the desired type of student would be taking the survey. The sample size for this research is 22,104 and in order to achieve a representative sample, 378 survey responses needed to be received. It should be noted that this sample size is the number of students that go to Dalhousie University as a whole and not just attending Studley campus which is the study area of focus. While Studley campus is the largest out of the four campuses it is likely the numbers of students here are lower than the 22,104. However, this study lacked the resources to find the numbers for only Studley campus which is why the numbers for all of Dalhousie are being used. This survey received 57 responses, which is under the amount required for a representative sample. One of the researchers then collected the survey responses and conducted further data analysis. Survey answers were coded to enable quantitative analysis of responses, coding methods are explained in Appendix C. Analysis performed on the resulting data was Pearson's correlation test to determine the correlation between survey responses, student's t-test to determine the significance of the correlation, and regression analysis to assess the strength of predictor variables on the response variables. All statistical analysis was conducted using R studio.

Interview

Additionally, an interview with a representative of the Loaded Ladle was conducted over Microsoft Teams. This interview was conducted on March 16th, 2023. This interview was semi-structured to ensure that the questions the desired questions were answered but still allowing freedom for the respondent to share their opinions (see appendix B for interview questions). This interview was conducted to understand how a sustainable organization conducts themselves and the challenges that it faces operating sustainably on campus. Additionally, to understand the impact this kind of organization has had on the university population. Questions were asked by one of the researchers and another compiled the answers with handwritten notes.

Results

Survey results

The survey was comprised of 15 questions, all of which to help distinguish patterns in student food consumption habits on Dalhousie Studley campus. Firstly, students were asked for their program and level of study to give a better portrait of the survey sample population, and whether there are any correlations between majors and consumption habits. The sample was constituted entirely of undergraduate students, and disproportionately of third year (51%) and environmental science students (over 30%).

To get a better sense of student food consumption habits, students were asked which meals they were most likely to get on campus. This helps to better understand their consumption choices and ultimately make recommendations for changes that cater to their needs. It was found that in large part, students get coffee, snacks and lunch on campus. The most common answer was coffee (67% of respondents), second was snacks (65% of respondents), and third was lunch (51% of respondents) (Figure 1). Respondents were less likely to get breakfast and dinner on campus.

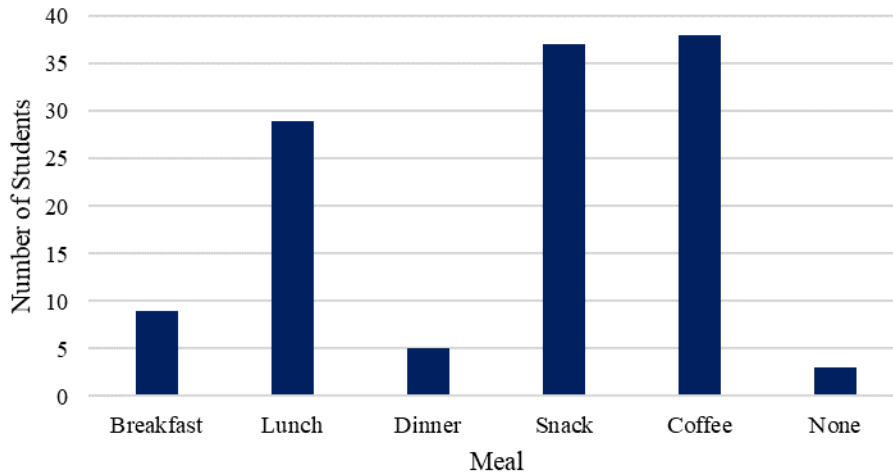


Figure 1: Bar graph showing the meals students are most likely to get on Dalhousie Studley campus.

The survey also inquired about students' single most common place to get food from on campus. The most popular answer was by far Tim Horton's, which was selected by 49% of respondents, and the second was the Loaded Ladle, selected by only 11% of respondents (Figure 2). Another 33% of responses varied across 8 other campus food locations, and 7% said they got food from nowhere on campus.

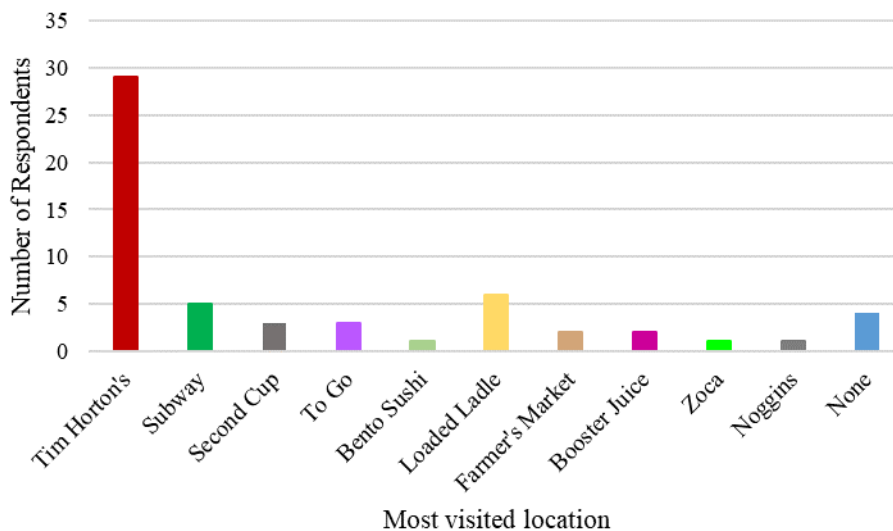


Figure 2: Bar graph showing the locations respondents get food from most often on Dalhousie Studley campus.

The survey results show that approximately half (53%) of students have previously acquired food from the Loaded Ladle. Those who had not were asked for the reason they had never tried it. The

most common reason was that they didn't know what the Loaded Ladle was (30%) or did not know how to access it (7%). Others said their needs were met through other options (26%) or did not like the food options offered there (4%). Other common issues were long wait times (19%) and narrow operating hours (11%).

Next, respondents were asked to rate 5 different criteria from most (1) to least (5) important when choosing somewhere to get food or drink from on campus. Overall, affordability came out in first place, with an average rank (AR) of 1.57, location in second (AR = 2.41), nutritional value in third (AR = 3.41), familiarity in fourth (AR = 3.64), and environmental impact in fifth (AR = 3.96).

Finally, respondents were asked to give their level of agreement with three statements relating to food on campus (Figure 3). This revealed that there is a wide range of opinions regarding the food variety on campus. Overall, the levels of agreement were normally distributed across the spectrum, and slightly skewed towards disagreement. As for feeling they could make informed food consumption decisions on campus, the data was lightly skewed towards disagreement. Finally, a majority of students expressed that they agreed on some level that they would make better food choices if there were more sustainable food options on Dalhousie Studley campus. In a separate question, 96% indicated that they would be in favour of implementing more sustainable food options on Dalhousie Studley campus, and the other 4% were indifferent.

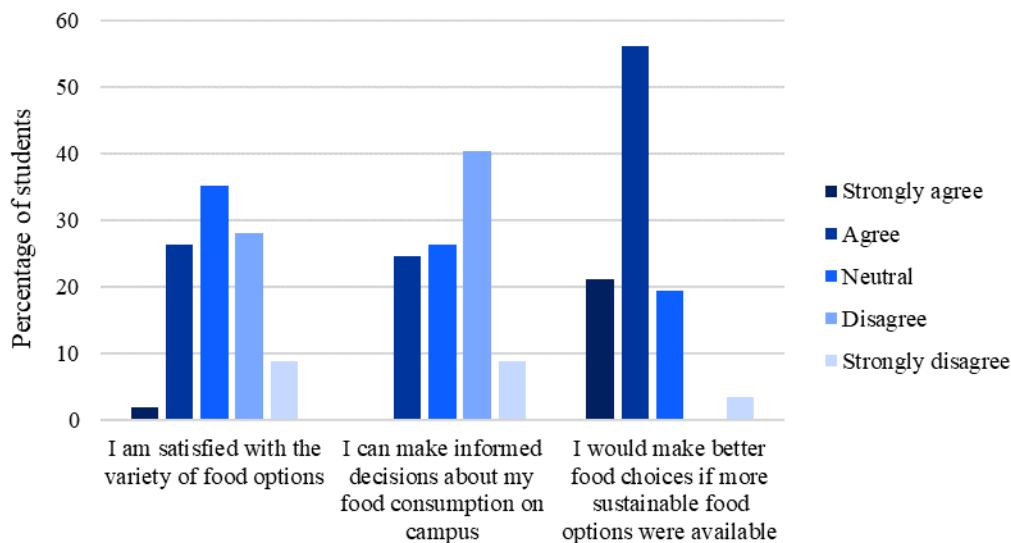


Figure 3: Students' level of agreement with statements related to the Dalhousie Studley campus food environment.

A Pearson's correlation test was performed on the data to find any patterns or correlations between the student's answers, the results of which are displayed as correlograms in figures 4 and 5 below.

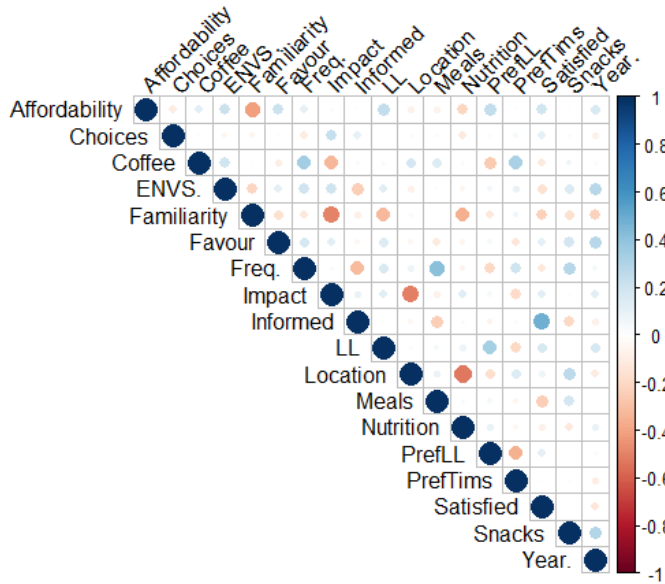


Figure 4: Graph showing the strength of correlation between survey results. Circle size indicates strength of correlation and colour indicates direction.

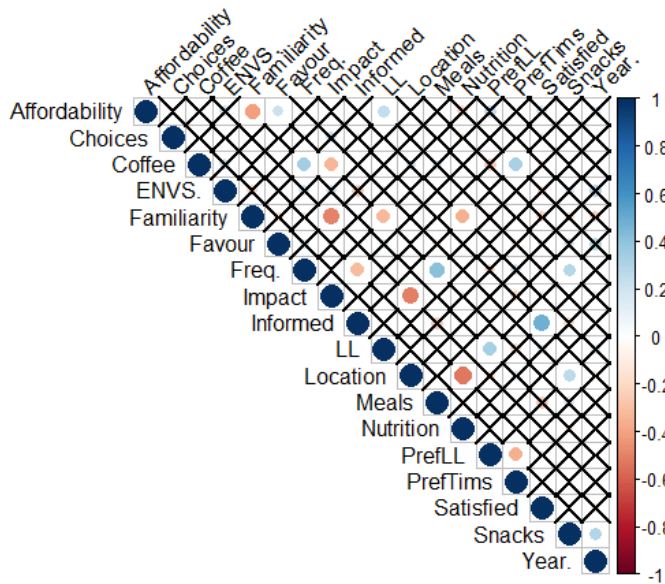


Figure 5: The same graph as figure 2 but with insignificant results crossed out. All remaining circles indicate significant correlations and their strength.

Many of the significant correlations are not independent and so cannot be used in our analysis. For instance, the question where respondents were asked to rate 5 different criteria from most (1) to least (5) important when choosing somewhere to get food or drink from on campus

included Affordability, Familiarity, Environmental Impact, Location, and Nutrition being ranked on the same question. Therefore, a high ranking of one answer necessitates a lower ranking of the others. Additionally, having gone to Loaded Ladle (LL) is a prerequisite to having Loaded Ladle as your preferred food option. This further reduces the number of significant correlations. To investigate the impact of the food environment and consumer education on food consumption patterns, regression analysis was performed on the significant variables correlated with Environmental Impact, LL, PrefLL (preferred Loaded Ladle), and PrefTims (preferred Tim Hortons). For Environmental Impact, the only independent factor was coffee which had a negative correlation. LL was positively correlated with Affordability and negatively with Familiarity. Running a regression model with these as the predictor variables, the results were insignificant with an adjusted R squared value of 0.08147. For PrefLL there were no independent correlations. PrefTims was significantly correlated with Coffee, with an adjusted R squared value of 0.07678.

Interview results

The interview with a representative of the Loaded Ladle provided insightful information on Dalhousie's food environment, potential ways to improve it and make it more sustainable, and the implications of operating sustainably on campus.

The Loaded Ladle's mission is to promote food security on campus by making free nutritious meals accessible to as many students as possible. They operate sustainably from an environmental perspective, as their meals are entirely vegan and served using reusable dishware and cutlery. They also source their food mostly from local farmers. They are also sustainable from a societal perspective by helping to reduce food insecurity and playing an active role in the community. This year, the Ladle has served a record-breaking number of meals weekly. The main challenge they have faced is related to food sourcing, which has become increasingly difficult with this growing demand. Local farmers are having trouble keeping up with their demand, which has exceeded the amount they could supply. Finding new suppliers has also proven a challenge, because there is a disconnect between them and the farmers. It is difficult to get products directly from the farmers without an intermediary to facilitate transport.

They expressed enthusiasm towards the idea of incorporating more sustainable food options on campus and agreed it would improve the likelihood of students making more

sustainable food choices. They acknowledged that this initiative would however come with some serious challenges. They addressed the contract Dalhousie University has with Aramark and Chartwell's, which are two large food service providers that serve many large institutions. These partnerships limit the power the university has in choosing the food it offers on campus and in regulating their practices. This translates into the campus food environment being dominated by fast food chain restaurants such as Tim Horton's and Subway, which are focused on profits rather than sustainability. They mentioned that a huge step in the right direction for Dalhousie would be to end these contracts and implement more locally and sustainably sourced food businesses. However, in practice, this would be very difficult because these are powerful organizations, and doing so could have major financial implications.

The main suggestions they made to improve the food environment on campus would be to be vocal on the issue and encourage student involvement. They mentioned that the more demand there is for sustainable food on campus, the more pressure and eagerness there will be to meet it. Also, they stressed the power of student-run organizations (such as the Loaded Ladle) when trying to reach these ambitious goals. Because they are run by students and independent, they have a lot of power over how they choose to operate and are more connected to the Dalhousie student community. It also allows for better communication and transparency.

Introducing more sustainable food options to campus could potentially improve the consumption habits of students, provided it caters to their needs. These sources of food would have to be convenient and affordable. Ideally, they would need multiple locations spread across campus to assure accessibility. Their prices would also have to rival those of fast-food restaurants to cater to a student's budget. Importantly, there should be more variety to ensure all the students wants and needs can be met through sustainable food options. Establishments that offer coffee and snacks, for example a student-run café with locally and/or ethically sourced products could help accomplish that. More options could also help diversify the cuisines available, which would help meet more preferences and build familiarity.

Discussion

Purpose and findings

The main goals of this research project were to better understand the food consumption habits of students on Dalhousie Studley campus and use this information to elaborate appropriate suggestions on how to improve the food environment on campus from a sustainability standpoint.

Our survey revealed that most students use campus food and drink services primarily for coffee and snacks. This would be a reasonable explanation for Tim Hortons being the most popular establishment for students to get food or drink on campus. Tim Horton's also has two locations on campus, making it more accessible. Location was voted the second most important factor overall by students when choosing somewhere to eat or drink, which would further explain its popularity.

By contrast, while the survey showed that the Loaded Ladle was the second most popular establishment, it was far behind Tim Horton's, which was selected by nearly 5 times more students. This conflicts with respondents ranking affordability as their top criteria when choosing where to eat, seeing as the Loaded Ladle is free. This inconsistency would have to be explained by a combination of other factors, such as lack of familiarity and location. Firstly, there seems to be a lack of knowledge about the existence and operations of the Loaded Ladle, as 37% of respondents who had not been before indicated they did not know about it or did not know how to access it. Their narrow serving hours and long queues also prove to be a limitation for some. Another important consideration is that the Loaded Ladle serves neither coffee nor snacks, which are the two most sought-after products by students on campus according to the survey answers. Therefore, the fact Loaded Ladle offers free nutritious meals is overshadowed by these other elements.

Because of the nature of their program, Environmental Science and Sustainability students are more well versed and educated on topics such as climate change than average. Therefore, it is likely that they better understand the environmental impacts of their food choices. While we'd expect to see this reflected in the survey results, our statistical analyses did not find a significant correlation between these majors and ranking environmental impact higher in their criteria, nor with preferring the Loaded Ladle to other options. This suggests that regardless of their program of study, students prioritize their food choices on factors other than environmental impact. The reason for the ranking of criteria being consistent across programs is most likely that for the most part, students live under similar circumstances. Most respondents likely value affordability

because of their financial situation, as students tend to be on a tighter budget. Convenience and accessibility are also key, seeing that most students are on a schedule and have limited time for breaks when on campus.

Introducing more sustainable food options to campus could potentially improve the consumption habits of students, provided it caters to their needs. These sources of food would have to be convenient and affordable. Ideally, they would need multiple locations spread across campus to assure accessibility. Their prices would also have to rival those of fast-food restaurants to cater to a student's budget. Importantly, there should be more variety to ensure all the students wants and needs can be met through sustainable food options. Establishments that offer coffee and snacks, for example a student-run café with locally and/or ethically sourced products could help accomplish that. More options could also help diversify the cuisines available, which would help meet more preferences and build familiarity. To make all of this happen, the information first has to be put out there to get the ball rolling. If students truly want access to more sustainable food options on campus, they have to voice it. They can start by gathering through clubs and societies and discussing the issue, and then communicating it to a broader audience. This can be done in many ways, through on-campus campaigns and activities for example. This creates potential for a movement and the emergence of more student-run food organizations to positively contribute to the food environment. The Loaded Ladle, for example, started as a movement to denounce food insecurity, and has grown over time into what it is today. The more people get on board with this project, the more connections can be made within the community, which could hopefully help solve other issues such as sourcing food locally and bridging the gap with local farmers. In the long term, growing awareness and demand for sustainable food might also put pressure on Dalhousie food services to reconsider their current contracts with Aramark and Chartwells, which could pave the way to a more sustainable food environment on campus.

Limitations

This study does contain limitations. Most notably there were not enough survey submissions for this to be an accurate representative sample for the study population. This study only received 57 responses; however, three hundred and twenty-one more responses were needed to be a representative sample size. Therefore, the responses acquired from the survey do not adequately reflect the opinions and motivations of the student population. Had we obtained more

responses, we might have found more significant correlations within our data. However, without adequate numbers, the results of our statistical analyses were not significant. Although the goal was to reach students equally in each department, the survey was shared in predominantly environmental science classes. This has the potential to skew the data that was acquired due to the increase in access to this specific subset of knowledge that this population. Therefore, the data could potentially be biased as we don't have a wide number of students from other faculties that participated. This survey was also shared with fellow students in ENVS 3502 so this could have added to that bias. We did receive responses from students that identified outside of environmental sciences, but this ultimately was our primary demographic.

Conclusion

This study concludes that the introduction of more sustainably operated food organizations at Dalhousie University would positively impact the food consumption habits of students on Studley campus. Increased accessibility to and variety of sustainable food options on campus would improve students' likelihood of consuming more sustainably. The survey results show that even if a person is educated on environmental and sustainability issues, they are not more likely to prioritize environmental impact when making consumption choices. This demonstrates that the way one chooses to consume is not always dependent on ignorance of the issue, but rather by force due to the surrounding food environment.

This conclusion is also supported by student responses in the survey which further suggest that more sustainable consumption decisions would be made should those options be more readily available and accessible to the student population. Dalhousie currently has one organization that fits the criteria of sustainable food organization, The Loaded Ladle, whose structure could be used as a rough model for future organizations or businesses. While the Loaded Ladle has been around for many years and continues to grow in popularity, its lack of variety in the types of meals they serve (ie. Lunch, dinner, snacks, etc.), narrow window of operation, and size of the organization limit its scope on the Dalhousie sustainable food options scene. After conducting the interview and reviewing cases from other universities, this study has also concluded that the most effective way to improve the food environment for students on the Dalhousie Studley campus would be to

encourage the implementation of more student-run food organizations. This would offer more convenient and sustainable food options that would fit students' preferences and needs.

Once a foundation of new sustainable food organizations on campus has been established, steps can then be taken to implement strong sustainability goals and purchasing guidelines. This would be a large change in Dalhousie's food environment as it may require the termination of contracts with both Chartwells and Aramark. This conclusion is supported by the interview results which suggest that in order for sustainable change to be made, the contracts that leave little room for flexibility and reform need to be broken away from. This conclusion is also supported by the action of other campuses like Kenyon College, Yale, and UC Santa Cruz who have all chosen to end their contracts with large food service corporations to achieve their sustainability goals (Barlett, 2011). Given the success that the Loaded Ladle has had at Dalhousie and the success of other Universities successfully breaking away from these companies, this change would be feasible.

Literature Cited

- Barbosa, L. B., Vasconcelos, N. B., dos Santos, E. A., dos Santos, T. R., Ataíde-Silva, T., & Ferreira, H. da. (2023). Ultra-processed food consumption and metabolic syndrome: A cross-sectional study in quilombola communities of Alagoas, Brazil. *International Journal for Equity in Health*, 22(1). <https://doi.org/10.1186/s12939-022-01816-z>
- Barlett, P. F. (2011). Campus Sustainable Food Projects: Critique and engagement. *American Anthropologist*, 113(1), 101–115. <https://doi.org/10.1111/j.1548-1433.2010.01309.x>
- Chung, M. M. S., Bao, Y., Zhang, B. Y., Le, T. M., Huang, J. (2022). Life Cycle Assessment on Environmental Sustainability of Food Processing. *Annual Review of Food Science and Technology*, 13(1), 217-237. <https://doi-org.ezproxy.library.dal.ca/10.1146/annurev-food-062420-014630>
- Franchini, C., Biasini, B., Rosi, A., Scazzina, F. (2023). Best practices for making the university campus a supportive environment for healthy and sustainable diets. *Current Opinion in Environmental Science & Health*, Volume 32. <https://doi.org/10.1016/j.coesh.2022.100436>
- Galli, F., & Brunori, G. (2013). Short Food Supply Chains as drivers of sustainable development. Evidence Document.
- Jazbec, M., Salim, H., Khara, T., Cordell, D. and White, S. (2022). *Shifting the Menu: Reducing the carbon footprint of fast-food consumption by switching to plant-based options*. Institute for Sustainable Futures, University of Technology Sydney. https://www.worldanimalprotection.org.au/sites/default/files/media/Shifting_the_Menu_Report.pdf
- Li, X., Braakhuis, A., Li, Z., & Roy, R. (2022). How does the University Food Environment Impact Student dietary behaviors? A systematic review. *Frontiers in Nutrition*, 9. <https://doi.org/10.3389/fnut.2022.840818>
- Our roots*. Loaded Ladle. (n.d.). Retrieved April 11, 2023, from <https://www.loadedladle.com/our-vision>
- Rideout, K., Mah, C., Minaker, L. (2015). Food Environments: An Introduction for Public Health Practice. *National Collaborating Centre for Environmental Health*. https://www.nceh.ca/sites/default/files/Food_Environments_Public_Health_Practice_Dec_2015.pdf
- Sustainability@DAL*. Dalhousie University. (n.d.). Retrieved April 9, 2023, from <https://www.dal.ca/aboutdal/sustainability.html#:~:text=Dalhousie%20is%20committed%20to%20expanding,our%20impact%20on%20global%20goals>.
- Tim Hortons. (n.d.). Retrieved April 11, 2023, from <https://www.timhortons.com/our-coffee-story>

Appendices

Appendix A

Online Survey Questions

Section 1: Consent

You are invited to take part in a research study being conducted by Elliott Ankersen, Juliette Lortie, Kate Metcalfe, and Taylor Connor. Undergraduate students in the Environmental Science department at Dalhousie University. The purpose of this research is to understand how transitioning from chain food operations to sustainably operated food businesses would affect the student population on Studley campus. This research will provide us with a better understanding of Dalhousie students' food consumption habits and perceptions of food available on campus. This is to help us to better understand the impacts of food systems on campus. Any student on the Studley campus can take part in this survey. This study is not funded.

If you choose to participate in this research, you will be asked to answer 15 anonymous survey questions about your food consumption habits and your opinion of the food available for purchase on campus. The survey should take no longer than 5 minutes. You do not have to answer questions that you do not want to answer as you are welcome to stop the survey at any time if you no longer want to participate. All you need to do is close your browser. We will not include any incomplete surveys in our analyses. If you do complete your survey and you change your mind later, we will not be able to remove the information you provided as we will not know which response is yours.

Your responses to the survey will be anonymous. This means that there are no questions in the survey that ask for identifying details such as your name or email address. All responses will be saved on a secure Dalhousie server. Only Elliott Ankersen, Juliette Lortie, Kate Metcalfe, and Taylor Connor will have access to the survey results. We will describe and share our general findings of this research in a research paper and presentation for ENVS 3502. We will destroy all information after completing and reporting the results.

The risks associated with this study are no greater than those you encounter in your everyday life. There will be no direct benefit to you in participating in this research. The research, however, might contribute to new knowledge on the effects of a sustainable food industry on campus. The information and findings acquired during this research study will not be

shared with participants upon completion.

Section 2: Questions

Note: In this section, we refer to "sustainability," which for the purpose of this study, we define as the quality of something that can be perpetuated long-term without adverse effects to the environment and students' health.

- 1) What is your program of study?
- 2) What is your current level of study?
- 3) What is your year of study?
- 4) On average, how many times a week at Dalhousie University do you buy food and/or drinks from Studley campus-based businesses in a standard fall/winter term (excluding residence meal halls)?
 - A) 0
 - B) 1-2
 - C) 3-4
 - D) 5-6
 - E) 7+
- 5) Which meal are you most likely to buy on campus: a) Breakfast b) Lunch c) Dinner d) Coffee e) Snack
- 6) Where do you get Food from most often on Dalhousie Studley campus?
 - a) Tim Horton's
 - b) Subway
 - c) Pizza Pizza
 - d) Second Cup
 - e) To Go
 - f) Bento Sushi
 - g) Mezza
 - h) Loaded Ladle
 - i) Farmer's Market
 - j) None of the Above
 - k) Other

- 7) If other, it will prompt what location.
- 8) Rank these criteria from most to least important to you when choosing where to buy food from on campus (Drag answers to rearrange, highest is most important and lowest is least important): Affordability, location, environmental impact, familiarity, nutritional value
- 9) Would you be in favour of implementing more sustainable food-options on Dalhousie Studley campus?
 - a) Yes
 - b) No
 - c) Indifferent
- 10) Have you ever received food from the Loaded Ladle?
 - a) Yes
 - b) No
- 11) Which statement best describes why you have not received food from the Loaded Ladle?
 - a) I do not know what the Loaded Ladle is.
 - b) I do not know how to access the Loaded Ladle.
 - c) I do not like the food options it offers.
 - d) The line or wait times make it inconvenient for me.
 - e) The operating hours/schedule make it inconvenient for me.
 - f) All my needs are met through other options.
 - g) Other
- 12) What other reason?

Section 3: How do you feel about the following statements?

In this section, we refer to "sustainability", which for the purpose of this study, we define as the quality of something that can be perpetuated long-term without adverse effects to the environment and students' health.

- 13) I am satisfied with the variety of food options on Dalhousie Studley campus.

Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree

- 14) I feel as though I can make informed decisions about my food consumption on campus in regard to my health and the environment?

Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree

15) I feel as though I would make better food choices if more sustainable food options were available on Dalhousie Studley campus.

Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree

Appendix B

CONSENT FORM

Project title: *How would the introduction of more sustainably operated food organizations at Dalhousie impact sustainable food consumption habits of Studley campus students?*

Lead researcher: Elliott Ankersen, Juliette Lortie, Kate Metcalfe, Taylor Connor

Other researchers: Dr. Caroline Franklin

You are invited to take part in a research study being conducted by, Elliott Ankersen, Juliette Lortie, Kate Metcalfe, and Taylor Connor. Undergraduate students in the Environmental Science department at Dalhousie University. The purpose of this research is to understand how transitioning from chain food businesses to sustainably operated food businesses would affect the student population on campus through food consumption habits. This research will be aided by this interview on the topic of Dalhousie students' food consumption habits and perceptions of food available on campus. This is to help us to better understand the impacts of food systems on campus. This interview will take part between the researchers of this study and food businesses on the Dalhousie Studley campus. This study is not funded.

If you choose to participate in this research, you will be asked to answer a few interview questions about food consumption habits on campus and the downsides/benefits to eating and supporting local food businesses on a university campus. The questions should take no longer than 30 minutes to answer.

Your participation in this research is entirely your choice. You do not have to answer questions that you do not want to answer (by specifying prefer not to answer or leaving the question blank), and you are welcome to withdraw from the interview process at any time if you no longer want to participate.

Your personal responses to the interview questions will be anonymous however will represent the views of the company. This means that there are no questions in the interview that ask for identifying details such as your name or email address. Interview answers will be saved on a secure Dalhousie server. Only Elliott Ankersen, Juliette Lortie, Kate Metcalfe, and Taylor Connor

will have access to the interview results.

We will describe and share our general findings of this research in a research paper and presentation for ENV5 3502. We will destroy all information after completing and reporting the results.

EITHER: The risks associated with this study are no greater than those you encounter in your everyday life. OR, IF SOME RISKS (e.g. discomfort) ARE ANTICIPATED: Risks are mitigated through participation being completely confidential, no one will be able to link your answers with who you are.

There will be no direct benefit to you in participating in this research. The research, however, might contribute to new knowledge on the effects of a sustainable food industry on campus. The information and findings acquired during this research study will not be shared with participants upon completion.

Any questions you may have about this study can be discussed with Elliott Ankersen (alexander.ankersen@dal.ca), Juliette Lortie (juliette.lortie@dal.ca), Kate Metcalfe (kate.metcalfe@dal.ca), Taylor Connor (ty924947@dal.ca), or Dr. Caroline Franklin. Please ask as many questions as you like before or after participating. My contact information is kate.metcalfe@dal.ca.

If you agree to complete the interview, please fill out the form below and attach it in the email with your responses.

How would the introduction of more sustainably operated food organizations at Dalhousie impact sustainable food consumption habits of Studley campus students?

I have read the explanation about this study. I have been given the opportunity to discuss it and my questions have been answered to my satisfaction. I understand that I have been asked to take part in an interview conducted via email. I understand direct quotes of things I say may be used without identifying me. I agree to take part in this study. My participation is voluntary, and I understand that I am free to withdraw from the study at any time, until one week after the interview is complete.

Name Signature Date

I confirm I have completed the interview and agree that direct quotes without my name may be used.

Signature Date

Please provide an email address below if you would like to be sent a summary of the study results.

Email address: _____

Loaded Ladle Interview Questions

- 1) What measures does the Loaded Ladle take to operate sustainably?
- 2) What are some challenges you have faced when trying to operate sustainably on campus?
- 3) What kind of impact has the Loaded Ladle had on the Dalhousie community? And the

environment?

- 4) What are your thoughts on incorporating more sustainable food options on Dalhousie Studley campus?
- 5) What could be some barriers to introducing more sustainable food options to campus, based on some challenges the Loaded Ladle has faced?
- 6) Do you believe introducing more sustainable food options to campus would increase students' likelihood of making sustainable food choices?
- 7) How do you think Dalhousie could improve its food options for students to favour sustainability?

Appendix C

Category Name	Description	Coding
Affordability	How highly a respondent ranked affordability as a factor when buying food on campus.	1 = ranked 5 th , 2 = ranked 4 th , 3 = ranked 3 rd , 4 = ranked 2 nd , 5 = ranked 1 st
Choices	How strongly a respondent agrees with the statement "I feel as though I would make better food choices if more sustainable food options were available on Dalhousie Studley campus."	1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree
Coffee	Whether or not a respondent is likely to get coffee on campus.	0 = no, 1 = yes
ENVS.	Whether or not a respondent is an environmental or sustainability student.	0 = no, 1 = yes
Familiarity	How highly a respondent ranked familiarity as a factor when buying food on campus.	1 = ranked 5 th , 2 = ranked 4 th , 3 = ranked 3 rd , 4 = ranked 2 nd , 5 = ranked 1 st
Favour	Whether or not a respondent is in favour of implementing more sustainable food providers on campus.	0 = no, 0.5 = indifferent, 1 = yes
Freq	How often respondents get food and or drink on campus per week	Results were an average of the range selected by respondents.
Impact	How highly a respondent ranked environmental impact as a factor when buying food on campus.	1 = ranked 5 th , 2 = ranked 4 th , 3 = ranked 3 rd , 4 = ranked 2 nd , 5 = ranked 1 st
Informed	How strongly a respondent agrees with the statement "I feel as though I can make informed decisions about my food consumption on campus in regard to my health and the environment.	1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree
LL	Whether or not a respondent has been ever received food from the loaded ladle.	0 = no, 1 = yes
Location	How highly a respondent ranked location as a factor when buying food on campus.	1 = ranked 5 th , 2 = ranked 4 th , 3 = ranked 3 rd , 4 = ranked 2 nd , 5 = ranked 1 st
Meals	Whether or not respondent frequently gets breakfast, lunch, or dinner on campus	0 = no, 1 = yes
Nutrition	How highly a respondent ranked nutrition as a factor when buying food on campus.	1 = ranked 5 th , 2 = ranked 4 th , 3 = ranked 3 rd , 4 = ranked 2 nd , 5 = ranked 1 st
PrefLL	Whether or not respondent's preferred food service on campus is Loaded Ladle.	0 = no, 1 = yes
PrefTims	Whether or not respondent's preferred food service on campus is Tim Hortons.	0 = no, 1 = yes

Satisfied	How strongly a respondent agrees with the statement “I am satisfied with the variety of food options on Dalhousie Studley campus.”	1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree
Snacks	Wheter or not respondent frequently gets snacks on campus	0 = no, 1 = yes
Year.	What year of study the respondent is currently in.	1 = 1 st , 2 = 2 nd , 3 = 3 rd , 4 = 4 th , 5 = 5 th +

Appendix D

REB Application Form



RESEARCH ETHICS BOARDS

APPLICATION FORM

Prospective Research

This form should only be used if new data will be collected. For research involving only secondary use of existing information (such as health records, student records, survey data or biological materials), use the *REB Application Form – Secondary Use of Information for Research*.

This form should be completed using the [Guidance for Submitting an Application for Research Ethics Review](#).

SECTION 1. ADMINISTRATIVE INFORMATION [File No: office only]

Indicate the preferred Research Ethics Board to review this research:

[] Health Sciences OR [X] Social Sciences and Humanities

Project Title: Effects of increased availability of sustainable food options on Dalhousie Studley campus on students' food consumption habits.

1.1 Research team information			
Lead researcher (at Dalhousie)	Name	Kate Metcalfe	
	Email (@dal)	Kate.metcalfe@dal.ca	Phone

	Banner #		Academic Unit	ENVS 3502 Winter semester
Co-investigator names, affiliations, and email addresses	Taylor Connor, Dalhousie University, ty924947@dal.ca Juliette Lortie, Dalhousie University, juliette.lortie@dal.ca Alexander Ankersen, Dalhousie University, alexander.ankersen@dal.ca			
Contact person for this submission (if not lead researcher)	Name			
	Email		Phone	
Study start date	March 2 nd 2023	Study end date	April 11 th 2023	

1.2 For student submissions (including medical residents and postdoctoral fellows)			
Degree program	Environmental Science		
Supervisor name and department	Caroline Franklin		
Supervisor Email (@dal)	Caroline.franklin@dal.ca	Phone	
Department/unit ethics review (if applicable). Undergraduate minimal risk research only.			
Attestation: [] I am responsible for the unit-level research ethics review of this project and it has been approved.			
Authorizing name:			
Date:			

1.3 Other reviews			
Other ethics review (if any) for this research	Where?	N/A	
	Status?	N/A	
Scholarly/scientific peer review (if any)	N/A		

Is this a variation on, or extension of, a previously approved Dal REB submission?	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Dal REB file # _____
<p>If yes, describe which components of the current submission are the same as the previously approved submission (list section numbers), and which components are different from the previously approved submission (list section numbers). You may also use highlighting to clearly indicate revised text.</p>	

1.4 Funding		[X] Not
Applicable		
Funding (list on consent form)	Agency	
	Award Number	
	Institution where funds are/will be held	<input type="checkbox"/> Dalhousie University <input type="checkbox"/> Other: _____
Was a Dal release of funds agreement issued for this award?		<input type="checkbox"/> Yes Date of RoF Agreement: _____

<p>1.5 Attestation(s). The appropriate boxes <i>must</i> be checked for the submission to be accepted by the REB</p>
<p><input checked="" type="checkbox"/> I am the lead researcher (at Dalhousie) named in section 1.1. I agree to conduct this research following the principles of the Tri-Council Policy Statement <i>Ethical Conduct for Research Involving Humans</i> (TCPS) and consistent with the University Policy on the Ethical Conduct of Research Involving Humans.</p> <p>I have completed the TCPS Course on Research Ethics (CORE) online tutorial.</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>For Supervisors (of student / learner research projects):</p> <p><input type="checkbox"/> I am the supervisor named in section 1.2. I have reviewed this submission, including the scholarly merit of the research, and believe it is sound and appropriate. I take responsibility for ensuring this research is conducted following the principles of the TCPS and University Policy.</p> <p>I have completed the TCPS Course on Research Ethics (CORE) online tutorial.</p>

Yes No

SECTION 2. PROJECT DESCRIPTION

2.1 Lay summary

2.1.1 In **plain language**, describe the rationale, purpose, study population and methods to be used. Include a summary of background information or literature to contextualize the study. What new knowledge, or public or scientific benefit is anticipated? [maximum 500 words]

The purpose of this study is to examine student food consumption habits surrounding sustainable options. If sustainable options are made more available and accessible to students, the theory is that students will choose those options over chain businesses which generally has more environmental damage associated with them. This study, will examine the behaviour of students from the campus at Dalhousie University and food distribution organizations located on the Studley campus. Sampling methods will involve a voluntary student survey which inquiries about food consumption habits on campus and student motivations and values when choosing where to purchase food on campus. The results obtained from this study can be used to further look at alternatives and areas for improvement when trying to reduce environmental impacts as an academic institution. They can also be used to further research into students wellbeing on campus.

This is a pilot study.

This is a fully developed study.

2.1.2 Phased review. If a phased review is being requested, describe why this is appropriate for this study, and which phase(s) are included for approval in this application. Refer to the [guidance document](#) before requesting a phased review.

Not applicable

2.2 Research question

State the research question(s) or research objective(s).

How would the introduction of more sustainably operated food distribution organizations at Dalhousie University impact the food consumption habits of Studley campus students?

2.3 Recruitment

2.3.1 Identify the study population. Describe and justify any inclusion / exclusion criteria. Also describe how many participants are needed and how this was determined.

Students on the Dalhousie Studley campus. We will only be surveying the students on the Studley campus as it is the campus with the majority of students and food distribution services. These results can then be extrapolated to assess the behaviours on other Dalhousie campuses. However, doing the preliminary study on the largest campus with the most students will be the most beneficial and yield the most accurate results.

2.3.2 Describe recruitment plans and append recruitment instruments. Describe who will be doing the recruitment and what actions they will take, including any screening procedures.

N/A

2.3.3 If you require permission, cooperation, or participation from a community, organization or company to recruit your participants, describe the agreement obtained from the relevant group(s). Attach correspondence indicating their cooperation and/or support (required). Describe any other community consent or support needed to conduct this research. (If the research involves Indigenous communities complete section 2.11).

[X] Not applicable

2.4 Informed consent process

2.4.1 Describe the informed consent process:

A) How, when and by whom will the study information be conveyed to prospective participants? How will the researcher ensure prospective participants are fully informed?

We will ensure the prospective participants are fully informed by including ethics consent for any interviews or online surveys that take place. These will be shown to the participant before any information is collected to ensure they have all of the knowledge needed to consent to participate in this research study.

B) Describe how consent will be documented (e.g. written signature, audio-recorded, etc).

Consent will be documented by a signature by interview participants. For the online survey a box will be checked if the consent to participate in the survey and wish to continue.

[X] Append copies of all consent information that will be used (e.g. written consent document, oral consent script, assent document/script, etc).

Note: If the research will involve third party consent (with or without participant assent), and/or ongoing consent, ensure these are described above.

2.4.2 Discuss how participants will be given the opportunity to withdraw their participation (and/or their data) and any time (or content) limitations on this. If participants will not have opportunity to withdraw their participation and/or their data explain why.

Participants will not be able to withdraw their participation and their data. This is because the information collected is completely anonymous and therefore it would be impossible to determine what their information is. No identifying details will be asked of participants.

2.4.3 If an alteration/exception to the requirement to seek prior informed consent is sought, address the criteria in TCPS article [3.7A](#). If the alteration involves deception or nondisclosure, also complete section 2.4.4.

Not applicable

2.4.4 Describe and justify any use of deception or nondisclosure and explain how participants will be debriefed.

Not applicable

2.5 Methods, data collection and analysis

2.5.1

A) Where will the research be conducted?

Dalhousie Studley campus

B) What will participants be asked to do?

Fill out a survey

C) What data will be collected using what research instruments? *(Note that privacy and confidentiality of data will be covered in section 2.6)*

The data will be the answers to our survey questions and will be indicative of the food consumption habits of Dalhousie Studley campus students. It will be collected using an online survey template on Google Forms.

D) How much of the participant's time will participation in the study require?

The length of time to do the survey. Approximately four minutes.

For research questions see appendix A.

Append copies of all research instruments (questionnaires, focus group questions, standardized measures, etc)

This is a clinical trial (physical or mental health intervention) – ensure section 2.12 is completed

2.5.2 Briefly describe the data analysis plan. Indicate how the proposed data analyses address the study's primary objectives or research questions.

The data will allow us to understand food consumption habits and food perceptions of students on Studley campus and this will help to inform us on how sustainable food options would benefit this population.

2.5.3 Describe any compensation that will be given to participants and how this will be handled for participants who do not complete the study. Discuss any expenses participants are likely to incur and whether/how these will be reimbursed.

There will be no compensation for participants. No expenses are associated.

2.6 Privacy and confidentiality

2.6.1

A) Describe who will have knowledge of participants' identities.

Nobody

B) Describe the level of identifiability of the study data (anonymous, anonymized, de-identified/coded, identifying) (see [TCPS Chapter 5A – types of information for definitions](#)).

Anonymous

C) Specify which members of the research team (or others) will have access to participants' data and for what purpose.

All members will have access to the participants' data to analyze it and present it in a final research paper and presentation.

D) Describe measures to ensure privacy and confidentiality of study documents and participant data during the data collection and analysis phase. *[Note that plans for long term storage will be covered in 2.6.2]*

- Address: handling of documents/data during data collection; transportation or transfer of documents/data; storage of documents/data (during the study).
- If a key-code will be maintained, describe how it will be kept secure.
- For electronic data, describe electronic data security measures, including file encryption and/or password protection [as applicable](#).
- For hard copy documents, describe physical security measures (specify location).

Only the four lead researchers will have access to the results of the survey. The results will be kept in an encrypted file which only one lead researcher will have the code to access it. The quantitative data that will be collected (counting the population of students who use each service) will be kept on paper and recorded by hand. These results will then be converted to an encrypted online file and the hard copy will be shredded.

[] This research involves personal health records (ensure section 2.13 is completed)

2.6.2 Describe plans for data retention and long-term storage (i.e. how long data will be retained, in what form and where). Will the data eventually be destroyed or irreversibly anonymized? If so, what procedures will be used for this? Discuss any plans for future use of the data or materials beyond the study currently being reviewed.

Once the answers to the survey questions have been aggregated, the survey results will be destroyed to ensure the anonymity of participants. Data will be kept for two weeks before it is deleted.

This research will be deposited in a data repository (ensure section 2.14 is completed)

2.6.3

Describe if/how participant confidentiality will be protected when research results are reported:

A) For quantitative results - In what form will study data be disseminated?

Only aggregate data will be presented

Individual de-identified, anonymized or anonymous data will be presented

Other. If "other", briefly describe dissemination plans with regard to identifiability of data.

Not applicable, only qualitative data will be presented

B) For qualitative results - Will identifiable data be used in research presentations/publications? If participants will be quoted, address consent for this and indicate whether quotes will be identifiable or attributed.

Not applicable, only quantitative data will be presented

2.6.4 Address any limits on confidentiality, such as a legal duty to report abuse or neglect of a [child](#) or [adult in need of protection](#), and how these will be handled. Ensure these are clear in the consent documents. (See the [guidance document](#) for more information on legal duties and professional codes of ethics).

Not applicable

2.6.5 Will any information that may reasonably be expected to identify an individual (alone or in combination with other available information) be accessible outside Canada? And/or, will you be using any electronic tool (e.g. survey company, software, data repository) to help you collect, manage, store, share, or analyze personally identifiable data that makes the data accessible from outside Canada?

No

Yes. If yes, refer to the University [Policy for the Protection of Personal Information from Access Outside Canada](#), and describe how you comply with the policy (such as securing participant consent and/or securing approval from the Vice President Research and Innovation).

2.7 Risk and benefit analysis

2.7.1 Discuss what risks or discomforts are anticipated for participants, how likely risks are and how risks will be mitigated. Address any particular ethical vulnerability of your study population. Risks to privacy from use of identifying information should be addressed. If applicable, address third party or community risk. (If the research involves Indigenous communities also complete section 2.11)

There are none to minimal risks associated with this study. If at any point a participant in the study feels uncomfortable, they may stop the survey and are not obligated to finish. Information from the survey will not be shared and only the lead researchers will have access to survey results. Furthermore, no email/name is associated with the survey results therefore all answers are kept anonymous.

2.7.2 Identify any direct benefits of participation to participants (other than compensation), and any indirect benefits of the study (e.g. contribution to new knowledge).

There are no direct benefits to participating in the survey, however indirectly, answers will be used to further environmental and student well-being research on campus. These results will help to assess community well-being and the contribution to new knowledge.

2.8 Provision of results to participants and dissemination plans.

2.8.1 The TCPS encourages researchers to share study results with participants in appropriate formats. Describe your plans to share study results with participants and discuss the process and format.

The results will be shared in the form of a condensed results document with an informative infographic attached. These will be distributed during the ENVS 3502 timeslot.

2.8.2 If applicable, describe how participants will be informed of any material incidental findings – a discovery about a participant made in the course of research (screening or data collection) that is outside the objectives of the study, that has implications for participant welfare (health, psychological or social). See [TCPS Article 3.4](#) for more information.

[X] Not applicable

2.8.3 Describe plans for dissemination of the research findings (e.g. conference presentations, journal articles, public lectures etc.).

The results will be shared with the ENVS 3502 class in the form of a presentation. There will be a formal document which outlines the entire study and talks about the results. There will also be a condensed version of this document which will be easier to distribute to the participating organizations which are interested in viewing the results. Along with this condensed document which outlines key findings, there will be an infographic to improve the communication of the study and disseminate the results more efficiently.

1.9 Research Team

2.9.1 Describe the role and duties of all research team members (including students, RA's and supervisors) in relation to the overall study.

Kate Metcalfe, Juliette Lortie, Taylor Connor, and Elliott Ankersen are all lead researchers in this study. They will all be collecting and sorting data from the student survey and will be counting population at the food distribution sites. Caroline Franklin and Celia will be supervising the project and will be signing off on communications and plans set in place by the research team.

2.9.2 Briefly identify any previous experience or special qualifications represented on the team relevant to the proposed study (e.g. professional or clinical expertise, research methods, experience with the study population, statistics expertise, etc.).

The research team has experience in statistical analysis and past research in the form of literature reviews.

2.10 Conflict of interest

Describe whether any dual role or conflict of interest exists for any member of the research team in relation to potential study participants (e.g. TA, fellow student, teaching or clinical relationship), and/or study sponsors, and how this will be handled.

Not applicable

2.11 Research involving Indigenous peoples

Consult TCPS [Articles 9.1 and 9.2](#) in determining whether this section is applicable to your research.

Not applicable – go to 2.12

2.11.1 If the proposed research is expected to involve people who are Indigenous, describe the plan for community engagement (per TCPS Articles [9.1 and 9.2](#)). If community engagement is not sought, explain why the research does not require it, referencing TCPS article 9.2.

2.11.2 State whether ethical approval has been or will be sought from [Mi'kmaw Ethics Watch](#) and if not, why the research does not fall under their purview. If the research falls under the purview of other Indigenous ethics groups, state whether ethical approval has been or will be sought.

2.11.3 Describe plans for returning results to the community and any intellectual property rights agreements negotiated with the community with regard to data ownership (see also 2.11.4 if applicable). Append applicable research agreements.

2.11.4 Does this research incorporate OCAP (Ownership, Control, Access, and Possession) principles as described in TCPS [Article 9.8](#)?

Yes. Explain how.

No. Explain why not.

2.12 Clinical trials

Not applicable – go to 2.13

2.12.1 Will the proposed clinical trial be registered?

No. Explain why not.

Yes. Indicate where it was/will be registered and provide the registration number.

2.12.2 If a novel intervention or treatment is being examined, describe standard treatment or intervention, to indicate a situation of clinical equipoise exists (TCPS [Chapter 11](#)). If placebo is used with a control group rather than standard treatment, please justify.

2.12.3 Clearly identify the known effects of any product or device under investigation, approved uses, safety information and possible contraindications. Indicate how the proposed study use differs from approved uses.

Not applicable

2.12.4 Discuss any plans for blinding/randomization.

2.12.5 What plans are in place for safety monitoring and reporting of new information to participants, the REB, other team members, sponsors, and the clinical trial registry (refer to TCPS [Articles 11.6, 11.7, 11.8](#))? These should address plans for removing participants for safety reasons, and early stopping/unblinding/amendment of the trial. What risks may arise for participants through early trial closure, and how will these be addressed? Are there any options for continued access to interventions shown to be beneficial?

2.13 Use of personal health information

Not applicable

2.13.1 Research using health information may be subject to Nova Scotia's [Personal Health Information Act](#). Describe the personal health information ([definition explained in the guidance document](#)) required and the information sources, and explain why the research cannot reasonably be accomplished without the use of that information. Describe how the personal health information will be used, and in the most de-identified form possible.

2.13.2 Will there be any linking of separate health data sets as part of this research?

No

Yes

If yes:

A) Why is the linkage necessary?

B) Describe how the linkage will be conducted (it is helpful to append a flow diagram)

C) Does that linkage increase the identifiability of the participants?

2.13.3 Describe reasonably foreseeable risks to privacy due to the use of personal health information and how these will be mitigated.

2.14 Data Repositories

Not applicable

2.14.1 Identify and describe the data repository in which the research data will be deposited. What is its focus, who are its target users, who can access deposited data and under what circumstances? For how long will the data be kept in the repository?

2.14.2 Describe the data set to be released to the repository. If there is personal and/or sensitive information in the data, describe how you will prepare the data for submission to the repository and mitigate risks to privacy. Identify all fields that will be included in the final data set (include as an appendix).

2.14.3 Is agreeing to have one's data deposited a requirement for participation in the study? If yes, provide a justification. If no, indicate how participants can opt in or out.

SECTION 3. APPENDICES

Appendices Checklist. Append all relevant material to this application in the order they will be used. This may include:

- Reference list
- Permission or support/cooperation letters (e.g. Indigenous Band Council, School Board, Director of a long-term care facility, anyone whose permission you need to conduct recruit participants or conduct research)
- Research agreements (required for research involving Indigenous communities)
- Recruitment documents (posters, oral scripts, online postings, invitations to participate, etc.)
- Screening documents
- Consent/assent documents or scripts
- Research instruments (questionnaires, interview or focus group questions, etc.)
- Debriefing and/or study results templates
- List of data fields included in data repository
- Confidentiality agreements

Consent Form Templates

Sample consent forms are provided on the [Research Ethics website](#) and may be used in conjunction with the information in the [Guidance](#) document to help you develop your consent form.