Biting Off More than You Can Chew:

An Assessment of Student's Understanding of Dalhousie's Food System

ENVS 3502: Campus As a Living Lab Dalhousie University April 10th, 2016

Adam Buchholz, Environmental Science
Rachael Delano. Sustainability & Performing Arts
Mitch Gold, Sustainability and Urban Planning
Fred Lu, Environmental Science, Psychology, & Sustainability
Kayla Matthews, International Development & Environmental Studies
Siobhan Takala, Sustainability & Environmental Science

Mentor: Molly Fredeen Professor: Dr. Chris Greene

Table of Contents

Executive Summary	3
Introduction	4
Project Definition	4
Background and Literature Review	4
Methods	4
Study Design, Procedures, Limitations & Delimitations	7
Results	7
Discussion	11
Significant Findings & Implications	11
Conclusion	11
Recommendations for Action & Further Research	11
Acknowledgements	12
References:	13
Appendices:	17
Appendix A: Survey	17
Appendix B: Pre-Survey Script & Post Survey Handout	18
Appendix C: Coding	10

Executive Summary

In an ideal world, food systems, including campus food systems, would reflect the needs and values of the communities they serve. However, a lack of understanding can provide a window of opportunity for multinational corporations (MNCs) to exert influence and control in food systems.

The purpose of this study was to gauge the understanding that undergraduate students on Dalhousie University's Studley Campus have of the campus food system. The study aimed to bring to light whether a knowledge gap exists within the undergraduate student body with respect to the food system. In this context, a knowledge gap was defined as "a disparity in levels of knowledge" (Oxford University Press, 2017).

A one-sided pencil-and-paper survey was administered at three locations on Dalhousie's Studley Campus: the Killam Memorial Library, Life Science Centre (LSC) and the Dalhousie Student Union Building (SUB). The survey contained eight questions, including non-identifying demographic information and questions structured to gain insight into the level understanding students had of the campus food system. The surveys were administered by teams of two over a period of three days, 21-23 March 2017. A total of 116 surveys were collected.

The surveys were analyzed using chi-square tests and frequency counts. The chi-square tests were conducted on SPSS statistics. The analysis yielded few statistically significant results and as a result there is a dominant focus on the frequency data. The frequency data illustrates that there is a knowledge gap with respect to the understanding of the campus food system. To summarize the results, 65.5% of respondents knew "very little to little" about the campus food system, and only 10.3% knew where to find additional information about the food system. Lastly, only 6% of respondents felt that they knew how to voice their opinions, complaints, and concerns about the food system.

Recognizing that a knowledge gap exists, it is paramount that there is a collective movement by Dalhousie University, the Dalhousie Student Union (DSU) and other campus entities to work toward a greater and more effective means of disseminating information. Including actively engaging students in the process of developing these processes. Furthermore, it is important to note that students have a shared responsibility in closing the knowledge gap, and should participate in activities to create a food system that is reflective of their needs and values. With a wider availability of information and a willingness by both Dalhousie University and its students to work together, the campus community and food system will be more equitable and reflective of the University's and student body's' values.

Introduction

Project Definition

The purpose of this project was to assess undergraduate students' level of understanding of the food system at Dalhousie University, in Halifax, Nova Scotia. This included gauging students' knowledge about the following aspects of the Dalhousie food system: the level of corporate influence, current food policies, and how to obtain information about the food system. As students are directly affected by food options on campus and are paying members of the DSU, they are important stakeholders in the Dalhousie food system and must be included in decision-making processes (Dalhousie University, 2017; van Weenen, 2000). With this, it is important to know if students are informed about the current practices and policies that govern the food services on campus.

By beginning to assess students' knowledge levels about the present food system at Dalhousie University, we hoped to be able to identify if there is a knowledge gap that needs to be addressed. Furthermore, this project hopes to encourage improvements to the current food structures, in alignment with the Dalhousie *Sustainable and Healthy Food Framework* (2016), increase transparency and participation in the decision-making process on campus, and inform food service providers and decision makers on if there needs to be changes in how information is disseminated to students.

Background and Literature Review

Campus food systems are microcosms of regional, national, and global food systems. A food system includes all stages of production, consumption, and waste of food (FAO, 2016; University of California, 2017). Food is a basic human need and is part of every system. These systems must be analyzed to ensure that they are sustainable, and that those dependent on them are being nourished, not just fed (FAO, 2016; University of California, 2017). In order for food systems to be sustainable and equitable, they must incorporate the principles of food sovereignty and food security. La Via Campesina (2016) defines food sovereignty as "the right of peoples to healthy and culturally appropriate food produced through sustainable methods and their right to define their own food and agriculture systems". In addition, food security is defined as: "...when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life" (WHO, 2017). In regards to accessibility and nutrition, for individuals to make informed decisions about the food that they are consuming they must have access to proper information about said system (Bourdeaudhuij, et al., 2014; Feldman et al. 2013, p. 87 as first cited in Cranage et al. 2004; Tseng et al., 2016). Food sovereignty recognizes cultural diversity and autonomy, while food security relies on the economic accessibility to food through a capitalist lens, and both are important to consider when endeavouring to analyze and improve food systems.

Dalhousie University is located in Nova Scotia, Canada and has 19,743 students enrolled and over 1000 faculty members (Dalhousie, 2016a; Dalhousie, n.d. b). As such, there are many individuals who are reliant on and impacted by Dalhousie's food system. Dalhousie's Food Services states that it is dedicated to "providing high quality, well-balanced, nutritious food

options" (Dalhousie University, n.d. a). This is important as food patterns formed during university years are often maintained over an individual's lifetime, and it has been found that availability is the primary factor that determines student food choices (Ali, et al., 2015; Bourdeaudhuij, et al., 2014; Tseng et al., 2016). With this, it is the responsibility of universities to ensure that students have proper access to nutritional food on campus.

In 2016, Dalhousie University committed to creating a more sustainable food system on their campuses, including increasing the amount of locally, sustainably, and ethically sourced foods (Dalhousie Office of Sustainability, 2016). The *Sustainable and Healthy Food Framework* provides a strategic plan to help Dalhousie University achieve these goals (2016b). The document is comprehensive, providing detailed information on the context of the current food structures on campus and the goals, actions, targets, roles and responsibilities, and evaluation plans for the proposed framework. Furthermore, the document states that the university sees the Dalhousie University Ancillary Services and food services as having full responsibility for achieving the vision presented in the framework (Dalhousie Office of Sustainability, 2016). However, as mentioned previously, to ensure food security and food sovereignty, it is important that consumers have autonomy over their food and within broader food systems, as they are also stakeholders in these systems (La Via Campesina, 2016; WHO, 2017).

Thus, it is worth noting that a key component of the framework is education. This is important as stakeholders must be informed to be able to make informed decisions, and therefore, for the university practices and policies to be equitable (Allen, 2010; Dalhousie Office of Sustainability, 2016; van Weenen, 2000). If stakeholders are unaware of their level of influence in decision-making processes and their options, it is not possible for their needs and values to be accurately represented within the campus food system (Allen, 2010). As students are paying members of the Dalhousie Student Union, with a portion of their fee contributing to the food services on campus, they are important stakeholders in the Dalhousie food system (Dalhousie University, 2017). For this reason, it is pertinent that governing bodies actively engage students in decision-making processes to maintain just and equitable democratic practices (Allen, 2010).

It is important to note that, on top of numerous stakeholders, including students, professors, and employees, there are also operational and financial limitations that play a role in decision-making processes on campus. For instance, universities deal with limited budgets to provide adequate campus services to their communities. Outsourcing many of these services allows for universities to lower costs, but at the price of relinquishing control over many aspects of the service (Rodya, 2010; Shaw, 2010). MNCs will naturally have their own agendas, including profits, and issues like food type, prices, retail locations and how food is contracted will be dictated by their needs (Rodya, 2010; Shaw 2010). For example, most contracts require that the corporation be given exclusive rights to operate on campus, stifling both competition and diversity of choice (Rodya, 2010). This means that students are limited in their ability to dictate the food services that they wish to have on campus.

Furthermore, since highly corporate campus food systems are microcosms of the corporate global food system, they are not only susceptible to the same fluctuations and insecurities, but also have the same negative environmental and social impacts (Gaffikin & Perry, 2009; Honey & Wilson, 2009; Richer, Rojas, & Wagner, 2007). Critics of many universities' policies of outsourcing campus food services caution that universities are becoming increasingly profit driven, which

limits the possibilities of creating a sustainable service and neglects benefiting the local economy (Shaw, 2013).

In these highly corporate campus food systems, students often have minimal options for accessing affordable, minimally processed, ethnically diverse, locally sourced, or fresh food on campuses (Gottlieb, Haase, & Valliantatos, 2004; University of British Columbia, 2007). Furthermore, many students who attend universities that have outsourced their campus food systems believe that MNCs have lower-quality food for the prices associated with them (Henry, 2013). Reducing this capitalist structure is imperative in allowing students agency regarding their food choices and the environmental and societal effects that their choices might have locally and globally. There are financial and operational limitations, however, it is important that students are aware of their choices and have access to transparent information about their current food system. If students are unaware of the campus food system, including the structural, environmental, and social justice implications, they are not able to make informed decisions and ask for change.

Dalhousie University's food systems are currently operating under MNCs, namely Aramark and Chartwells. Chartwells in particular has a history of exploitation through reduced wages for their employees, acquiring food from providers with unjust working conditions, involvement with the prison food complex, and exploitation of their consumers by providing culturally inappropriate and inaccessible food (Collins, 2016). Both Aramark and Chartwells' current contract is highly exclusive, like the contracts described previously, and provide them control over all food services on campus, with the exception of the Loaded Ladle (Dalhousie Office of Sustainability, 2016; T. Pooran, personal communication, March, 2017). This control even includes bake sales that occur on campus, as the contract limits what is able be sold independently of Chartwells and Aramark (Dalhousie Student Union, 2016). Corporations, like Chartwells, value profit over the importance of food security and food sovereignty, and they are further marginalizing vulnerable populations that are affected by socio-economic inequalities (Collins, 2016). Therefore, it is important that all stakeholders, including students, are aware of the exclusive nature of this contract and the implications of relying solely on MNCs, such as Chartwells and Aramark. If students are unaware of the exclusivity that is inherent in contracts with MNCs, they are not able to make informed decisions about their food system and to be well versed and understand the associated economic and ethical implications.

The current contract with Chartwells, specifically in the SUB, is supposed to be a temporary transition contract from the previous provider, Sodexo, to a self-operating food system (T. Pooran, personal communication, March, 2017). According to the Association for Healthcare Foodservice (n.d.), self-operating food systems are managed independently by a business or institutions own staff, rather than outsourcing it to a foodservice company. However, re-signing a contract with Chartwells would eliminate the option to have a self-operating food system at Dalhousie University until the end of the next contract, which ultimately reduces student autonomy in their food choices on campus.

It is important to note that Dalhousie's food structures have improved over time. For instance, the university has endeavoured to reduce water usage in meal halls and increasing its sourcing of certified sustainable seafood. Furthermore, due to continued persistence of students, there is now a Dalhousie Farmer's Market, which students were once told would not be possible,

and The Loaded Ladle has been able to expand (Chiasson, 2017; Colin, 2015). The Loaded Ladle was originally called Campus Action on Food (CAF) whereby they would set up an ironing board and serve soup and salad into tupperware and old yogurt containers (T. Pooran, personal communication, March 2017). This service circled students, faculty, and community members in with promises of free food until someone would call security, who would restrict CAF members from serving on campus (T. Pooran, personal communication, March, 2017). These servings continued a few times per month until the DSU eventually banned CAF servings on campus entirely (T. Pooran, personal communication, March, 2017). The student body, community members, and CAF consumers retaliated until their voices were heard and CAF was able to serve again, leading to the eventual formation of the Loaded Ladle (T. Pooran, personal communication, March, 2017). This emphasizes that student action is an important and valuable tool for change to be made on campuses. Dalhousie seems to be moving in the right direction to having an increasingly sustainable food system, however, it must recognize the importance of consulting with students before implementing any changes (Ali et al., 2015).

There are many campuses that have transitioned away from highly corporate food systems, endeavouring to make their campus food systems increasingly sustainable and transparent, thus it is a possibility for Dalhousie (Barlett, 2011; Honey & Wilson, 2009; University of British Columbia, 2007). More importantly, students have championed many of these transitions by demanding food systems that are reflective of their values and needs (Arias, 2009; van Weenen, 2000). However, in order to demand change, students must be aware of the factors influencing the food systems, and how they can best catalyze change within them. A knowledge gap would limit students' ability to communicate areas that they perceive as important for reform.

Methods

Study Design, Procedures, Limitations & Delimitations

Adams and Emanuel (2011) conducted a study on two campuses where surveys were distributed to students to understand student conceptualization of sustainability. A total of 416 surveys were distributed, with 258 distributed on one campus accounting for 1.4% of its student body, with an additional 148 distributed on the second campus accounting for 0.3% of its student body (Adams & Emanuel, 2011, p. 83). The surveys were voluntary in nature and there was no incentive given to participants (Adams & Emanuel, 2011, p. 83). Additionally, the anonymous surveys contained a variety of close-ended questions but some demographic information was collected (Adams & Emanuel, 2011, p. 83).

For the purpose of this study, we must recognize that Dalhousie University, including Kings College, had total enrolment of 19,743 as of 1 December 2016, and this includes the Halifax campuses and Truro campus (Dalhousie, 2016a). Additionally, as of 2014, Dalhousie employed 1,100 professors, but no data was available for other faculty and staff members (Dalhousie, n.d). Therefore, recognizing the limitations of the study with respect to time and resources, we were unable to mimic the scale of research conducted by Adams and Emanuel (2011). We instead conducted a convenience, non-probabilistic survey of undergraduate students in the SUB, Killam Memorial Library, and LSC. A survey was chosen over other methods such as interviews or focus

groups as this research tool allowed each group member to ask a standard form of questions while gathering a range of responses. Although a survey does not solicit the in-depth responses of interviews or focus groups, the emphasis of our research is more closely linked to understanding the general knowledge of the undergraduate population on the campus food system. The survey also allowed individuals to remain anonymous, aiding in increasing participants' willingness to answer. Overall, using a pencil and paper survey fit most accurately with our research goals and was more realistic in terms of administration when considering time and resource constraints. In total, 116 surveys were collected with a response rate of 94.3%. The study was only administered in English, as it was outside of the capacity of the team to conduct the survey in multiple languages. This could have been a limiting factor in gauging student knowledge, as participants may have had differing levels of English proficiency.

The survey was one page in length and contained eight questions with 15 answers. The first question in the survey solicited non-identifying demographic information, including faculty, degree, and year, ensuring that the survey remained anonymous. Each member of the research group was responsible for administering approximately 20 surveys by targeting undergraduate students in the SUB, Killam Library, and LSC. The researchers went out in pairs, approached potential participants and read the script associated with the survey. If the individual was willing to participate, they were then provided with the survey. Furthermore, if participants chose to, they were able to opt out of the survey at any point throughout the process by simply not completing the survey. Although numbered, the surveys were not conducted in numerical order. The number on each survey corresponded to a numbered thank you note with contact information that was provided to the respondent upon completion of the survey, which the respondent could use in order to recant their survey until 31 March 2017. No one utilized this feature so each completed survey that was collected was included in data analysis.

In terms of limitations, question two could have been reworked to identify if students knew that part of their annual DSU membership fees is used to pay for food services in general. This would have better summarized student knowledge and reduced the need of respondents to know an exact portion of fees. Additionally, part one of question eight could be seen as a limitation as it assumed that the respondent wanted to learn more about the food system. Therefore, it could be reworked to include a contingent response of whether the participant wanted to learn more about the system or not.

Upon completing the administration of the survey, data from the 116 completed surveys were analyzed using a chi-square test, and frequency counts were obtained. Given the small sample size, non-probabilistic nature of the survey, as well as the aforementioned limitations and delimitations, the statistical results are not representative of all stakeholders within the campus food system.

Results

A chi-square statistical test was used to analyze the survey results, in which faculty was compared to survey responses. The following distinctions between faculties we considered in the initial analysis were as follows: Arts and Social Science, Commerce and Management, Computer Science, Engineering, Health Professions, Science, Architecture and Planning, and Other. This initial test produced two significant results, when faculty was compared to question $4 \ (P < 0.039)$

and question 7b (P < 0.018) (Appendix C). This illustrated that there was statistical significance with respect to students' lack of knowledge of food policies and food policy documents published by Dalhousie. Additionally, the ability of students to identify whether the "Loaded Ladle" is under the management of Chartwells or Aramark was statistically significant. However, these results could be due to the small number of responses from within the respective faculties and thus a function of size. Looking at these two results in a more holistic manner, it can be noted that only 3.44% of surveyed students were aware of any food policies or food policy document at Dalhousie. Additionally, 78.44% recognized that the loaded ladle was independently operated.

To account for small counts within groups, faculties were grouped as follows: Arts and Social Science, Commerce and Management, Computer Science, Science, and Other (Appendix C). However, this yielded no results of statistical significance from the chi-square test, nor did a comparison using year.

While few significant results were obtained, it is felt that the frequency data gathered from the surveys illustrates a lack of understanding of the food system on Dalhousie's Studley campus. 65.5% of respondents felt they knew "very little to little" about the Dalhousie food system (Figure 1). 16.4% of respondents were able to correctly identify Aramark and Chartwells as "large multinational corporations." While 10.3% of respondents agreed that they if they wanted to learned more about the food system at Dalhousie they would know where to obtain the information, only 6% of respondents completely agreed that they knew where they could voice their opinions, complaints, and concerns about the Dalhousie food system (Figures 2 & 3). While not statistically significant, these results represent a knowledge gap with respect to the undergraduate understanding of the food system at Dalhousie.

Level of Understanding of Dalhousie's Food System

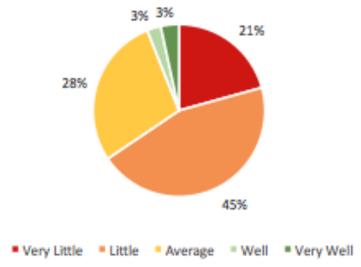


Figure 1 Level of Understanding of Dalhousie's Food System: Distribution of undergraduate student general understanding of Dalhousie's Food System based on frequency data obtained from the analysis of question two of the survey utilized in the study (Appendix A, Survey; Appendix C, Coding).

Awareness of Where to Find More Information

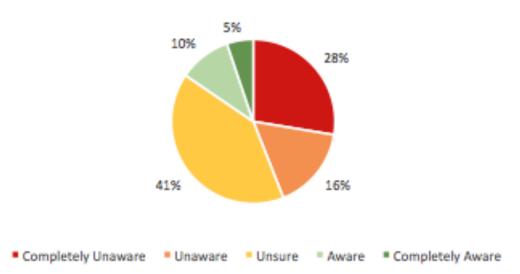


Figure 2 Awareness of Where to Find More Information: Undergraduate student level knowledge of where to seek information about Dalhousie's Food System. Based on frequency data obtained from the analysis of question 8a of the survey utilized in the study (Appendix A, Survey; Appendix C, Coding).

Awareness of How to Voice Opinions

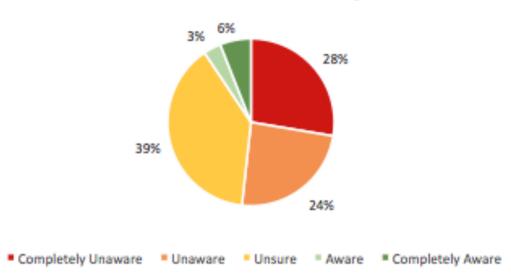


Figure 3 Awareness of How to Voice Opinions: Distribution of undergraduate levels of knowledge of where students can voice their opinions, comments or concerns about the Dalhousie food system. Based on frequency data obtained from the analysis of question 8b of the survey utilized in the study (Appendix A, Survey; Appendix C, Coding).

Discussion

Significant Findings and Implications

Through highlighting the divide within the sample population on Dalhousie's Studley campus, it has been illustrated that there is a clear knowledge gap amongst the users of the Dalhousie food system. Students are generally unaware and unfamiliar with the food system that serves them, additionally they are unaware of many of the major elements that comprise and dictate the food system, such as the presence and role of MNCs. Additionally, students are unaware of where they are able to obtain additional information with respect to the food system on campus.

There are many opportunities for growth within Dalhousie's food system. It is recommended that there is a greater dissemination of information to stakeholders within the food system and that this be done with the goal of creating a food system that is representative of the community it serves. Additionally, Dalhousie should promote a democratic process through which the food system on campus can undergo equitable and fair changes that involve the student body. In order for this process to be facilitated, it is important for organizations and students to have access to information about the food system. It is clear that the current propagation of information is not suitable and needs to be improved. Dalhousie University, the Dalhousie Student Union, and Dalhousie Food Services must work together to ensure that students, faculty, staff, and community members have proper access to information. However, our results conclude that there is a high understanding of the role of the Loaded Ladle within the campus food system whereby 78.44% of respondents were aware that that they are independently run.

Furthermore, this study sets a baseline through which other issues regarding the food system can be explored. As discussed earlier, with an equitable, participatory, democratic process as it pertains to the food system, then students would be able to make meaningful change on campus as seen with CAF and the Loaded Ladle. In addressing the knowledge gap, any concerns regarding food sovereignty, food security, accessibility, and sustainability could be addressed in a more holistic manner. Therefore, creating a food system that is representative of its stakeholders. The members of the Dalhousie community and those who utilize the food system have the right to be informed about the food system on campus. As a collective, stakeholders can work together to mold a food system that is representative of the population it serves.

Conclusion

Recommendations for Action & Further Research

The results of this study conclude that there is a knowledge gap with respect to the understanding of the food system at Dalhousie. Most respondents had a low level of understanding, were unaware of how to voice their opinions, and did not know where to find information about the food system. This leads to an inability for student led initiatives to act on problems affecting the student body with regard to the food system. We recommend that Dalhousie University and the DSU work to improve the student body's understanding of the food

BITING OFF MORE THAN YOU CAN CHEW

system services to further gauge the importance of improving the food system services at Dalhousie University. Increasing stakeholder participation within the food system would improve its ability to properly cater to the needs of all stakeholders impacted.

One advantage of this form of research is its expandability of scale. This study could be conducted not only to multiple higher education institutions simultaneously, but could be expanded to include food systems awareness over a period of time. For example, for a campaign promoting food systems awareness, a similar study could be used before the campaign to determine background levels of food system awareness. Furthermore, after the campaign is completed, reassessments could be done to determine the immediate and long-term effectiveness of the campaign.

By further exploring the existing knowledge gap and increasing student engagement, the university and food services could integrate findings into the existing *Sustainable and Healthy Food Framework* for more effective dissemination of information, allowing stakeholders to make informed decisions (2016b).

Acknowledgements

We would like to thank our project mentor, Molly Fredeen, and professor, Dr. Chris Greene, for guiding us through this project. Specifically, thanks to Molly Fredeen for guiding us in the process of developing our research project, refining our scope, and writing, and to Dr. Chris Greene for support in developing our research tool and data analysis. We would also like to thank all those who participated in our survey, for making this research project possible.

References:

- Adams J. N. & Emanuel, R., (2011). College students' perceptions of campus sustainability. *International Journal of Sustainability in Higher Education, 12*(1), 79-92. doi: 10.1108/14676371111098320
- Allen, P. (2010). Realizing justice in local food systems. Cambridge Journal of Regions, Economy and Society, 3(2), 295-308. doi:10.1093/cjres/rsq015
- Ali, H. I., Jarrar, A. H., Abo-El-Enen, M., Shamsi, M. A., & Ashqar, H. A. (2015). Student's perspectives on promoting healthful food choices for campus vending machines: A qualitative interview study. *BMC Public Health*, 15(512), n.p., doi: 10.1186/s12889-015-1859-2
- Arias, C. (2009). Sustainable Dining. Sustainability: The Journal Of Record, 2(4), 215-220.
- Association for Healthcare Foodservice. (n.d.). *The "Self-Operated" Difference*. Retrieved from http://healthcarefoodservice.org/about-us/the-self-operated-difference/
- Barlett, P. F. (2011). Campus sustainable food projects: Critique and engagement. *American Anthropologist*, 113(1), 101-115. Doi: 10.1111/j.1548-1433.2010.01309.x
- Bourdeaudhuij, I. D., Clarys, P., Deforche, B., & Deliens, T., (2014). Determinants of eating behaviour in university students: A qualitative study using focus group discussions. *BMC Public Health*, *14*(1). doi: 10.1186/1471-2458-14-53
- Chiasson, M. (2017). Loaded Ladle looks for levy increase. Retrieved from: http://dalgazette.com/news/campus/loadedladlelevyincrease/
- Colin, E. (2015). Sustainable seafood: From sea to table. Retrieved from: https://www.dal.ca/news/2015/03/02/sustainable-seafood--from-sea-to-table.html
- Collins, C. (2016). The cost of privatized food in public institutions. Retrieved from: http://rabble.ca/news/2016/02/cost-privatized-food-public-institutions
- Dalhousie Office of Sustainability. (2016). *Food*. Retrieved from https://www.dal.ca/dept/sustainability/programs/Eating_Sustainably.html
- Dalhousie Student Union. (n.d). *Food & Drink*. Retrieved from: https://www.dsu.ca/our-building/food-drink
- Dalhousie Student Union. (2016). Bake Sale Request Terms Conditions. Retrieved from: http://dsu.ca/sites/default/files/image-uploads/Bake%20Sale%20Request%20Terms%20%20Conditions.pdf

- Dalhousie University. (2016a). 2016/2017 Enrolment Statistics Summary by Faculty. Retrieved from: https://www.dal.ca/content/dam/dalhousie/pdf/dept/oiar/Public_Reports_and_Data/Enrollment/2016/Faculty_Dec1-2016.pdf
- Dalhousie University. (2016b). Sustainable and Healthy Food Framework. Retrieved from https://www.dal.ca/content/dam/dalhousie/pdf/dept/sustainability%20Health%20Food%20Report%202016%20Final%20Report%20(1).pdf
- Dalhousie University. (2017). Incidental Fees. Retrieved from https://www.dal.ca/admissions/money_matters/tuition_fees_costs/incidental_fees.html
- Dalhousie University. (n.d a). Ancillary services: Food services. Retrieved from: https://www.dal.ca/dept/ancillary-services/services/food-services.html
- Dalhousie University. (n.d b). Dal at a Glance. Retrieved from: https://www.dal.ca/about-dal/dal-at-a-glance.html
- Feldman, C., Harwell, H., & Brusca, J. (2013). Using student opinion and design to develop an informed university foodservice menu. *Appetite*, 69(1).
- Food and Agricultural Organization (FAO). (2016). *The future food system: the world on one plate?*Retrieved from: http://www.fao.org/cfs/cfs-home/blog/blog-articles/article/en/c/448182/
- Gaffikin, F., & Perry, D. C. (2009). Discourses and strategic visions: The U.S. research university as an institutional manifestation of neoliberalism in a global era. *American Educational Research Journal*, 46(1), 115-144.
- Gottlieb, R., Haase, M. A., & Vallianatos, M. (2004). Farm-to-school. *Journal of Planning Education and Research*, *23*(4), 414-423. doi: 10.1177/0739456X04264765
- Henry, M. (2013). Better food at Ryerson? Corporate switch leaves students skeptical. Retrieved from:

 https://www.thestar.com/life/food_wine/2013/08/01/torontos_ryerson_university_ditch_es_unpopular_food_contractor.html
- La Via Campesina. (2016). Publications. Retrieved from: https://viacampesina.org/en/index.php/publications-mainmenu-30
- Oxford University Press. (2017). Knowledge Gap. Retrieved from: https://en.oxforddictionaries.com/definition/knowledge_gap
- Rodya, C. (2010). Aramark food services found lacking: Globe study. Retrieved from http://thelambda.ca/2010/11/17/195/

BITING OFF MORE THAN YOU CAN CHEW

- Richer, L., Rojas, A. & Wagner, J. (2007). University of British Columbia food system project: Towards sustainable and secure campus food systems. *Ecohealth*, *4*(1), 86-94. doi: 10.1007/s10393-006-0081-1
- Shaw, C. (2013). Outsourced vs on campus services: What's the best model?. Retrieved from: https://www.theguardian.com/higher-education-network/2013/mar/19/university-services-outsourcing-campus-models
- Tseng, M., DeGreef, K., Fishler, M., Gipson, R., Koyano, K., & Neill, D. B. (2016). Assessment of a university campus food environment, California, 2015. *Preventing Chronic Disease, 13*. doi: 10.5888/pcd13.150455
- University of British Columbia. (2007). Bring Local Food to UBC Campus: 2007 UBC Food System Project (UBCFSP), Scenario 4 Report. University of British Columbia, Agricultural Sciences. Atti,S., Chongchitnant, P., Lee, L., Robson, K., Tedrjowarsito, H., Tse, I., Wright, L.
- University of California. (2017). Defining sustainable community food systems. Retrieved from: http://asi.ucdavis.edu/programs/sarep/research-initiatives/fs/sfs/defining-sustainable-community-food-systems
- Van Weenen, H. (2000). Towards a vision of a sustainable university. International Journal of Sustainability in Higher Education, 1 (1), 20-34.
- World Health Organization (WHO). (2017). Nutrition and food security. Retrieved from http://www.who.int/foodsafety/areas_work/nutrition/en/

Appendices:

Appendix A: Survey

Facu	Faculty (Ex: Arts & Social Science, Science, Architecture, etc.):				
Degr	ee (Major) :		Year:		
Do y	ou know what part of y	our annual DSU membe	ership fees pay for the fo	ood services on campus?	
		Yes	N	Io	
	To what extent do you understand the Dalhousie the food system? <i>Circle one.</i> (1 = I know very little, 5 = I am involved in the system and know it very well)				
1	2	3	4	5	
Are	Are you aware of any food policies or food policy documents published by Dalhousie?				
		Yes	N	lo	
If ye	s, which one(s)?				
(1 -	none, 5 = total)				
1 Char	2 twells and Aramark cu	3 rrently manage Dalhous est describes Chartwells	,	5 ne.	
1 Char Whice	2 twells and Aramark cu	rrently manage Dalhous	sie's food system.	ne.	
1 Char Whice Loc	2 twells and Aramark cu ch term do you think be	rrently manage Dalhous	sie's food system. and Aramark? <i>Circle Oi</i>	ne. Scale Companies	
1 Char Whio Loo	2 twells and Aramark cu th term do you think be tal Halifax Companies ge National Corporatio	rrently manage Dalhous	sie's food system. and Aramark? <i>Circle Oi</i> Medium Provincial Large multi-nation	ne. Scale Companies al Corporations	
1 Char Whice Local Lan	2 twells and Aramark cu th term do you think be tal Halifax Companies ge National Corporatio	rrently manage Dalhous est describes Chartwells ons	sie's food system. and Aramark? <i>Circle Oi</i> Medium Provincial Large multi-nation	ne. Scale Companies al Corporations	
1 Char Which Local Lare Which I F	2 twells and Aramark cu th term do you think be al Halifax Companies ge National Corporatio th of the following do y	rrently manage Dalhous est describes Chartwells ons	sie's food system. and Aramark? <i>Circle Oi</i> Medium Provincial Large multi-nation	ne. Scale Companies al Corporations	
1 Char Whice Local White White I I I	2 twells and Aramark cu th term do you think be cal Halifax Companies ge National Corporation th of the following do y desidence meal halls	est describes Chartwells	sie's food system. and Aramark? <i>Circle Oi</i> Medium Provincial Large multi-nation	ne. Scale Companies al Corporations	
1 Char Whice Lar White	twells and Aramark cuch term do you think be tal Halifax Companies ge National Corporation th of the following do y desidence meal halls wonded Ladle	est describes Chartwells	sie's food system. and Aramark? <i>Circle Ol</i> Medium Provincial Large multi-nation s and Aramark manage?	ne. Scale Companies al Corporations Check all that apply.	
1 Char Which Loo Lar Which I I I I I I I I I To w	twells and Aramark cuch term do you think be cal Halifax Companies ge National Corporation that of the following do you desidence meal halls would be considered and considered that extent do you agree that extent do you agree.	est describes Chartwells ons ou think that Chartwells	sie's food system. and Aramark? Circle Of Medium Provincial Large multi-nation s and Aramark manage? bway, Pita Pit, Pete's to	ne. Scale Companies al Corporations Check all that apply. GoGo, Subway, etc.)	
Char Which Local Land Which Land To we (1 - c)	twells and Aramark cuch term do you think becal Halifax Companies age National Corporation that of the following do you sesidence meal halls would be compared to the control of the contr	est describes Chartwells ons ou think that Chartwells mpus (Tim Hortons, Sul	sie's food system. and Aramark? Circle On Medium Provincial Large multi-nation s and Aramark manage? bway, Pita Pit, Pete's to pollowing statements? y agree) Put your number	ne. Scale Companies al Corporations Check all that apply. GoGo, Subway, etc.)	

Appendix B: Pre Survey Script & Post Survey Handout

Pre Survey Script:

Hello!

Are you a Dalhousie undergraduate student?

(If they say yes)

Would you be able to fill out our survey? It will only take 3-5 minutes.

(If they say yes)

We are Sustainability/Environmental Science students and are conducting a survey about the Dalhousie food system.

We are not collecting any identifying information, and will be destroying all the data at the end of this semester (April 30th, 2017).

If you wish to opt out of the survey at any time while completing the survey, you may simply stop filling out the survey as incomplete surveys will not be counted, or take the survey with you and discard it at your convenience. Additionally, we will provide you with a contact email, which you may use to contact us with any questions or to have your responses removed from our analysis. We will provide you with a random number that will be affiliated with your response so that we can remove your data if you so choose, prior to March 30th.

If you have any questions, we are happy to answer them!

(Have them fill out the survey)

Thanks so much for your time! If you want to see the results, they will be posted on the Environmental Science program website and also, we are hoping to share it on the College of Sustainability blog, and the sustainability and environmental science student society facebook page. Thank you.

Post survey handout:

|--|

Thank you for participating in our survey about the Dalhousie Food System. It is greatly appreciated.

If you wish to remove your survey response from our results, please email the following email address prior to March 30^{th} with the number indicated at the top of this paper.

Upon request, we will remove your responses and they will not be included in our final report that will be released in April, and will be able to be found here:

https://www.dal.ca/faculty/science/environmental-science-program/research/envs-3502---past-projects.html

Contact email: rc317527@dal.ca

Appendix C: Coding

Question	Coding
Question 1a: Faculty	0 = Arts and Social Science
	1 = Commerce and Management
	2 = Computer Science
	3 = Engineering
	4 = Health Professions
	5 = Science
	6 = Architecture and Planning
	7 = Other
Question 1b: Degree (Major)	N/A
Question 1c: Year	1-6
Question 2: Awareness of Usage of DSU Membership Fees	0 = No
Towards Food Services	1 = Yes
Question 3: Self-Reported Understanding of the Dalhousie	1-5
Food System	
Question 4a: Awareness of Food Policy Documents	0 = No
	1 = Yes
Question 4b: Specifying Food Policy Documents	N/A
Question 5: Believed Corporate Influence on Dalhousie	1-5
Food System	
Question 6: Belief on Scale of Chartwells and Aramark	0 = Local Halifax Companies
Operations	1 = Medium Provincial Scale
	Companies
	2 = Large National Corporations
	3 = Large Multi-National
	Corporations
Question 7: MNC Management of a) Residence Meal Halls,	0 = No
b) Loaded Ladle, c) Event Catering on Campus, d) Food	1 = Yes
Distributors on Campus	
Question 8a: Ability to Access More Information	1-5
Question 8b: Ability to Voice Opinions	1-5