



Ethical and Sustainable Coffee Consumption on Studley Campus,  
Dalhousie University

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### Executive Summary

This research investigates the prevalence of ethical coffee consumption among Dalhousie University's undergraduate student population. We analyse how individual

perspectives on the impacts of coffee production influence consumptive behaviours on Studley Campus by collecting survey data and observing consumer choices. We have determined that the relationship between environmentally conscious perspectives and ethical coffee consumption behaviour is weak. 75% of survey participants indicate that they care about the environmental implications of the coffee they consume on campus. However, 50% of participants were unaware of which popular campus coffee shops carry fair-trade coffee products, and on average, students claimed to prioritize cost, proximity, flavour, and available food options over sustainability when deciding where to buy coffee. Our findings suggest that this discrepancy may be due to the accessibility of information regarding the coffee brands offered on campus and the environmental implications associated with these products. Additionally, we found that Dalhousie undergraduate students feel constrained by prices, and on average, prefer to buy the least expensive coffee on campus. We recommend that future studies explore the correlation between coffee prices and product consumption at Dalhousie University, so that consumer responsiveness to price changes on university campuses can be predicted. In a broader context, this recommended research could be used to model the effects of fair-trade coffee subsidies on consumer behaviour, or to illustrate the benefits of educating students on the environmental impacts of the products they purchase regularly.

## **Introduction**

Evidence suggests that coffee has been an integral part of our everyday lives since the 10th century (Smith, 1985) and will continue to be one of the most sought-after commodities in the world. It is estimated that two-thirds of Canadians enjoy at least one cup of coffee per day (Team, 2019), while consumption continues to increase at a rate of approximately 2% (Baker, 2014). But what exactly is sustainable coffee? Sustainable coffee entails coffee that is grown in such a way that it preserves the natural environment while creating the best possible livelihoods for the individuals that grow and process it (Velde, 2016). Despite this, do any of us really understand where our coffee comes from or how it is made? Does anyone even consider more sustainable coffee options prior to purchasing their morning cup of joe? This is what our research intends to find out in order to put into perspective just how knowledgeable some of us university students may be in regard to sustainable coffee options.

University students undoubtedly experience severe stresses throughout their time in school, so coffee certainly helps to kick-start most students' day, likely because caffeine helps them to feel more awake, boosts their mood, helps with concentration and alleviates

any stress (Mahoney, 2019). From this, it is quite evident that lots of coffee is purchased and consumed on university campuses by a population of students that are pressed for time and energy. The problem with this, however, is that not all coffees are produced equally. On Dalhousie University's Studley Campus in particular, there are only a limited number of coffee products that have been certified as organic, fair-trade and sustainably sourced by the Rainforest Alliance. This is critical information as clear cut rainforest plots are the primary source of land for new coffee production (Baker, 2014), and deforestation accounts for 10% of global greenhouse gas emissions (Boucher, 2014). After coffee is grown, it must be cultivated, processed, transported, packaged, distributed and brewed in store (Killian, 2003). Of course, one coffee does not have a significant environmental impact on its own. The magnitude of coffee consumed across University campuses, however, has significant impacts and should therefore be sourced sustainably.

Similar to the research in which was conducted for this report, a study conducted by Arnot and his colleagues suggests that those who purchase fair-trade coffee are significantly less responsive to price changes in comparison to regular coffee purchasers (2006). From this, we can assume that, on average, coffee consumers heavily consider prices when deciding on what type of coffee to buy and where to buy it (Arnot et. al., 2006). In relation, Lapperman and his team used survey data to investigate fair-trade coffee consumption by analyzing the consumers knowledge, personal values and willingness-to-pay (2019). This study suggests that increasing the knowledge of consumers can drastically influence their purchasing behaviour, and that consumer behaviour can also be influenced by psychological marketing prompts (Lapperman et. al., 2019). Our particular project will certainly explore the purchasing behaviour of coffee buyers, relative to ethical consumption. However, our study will investigate a more specific population of university students. The purpose of this research is to identify the driving factors that influence coffee consumer choices on campus. This research is novel and important for identifying leverage points where consumer behaviour can be influenced to lessen the environmental impacts of coffee consumption.

## **Methods**

### *3. 1 Qualitative Approach*

An internet-based survey (Google Form) was used to collect qualitative data for this study. The survey was designed to measure the sample population's willingness to purchase sustainable coffee (fair-trade, organic, rainforests alliance certified), and identify consumer priorities (affordability, quality, and/or convenience) when purchasing coffee on campus. Through the analysis of survey responses, we aim to understand students' motivations for

coffee consumption and purchasing behaviours, as well as their willingness to make changes that benefit the environment. A copy of our survey can be found in Appendix A.

An internet-based survey was chosen as the most effective approach to collecting opinions from participants in a short time period, as it is easily accessible for participants (Wright, 2005). The survey did not collect personally identifiable information and was completed by participants voluntarily. Volunteer participants were recruited with posters (Appendix B), which were posted on bulletin boards in the Life Science Building, Student Union Building, Killam Memorial Library, Kenneth C. Rowe Management Building, and Marion McCain Arts and Social Science Building. Posters featured a QR code for participants to access the online survey, and general information on the study. To encourage participation, incentives were distributed (free candies with QR codes attached) at Second Cup (Killam Library location), Tim Hortons and Pete's ToGoGo (Student Union Building locations).

The survey consisted of 6 multiple choice questions, 2 Likert-scale questions, and 2 open-ended questions, all designed to collect and assess information relevant to the research question. In the survey, participants were asked about their understanding of sustainable coffee consumption. For example, they were asked if they were familiar with the term 'fair-trade coffee'. Participants were also asked which factors influenced their decisions for where to purchase coffee on Studley campus. The research focused on coffee purchased from Tim Hortons and Pete's ToGoGo in the Student Union Building, and Second Cup in the Killam Library. These vendors were chosen because they appeared to be the busiest coffee shops on Studley campus.

The online survey was open from March 9 to March 23. The target sample population for our survey was 375 undergraduates from Studley Campus. This number was determined using an online sample size calculator and was intended to represent the 15,347 undergraduates on Studley Campus, with 95% confidence and a 5% margin of error (SurveyMonkey, 2020). On our last day of data collection, March 23rd, we had 88 survey responses. Because of our small sample size, we changed our confidence interval to 90%, with a margin of error of 8.76% (SurveyMonkey, 2020). A copy of the full survey responses can be found in Appendix C.

### *3.2 Quantitative Approach*

In our quantitative method of data collection, we used a non-probabilistic quota sampling to collect count observations at three coffee vendors (Tim Hortons, Pete's ToGoGo, and Second Cup) on Studley campus. The first count observation was on March 10th from

12:00 - 12:30 PM and 3:00 - 3:30 PM, and the second count observation was on March 13th from 12:30 - 1:00 PM and 3:30 - 4:00 PM. We chose these times so that our data represented peak hours and off-peak hours, where peak time was defined as 12:00 - 1:00 PM, and off-peak time was the remaining hours of operation. We counted all coffee beverages (coffee, ice-coffee, lattes, etc.) sold by each coffee vendor (Tim Hortons, Pete's ToGoGo, and Second Cup) within simultaneous half-hour intervals. A sample of the original data collection can be found in Appendix D.

### *3.3 Data Analysis*

Open ended survey responses were analysed by disaggregating the data with a posterior coding. For the rest of the survey data, pie charts and bar graphs were used to illustrate trends. A sample of posterior coding can be found in Appendix E. For our quantitative data, t-tests assuming equal variance were used to analyze the differences in the mean coffee sales at the three locations. A 90% confidence interval was used to test for significant differences, which was chosen because of our small sample sizes. To illustrate our findings, we used a pie chart to show the proportion of customers going to each coffee vendor.

### *3.4 Limitations*

The greatest limitation of our research resulted from the closure of Dalhousie University due to the potential outbreak of the COVID-19 virus. We were unable to complete our quantitative data collection and received fewer survey participants than we expected. Our results, therefore, may not be representative of true coffee consumption on the Studley campus. Our research may also be limited by the scope of our quantitative data collection sites, as we only collected data from the three busiest campus coffee shops. Additionally, we used information from the shops' websites to determine whether they offer fair-trade coffee. In reality, a thorough investigation would be needed to determine which products are truly fair-trade, and sustainably sourced. Our quantitative data was collected at different periods over two days and did not account for any variance in the shop's speed of service. Our results, therefore, may not represent the actual sales of the coffee vendor during that period. Lastly, we question the authenticity of some Likert-scale responses, given that multiple boxes were selected per column.

## **Results**

### *4.0 Data Analysis*

The qualitative data sample consisted of 88 survey responses from undergraduate students at Dalhousie University who had previously purchased coffee on Studley Campus. Respondents were asked to identify factors that influence where they buy their coffee on Studley Campus with a Likert scale. As seen in figure 1, respondents agreed that they were influenced by the shop's food options, the price of coffee, the taste of coffee, and the proximity of the shop, where the mode response for all 4 factors was 'agree'. In comparison, the mode response was 'disagree' for the sustainability of the shop/ the products offered, as seen in figure 1.

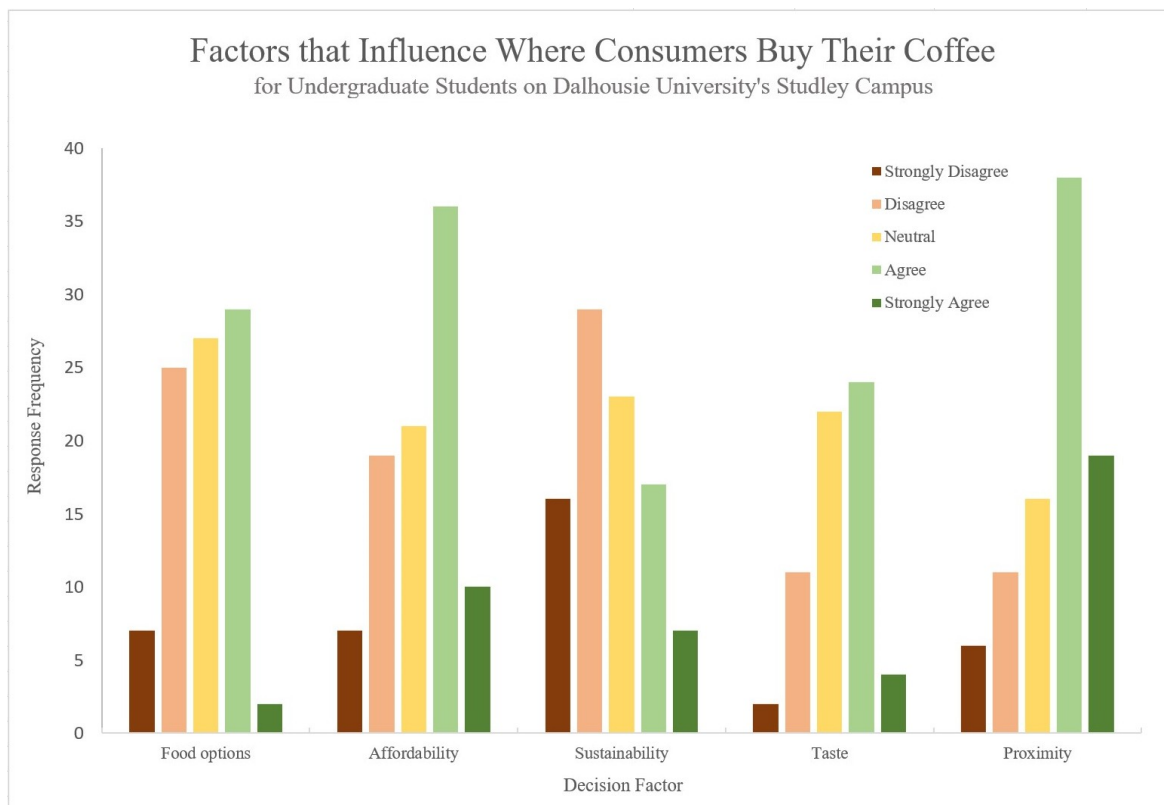


Figure 1. Likert scale responses from 88 Undergraduate students at Dalhousie University, identifying factors that influence where they buy coffee on Studley Campus. Data collected from March 9<sup>th</sup> – 30<sup>th</sup>, 2020.

77 participants replied to the open-ended survey question, where they indicated whether they cared how their coffee was produced, processed, and transported, and why. As seen in figure 2, 75% of respondents expressed concern for the implications of the coffee bought on Studley Campus, while 7% were unsure, and 18% did not express concern. Common trends included an inability to act on these concerns due to information access (16.5%) and financial constraints (12%). Additionally, 11% expressed that they did not care because they had other priorities, such as limited time and money (Figure 2).

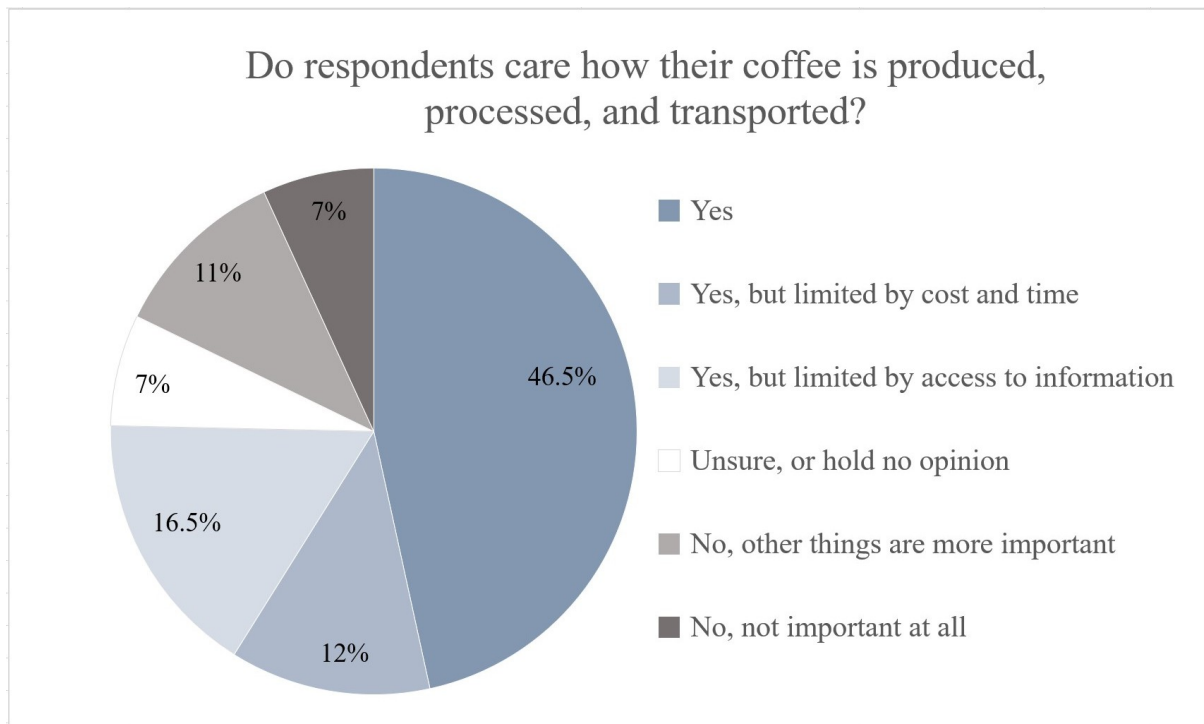


Figure 2. Open ended survey responses trends from 77 Undergraduate Students at Dalhousie University, indicating why they do or do not care about how their coffee is produced, processed and transported. Categorized using a posteriori coding, data collected from March 9<sup>th</sup> – 30<sup>th</sup>, 2020.

The next portion of the survey was focused on the participant's understanding of terms commonly used to define sustainable coffee products. As seen below in figure 3, 81.8% of survey participants were familiar with the meaning of 'fair-trade coffee', and 77.3% were familiar with the meaning of 'organic coffee'. Meanwhile, 45.5% of participants were familiar with the meaning of 'Rainforest Alliance certified coffee' (Figure 3).



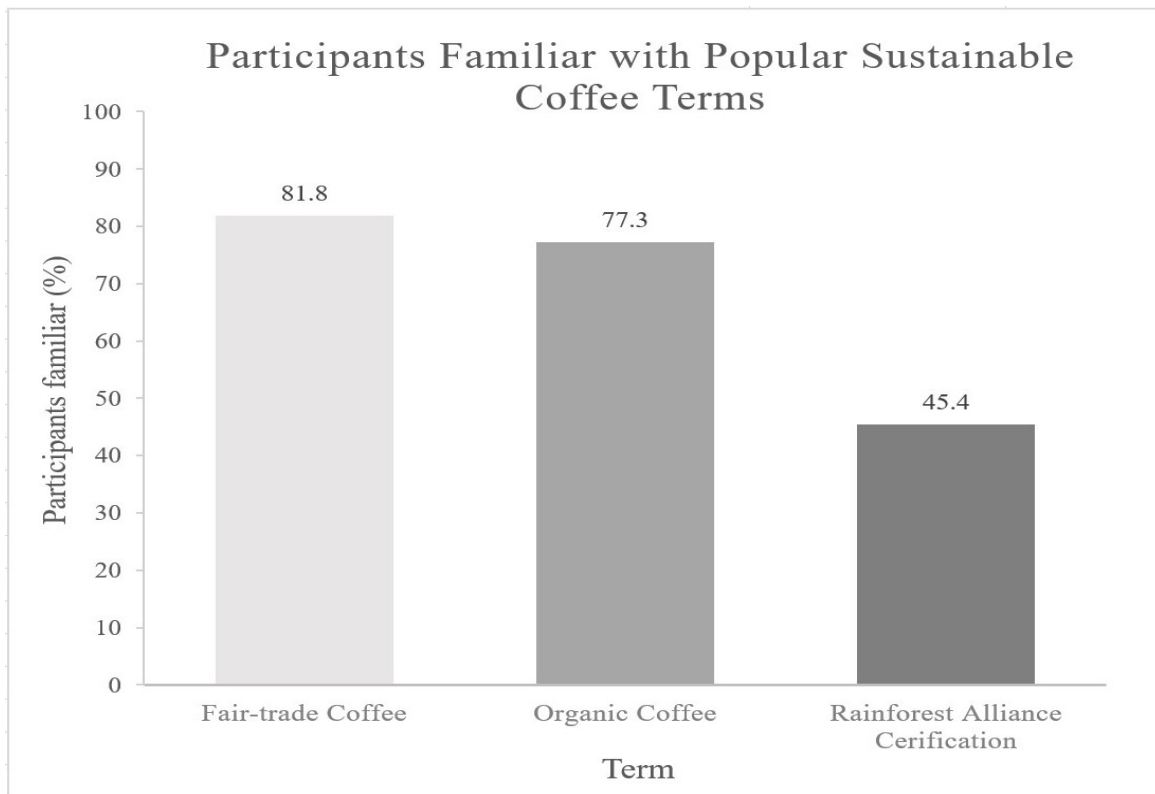


Figure 3. The proportion of survey respondents who claimed to be familiar with the terms 'fair-trade coffee', 'organic coffee' and 'Rainforest Alliance certified coffee', where 88 responses were collected electronically from undergraduate students at Dalhousie University who buy coffee on Studley Campus.

We then asked participants if they could identify which of Studley Campus's most popular coffee shops, Tim Hortons, Second Cup, and Pete's ToGoGo, offer fair-trade coffee products. Results show that 50% of respondents could not correctly identify Pete's ToGoGo or Second Cup carriers of fair-trade coffee products (Figure 4). These respondents claimed they did not know, selected Tim Hortons, or thought that none of the shops offered fair-trade coffee. Meanwhile, 25.5% of participants correctly identified only one source of fair-trade coffee, and 24.5% correctly identified both Second Cup and Pete's ToGoGo as fair-trade coffee carriers (Figure 4).

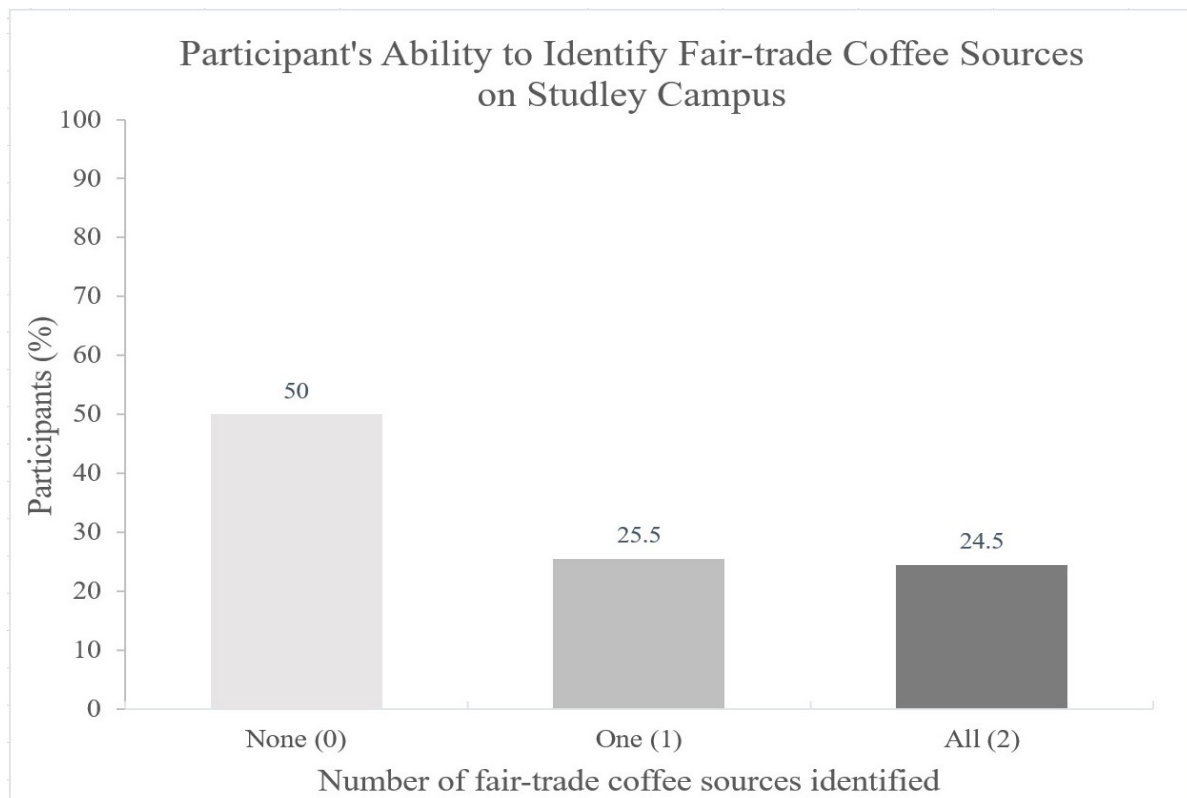


Figure 4. Percentages of participants who were able to identify Pete's ToGoGo and Second Cup as fair-trade coffee vendors on Studley campus, where 86 viable responses were collected from undergraduate students who buy coffee on Dalhousie University's Studley Campus.

The analysis of our quantitative data was performed using t-tests assuming equal variance, where we compared p-values to an alpha of 0.10. This revealed a significant difference in the mean number of coffees bought from Tim Hortons during a 30-minute period compared to Second Cup ( $t_6=2.31$ ,  $p=0.030$ ; Fig. 5) and Pete's ToGoGo ( $t_6=4.82$ ,  $p=0.001$ ; Fig. 5), which can be seen in Appendix F. Additionally, there was a significant difference between the mean number of coffees bought at Second Cup and at Pete's ToGoGo ( $t_6=2.56$ ,  $p=0.022$ ; Fig. 5). These findings are consistent with our survey results, which indicate that 53% of participants are most likely to go to Tim Hortons for coffee on Studley Campus, while 25.3% would most likely go to Second Cup and 12.6% to Pete's ToGoGo.

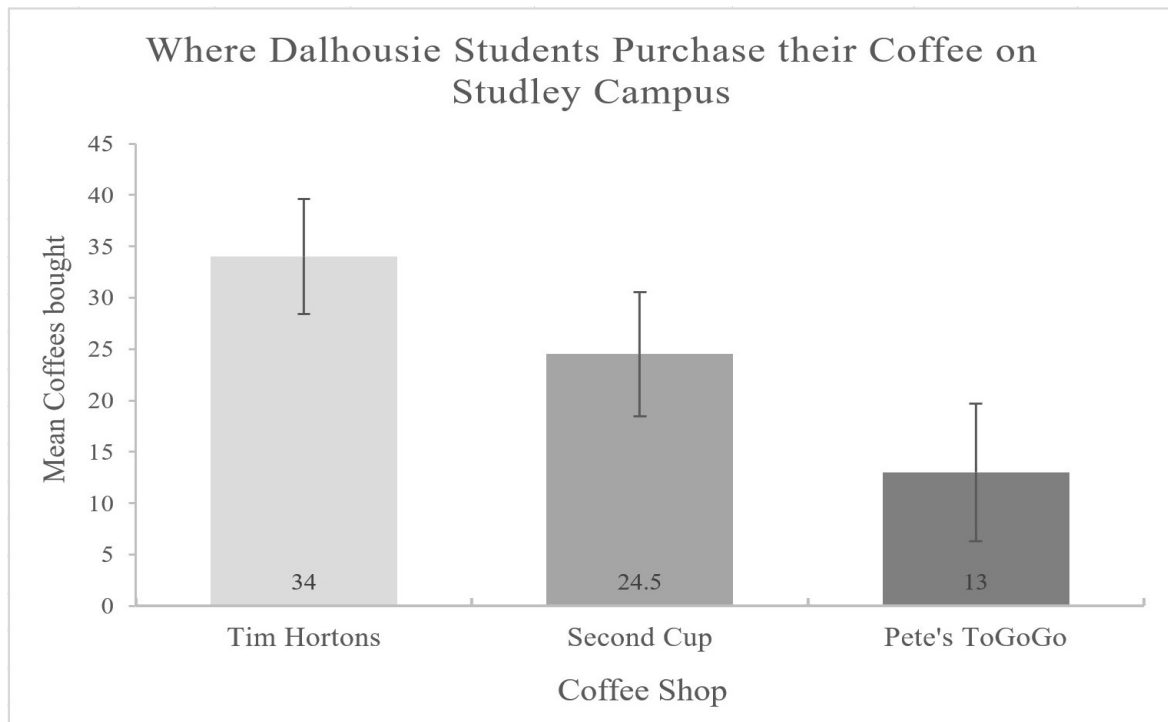


Figure 5. A comparison of the mean number of coffees bought at Tim Hortons, Second Cup, and Pete's ToGoGo during 30-minute intervals on Dalhousie University's Studley Campus. Data collected at each location simultaneously, during peak hours and off-hours from March 10<sup>th</sup> – 13<sup>th</sup>, 2020.

## Discussion

The research question that this project attempted to answer was as follows: to what degree do Dalhousie students consider the ethics of fair-trade and sustainable procedures in coffee growing when they purchase coffee on campus?

We designed this question and conducted our research study with the intent of developing a deeper understanding of student behaviour and perspective around the issue of fairly traded or sustainably certified coffee. We were interested in uncovering the factors that are important to students when drinking coffee, and what factors may influence students in their choice to buy sustainably sourced coffee or not. In a broader sense, the research was done to assess the awareness of sustainable coffee among students and their aptitude to choose to drink it, and also to look at our university campus and what climate exists as far as being open and inclusive of fair trade and sustainable coffee options. We also had the aim of increasing the knowledge of sustainability on campus and to breakdown where there are gaps in student awareness and behaviour of coffee drinking as a sustainability issue and where there are opportunities to have sustainability be a more conscious and intimate value of Dalhousie students. We selected the issue of fair-trade coffee, as coffee drinking is a large part of student culture and a major activity students take part in on campus. Because of the scale of the issue and the regularity of its occurrence, we felt it was an important

sustainability issue to address and create a study on. There are many factors that are at play and influencing the availability and purchasing of sustainable coffee on campus, and we designed our research to understand these factors and bring light to what is influencing (for better or for worse) a Dalhousie student drinking sustainably sourced coffee on campus.

After conducting a survey questionnaire on students and objectively analyzing coffee purchasing activity at three popular coffee locations on campus, we came to a body of data and survey results which gave us an indication as to how much sustainability is a factor of importance to students when they consider their coffee. The data and results also indicate what the 'on the ground' behaviour of students is like at campus locations from objectively taking count data for 30-minute intervals to see how many coffees are being sold at each of our locations of interest.

The findings which were significant in our results were that 75% of students reported concern for where their coffee was sourced when they buy it on campus. Survey results also revealed that 81.8 % of students reported they were familiar with 'fair-trade coffee', 77.3% were familiar with 'organic coffee,' and 45.5% were familiar with 'Rainforest alliance certified coffee.' These findings are significant for the student body of Dalhousie because it shows that most students do actually express a level of concern about whether their coffee is from a sustainable source or not, and most students do have an understanding about sustainability certifications on coffee. From these findings it is apparent that the majority of Dalhousie's student body has both awareness and concern about sustainability issues in coffee. This was a positive result from the survey questionnaire and showed that coffee sustainability is an issue relevant to students and their choices on campus.

In contrast to these survey response results, what was an equally interesting and significant finding was that 50% of students surveyed were not able to correctly identify the coffee locations on campus that do carry fairly-traded or sustainably sourced coffee products in their product availability. This means that though they expressed having concern for and awareness of the issue, half of all students surveyed were actually unaware of where the fairly-traded coffee is available on the university campus. This is a significant finding as it means that transparency of where sustainably certified coffee is available on campus is a possible issue that may be not allowing students to choose to drink a sustainably sourced coffee over one that is not or has an origin unknown to them simply because they don't know where these options exist on campus. Perhaps it is also an issue of campus sustainability where students may feel unable to navigate practising their personal values due to the climate of available options and awareness of sustainability issues in coffee drinking on campus. If this on campus climate is not conducive to or is not helpfully raising positive awareness of

sustainability within the coffee culture, students may feel in the dark about how to incorporate coffee drinking into their lives in a sustainable way.

Another finding of significance was that of student purchasing behaviour at the three popular coffee locations included in the study. After observing these locations for 30-minute intervals during on and off-peak hours, it was also found that 49% of student coffee purchasing activity is occurring at Tim Hortons over Second Cup, which had 32% of student activity, and Pete's To GoGo, which had just 19% of student activity. This general theme of the popularity of Tim Hortons appears to go against the majority of students who expressed concern and awareness of fair-trade certified coffee, since this brand is the least actively involved with sustainability and fair-trade ethics of those included in the study. However, the finding is in keeping with the survey result when just 50% of all students surveyed were unable to correctly identify the locations on campus where fairly-traded coffee is available. In another sense, this survey result indicated that 50% of students actually expressed a lack of awareness of where sustainably sourced coffee is available on campus. In this light, the results of observational study of student activity on campus coffee locations makes sense since there doesn't seem to be a prioritization or awareness of sustainability in the majority of students based on the popularity of each location. Not only does it make sense, but it also indicates that there may be a disconnect for students between their sustainability values and their knowledge of how to participate in this ethical behaviour and keep true to these values when they are on campus. This is again then likely a reflection of on-campus availability and transparency of sustainably sourced coffee, and student awareness of these options. It also may indicate that the climate of coffee drinking on campus is not strongly advocating or built upon sustainability issues.

A disconnect may also exist between students' sustainability values and the coffee they actually end up choosing to buy in their real daily life due to the influence of other factors which may sway or motivate them away from buying sustainably sourced coffee on campus. There are many factors at play in the life of being a student, and some of these may make drinking a more sustainably sourced coffee type less accessible or appealing. These influencing factors that may impact a student's coffee choices include time, money and budgeting, social influence, convenience, class locations on campus, and the business of their schedule. Though students may care, they may not care enough to go out of their way or make a personal sacrifice on time, money, or the flow of their daily schedule when prioritizing school and the many commitments that come with being a full time student. In the practise of implementing more opportunity for sustainable and ethical choices in student's coffee drinking habits, these factors influencing students should all ideally be taken

into account. Based on survey results, the availability of fair-trade coffee on campus is an issue that likely needs more light shed on it. Where this coffee exists should be made more known to students so they can be aware of where to buy it. With more transparency about the issue on campus, there is greater potential for students to participate in drinking sustainable coffee and to make necessary changes in their daily routines, their on-campus habits, or their budgeting that allows them to do so.

Implications on the theory surrounding sustainable coffee drinking which these research results bring to the surface is that awareness is a key when it comes to sustainability certifications. What each unique certification means, why it is important, and how more ethical and environmentally conscious operations and procedures are a part of coffee grown under sustainable methods are all important aspects of sustainable certification. Without awareness of the issue and the benefit it poses to global sustainability, students will not be motivated, inspired, or have the care to purchase sustainably or ethically grown coffee. This is especially true as so many other factors may come into play that motivate any individual student's choices when in classes or studying around campus.

What is also a key is transparency of availability across the campus. If students do not know where to buy sustainably sourced coffee on campus, they will not make different behavioural choices because it will not likely be within their range of awareness of how they can take action or make a difference as a consumer. A third key is accessibility of sustainable coffee. If sustainably sourced coffee options are not made easily available and affordable for students, then they will also be unlikely to choose it and they may feel unmotivated or unsupported to purchase it. University campus locations should therefore take steps to include fair trade options in their range of coffee locations, they should raise awareness of this availability to students, and they should make it as easy as possible for students to participate in making sustainable choices when choosing coffee on campus.

Ideally, in practise. all campuses should prioritize fair-trade and sustainably certified coffee options only moving forward into the future. When sustainable coffee brands and options can be preferred and chosen more overall, students and the university as a whole can begin contributing to a global shift toward sustainable and ethical awareness and purchasing in coffee sources. It is important what kind of climate a university builds for its students and the values it instills within them, as these values and ideals will be carried with them far beyond their university years. Thus, any positive shifts in sustainable behaviour created on university campuses and within a student body are important and will be felt not just on campus but throughout society, The choices we individually make each contribute to a different reality of coffee sustainability. This again is why awareness of the issue,

transparency of availability, and accessibility are all key factors in promoting and increasing the presence and reality of fair-trade coffee in the world, and are ultimate keys to normalizing and making sustainable coffee brands king over less sustainably ideal ones.

To promote sustainability in coffee consumption habits on campus, students can be more educated on issues through on-campus programs or through in-class teaching about sustainability issues that arise with products like coffee. Coffee vendors which do carry fair-trade or sustainably certified coffee can also be promoted on campus, raising awareness and accessibility to students and making these options more attractive. Both increasing education and promotion and prioritizing sustainable coffee brands and the availability of sustainable options on campus is the best method of practise for a university to make a positive shift to greater sustainability in coffee drinking on campus. With effort to address the issues raised by this research study on both the side of students and the side of the university climate, sustainable coffee drinking can be something that becomes easy, natural, and more present within the student body at Dalhousie.

Though this theory and recommended practices of sustainable coffee drinking is in resonance with the case of Dalhousie's campus and the trends and results this study has found there, the same is also likely in keeping with other universities and much of current society. Dalhousie is a small subsection of greater society in its own sense, and though the campus does have its own sustainability program and initiatives, there is still the potential for more ground to be covered across all campus issues - coffee drinking being one of them. Because coffee drinking is such a huge part of society globally and Dalhousie is not very different from the rest of the world, the trends seen within the student body and considerations of this campus are likely in keeping with global trends. Dalhousie's campus has been making steady progress towards increasing sustainability in the last decade or more. This is a reflection of its own initiatives and also societal shifts towards sustainability seen within the various industries, corporations, and platforms that exist within it.

Without formal research into the outer world beyond the scope of this campus, the same issues which were found around sustainable coffee drinking by this study are assumably issues and concerns influencing participation in sustainable coffee consumption in the rest of society. Issues of value prioritization, concern for the planet's sustainability, and issues of money, time, scheduling, and accessibility are all issues experienced within Dalhousie and society alike. Sustainable ethical awareness and concern seems to be in conflict ultimately with convenience or the climate set up by either a university or society at large. This is why the impact one Dalhousie university student (or one person) has by choosing sustainable coffee is important, since sustainable coffee production and consumption is a globally

reaching issue of importance. It is especially important that a university climate is conducive to sustainable ethics as the behaviours adopted in a person's younger years usually become life long habits and patterns. For a global shift toward the prioritization of sustainable values to occur, it must be an individual and collective choice. Hope for this shift rests largely in the upcoming generations and the individuals who, right now, are university students. Because of this, the more awareness of the issue and shifts in behaviours and perspectives around coffee that we can inspire here on campus, the more hope we can have to see greater changes in the world in the long term. The current youth generation will soon be the next dominant and leading generation on the planet, and so it is our responsibility and our ability to create a better future for the planet and change the state of the world right now within our university culture. By changing the way this student body sees itself in the world and the impact each individual can have on planetary wellness, we can begin to address our behaviour and ideals to positively reshape the planet.

## **Conclusion**

In conclusion, our research proposed that a majority of students do indeed care about how their coffee is produced, processed or transported. To the contrary, though, when asked what the leading factors were in regard to where they usually purchase their coffee, numbers suggest that affordability and proximity are actually the leading influences rather than the sustainable options.

From the results, it can be assumed that ignorance is a normality in regard to university students and sustainable coffee options. As mentioned previously, our results show that only 50% of students could not correctly identify Second Cup and Pete's ToGoGo as carriers of free-trade coffee products (Figure 4), but yet 46.5% said that they do indeed care about how their coffee is produced, processed and transported, while 12% stated that they also care, but are limited by cost and time. This is quite counterintuitive, so it is clear that the core of the problem lies somewhere else and is partially the result of poor marketing. For perspective, as mentioned in the earlier stages of the report, a study conducted by Lapperman and his team implied that increasing the knowledge of consumers can severely influence individual purchasing behaviour as well as psychological marketing prompts (Lapperman et. al., 2019). As half of the students clearly were unaware of the sustainable coffee options that they walk by each day, Second Cup and Pete's ToGoGo would likely benefit if more effort were put into promoting these options.

Furthermore, it is clear that cost plays a significant role in university student's purchasing decisions. Students pay lots of money for tuition and other accommodations, so it



is unsurprising that this is one of the more important factors. The dilemma here is likely due to the fact that non-fair-trade or non-organic coffee producers tend to cut costs through unsafe working conditions and even child labour (Life, 2020), which in turn allows producers to sell their coffee for a cheaper fee which therefore allows companies such as Tim Horton's to sell to students at a lower price and gain that competitive advantage.

Moreover, it is clear from our results that a majority of students are very like-minded in regard to sustainable coffee products. However, these students tend to either have a lack of knowledge on which companies actually focus on fair-trade and organic distribution, as well as the fact that such a hot commodity must remain within their budget. Once more advances are discovered and implemented within the sustainable coffee industry, only then will selling prices begin to decrease, hopefully putting the current unsustainable practices to bed.

To conclude, in order to make these results more reliable, more students on a variety of different campuses should be surveyed. Different opinions can vary from province to province, country to country and even university to university, so in order to get a much better understanding of the general picture, a larger scale research would be able to provide more in-depth analyses and therefore more detailed and reliable results.

## Reference

- Arnot, C., Boxall, P., Cash, S. (2006). Do Ethical Consumers Care About Price? A Revealed Preference Analysis of Fair-trade Coffee Purchases. *Canadian Journal of Agricultural Economics*. 54(4), 555-565. Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1744-7976.2006.00066.x>
- Baker, P. (2014). Global coffee production and land use change. Retrieved from [https://www.researchgate.net/publication/273445289\\_Global\\_Coffee\\_Production\\_and\\_Land\\_Use\\_Change](https://www.researchgate.net/publication/273445289_Global_Coffee_Production_and_Land_Use_Change)
- Boucher, D. (2014, February 25). 10% of Greenhouse Gas Emissions Come from Deforestation. Retrieved from <https://blog.ucsusa.org/doug-boucher/ten-percent-of-greenhouse-gas-emissions-come-from-deforestation-342>

- Killian, B., Rivera, L., Soto, M., Navichoc, D. (2013). Carbon Footprint across the Coffee Supply Chain: The Case of Costa Rican Coffee. *Journal of Agricultural Science and Technology*. 151-170. Retrieved from <http://www.mag.go.cr/informacion/prog-nac-cafe-Carbon-Footprint.pdf>
- Lappeman, J., Orpwood, T., Russell, M., Zeller, T., Jansson, J. (2019). Personal values and willingness to pay for fair trade coffee in Cape Town, South Africa. *Journal of Cleaner Production*. 239. Retrieved from [http://apps.webofknowledge.com/full\\_record.do?product=WOS&search\\_mode=GeneralSearch&qid=2&SID=5D3Qy3WmOne4yKWs9rt&page=1&doc=7](http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=GeneralSearch&qid=2&SID=5D3Qy3WmOne4yKWs9rt&page=1&doc=7)
- Life, F. U. B. M. D. (2020, February 25). What is Fair Trade? And Why Is It More Expensive? Retrieved from <https://brainmd.com/blog/why-it-might-be-better-to-pay-more/>
- Mahoney, C., Giles, E., Marriott, B., Judelson, D., Glickman, E., Geiselman, P., Lieberman, H. (2019). Intake of caffeine from all sources and reasons for use by college students. *Clinical Nutrition*. 38(2) Pages 668-675. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0261561418301341?via%3Dihub>
- Smith, R. F. (1985, January 1). A History of Coffee. Retrieved from [https://link.springer.com/chapter/10.1007/978-1-4615-6657-1\\_1](https://link.springer.com/chapter/10.1007/978-1-4615-6657-1_1)
- SurveyMonkey. (2020). Survey sample size calculator. Retrieved from <http://fluidsurveys.com/university/survey-sample-size-calculator/>
- Wright, K.B. (2005). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey service. *Journal of computer-mediated communication*, 10(3), JCMC1034.
- Team, C. B. I. E. (2019, April 8). The Canadian coffee consumption 2019. Retrieved from <https://coffeebi.com/2019/02/18/the-canadian-coffee-consumption-2019/>
- Velde, B. V. (2016, September 29). What on Earth is 'sustainable' coffee? Retrieved from <https://www.conservation.org/blog/what-on-earth-is-sustainable-coffee/>

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We would like to lastly thank our fellow classmates for working and learning alongside us over the course of the semester and for being part of this experience with us. We wish each the best success in their own research projects and in their futures, wherever their paths lead

from here. We are grateful to have been a part of this class and to have this opportunity to make a positive contribution to sustainability right here on our university campus.

**Appendices**

**Appendix A: Online Survey**

1. After reading the above paragraph, do you consent to participate in this research?
  - a. Yes, I give consent.
  - b. No, I do not give consent.
2. What is your faculty of study at Dalhousie University?

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3. On average, how many beverages containing coffee do you purchase per week on Studley Campus?
  - a. Less than 1 cup
  - b. 1 - 2 cups
  - c. 3 - 4 cups
  - d. 5 cups or more
4. On Studley Campus, where are you most likely to purchase a coffee?
  - a. Tim Hortons
  - b. Pete’s ToGoGo
  - c. Second Cup
  - d. Other
5. Please indicate how frequently these statements apply to you by selecting the appropriate box.

	Never	Rarely	Sometimes	Usually	Always
I purchase my coffee wherever I am buying my food.					
I purchase my coffee from whichever nearby shop is the least expensive.					
I purchase my coffee from whichever nearby shop appears to be environmentally conscious (e.g carries fair-trade products).					
I purchase my coffee from the					

shop with the best tasting coffee.					
I purchase my coffee from the shop that is the least out of my way.					

6. Which of the following terms are you familiar with regarding coffee products? Select all that apply.
- a. Organic coffee
  - b. Rainforest alliance
  - c. Fair-trade coffee
  - d. None of the above
7. Please indicate how much these statements apply to you by selecting the appropriate box.

	Strongly Disagree	Disagree	Netural	Agree	Strongly Agree
I am familiar with Tim Horton's Sustainability and Responsibility Report.					
I know which coffee shop on Studley Campus has fair-trade certified products.					
I prefer products that claim to be sustainably sourced.					
I look for fair trade and organic certifications when I purchase coffee.					
I am not familiar with					

the environmental impact of the coffee I buy.					
--	--	--	--	--	--

8. Would you purchase sustainable coffee over other coffee brands, if the prices were equivalent?
  - a. Yes
  - b. No
  - c. Unsure
9. As a student, do you care about how your coffee is produced or transported prior to purchase? Why or why not?

---



# Are you a coffee drinker?

Take our quick survey by scanning the code with your smart phone camera.



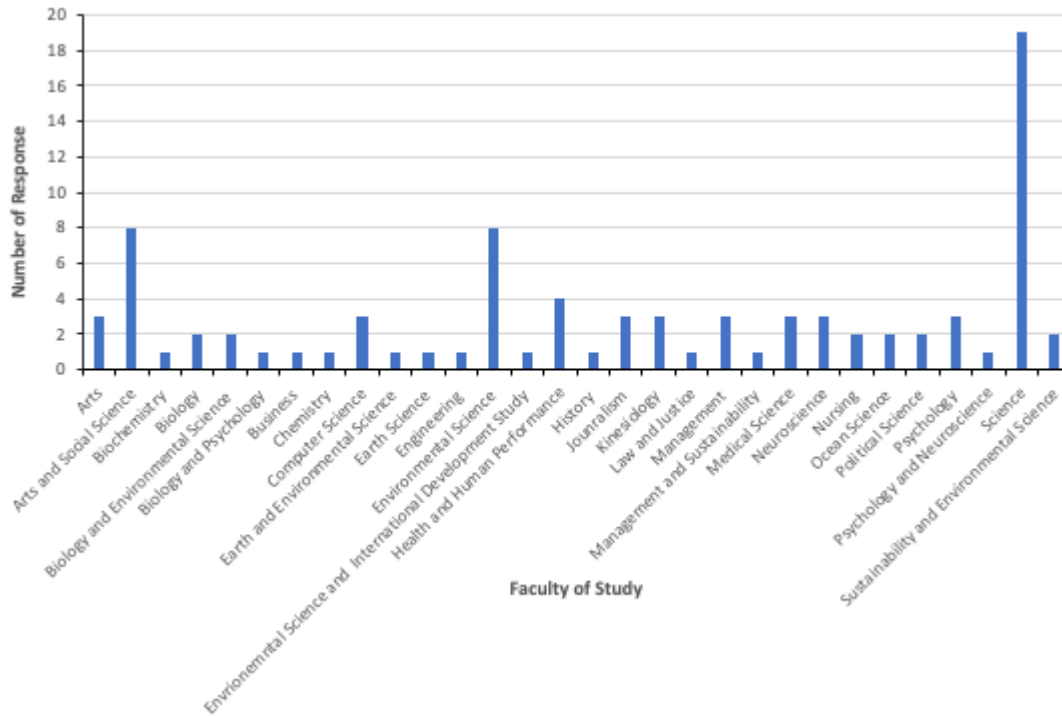
This is a sustainability research project aimed at identifying the driving factors that influence coffee consumer choices among undergraduate students on Dalhousie's Stuidley Campus.

## Appendix C: Full Survey Response

1. After reading the above paragraph, do you consent to participants in this research

Yes, I give consent	87
No, I do not give consent	0

2. What is your faculty of study at Dalhousie University?



3. On average, how many beverages containing coffee do you purchase per week on Studley Campus?

Choice	Counts	Percentage
Less than 1 cup	33	24.1%
1 - 2 cups	21	37.9%
3 - 4 cups	17	19.5%
5 cups or more	16	18.4%

\*one left blank

4. On Studley Campus, where are you most likely to purchase a coffee?

Choice	Counts	Percentage
Tim Hortons	46	52.9%
Pete's ToGoGo	22	12.6%
Second Cup	11	25.3%



Other	8	9.2%
-------	---	------

\*one left blank

5. Please indicate how frequently these statements apply to you by selecting the appropriate box.
- a. I purchase my coffee wherever I am buying my food.

Never	Rarely	Sometimes	Usually	Always
7	25	27	27	2

- b. I purchase my coffee from whichever nearby shop is the least expensive.

Never	Rarely	Sometimes	Usually	Always
7	19	18	34	9

\*one left blank

- c. I purchase my coffee from whichever nearby shop appears to be environmentally conscious (e.g carries fair-trade products).

Never	Rarely	Sometimes	Usually	Always
14	20	29	17	6

\*two left blank

- d. I purchase my coffee from the shop with the best tasting coffee.

Never	Rarely	Sometimes	Usually	Always
2	11	22	28	24

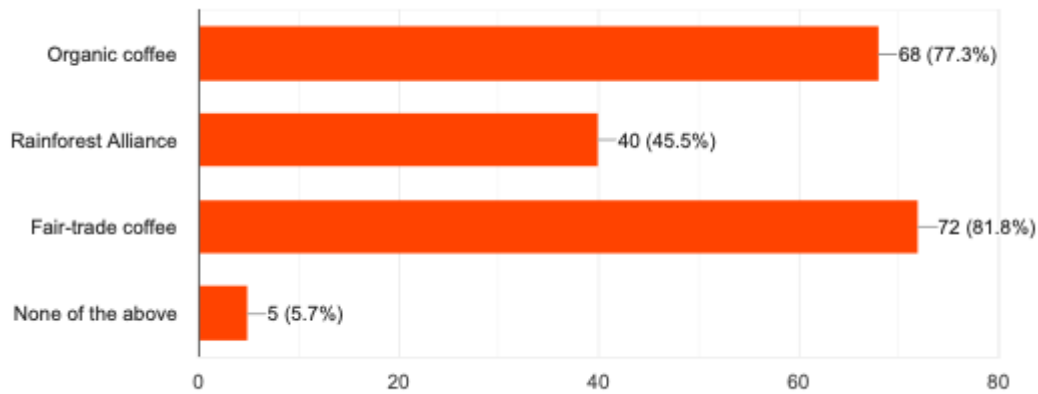
\*one left blank

- e. I purchase my coffee from the shop that is the least out of my way.

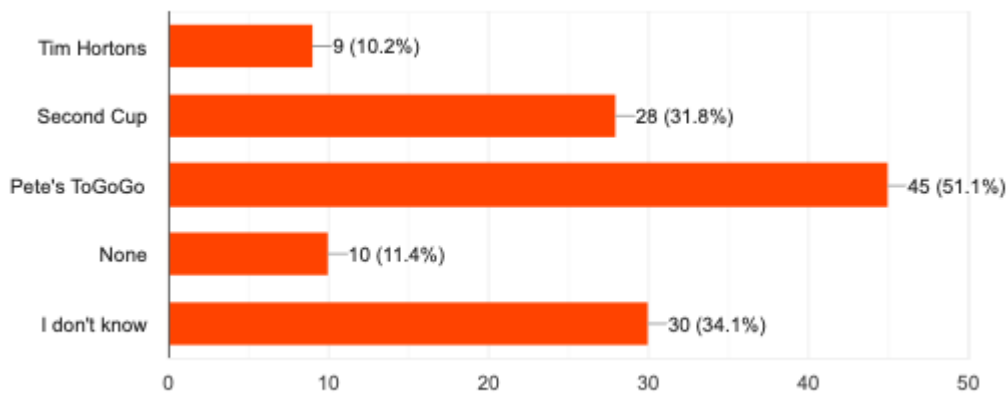
Never	Rarely	Sometimes	Usually	Always
4	11	14	39	18

\*two left blank

6. Which of the following terms are you familiar with regarding coffee products? Select all that apply.



7. Which of the coffee vendors on Studley Campus do you believe to carry fair-trade coffee? Select all that apply.



8. Please indicate how much these statements apply to you by selecting the appropriate box.

a. I am familiar with Tim Horton's Sustainability and Responsibility Report.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
32	33	5	18	0

b. I know which coffee shop on Studley Campus has fair-trade certified products.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
24	30	19	12	3

c. I prefer products that claim to be sustainably sourced.

Strongly Disagree	Disagree	Netural	Agree	Strongly Agree
7	9	20	29	23

- d. I look for fair-trade and organic certification when I purchase coffee.

Strongly Disagree	Disagree	Netural	Agree	Strongly Agree
12	19	31	20	6

- e. I am not familiar with the environmental impact of the coffee I buy.

Strongly Disagree	Disagree	Netural	Agree	Strongly Agree
21	16	17	26	8

9. Would you purchase sustainable coffee over other coffee brands, if the prices were equivalent?

Choice	Counts	Percentage
Yes	77	87.5%
No	4	4.5%
Unsure	7	8%

10. As a student, do you care about how your coffee is produced or transported prior to purchase? Why or why not?

### Responses

1. Absolutely. The more product that is purchased from unethical sources, the more their business is supported and the more they continue to cause harm. Change is so important - but making it attainable is a part of successful change. Without affordability, it will be hard to make significant change.
2. As a consumer probably not, since I don't drink coffee often. But the production and transportation process can be a source of environmental pollution.
3. because I try to limit my personal impact on the natural environment and want to give fair prices to workers in developing countries
4. Because I am drinking it everyday
5. Because it impacts global climate and human ethics
6. I am uninformed therefore hold no opinion
7. I care if production and/or transportation is harmful to the environment.

8. I do
9. I do care because I care about the environment and community. i just don't have any knowledge on this subject, i guess i never really thought about it before
10. I do care, because I do care about the impact my choices have in the environment
11. I do care, because it impacts our environment. However, most students can't financially support their views on it. I think fair-trade should be subsidized by the government.
12. I do care, but as a student i don't have much disposable income so I usually go for whatever is cheapest
13. I do care, but I am not really a coffee drinker. So when I do get coffee it's generally from the closest place. Which is most generally a second cup. It's always important to think of implications when purchasing stuff.
14. I do care, but unfortunately struggle financially and struggle to afford buying coffee in general, so it is difficult to afford buying more expensive coffee all the time.
15. I do care, it is important that the coffee is ethically sourced however due to financial constraints I tend to go for the cheapest option.
16. I honestly never think about it
17. I just really like tims
18. I should care but I am not educated enough to know the concerns
19. I should, but I don't. If I am getting a coffee, it is because I need a coffee, so thinking about where it comes from is the last thing on my mind. I typically have my own Nespresso coffee
20. I say I am aware and would rather sustainable options, however, I feel like not enough marketing is done to prove how sustainable particular coffee shops are, but I say I do care about how it is transported and produced.
21. I am neutral as I don't usually know if the coffee I am buying is environmentally and ethically reliable.
22. I am never really considered it. I feel like I should care more.
23. Idk
24. Most of the time. Off campus I try to buy local and fair trade as often as possible. If I'm buying coffee on campus it really is a last resort, and I'm unsure of which shops carry fair trade coffee. Price is a factor when buying coffee, too. Coffee from a coffee shop is expensive, so I'll try to avoid buying coffee on campus if I can.
25. No
26. No because coffee is tea, and sister that's the tea
27. No because I am unsure of the impact
28. No because I just want coffee I don't rly think about it cus I am too tired
29. No I can care less
30. No, because education is not there for most of us. Without informative exposure the average Joe like myself isn't likely to care.
31. Nope - just need caffeine
32. Not particularly, price is the main factor.
33. Of course, sustainability matters to me
34. shrug

35. Sometimes
36. Yes
37. Yes and no. Unfortunately it comes down to price
38. Yes bc climate change
39. Yes because i believe workers should not be exploited
40. yes because i care about the environment but idk how to find out how it is produced and transported etc
41. Yes because I don't want to be contributing to negative environmental or personal impacts
42. Yes because I want everyone to be treated equally
43. Yes because it has a large environmental and social impact in the communities where it's harvested
44. Yes because it impacts real people's ability to earn income when large companies do not produce and transport coffee responsibly
45. Yes because there are negative environmental impacts pertaining the transport , production and distribution of coffee
46. Yes but it is expensive
47. Yes definitely. If I was more educated on it I would love to know about where it is produced and transported from. I just feel like it isn't advertised enough
48. Yes I care. We all need to be better informed as the sum of our collective choices can drive changes in how these products are produced and sent to consumers.
49. Yes I do
50. Yes I do care but I don't think that fair trade and rainforest alliance certifications are sufficient in determining if the coffee is sustainable or not. Coffee is so closely involved with forest destruction it is hard to avoid this even with these certifications.
51. Yes I do, I can't always act on my preferences due to pricing but as a student it means a lot to me. Specifically on campus coffee shops as Dlahousie is supporting these stores and supply chains, I want them to be something we can be proud of.
52. Yes its important to think about the impacts of your consumption.
53. Yes, because environmental sustainability and fair trade is very important to me.
54. Yes, because I am concerned with the environmental and ethical impact transportation and additional labour that results from coffee production and transportation.
55. Yes, because it has an impact and cheap coffee can come with negative impacts.
56. Yes, but I don't know as much about it as maybe I would like to or need to in order to make informed decisions when I do buy it. Where I feel like I want to get coffee is influenced by how caring/ethical the company appears to be however.
57. Yes, but it is hard sometimes between courses or busy times of day to track which coffee comes from where. I like to see a logo or other quick indication
58. Yes, but only to a certain extent. I prioritize cost and convenience over those. But, sustainability is a huge factor in creating a better life going forward and all parts of live, including coffee, should be done in the most sustainable way
59. yes, i believe the exploitation of african people is something that must be fought at every turn
60. Yes, I just have never really had the time to look into it and tend to buy the cheapest coffee possible

61. Yes, I should definitely look into more
62. Yes, I want it to have a lower impact at all stages of the production and consumption process.
63. Yes, i would hope it would be ethical and sustainable but as a student it is not the first thing on my mind
64. Yes, it is important to think about the wellbeing of the people working to harvest coffee beans as well as the environmental impact of shipping.
65. yes, would always want anything involving production and transportation to be ethical, but it isn't really something I think about
66. Yes! I am definitely concerned about the entire supply chain of coffee/fast food in general. I often do feel like that the only impact I can make I can make is bringing my reusable containers
67. Yes! In terms of negative environment impacts I do
68. Yes!!! Ethical consumption is important to me because people are important to me!
69. Yes.
70. Yes. I believe that the impact that we as students have on the world is huge and one of the largest impacts we have on campus is through coffee. If we can find sustainable, environmentally friendly and affordable alternatives, I think students would step up and make a big difference.
71. Yes. I want to ensure that the labor workers who produce my coffee are treated evenly and fairly
72. Yes. Personal morals and field of current academic study.

**Appendix D: Raw Quantitative Data**

Table 1. Count observation raw data collected for quantitative methods.

Location	Date	Peak Hour	Counts	Off-peak Hour	Counts
Second Cup (Kiliam)	03/10/2020	12:00 - 12:30PM	18	3:00 - 3:30PM	31
Tim Hortons (SUB)	03/10/2020	12:00 - 12:30PM	39	3:00 - 3:30PM	35
Pete's ToGoGo (SUB)	03/10/2020	12:00 - 12:30PM	10	3:00 - 3:30PM	18

Location	Date	Peak Hour	Counts	Off-peak Hour	Counts
Second Cup (Kiliam)	03/13/2020	12:30-1:00PM	28	3:30-4:00PM	21
Tim Hortons (SUB)	3/13/2020	12:30-1:00PM	36	3:30-4:00PM	26
Pete's ToGoGo (SUB)	03/13/2020	12:30-1:00PM	19	3:30-4:00PM	5

**Appendix E: Qualitative Data Analysis**

Table 2. Qualitative data analysis - A posteriori coding of open-ended survey responses.

	<b>Raw Count</b>	<b>Percentage</b>
<b>Yes</b>	34	46.50%
<b>Yes, but (cost/convenience)</b>	9	12%
<b>Yes, but (limited by access to information)</b>	12	16.50%
<b>Unsure, or hold no opinion</b>	5	7%
<b>No, other things are more important</b>	8	11%
<b>No, not important at all</b>	5	7%



**Appendix F: Quantitative Data Analysis**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1						SUB	KILLAM	SUB								
2			Quantitative data analysis:			Tim Horto	Second Cu	Petes to go								
3						39	31	18								
4						35	18	10	:							
5						36	28	19								
6						26	21	5								
7					Mean	34	24.5	13								
8					SD	5.597619	6.027714	6.683313								
9																
10																
11	t-Test: Two-Sample Assuming Equal Variances					t-Test: Two-Sample Assuming Equal Variances					t-Test: Two-Sample Assuming Equal Variances					
12																
13	<u>Tim Horto Petes to go</u>					<u>Tim Horton Second Cup</u>					<u>Second Cup Petes to go</u>					
14	Mean	34	13			Mean	34	24.5			Mean	24.5	13			
15	Variance	31.33333	44.66667			Variance	31.33333	36.33333			Variance	36.33333	44.66667			
16	Observati	4	4			Observati	4	4			Observati	4	4			
17	Pooled Va	38				Pooled Va	33.83333				Pooled Va	40.5				
18	Hypothesi	0				Hypothesi	0				Hypothesi	0				
19	df	6				df	6				df	6				
20	<b>t Stat</b>	<b>4.81773</b>				<b>t Stat</b>	<b>2.309757</b>				<b>t Stat</b>	<b>2.555556</b>				
21	<b>P(T&lt;=t) or</b>	<b>0.001473</b>				<b>P(T&lt;=t) or</b>	<b>0.030144</b>				<b>P(T&lt;=t) or</b>	<b>0.021583</b>				
22	t Critical o	1.439756				t Critical o	1.439756				t Critical o	1.439756				
23	P(T<=t) tw	0.002947				P(T<=t) tw	0.060289				P(T<=t) tw	0.043166				
24	t Critical tv	1.94318				t Critical tv	1.94318				t Critical tv	1.94318				
25																

Figure 1. Quantitative data analysis using t-tests.