

**Reducing Disposable Cups on Dalhousie Campus:
A Second Cup Case Study**

For ENVS 3502 The Campus as a Living Laboratory

**Meagan Fairbairn- Environmental Science
Alli Fear- International Development Studies
Anna Lyon- Environmental Science
Martina Jakubchik-Paloheimo – Philosophy & Environmental Studies**

Abstract

An enormous amount of waste is being generated on campus through the use of disposable cups. Massive amounts of waste are generated by coffee cups each week and are sent to landfills. Landfills are unsustainable and cause pollution, emissions, and have negative effects on the environment as a whole. Dalhousie has the potential to be a greener campus by moving towards greater sustainability. Reducing the use of disposable coffee cups would accomplish this goal and inspire students and faculty at other universities to do the same.

The main objectives of this project were to reduce the use of disposable coffee cups on campus; to investigate the incentives, motivation, and obstacles in using reusable travel mugs on campus; to determine the feasibility of implementing compostable cups on campus as a replacement for the current disposable coffee cup; and to investigate the possibility of ultimately eliminating disposable coffee cups on campus.

The project was designed to accomplish these objectives and four research tools were used. Literature reviews were conducted for reference and baseline data and interviews were performed to discover information, opinions, and current policies on disposable cups. The survey was designed to portray the characteristics of customers and discover their behaviour and their motives behind their behaviour, and observation of customers was used to record observed behaviour.

It was discovered that 81% of those surveyed own a reusable mug but 82% of those observed do not use their reusable mug. The main obstacles in regularly using a travel mug were identified as “forgetting to bring it” and “keeping it clean.” The 10 cent incentive for bringing a reusable mug was found to be very ineffective. Half of those surveyed were not aware of the discount and the majority of customers indicated it was not a good enough incentive.

The recommended approach after reviewing the results is a three stage program of sustainability. First awareness needs to be raised, all cups need to be replaced with biodegradable cups, and the end goal is to eliminate disposable cups and replace with travel mugs.

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1.0 Introduction

1.1 Statement of the Problem

An enormous amount of waste is being generated on campus through the use of disposable cups, specifically at the Second Cup locations.

1.2 Background Information

The amount of coffee cups used world wide is astonishing. The waste generated by these cups is unnecessarily filling landfills and accumulating waste. “In 2005, Americans used and discarded 14.4 billion disposable paper cups for hot beverages. If put end-to-end, those cups would circle the earth 55 times. Based on anticipated growth of specialty coffees, that number will grow to 23 billion by 2010 - enough to circle the globe 88 times” (International Paper Company, 2007). This number is from the United States alone, and only recently has awareness been raised regarding the amount of waste generated from the use of these cups. The number of used disposable coffee cups is only growing. “Based on hot cup usage in 2005, the petrochemicals used in the manufacture of those cups could have heated 8,300 homes for one year”(International Paper Company, 2007). The amount of waste generated by university campuses is a well concentrated example that if changed would push the move towards compostable, and reusable mugs in establishments in and around campus. University campuses are extremely reliant upon hot beverages that require disposable paper cups every time they are purchased at any of the available franchises on campus. Every week Dalhousie alone uses an astonishing 370,420 disposable coffee cups that are quickly used and quickly thrown into the trash to be carried off into landfills (see Appendix A). The lid is the only recyclable part, however many people do not know that, and can only be recycled in places that accept #6 plastics. At Second Cup alone, 119, 200 cups are used per week, 3,759 java jackets and 71, 000 lids (See Appendix A). This project was formed as a result of the visible appearance of this waste around campus.

1.3 Overview of the Research Problem

Different businesses all have different reasons for the specific use of any disposable coffee cups within their franchise. However there are serious ethical and environmental reasons that are often not accounted for when carrying out business transactions. As global population and waste generation grow, it is important that everyone do their part. Social and environmental responsibility is the way of the future and is essential for future sustainability. Dalhousie has the potential to move into the future by greening the campus, and moving towards greater sustainability. Reducing the use of disposable coffee cups would accomplish this goal and inspire students and faculty at other universities to do the same. There are a number of different obstacles that need to be overcome before serious action is taken to reduce the use of disposable cups on campus. This project hopes that by gathering further research in this area, it will push the movement further helping to significantly decrease Dalhousie’s ecological footprint of solid waste on the Earth.

1.4 The Problem with Landfills.

Massive amounts of waste are generated by coffee cups each week and are sent to landfills. This is a problem for sustainability for many reasons (Botkin, 2006:502-510):

- Emissions of methane gas to the atmosphere contribute to global climate change
- Leaching of toxic compounds into groundwater and surface water pollutes surrounding land, negatively affects habitat, food chains and ecosystems
- Transportation of waste via trucks burns fossil fuels and releases carbon dioxide into the atmosphere
- Large amounts of land are needed to store waste

1.5 A Coherent Argument

The reduction of coffee cups on campus is important because it is a daily activity that can be changed beginning by acknowledgment of the waste it produces. With the change in everyday lifestyles, not only can people individually make a difference, but businesses have the opportunity to green the campus further. Every day cups are used needlessly and disposed of thoughtlessly. If awareness was aroused in people, the use of disposable cups could easily be reduced. The use of travel mugs reduces the need for waste completely and saves money for businesses by eliminating the use of disposable cups. The implementation of compostable cups is a more realistic objective that could help to significantly reduce the amount of solid waste going to the landfill. The switch from disposable coffee cups to compostable cups would have a significant impact quickly and would not require a lot of time or policy change. As well, increasing incentives for customers to use reusable travel mugs would be very influential in facilitating the change needed.

Universities are where trends begin and the knowledge develops. Greening Dalhousie campus is something important and necessary to do in order to move closer to sustainability. This project was focused around reducing the amount of disposable cups on campus. The offensive number of cups that are wasted on Dalhousie campus everyday is obvious due to the overflowing amounts in garbage cans. This change is as simple as bringing a reusable mug to campus and using it regularly.

This project focused on a major contributor of solid waste and examined, in detail, the waste generated by the use of disposable cups at the two Second Cup coffee locations on campus. Research objectives were determined through three interviews, a literature review, and a survey of Second Cup customers. In addition to extracting information from the interviews and surveys, this project served to increase awareness of the use of disposable coffee cups in students, faculty, and management.

1.6 Objectives

“All of us can make a difference - one cup at a time”(International Paper Company, 2007). Travel mugs have the potential to gradually take the place of paper cups, and eventually replace them completely. This movement can also be coupled with the implementation of biodegradable cups. If these actions prove feasible, this would potentially influence other coffee shops around campus to follow the example set by Second Cup, and could eventually expand throughout Halifax. This in turn, would reduce the city’s waste significantly. By using the campus as a living laboratory we hope that

analyzing the possibilities for Dalhousie will follow the path of other universities such as Concordia, that have begun to already lead the way towards sustainable living.

The main objectives of the project are:

- To reduce the use of disposable coffee cups on campus.
- To investigate the incentives, motivation, and obstacles in using reusable travel mugs on campus.
- To determine the feasibility of implementing compostable cups on campus, as a replacement for the current disposable coffee cup.
- To investigate the possibility of ultimately eliminating disposable coffee cups on campus.

2.0 Methods

2.1 Project Design

The design of the study used descriptive as well as exploratory research. Exploratory research, “aims to gain familiarity with or to achieve new insights into a phenomenon, often in order to formulate a more precise research question or to develop hypothesis” (Atchison & Palys, 2003: 39). This method was used in order to become more familiar with the number of Second Cup coffee drinkers on campus who buy coffee using a travel mug versus a disposable cup and why they may do one over the other. Also to gain insight as to how much waste disposable cups generate on campus and how viable it would be to replace these with compostable cups. In order to form a hypothesis about the use of disposable coffee cups at second cup, preliminary research and data gathering was essential. Descriptive research, “aims to accurately portray the characteristics of a particular individual, situation, group, sample, or population, and/or to describe processes that operate within a particular milieu” (Atchison & Palys, 2003: 40). This method of research was used to help describe the behavior of Second Cup coffee drinkers on Dalhousie campus. The survey was designed to portray the characteristics of customers and discover their behaviour and their motives behind their behaviour.

2.2 Sample

The population or target group that was sampled for the project was Second Cup coffee drinkers at both the Killam Memorial library, as well as the Computer Science Building. Systematic sampling with a random start was the method used to obtain the data. This particular method was chosen because it was appropriate for randomly surveying customers and would ensure a random, unbiased sample. Systematic sample with random start involves a sampling frame where each component is numbered and emerges only once. This process begins by randomly choosing a starting point, and then sampling every *n*th factor on the list (Atchison & Palys, 2003).

2.3 Research Tools Used

The group used four different research tools; observation, survey, interview and literature reviews. Observation and administration of the survey were done simultaneously. It was a face-to-face survey administered by the researcher, therefore the

researcher was present throughout the survey. This helped to clarify any ambiguities or questions that the participant may have had. It also helped to provide the participant with anonymity. It proved to be a quick and viable path to amounting a substantial amount of data. The open-ended structure of the questions allowed for participants to respond freely. The group avoided limitations by administering the survey, as to avoid discrimination against anyone who was illiterate. The vocabulary used in the survey was designed to incorporate a wide range of respondents ie. there was no scientific language or terms included that would only be understood by a select group of people (Atchison & Palys, 2003).

2.4 Procedure

The team divided into two groups of two researchers and each group spent an hour session at each Second Cup observing and administering the survey. One person would sit and observe every customer who purchased a beverage using either a travel mug or disposable cup and would record it. The other person kept track of and surveyed every 5th person in line while recording their answers to the questions. Two of the one-hour sessions were at the Second Cup in the Computer Science Building and the other two were at the Second Cup in the Killam Memorial Library.

The three interviews were conducted by three different group members at various times and locations throughout the month of March. The first interview was conducted with Derrick Hines, the Aramark food service director on campus. The interview was conducted to gain a greater understanding of the background of our project, to find out how many cups are purchased and sold each week on campus, to find details on specific policies regarding incentives and campaigns, and to explore possible future solutions and sustainability plans on campus. The second interview was with Ned Zimmerman, the manager of Just Us! Café on Spring Garden Road. This interview was appropriate for the project because it helped to provide viable insight into the implementation possibilities of the compostable cup for businesses at Dalhousie University. The third interview was held at the Second Cup in the Killam Memorial Library and it was with a Second Cup employee. The second cup employee interview provided a view of this problem from a worker's perspective. The employees at second cup are directly exposed to the large amount of waste the cups generate, as they are physically handling them constantly through their shift. The interview aimed to find out any obstacles workers face when reusable mugs are used and how they view the general travel mug program. This interview helped to gain a better grasp on the use of disposable coffee cups behind the scenes of Second Cup.

Literature reviews were conducted as well to explore past research projects at Dalhousie and other universities. The primary report used was entitled *Reusable Mugs: Reducing Waste on Dalhousie's Studley Campus*, written in 2004. It was chosen because it was a similar project that would provide useful background/past data and was used as baseline information for this report to build off of.

2.5 Reliability & Validity

Reliability is the consistency or stability of a measure or test from one use to the next. It is the extent to which the sampling was free of random error and the extent to

which findings can be replicated by another researcher. The projects methods of using in-person eye-to-eye contact interviews provided reliable data as a result of the dependable test questions that could be easily reproduced by a predecessor or anyone looking to imitate the interviews (Atchison & Palys, 2003). To see the questions for the interviews as well as the survey please refer to Appendix C. The team encountered problems with reliability when trying to be free of random error. This occurred when attempting to approach every 5th person in the line. If the customer was not willing or interested in doing the survey the researcher was forced to ask the person behind them, thus creating a random sample error in the research. This is something that was not accounted for, and that will be hard to avoid when replicating these results in the future.

Validity is the ability to measure what a test or instrument is supposed to measure in the research. This is the extent to which the testing was free of systematic error. The validity of our results proved to be instrumental in the findings of our research. The project proved its validity by staying clear of systematic errors. The team randomly sampled at two different locations at two different times to create a wide variety of samples that would be diverse enough to avoid any type of systematic random error (Atchison & Palys, 2003). The hour time slots of surveying lead to different people buying coffee, and therefore avoided asking the same person twice. However, because the group worked in pairs of two, at two separate times and locations, the team was unable to avoid having asked the same person twice. The group could not know if the same person was interviewed twice because the survey remained anonymous. It is important to note that there is the possibility for this to disrupt the process of surveying. However, the sampling times and locations proved to be diverse enough in nature in order to conduct the proper research.

2.6 Limitations

One of the limitations that the group experienced was the lack of time available to conduct surveys. More surveys could have been administered in order to create a larger sample size, as well as gather more data. Had there been more time, more surveys would have been conducted. As mentioned above, another limitation occurred with inaccuracy in the Second Cup line-ups and responses were limited by those who chose to answer the questions. The last limitation was the amount of the time individually spent on answering questions. We chose to survey people after they had ordered their drink and were waiting and many customers only had a few minutes to answer questions. This caused a limitation in the length and depth of answers that were given.

2.7 Delimitations

As there are a large variety of different coffee retailers available on the Dalhousie campus, the group decided that it was necessary, due to time constraints, as well as project viability, to limit the study to the two Second Cup retail outlets on the Dalhousie Studley campus. Another delimitation was the specific choice of the four, one-hour observation and survey sessions. The team specifically choose days of the week and times of the day that were appropriate for gathering the necessary data. We also chose to limit the number of questions so that the survey would only take a few minutes and customers would have time to complete the survey.

3.0 Results

3.1 Quantitative Results

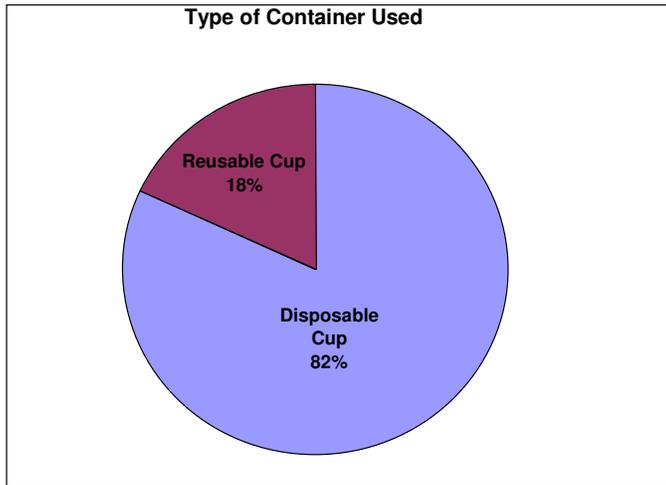


Figure 1 Pie chart displaying the results of the percentage of people observed using reusable mugs vs. disposable cups.

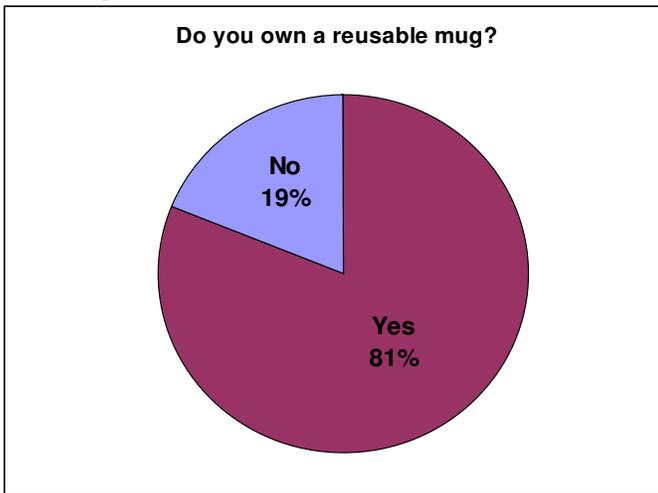


Figure 2 Pie chart displaying the results of Question 1a on the survey.

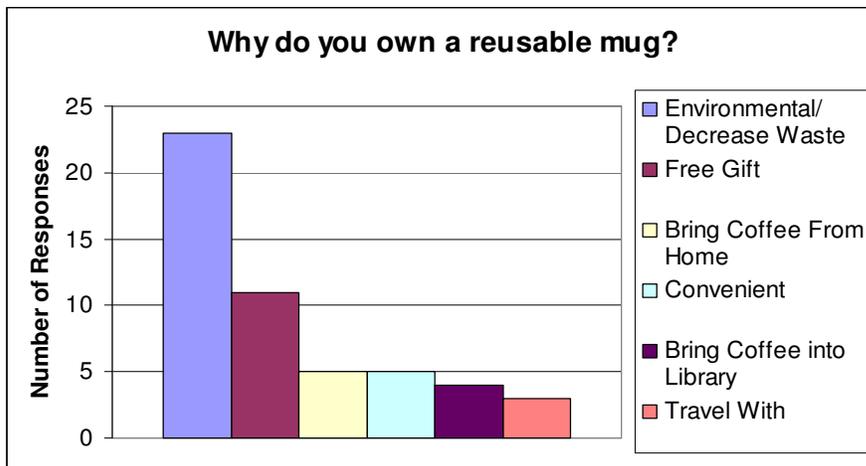


Figure 3 Results from Question 1b from the survey.

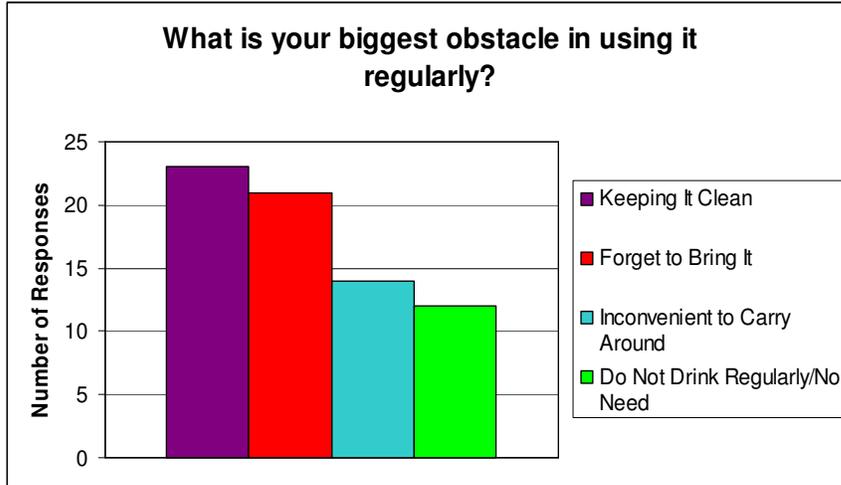


Figure 4 Chart displaying results from question 2 on the survey.

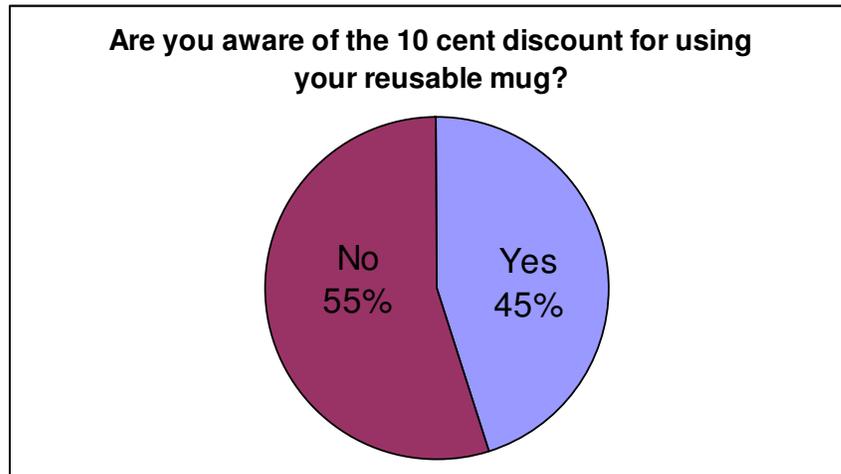


Figure 5 Chart displaying the results from Question 3a on the survey.

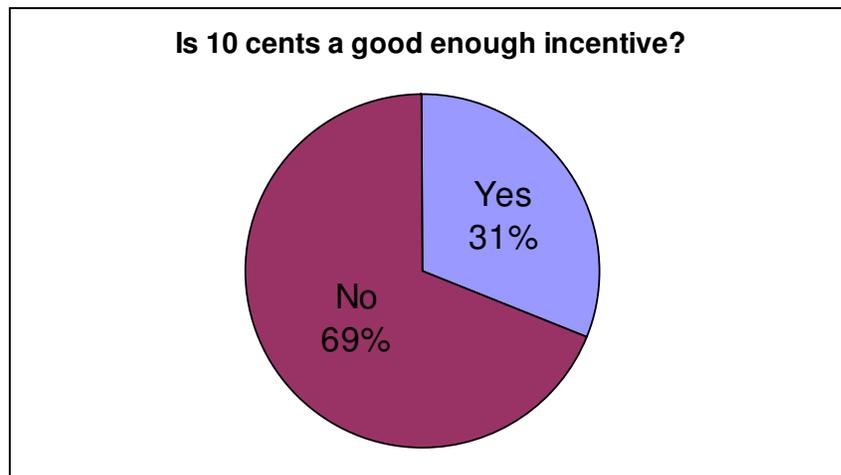


Figure 6 Chart displaying the results from Question 3b on the survey.

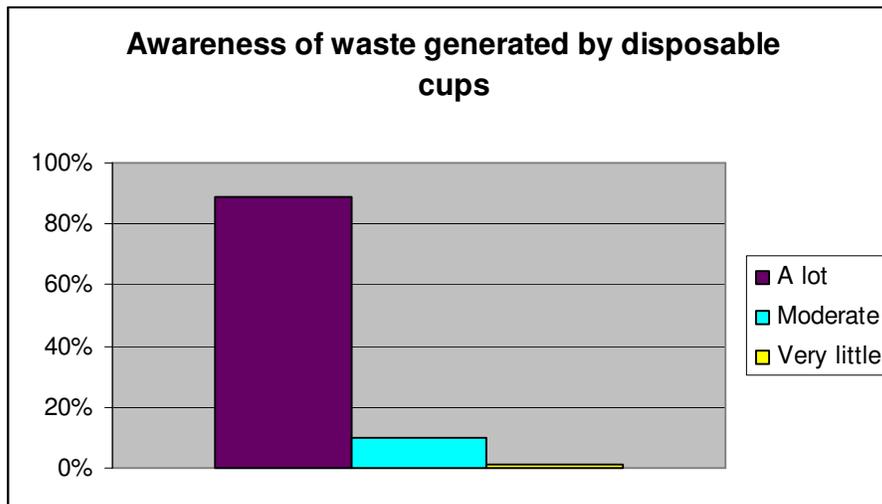


Figure 7 Results of Question 5 on the survey, “How much waste do you think disposable cups generate on campus?”

See Appendix B for complete results.

3.2 Qualitative Results

3.3 Suggestions from Question 6 on the survey

- Increase awareness of the solid waste problem on campus
- Make reusable mugs more available through promotions, free mugs at orientation/in frosh packs
- Reduce the price of reusable mugs
- Eliminate disposable cups altogether
- Use only recyclable/biodegradable coffee cups
- Implement a stamp card for reusable mugs
- Charge more when customers use disposable cups
- Post facts about the waste generated by disposable cups around campus
- Increase awareness of campus sustainability initiatives such as Muggy Mondays

3.4 Interview with Derrick Hines, Aramark Food Services Director

Biodegradable cups

- Is an option that is currently being looked into for Dalhousie. The desire exists to replace disposable cups with compostable cups
- Biodegradable cups are more expensive but are worth the extra expense
- The main obstacle is the fact that Halifax Regional Municipality does not accept compostable cups at their compost and would go to the landfill anyways

Incentives

- The monetary incentive at Second Cup and other coffee shops on campus is 10 cents off any drink purchased in a reusable travel mug
- General opinion is that the incentives are not successful and not enough, but there is no talk of changing them.
- Incentives are determined by the fact that the cup itself costs 9 cents which makes the incentive cost neutral.
- Increase in the incentive is not possible because it would result in a loss of profit

Sustainability

- An attitude of sustainability exists and future sustainability plans are being developed for Dalhousie.
- Dalhousie residences buy local food and are working on expanding that program.
- Tray-less campaign recently implemented this year to reduce water use and also food consumption. Some are opposed to this but many support it.
- Possible solution to HRM not accepting compostable cups would be to have a compost on campus which would accept them.

Eliminating Disposable Cups

- Not possible as an immediate solution to waste generated on campus
- Smaller steps (such as compostable cups) are needed first, with elimination as a good end goal
- More education and smaller habit changes (bring reusable mugs to campus all the time) are needed before elimination would be possible
- Immediate elimination would affect Dalhousie University's returns, Aramark needs to be competitive and provide profits to the university.

3.5 Interview with Just Us Café Manager, Ned Zimmerman

Their business ethic is people and plants before profit. They find ways to decrease their impact on the environment and increase the social standards of the people they buy from. They did an audit of the travel mug they were selling and found that there were labour issues, so they are no longer selling that mug.

Sustainability:

- They ensure all products are bought from unionized places. Customers appreciate their mentality and what they are doing.
- Their Business ethic is: People and Plants before profit
- Aiming to decrease their impact on the environment
- Encouraging sustainability through their products and encouraging travel mugs.
- Customers using travel mug receive a stamp and receive a 30 cent discount.

- Just Us pays about the same for the compostable cups as they did for the previous cups they owned. Previously using insulayer cups that were double walled which removed the need to use a sleeve. The traditional cup has a plastic lining that makes it incapable of composting.
- Same number of cups going out the door, just less of them going to the landfill.
- Making of the compostable cup has gained a fair bit of attention because they are the first shop with more than one location that carries the compostable cups. They hope to encourage customers and other businesses and be a good model.
- Customers appreciate their products and support using compostable cups

The Compostable Cup

- Alternative to standard paper packaging which goes to landfill
- Halifax is unclear about accepting the compostable cup
- Annapolis Valley accepts the cups, therefore this is where they ship them for disposal.
- Highly recommend the cup: made from fully renewable resources and have smaller ecological footprint than the disposable cup
- There is a difference between biodegradable and compostable cups. Biodegradable cups degrade very easily, especially when heated. They are capable of being decomposed by biological agents, especially bacteria. Compostable cups differ because they will not degrade while in use and act the same as a regular disposable cup.
- Compostable means only biodegradable under certain circumstances. Ideal temperature is necessary in a compost pile, and the cups take a couple of weeks to breakdown. If thrown out, the compostable cup will not decompose on its own.

3.6 Interview with Second Cup Worker

-Generally, when customers bring a reusable mug it is not a burden for the worker. However, if the mug is too tall to fit under the machines there is an extra step involved in preparing the coffee. They would just have to prepare it in a jug and then pour it into the mug. This only really becomes a *slight* problem if it is very busy.

- Estimate that more than ¼ of customers carry travel mugs.

-The 10 cent incentive influences “regular” customers who bring a mug at least once a day. Often if an employee forgets to give them the discount they know how much it should cost and will make sure they get it. For customers who do not always bring a mug, they generally are not aware of the discount and are surprised to find they get ten cents off.

-Personally owns several reusable travel mugs, but does not usually use them. However, makes sure to only use one disposable cup per shift.

- Added information: the library staff often bring porcelain mugs from home. Interestingly, some customers bring glass containers and ask for them to be filled with hot water, but the employees are not allowed to fill them as there are liability issues if the glass were to shatter.

4.0 Discussion

Disposable cups generate a very large amount of waste on campus and are not sustainable. Our research focused on discovering where the most improvements could be made and discovering the specifics of the problem. The research was focused on determining the effectiveness of reusable mug promotions (lug-a-mug campaign), discovering why people are using or not using their reusable mugs, examining the effectiveness of the current incentives, and finding solutions from students and administration. In order to maximize sustainability in this area, the end goal of this project is to completely eliminate disposable cups on campus.

4.1 Significant Findings From the Survey and Observations

It was discovered that most people - 81% of those surveyed, own a reusable mug but most people – 82% of those observed, do not use their reusable mug. This indicates that the problem is not in owning a mug; the problem is in bringing it to campus and using it regularly.

There were many dominant obstacles identified in using the reusable mugs regularly, the two main obstacles being “forgetting to bring it” and “keeping it clean.” These results indicate that there is not enough incentive for students and staff to bring their own mug to campus everyday in preparation for buying a drink on campus. There was no objection to using the mugs, just a lack of motivation to keep it clean and remember to bring it everyday.

The 10 cent incentive for bringing a reusable mug was found to be very ineffective. This was concluded for two reasons, only 45% of those surveyed were actually aware of the discount and 69% of those surveyed felt it was not a good enough incentive. Generally it was those who were unaware of the discount who said it would be a good enough incentive. Only a small percent of people who use their reusable mug regularly indicated that it made a difference for them because it added up after buying coffee many times a week.

As far as awareness of the amount of waste generated by disposable cups, there was an overwhelming response that students and staff are aware that a significant portion of waste comes from disposable cups.

It was determined that the main reason for owning a reusable mug was for environmental reasons. This is an encouraging finding because it indicates that people are aware that this waste problem exists and are actively trying to be a part of the solution.

Overall, students are aware that the problem exist but need more motivation to be a part of the solution. The current incentives are not enough and need to be increased and

changed. Analysis of the suggested solutions (from Question 6) shows that students have progressive ideas and exhibit a willingness to be part of the necessary changes.

4.2 Significant Findings from Interviews

Interview with Derrick Hines

Aramark and Dalhousie's Food Service Director have an attitude of sustainability which is a very encouraging and progressive finding. Those who are in positions of power and change have adapted this attitude and this is a significant step in influencing change at Dalhousie. In the survey it was determined that the incentives are not successful enough and should be changed. It is not likely that the monetary incentive will be changed because through this interview it was determined that the 10 cent incentive exist because it is cost neutral and there is no consideration of that being increased.

The goal of eliminating disposable cups is attainable in the future, but requires smaller changes such as compostable cups and the cooperation of HRM waste management services. Changes in habits and lifestyles are also needed to increase reusable mug usage and work towards always having a reusable mug while on campus.

Interview with Ned Zimmerman

Using compostable cups is a viable alternative that has been proven effective, sustainable, and practical. The main problem is the fact that HRM does not accept them/ is unclear about accepting them and they must be shipped elsewhere for disposal. Incentives such as a 30 cent discount and stamp card are effective ways of encouraging travel mug usage. Customers appreciate the initiatives Just Us has taken and supports the changes they have made.

Interview with Second Cup worker

The workers possess a very positive outlook towards making changes in campus policy and student habits. Also, they have a strong previous awareness of the solid waste issue and an inclination to personally make a difference. The extra step that is involved in making a drink in a cup that is too tall for the machines (Question 1) appeared to be, in her opinion, a negligible nuisance in comparison to the benefits that would be incurred through the use of travel mugs. In terms of the ten cent discount, the interviewee, when mentioning that most people were not aware of the discount given when a travel mug is used, seemed to realize that it was not publicized enough and that it would be beneficial to make the discount more known around campus. The employee does not use the travel mugs that she owns, but makes sure to only use one disposable cup per shift.

4.3 Existing Research

A report was conducted at Dalhousie University in 2004 entitled *Reusable Mugs: Reducing Waste on Dalhousie's Studley Campus* which was very similar to our report. Their main objectives were similar to ours, reducing solid waste generated by disposable coffee cups and investigating ways to increase sustainability in that area. They had a broader scope to their research, testing Second Cup, Tim Hortons, and Starbucks. They surveyed customers and determined the amount of disposable cups in the garbage bins. They received similar results to ours which adds reliability to our results and findings. They discovered the main reason for students owning a reusable mug was for

environmental reasons, which was what we found as well. Their report focused on the need for education and awareness as the next steps (Alsop *et al.* 2004). Our project was able to build on their research and continue to raise awareness of the need for sustainability. Our project added the need to start implementing more motivation for change and working further towards eliminating disposable cups on campus.

4.4 Implications for future practices

After reviewing past literature, conducting surveys and interviews, the data collected implies a three stage program for sustainability. The first stage is awareness and education of the problems caused by disposable cups and the benefits of reusable travel mugs and the reduction of waste. The results of the survey suggest there is a general awareness already and this needs to be expanded upon.

The second stage is to replace every disposable cup with biodegradable cups. Derrick Hines indicated that Aramark has looked into the possibility of implementing them but it was not possible because of issues with HRM being unclear about accepting them. However, a solution could be to send them to the Annapolis Valley waste site or to establish a compost on Dalhousie campus. This project is suggesting the implementation of the ecotainer, a product developed by the International Paper company. This cup can be completely broken down into natural conditions if composted under the proper conditions. “Even the energy used by International Paper to produce the paperboard for the ecotainer™ cup is environmentally friendly - 70 % of the energy is from fully renewable resources” (International Paper Company, 2007). This cup is already being used at a local business in Halifax, Just Us café, and was shown to be successful. It is the findings of this group that the use of this cup would prove to be highly triumphant on campus. The cup has been highly recommended, and appreciated by customers who have used it. This cup has the possibility for custom graphics, and is FDA approved. It upholds the same standards as any disposable cup except when it is thrown out, it can be composted. “The entire lifecycle of this cup is extraordinarily sensitive to the environmental footprint it creates—or prevents. The fiber used to make the cups is grown and harvested according to Sustainable Forestry Initiative guidelines, so there is no harvesting of old-growth forests. The raw material for the cup coating comes from corn grown in the United States, and is manufactured in a greenhouse-gas-neutral process. And, after use, under the proper conditions, the cup will break down into the natural elements from which it was produced” (International Paper Company, 2007). The cost difference is minimal, and is worth it when taking into consideration the negative externalities involved in the cost of the disposable cups. Derrick Hines indicated in the interview that cost was not an obstacle at Dalhousie, and many of the customers surveyed suggested the implementation of a biodegradable cup which shows Second Cup customer support of this idea.

The third and final stage is to encourage reusable travel mug usage which will completely replace the biodegradable and disposable cups. This stage should be an ongoing process. This can be accomplished through incentives, gradual environmental consciousness, and gradual habit changes. Results of the survey indicate that the 10 cent

incentive needs to be advertised much more to increase awareness of it. This could be as simple as putting up posters at Second Cup, advertising that using a travel mug results in a 10 cent discount. The general opinion (70%) is that the incentive is not enough, therefore, increasing the incentive to 25 or 30 cents would be ideal as well. An effective idea that is currently being used at Just Us! Café is a stamp card. Second Cup could implement this as well and it would be an encouragement for customers to bring a travel mug. The stamp card could reward the customer with a free drink after 10 times using their travel mug. To overcome the obstacle of customers forgetting to bring their travel mug or not wanting to walk around with it all day, a program of leasing out a travel mug or having a place to store it near Second Cup would be effective. According to Second Cup employees, using travel mugs is not a problem when making the coffee and would be an easy change for them if all cups were not disposable. Minor adjustments to machinery may have to be made for the travel mugs to be the only container option.

5.0 Conclusion

After reviewing the objectives, the methods used, and the results, it is possible to assess the findings of this project as a whole. Many helpful insights and suggestions were obtained through the surveys conducted with students and Second Cup customers in general, and through the interviews. It was found that the majority of people that were involved in the study were very cooperative, interested and willing to participate. The suggestions that we obtained from the surveys were very insightful, and those that occurred most frequently are definite possibilities for the future, as well as a good indication of the attitudes of students towards this issue. The suggestions, as they came from a representative sample of the student body at Dalhousie University, prove that students are willing to take a step towards making our campus more sustainable. Most of the suggestions given were from Dalhousie students at both the Killam Memorial Library Second Cup and the Computer Science Building Second Cup, although the majority was from the Killam. The reason for this imbalance could be primarily because there is more student traffic in that building due to the central location and the multidisciplinary nature of the building. It would be more beneficial to implement suggestions such as banning disposable cups, or creating a stamp card at the Second Cup in the Killam Library because the customers there were more willing to make changes. The Second Cup in the Computer Science building would require measures to increase the awareness of the waste problem before trying to implement actual changes. This can be accomplished by posting facts and educational posters, and making mugs cheaper and more available.

We recommend doing a cost-benefit analysis of implementing compostable cups on campus and asking Second Cup customers via a survey whether they would be willing to pay extra for a coffee if they know that it is being served in a compostable cup. As for increased use of travel mugs, targeting the student population all over campus, according to their level of knowledge on the subject is absolutely the key to reducing the solid waste and greening the Dalhousie campus.

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Appedix A- Aramark's Weekly Cup Usage

<i>Second Cup</i>					Total
Cups	4 oz.	12 oz.	14 oz.	20 oz.	
	1000/cs	1000/cs	1000/cs	600/cs	
Usage	750	30,500	65,000	22,950	119,200
Java Jacket	1000/cs				
Usage	3,750				3,750
Lids	4 oz.	12-20 oz.			
		1000/cs			
Usage		71,000			71,000
<i>Tim Horton's</i>					
Cups	8 oz.	10 oz.	14 oz.	20 oz.	
	2000/cs	1000/cs	1000/cs	1000/cs	
Usage	22,100	61,250	83,250	10,200	176,800
Lids	8 oz.	10 oz.	14 oz.	20 oz.	
	2000/cs	1500/cs	1500/cs	2000/cs	
Usage	10,100	36,375	40,500	9,700	96,675
<i>Java Asst'd</i>					
Cups	12 oz.	16 oz.	20 oz.		
	1000/cs	1000/cs	600/cs		
Usage	35,000	31,600	2,820		69,420
Lids	12-20 oz.				
	1000/cs				
Usage	15,900				15,900
<i>Starbucks</i>					
Cups	12 oz.	16 oz.			
	1000/cs	1000/cs			
Usage	4,000	1,000			5,000
Lids	16-20 oz.				
	1000/cs				
Usage	500				500

Appendix B – Results of Observations and Survey

Killam Library		Computer Science Building			
Mug	No Mug	Mug	No Mug		
9	69	5	26		
5	9	7	16		
				Total	146
				no mug	120
				mug	26
					82%
					18%

Own a Mug?	Total Surveyed	
yes	63	81%
no	15	19%

Why?

Drink a lot of coffee	3	Lost it	5
Bring coffee from home	5	Don't drink enough coffee	2
Free gift	11	Too lazy/ Not important	4
Convenient	5	Don't want to pay	2
Environmental/ save on waste	23		
Bring coffee into Library	4		
Travel With	3		

Biggest Obstacles

Keeping it clean	23
Don't drink regularly/no need	12
Inconvenient to carry around	14
Forget to bring it	21

Aware of the Discount	39	Money not an issue	8
Unaware of the discount	47		
Good enough incentive	20		
Not good enough incentive	44		

What would be a good enough incentive?

Buy 10 get one free card	8
Don't know	3
Greater monetary discount	26
Free upsized	2
A place to put it	1
Get rid of cups	5
Free refills all day	2
Cheaper mugs	5
Extra charge for cup	4

Appendix C – Survey and Interview Questions

Survey:

1. Do you own a travel mug? Why or why not?
2. What is your biggest obstacle in owning one or using it regularly?
3. Are you aware of the discount? Is it an incentive to use a reusable mug?
4. What would be a good enough incentive?
5. How much waste do you think coffee cups generate on campus?
___ Very little ___ Moderate ___ A lot

What could be done to reduce this?

Interview with Derrick Hines:

1. About how many cups are used per day? Ie. How many are purchased?
2. Have you looked into biodegradable cups? Why or why not?
3. Incentives already exist, for example 10 cents at Second Cup, how are these incentives determined and who determines them? How have they worked so far? Do you think they should be reevaluated, would you be willing to increase them?
4. In your opinion, are coffee cups contributing to a solid waste problem on campus?
5. Have you worked with sustainability groups at Dalhousie yet? If yes, in what capacity?
6. How would eliminating disposable cups on campus effect profits? Would there be negative effects, positive effects?
7. Are there any present sustainability plans you are aware of for Aramark?

Interview with Just Us! Café manager, Ned Zimmerman:

1. What inspired Just Us to start using compostable cups? Are the cups in all Just Us locations?
2. What benefits if any have you seen from using the ecotainer?
3. Were there any laws or restrictions from the city when trying to implement disposable cups? Are there any other road blocks that came into play?
4. Is there a huge price difference between regular cups and the ecotainer for you as a business?
5. What is the price difference if any for customers

6. Have you experienced any difference in customers? Has it provided more or a less of an incentive to customers?

Interview with Second Cup Worker:

1. Do travel mugs facilitate the coffee making process or hinder it? i.e. is it a burden on you if someone brings a mug?
2. What percentage of customers would you estimate carry travel mugs?
3. Do you believe the 10cent incentive influences people to use travel mugs?
4. Do you own a travel mug? If so, do you bring it to work?

Appendix D – Cover Letters

Dear Derrick Hines,

Thank you for allowing us to interview you for our project in ENVS 3502 The Campus as a Living Laboratory. Your responses will be used in our final project and will assist us in gaining a greater understanding of this issue. If you wish, a copy of this interview can be given to you before we present it in our final project for your review. If you have any further questions you may contact Karen Harper who is the professor for this class. She may be reached by email at Karen.Harper@dal.ca. Thank you again.

Sincerely,

Meagan Fairbairn
Anna Lyon
Alli Fear
Martina Jakubchik-Paloheimo