BYOC Program Evaluation | **Final Recommendation Report**

April 6th, 2020

Please Note that the BYOC Program has been temporarily suspended and University campus closed due to the COVID-19 Pandemic.

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Executive Summary

An evaluation of the *Bring Your Own Container* program currently implemented at the University of Toronto Mississauga campus was investigated and evaluated with the purpose of creating a final recommendation report. The evaluation consisted of various methods including comprehensive survey data, qualitative data via communication with stakeholders, a cost-benefit program analysis, and a jurisdictional investigation to investigate community members with access to the program. The survey was administered to both students and faculty on campus using a systematic randomized sampling approach so as to minimize if not completely alleviate any underlying bias. Stakeholder communication carries significant weight in this final report as any changes to the program have the potential to directly impact their everyday operations at UTM. The cost-benefit analysis served to weigh the perks of the program's existence against that of the costs to the university as an institution. Finally, the jurisdictional investigation allowed for comparison of UTM's program with that of other, similar, institutions with reputable sustainability initiatives. Such institutions include University of Toronto St. George campus and University of British Columbia. Overall the project revealed a concerning lack of awareness from not only identified stakeholders but the general UTM community. The lack of education in regard to the program is negatively impacting its potential for success and without its utilization by a substantial number of members of the community, the program itself is costing more than it's worth to operate. Among the unappeal was the majority of those surveyed expressing their opinion of an underwhelming monetary incentive. This kind of thoughtful feedback was implemented in our recommendation for the future of the program. The recommendations include suggestions to amplify student engagement such as voluntary dish-washing stations and

the utilization of social media platforms for promotion. It is with a hopeful and confident stance that our recommendations serve to effectively enhance the appeal and success of the *Bring Your Own Container* program for its future at UTM.

INTRODUCTION

Goals:

The goals were set during the preliminary stages of the investigation into this program. Our goal was to go around and survey students and staff to get an idea of how well known the Bring Your Own Container was, and then depending on the results we got, we wanted to promote increased use of reusable materials. This was going to be done by making everyone on campus aware of the program by doing events and sending out emails to students and staff. The group aimed to learn all that the BYOC Program had to offer UTM so that a decision could be made as to whether our final recommendation would be in favor of its continuation on campus. With alterations for success or in support of its discontinuing operation at the UTM campus until further notice.

Objectives:

Many objectives were set in order to produce a final recommendation report for the program. These objectives include: conducting multiple surveys questioning the UTM community, data analysis to understand the wants and needs of the community pertaining to the program, and completing a cost-benefit analysis to learn whether the BYOC program is financially beneficial to the university. When we compile all the data gained from the surveys we can come to a conclusion that not many students and staff were aware that there was a BYOC program.

Limitations:

There were very few limitations during the beginning phase of this report. The minor limitations the group had at the beginning were the limited understanding of the program that the residence

of UTM had when we were investigating the program and conducting interviews and creating surveys. The most significant disservice to the program is the lack of advertisement, as well as the unprecedented COVID-19 global pandemic that has led to the temporary closure of the university and thus a temporary discontinuation of the BYOC Program.

Recommendations/Findings:

After much investigation, our findings show that the continued existence of the Bring Your Own Container program will provide beneficial results to the people and community at UTM. Financially, the university would be saving thousands of dollars from buying containers, and from the universities garbage removal system. When the quarantine is lifted, and the pandemic is over, we show full support and 100% recommend the implementation of the Bring Your Own Container program.

BACKGROUND

What is the BYOC Program?

The Bring Your Own Container program is a new waste reduction eco-trend implemented at the University of Toronto Mississauga campus that encourages students and staff to bring reusable materials on campus. Plastic pollution and more specifically, takeout waste, accounts for a majority of landfill waste on a global scale causing a directly negative impact on all components of the ecosystem. In Canada, over 3 million tonnes of plastic waste are disposed of every year; only nine percent of that is recycled and the rest ends up in landfills (Environment Canada, 2020). Figure 11 illustrates a 450-year decomposition time for plastic cups and plastic water bottles to decompose. The program's encouragement of takeout waste reduction is critical at this point in time for the environment.

The client organization for this project is the Hospitality & Retail Services at the University of Toronto Mississauga Campus (UTM). They provide a variety of popular food and drink brands on campus including Harvey's, Pizza Pizza and Tim Hortons. The client implemented the 'Bring Your Own Container' program (BYOC) during the Fall of the 2019/2020 term. They have given 4,400 discounts in total for that academic session alone. The program's promotional efforts outline the requirements for discount qualification as follows: (i) For the cup discount, students and staff use reusable cup and receive 10 cent off at Starbucks, Tim Hortons and other food locations, (ii) For the container discount, the community use their own food container and receive 25 cent off at all food-service locations on campus (UTM Hospitality & Retail Services, 2020).

The client's ultimate goal for this program is to encourage the use of reusable materials on campus and to promote waste reduction habits that hopefully transcend into everyday sustainability. In addition, the program provides an opportunity for the UTM community to reduce their carbon footprint and make positive contributions to the environment. The core of the program is the integration of the concept of sustainability into the daily lives of staff and students. The program is aimed at fostering a community where each individual can be given the option of utilizing an opportunity to adhere to environmental responsibility - even on a small scale. Overall the program aligns with 4 of the United Nations Sustainable Development Goals (SDGs) which can be seen in Figure 12: #12 Responsible Consumption and Production, #13 Climate Action, #14 Life Below Water and #15 Life on Land.

PROBLEM STATEMENT

Single use disposable materials including take out containers, plastic cups and plastic cutlery have an adverse effect on the environment. These items, per their categorization as a single-use item, are often used once and end up in landfills. Hence, our client, Hospitality & Retail Services at the University of Toronto Mississauga, launched the Bring Your Own Container (BYOC) program as an interactive way to encourage the use of reusable materials on campus. Given the large population at UTM, the utilization of reusable materials has the potential to significantly impact the amount of takeout waste the campus produces annually. In evaluating this program, it was discovered that only a few members of the UTM community had knowledge of the program's existence. As well it was realized that only a small percentage of the population at UTM engages in the use of reusable items on campus. Per our data, this can be attributed to a lack of effective program promotion, awareness and education. A final and unprecedented limitation to the program's successful evaluation and recommendation report is the outbreak of COVID-19. The school is temporarily closed and the program has been temporarily suspended.

SECTION I: METHODS

1.1 Survey Questionnaire

The data retrieved by survey sampling provided insight on the number of students who participated in the BYOC program at the UTM campus. There were 9 questions asked to UTM students to assess the current status of the BYOC program UTM. Of the 117 who were surveyed, 61 students completed the online survey questionnaire, and 56 surveys were completed in areas nearby cafeterias at UTM. Both survey approaches used in this study consisted of random sampling of the UTM student population.

The online survey was conducted through a website called Survey Monkey—this website provided a summary of raw output data and automatically generated graphs. The website provided a hyperlink that students used to anonymously complete their survey. The survey link was posted on social media for UTM students to fill out. To prevent bias, there were no alterations on any of the online or in-person survey questionnaires during the process of data collection.

1.2 RISK MANAGEMENT STRATEGY

To ensure that any risks associated with the execution of the project tasks and schedule were mitigated if not completely avoided, risk management strategies for those risks identified to have the largest potential impact, were drafted and implemented as needed. The risk management strategy applicable to the entire project was to compile a vast amount of data from the primary tasks so as to avoid all identified risks. The justification for this approach stems from the reasoning that large amounts of data were perceived to be key in avoiding or eliminating risks associated with this project. Over the course of the project, three new risks were identified as potentially problematic and others were mitigated to the best of the group's ability. As seen in Figure 8 in the Appendices section of this report, the top five identified risks of significant potential impact are *Bias, Stakeholder Unavailability, Lack of Feedback, Inconclusive Data,* and *Too Much Data Variation*.

It was identified as highly unlikely that the University of Toronto Mississauga as an institution would disclose any financial information for our cost-benefit analysis and for the sake of time, this was not attempted. Due to this lack of access to financial breakdowns, our cost-benefit analysis was done speculatively and based on qualitative information rather than quantitative knowledge of the program's finances. Although stakeholder unavailability was identified as a significant threat to the project, over time it became more glaring that a lack of faculty availability specifically was highly likely given the ratio of teaching staff to students and would impose a serious bias in the distributed survey. In response to this, the same survey was distributed for the same duration and consistency to both faculty and students on two individual occasions and composed of identical questions to target as many faculty members as possible and allow for the representation of that group. It was decided that should faculty members be

unavailable for surveying, the survey results would be grossly founded on data of which a majority would be by students and the survey would fail to represent faculty interests, thereby introducing bias into the project. Finally, unrepresentative sampling was identified as another potential risk which stemmed from the identification of faculty unavailability. This was later recognized to be an inevitable occurrence given the ratio of student to faculty surveys given that the number of students on campus far outweigh the number of faculty and so this particular risk was unavoidable but mitigated with the approach of substituting faculty representation with faculty diversity - that is, attempting to survey faculty members from various departments as a representative from different disciplinary areas.

Throughout the course of the project four of the six original risks were able to be eliminated entirely by way of administering the same survey to both faculty and students. Those risks that remain are bias which was decided would always be lurking and therefore could not be completely eliminated, and Too much Data variation which directly conflicts with the strategy and could only be controlled for via guided and strategic questions - which is precisely what was done.

Other such risks that were eliminated were Participation Refusal and Inconclusive Data, per the strategy of a large data sample. Unfortunately, adjusting for the elimination of one risk, inevitably introduced or heightened the possibility of another. Bias, for example, is inevitably in the particular case of surveying on a University campus. It was concluded that bias is present in a matter of degree and the degree of bias present is something that was reduced significantly with the risk management strategy implemented.

1.3 STAKEHOLDER REPORT

The identified stakeholders in this project are an integral component to completing an accurate evaluation and producing a thoughtful recommendation for the program. Without the input of stakeholders, our recommendation report would not reflect the interests of various groups on campus.

The only stakeholder, of which was identified late in the project, that was not able to participate in stakeholder questioning was Waste Management. It was realized that not only do members of the UTM community share an interest in waste reduction but so especially do those in charge of managing and maintaining waste operations on campus. It was difficult to locate information in order to directly contact any representatives of these operations at UTM. Identification of one such individual as a representative of the group we seek to contact is evidently not information that faculty necessarily have or have knowledge of where to obtain it. It was brought to the group's attention that there in fact is not one group let alone one individual solely responsible for waste management of the entire campus and so with that information being brought to light, it was decided to declare this stakeholder's insight unobtainable within the time constraints of the project.

Hospitality & Retail Services representative Andrea Devito, Sustainability Coordinator Chelsea Dalton and the students and faculty at UTM have all been actively communicated with and questioned during the course of this project. Note that UTM Faculty as a category was altered to include all non-educational personnel and all employees within departments as they have been recognized as sharing invested interests in the success of the program being evaluated. Additionally, a 'staff' category was previously created and then removed when it was realized to be an ambiguous title and that all such staff could fit under the category of faculty as per the

definition that a faculty consists of "*a group of university departments concerned with a major division of knowledge"*. Without this change, it was anticipated that questions of which such individuals belonged to this group (professors, teaching assistants etc.) would be raised and thus those exemplified groups would overlap with the category of UTM Faculty. The supplier of takeout materials for UTM has also been removed as an identified stakeholder because after much discussion, it was logically concluded that the group would not be directly impacted should UTM cease on-going bulk orders of takeout materials, assuming UTM is not the largest or sole customer of this group.

All stakeholders were approached initially via email with four strategically formed questions:

(1) How has the BYOC program affected your daily routine at UTM?

(2) What changes do you think should be made to the program and why?

(3) How can we alter the program to benefit you and your interests?

(4) Overall, do you have any suggestions or opinions about the program?

The email was facilitated to assure the recipient that this digital survey was being administered to them to cater to their needs and emphasize the value and critical importance of their input so as for us to serve their interests moving forward.

Andrea Devito, representative of Hospitality & Retails Services, was enthusiastic in his response and happy to assist in our evaluation. He provided thorough feedback and was both flexible and accommodating in terms of contact for any further insight. This was all the information that we required from this stakeholder though we invited him not to hesitate to reach out with any supplementary feedback or suggestions. As for UTM students, the in-person survey rendered creative suggestions and an eagerness to learn and help the program succeed. Chelsea

Dalton is one representative of the UTM Faculty who provided detailed and thoughtful feedback for our consideration. Table I in the *Appendices* section of this report outlines some examples of feedback acquired from the on-campus survey all of whose identity has been kept anonymous for privacy concerns.

1.4 JURISDICTIONAL INVESTIGATION

The University of British Columbia implemented a Zero Waste Action Plan in 2014 and successfully achieved their goals. They continue to carry out a Zero Waste Foodware Strategy as of 2019. Among its aims are: (i) Reduce single use cups by 50% by end of year 2 (2021) and 80% by 2030, (ii) Fees for single use items, including plastic cups, plastic straws and coffee cups and (iii) Improved on campus recycling bins for students and staff (UBC Zero Waste Foodware Strategy, 2019, p3). Their strategy outlines the following guidelines for fees: (i) For using single use cups (i.e foam cups and plastic cups), students and staff may charge 25 cents per cup, (ii) For using plastic utensils/ cutlery, UBC community may charge 10 cents per piece, (iii) For using single use food containers, students and staff may charge 50 cents and (iv) For using plastic bags and paper bags with plastic windows, they may charge 15 cents (UBC Food Service Ware Procurement Guideline, 2019). They also organized a volunteer committee and hosted special recycling programs to educate people on correct recycling practices, and continue to encourage personal reusable materials.

Additionally, University of Toronto St. George Campus started *UofT's Lug a Mug* program five years ago which entails reducing the amount of paper cups and coffee cups on campus. Figure 11 illustrates the decomposition time of everyday coffee cups which is up to 30 years. The participation in this program has been increasing and has made significant change to the environment and the consumption habit on campus. In 2009, the St. George Campus saved 120,385 paper cups from ending up in the landfills. Also, students and staff may receive 25 cents off when they purchase any beverage on campus (UofT Food Service, 2014).

A common factor between all universities with successful BYOC initiatives and UTM's

BYOC program is that there is a lack of effective promotions and school announcements that allows members of the community to be engaged and educated about the opportunities and incentives that such a program may offer. It was realized after conducting this investigation that UTM has many platforms available that should be taken advantage of to spread awareness about the program. Such platforms include school newsletters, the student-teacher Quercus website and other social media platforms.

SECTION II: FINDINGS

2.1 Survey Summary

After surveying 117 students across campus, there were 2 survey results which were inconclusive because the participants provided multiple answers within a given question. The survey results which were considered inconclusive, were omitted from the survey analysis. One of the survey questions asked individuals if they were students. Surveyors verbally asked this question before a student completed the physical survey, and as for the online survey, individuals were required to identify that they were a student.

Do you eat on campus regularly or bring your own lunch/snacks?

The data results shown in Figure 1 indicated that the 48% of the students ate on campus occasionally. 29% of the students claimed they ate on regularly, and 23% said they ate only at home. The results presented from Figure 1 indicated that the BYOC program would only apply to the student body who ate on campus--this program would not be effective for the 23% of students who only eat home.

Have you heard of the Bring Your Own Container Program at UTM?

According to Figure 2, 84% of the students did not know what the BYOC program, and only 16 knew. This can be an indicator that the campus needs to bring more awareness towards the program so that students can reap the benefits.

Have you taken advantage of it?

Figure 3 three showed that only 6 percent of the students had taken advantage of the BYOC program. 94% of the students did not, and a reason why this may be is because there was not enough campus awareness for this program.

Do you think 25 cents is enough of a monetary incentive to bring your own container?

According to Figure 4, 6% of students claimed that 25 cents is not enough monetary

incentive to participate. The remaining 44% of students did think that the monetary incentive was a drive for them to participate in the program.

Would you be willing to participate if the incentive was raised?

The results shown in Figure 5 indicated that 88% of students agreed that they would participate in the program if the incentive was raised, 12% did not. There were some students who claimed that incentive was not a motivating factor to participate in the program. Some students participated because they believed that the program was good for the environment, and others claimed that they would not participate because it required them to carry a container the entire day, which they did not want to do.

Would you be willing to participate if alternative options such as a dish return station, were provided?

The results shown in Figure 6 identified that there was a lot of positive feedback towards the option of having a dish return station like Square One has. There was a lot of positive feedback from the students who claimed that carrying a container in their bag the whole day was too much effort--some agreed that they would opt towards eating on campus if there were dish return stations.

Would you be more compelled if you knew/saw that other students were participating? (4400 last sem.)

The results from Figure 7 showed that students agreed that if more people participated in the program, they would feel the need to participate as well. 58% of students agreed to participate, 28% claimed that they may participate, and 14% of students said they would not participate at all.

One of the survey questions we created asked students how the BYOC program can be more appealing. The majority of the students said that incentives needed to be raised, and there

needs to be more promotion for this program because many of the students did not know the program existed. Another suggestion was that UTM should provide reusable containers just like how Starbucks provides reusable cups, or how UTM provides reusable water bottles. Students also said that a dish return station would be beneficial.

2.2 COST-BENEFIT ANALYSIS

In order to determine the benefits of the BYOC program it was necessary to understand the financial aspect so as to gauge the program's potential. The goal was to weigh the benefits of the program with the utilizations of our group's recommendations against that of the costs that the program is likely to endure without our recommendations, if not already. We were hopeful to find that the benefits of having the program at UTM would outweigh the costs of having it implemented and the results satisfied our hypothesis.

To investigate where there could be an opportunity for improvement, and overall determine whether this program's implementation is worth maintaining, this analysis was conducted using the three main steps to a general cost-benefit analysis which are (1) Determining the costs (2) Calculating the benefits (3) Coming up with a report and plan for action. This analysis is unique to our project with the integration of our recommendations. The analysis was completed using speculative knowledge and reference data from federal and municipal statistics, to come up with approximate values to factor into the analysis - for the sake of generating a chart of which to notice a visual difference in cost versus benefit. Due to the inability to obtain financial information from the university within the given time constraints, the analysis was done qualitatively. A table surmising all calculations involved in the analysis and an accompanying chart for visualization can be found in the *Appendices* section. Costs can be identified in red color while benefits can be identified in green.

Determine Costs

The risk of the program having an ineffective impact on campus has a speculated cost of

$78.75 annually. This was determined by adding the two discounts applicable to reusable containers and reusable beverage cups (0.25 + 0.10), multiplying that number by 5 representing the number of days that those discounts are able to be applied on campus provided the food services are open and operating on those days, that number is then multiplied by 5 again representing the average number of weeks in a given month and finally, that number is multiplied by 9 representing the number of months during the school year that the university is at optimal capacity. For the sake of this calculation, those food services offered during summer operations at the university were not factored in. A dish wash station is one of the alternative options being proposed by our group for the program in our recommendation. To implement a dish wash, station the speculated cost is approximately $730 annually. On average, a mid-range pedestal sink costs between $145 and $470 for materials. Installation costs between $45 and $65 per hour for a plumber and the average installation takes approximately 4 hours = ~$730 assuming the higher end of the cost and installation and maximum time for installation. Not accounting for potential maintenance, water use, soap and other materials required for dishwashing. This also doesn't account for those who take advantage of the service that aren't participating in the BYOC program.

This does not include the cost of maintenance nor cost of water and other considerations including its use by those who do not partake in the program and take advantage of the station for their own use. Another addition to our recommendation is the sale of reusable containers for use to the UTM community. This would have a speculated cost of approximately $13,290 annually. UTM would have to sell each container for what they buy to break even on spending. To make the minimum profit of 0.17 cents off of each container sold, the containers would have to be sold for $5.00 each. EC-12-1 containers are reusable containers at an estimated $4.43 per container (may vary based on your dealer and volume of your order) 3,000 x

$4.43 = $13,290 (total cost of initial Eco-Takeouts® reusable to-go container purchase for one school year).

A supplementary recommendation we're including for this product within this particular cost is the free use of the container after the initial purchase by a member of the UTM community. In addition an education program is being recommended to curb the issue of ineffective promotion, with workshops that would be valued at a minimum of $100.00 for materials and incentives per each workshop, assuming there is a minimum of three annual workshops for an effective impact and $3.00 for every 20 posters which are 0.15 cents each to print using on-campus printing services. The overall promotion is essential for the program's success and is valued at $3.00 for every 20 printed. The final cost for promotion doesn't account for those methods we will recommend including The Medium and UTM Radio.

Calculate Benefits

If the program proved to be popular over time, the university would be able to cut down on costs involved in ordering takeout containers to provide alongside food services. Perhaps even a switch from current supplier to a new, sustainable and more affordable supplier. At $6.79 each for a ⅝" x 3.5" x 2.5" Kraft microwavable folded paper takeout box, UTM could order 5000 weekly amounts to $33,950. While this seems like a lot, it could be continuously reduced overtime to an example goal of 3000 amounting to $20,370 which would save UTM $13,580 annually on costs of takeout supplies.

Another benefit we factored in was losing less money with the discount than it would cost to order substantial amounts of takeout supplies. With 500 sales at an average of $8.00 and each time a discount is provided, that amounts to $3875 - which would be $4000 without the discount. Technically there is a loss of $125 but saving overall on the cost of takeout materials

with our recommendation of switching suppliers, evens out the loss here. The next benefit calculated was a save on produced trash annually at UTM. Currently, UTM spends $71.47 per ton on average to landfill the trash we produce - this number was taken from the University of Berkeley as a reference though Canada-US numbers may slightly vary. Granted, landfill contributions can be saved on through recycling practices given that the average person generates 36.1 tonnes of waste per year and the UTM population as of 2016 was 14,741, the approximate amount of waste produced at UTM today is 530,676 tons which amounts to a whopping $37,927,413.70 spent each year due to rendered waste by the UTM community. Reducing takeout waste on campus will, in turn, cause a reduction in labor of which the cost is unknown for the workers themselves, to maintain waste areas.

SECTION III: RECOMMENDATION(S)

All of the components of this project led to a collective evaluation and rendered a final recommendation for the future of the BYOC program. In addition to the final recommendation there are several supplementary recommendations to accompany the decision and for consideration for the program's facilitators moving forward.

(a) **Raise the incentive:** from the data gathered, one of the most common trends we came across was surveyees describing how they wanted an incentive raise. As mentioned before from the data in Figure 4, 6% of students claimed that 25 cents is not enough monetary incentive to participate, which although a small number, 44% of students wrote about how a monetary incentive was a main driving factor to push them towards using the program. Furthermore, the biggest cause for an incentive change is that of all those surveyed, a total of 88% of them commented that they would participate with a greater incentive. So, from what is gathered here, the vast majority of those surveyed appear to be driven by monetary means. Thus, we believe should the BYOC aim to draw in more participants and be greater utilized, our recommendation is a small monetary increase. Currently the BYOC monetary incentive is 25 cents, changing it to a full dollar would likely be a bit too much, so our recommendation would be a monetary increase between 25 to 50 cents putting the minimum at 50 cents and the maximum at 75 cents. Given the survey results, a monetary change, even a small one would attract a number of people.

(b) **Increase Promotion:** Out of the 117 students who volunteered to do the survey, only 16 of them had ever heard of the BYOC program. The vast majority were unaware despite the program having been implemented in the previous semester. As this is just a sample size of the entire student body, it would be safe to assume that based on the data, the vast majority of UTM students have never heard of the BYOC program before. We know there is in fact advertising from the program, a small number of students who knew about

BYOC mentioned that they had seen a poster for it in the Harvey's on campus. When asked to describe the poster, the response ranged from small to not particularly eye catching. Thus, we propose a rather simple recommendation to curb this problem: advertise the program more effectively. The posters may be a helpful promotion tactic but they need changes to maximize potential viewers. The posters need to be larger and stand out more for starters, and they should be put in more locations than just the Harvey's, the preference here would be places that have a high amount of student traffic. What could also be done in conjunction with making more posters is utilizing UTMs other means of media, for example BYOC could be advertised in something like the Medium to increase the chances of people coming across it.

(c) **Sale of Reusable Containers:** This idea was brought to attention by a few those surveyed. The idea here would be that selling reusable containers would both help to bring attention to the BYOC program, and benefit both the seller and the consumer. The seller would benefit from the extra money made from the sale of reusable containers, while the consumer would have an option to participate in the program if they don't have access to a proper reusable container or are put off by the idea having to borrow a container that they might believe is dirty. Selling containers would also mean that the containers being used in the BYOC program are all of a consistent size. This would help limit portion size issues.

(d) **Dish-Wash Station:** A dish-wash station would be used to benefit the participants of the BYOC program. Some students spend the majority of their day on campus, which means they usually have at minimum two meals. A dish-wash station would be for those students who are eating multiple meals. A student who has had one meal with their container may not use it for a second purchase if the container is dirty from the first meal,

so a dish-wash station would allow for the student to get their container cleaned before they use it again. It doesn't just benefit students who are having multiple meals either. It would be a benefit for anyone who had a meal and wants to make sure their container is clean before they return to classes or go home.

(e) **Education Program:** Like advertising an education program would benefit the BYOC program by raising awareness, but the purpose of an education program would go so much further. From working on this assignment over the last four months, if there was anything we noticed it was that there is a lot of unnecessary waste and food waste in UTM. The purpose of the BYOC program is to reduce waste on campus, thus the implementation of an education program would benefit that goal. Such a program could show students just how much gets wasted in UTM, and where all that waste ends up. It could explain what the purpose of the program is and what the goal it is trying to achieve is. Such a program wouldn't have to be mandatory, but putting it out there, even online would gather curious people.

SECTION IV: CONCLUSION

In order to complete a comprehensive evaluation for the Bring Your Own Container program at the University of Toronto Mississauga, a number of necessary tasks needed to be completed to ensure that we were evaluating accurately and representatively across the campus for our final recommendation report. We recognized a set of necessary tasks to meet our goal and set out to collect data to evaluate. We then brainstormed strategies for risk mitigation and reached out to identified stakeholders as a collaborative effort to represent the wants and needs of the UTM community. Finally, an analysis of the collected data was done and recommendations were considered and decided upon to present to the client. The project schedule had to be rearranged in order of priority as the time restrictions for the completion of our evaluation began to impede on our ability to be thorough for particular tasks such as the community survey and jurisdictional investigation. Ultimately, we've concluded that some risks, like bias in our data, can be minimized but not completely eliminated. With the cooperation of identified stakeholders, we were able to conduct an accurate evaluation of the Bring Your Own Container program and it is our official recommendation that the program continue and strongly consider our supplementary recommendations for alterations to the program's operation in the future.

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Appendices

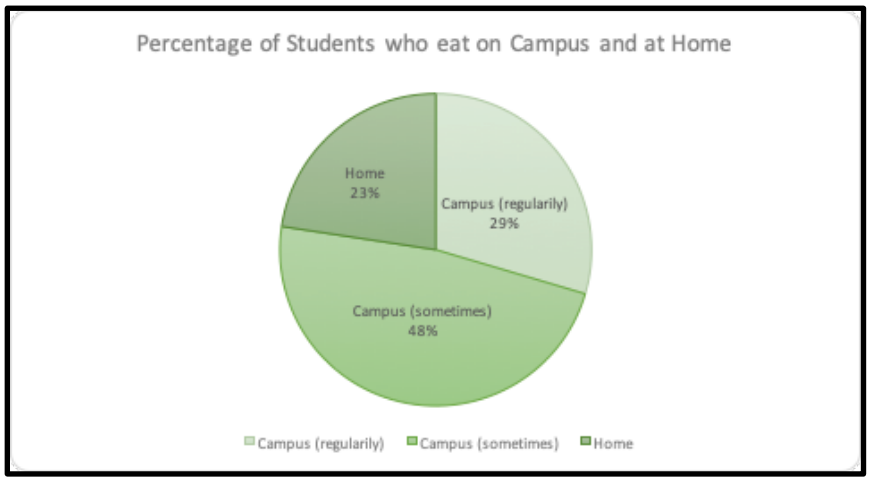

Figure 1. The percentage of students who eat on campus and at home

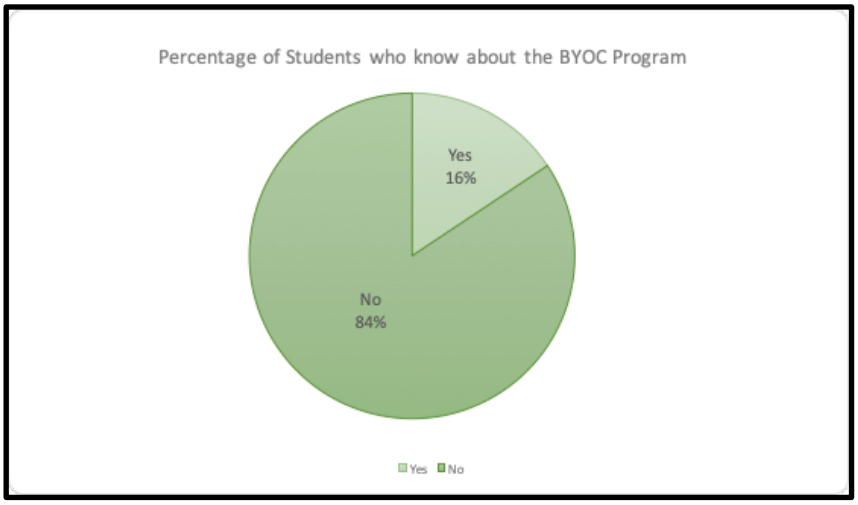

Figure 2. Percentage of students who know about the BYOC program

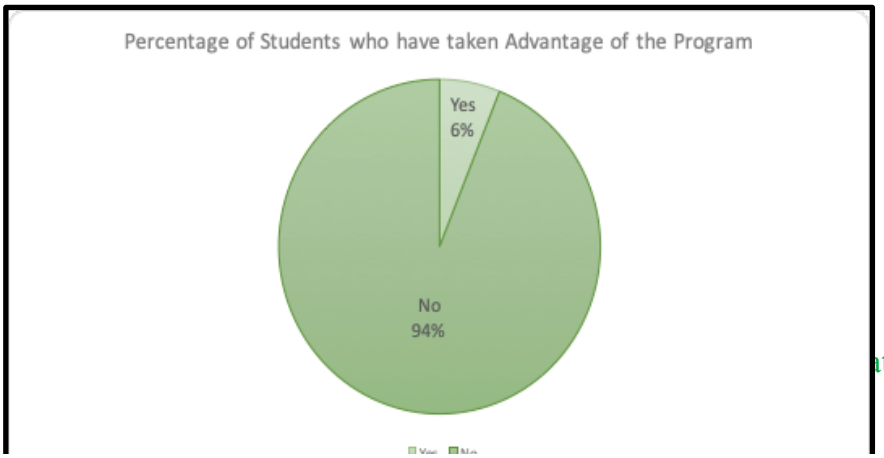

Figure 3. Percentage of students who have taken advantage of the program

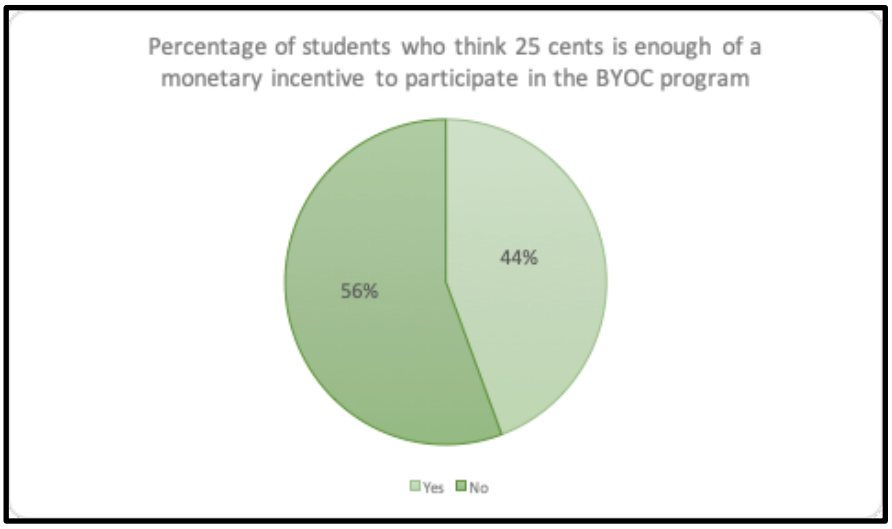

Figure 4. Percentage of students who think 25 cents is enough of a monetary incentive to participate in the BYOC program.

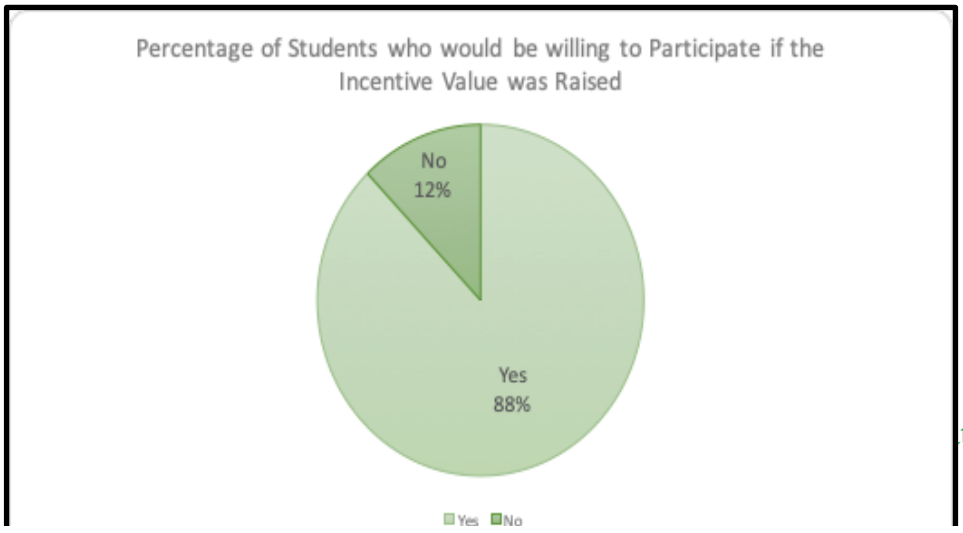

Figure 5. Percentage of students who would be willing to participate if the incentive value was raised.

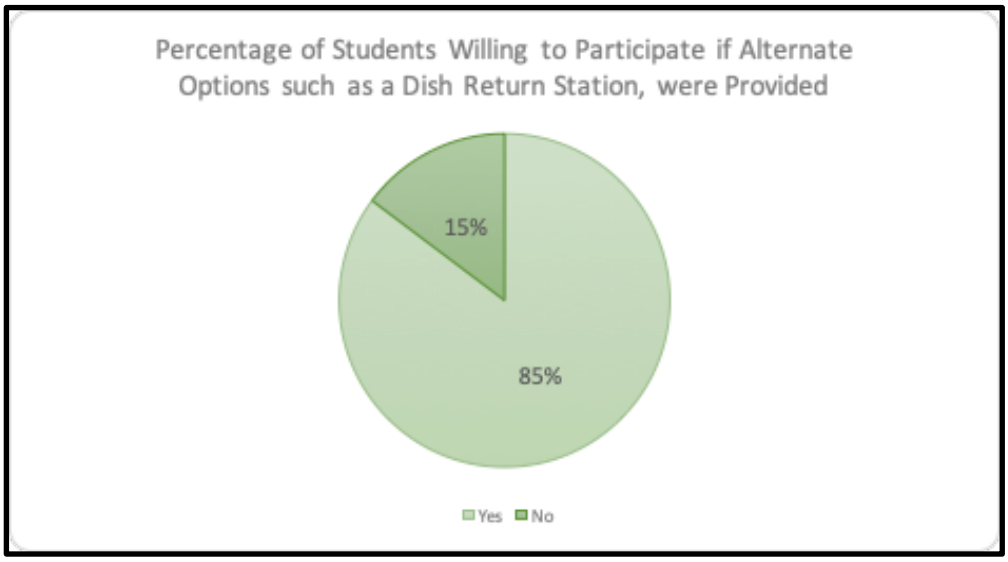

Figure 6. Percentage of students willing to participate if alternate options such as a dish return station, were provided.

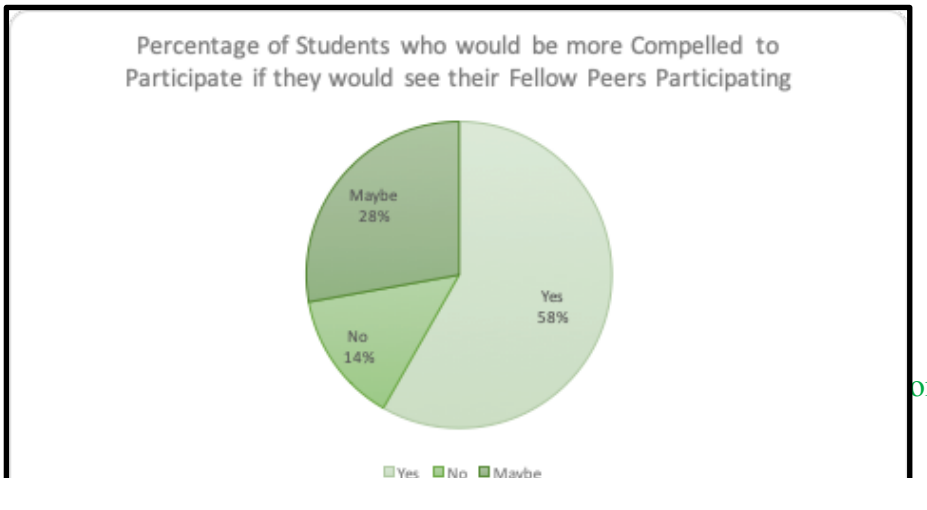

Figure 7. Percentage of students who would be more compelled to participate if they would see their fellow peers participating.

	Risk	Did it come up?	Strategy	Who
1	BIAS	✓	Sys. Random Sampling Approach	• Stakeholders
2	STAKEHOLDER UNAVAILABILITY	✓	Attempts to communicate using various methods	• Evaluators, Stakeholders
3	LACK OF FEEDBACK	✗	–	• Evaluators, Stakeholders, Future Participants
4	INCONCLUSIVE DATA	✗	–	• Evaluators & Key Stakeholders
5	TOO MUCH DATA VARIATION	✗	–	• Students/Faculty/Stakeholders (Time/Monetary & Realistic Limitations)

Figure 8. Risk Management Strategy Table indicating which risks were present in the study, what strategy was implemented in response to it and whom in the study the risk impacts.

ENV332 Project Timeline		Start Date	End Date	Timeline	Status	Personnel
		Jan-22	Apr-6			
Create survey	Determine survey questions	Jan-22	Jan-23		Complete	Whole Group
	Edit survey	Jan-22	Jan-23		Complete	Whole Group
Survey	Data collection	Jan-24	Feb-22		Complete	Whole Group
Stakeholders meeting	Contact stakeholders and ask questions about project	Jan-22	Jan-22		Complete	Whole Group
Data Analysis	Evaluation of stakeholder data	Feb-23	Feb-28		Complete	Whole Group
	Evaluation of university data	Feb-23	Feb-28		Complete	Whole Group
	Analysis of survey data	Feb 23	Feb-28		Complete	
Status Presentation	prepare and practice power point slides	Feb-3	Feb-9		Complete	Whole Group
	Present	Feb-10	Feb-10		Complete	Whole Group
Risk assessment matrix	Excel sheet formulating matrix	Jan-27	Jan-30		Complete	Whole Group
	Finishing Touches: references, tables and diagrams, word limit check etc.	Jan-30	Feb-1		Complete	Whole Group
	Editing & Proofreading: grammar, spelling, correct citations	01-Feb-20	02-Feb-20		Complete	Whole Group
	Formatting & Submission: congregating each product + submission to Quercus	02-Feb-20	03-Feb-20		Complete	Whole Group
Project Status Report	Complete report	10-Feb-20	23-Feb-20		Complete	Whole Group
	Editing & Proofreading: grammar, spelling, correct citations	22-Feb-20	23-Feb-20		Complete	Whole Group
	Formatting & Submission: congregating each product + submission to Quercus	23-Feb-20	24-Feb-20		Complete	Whole Group
Interim Self Evaluation	Complete self evulation sheet	24-Feb-20	02-Mar-20		Complete	Whole Group
Interim Billable Hours	Complete billable hours and log onto excel sheet	02-Mar-20	09-Mar-20		Complete	Whole Group
Final Presentation	prepare and practice power point slides	09-Mar-20	16-Mar-20		Complete	Whole Group
	Present	16-Mar-20	16-Mar-20		Complete	Whole Group
Final Project Report	Include analyzed survey results	17-Mar-20	23-Mar-20		Complete	Whole Group
	complete final report	23-Mar-20	2-Apr-20		Complete	Whole Group
	Editing & Proofreading: grammar, spelling, correct citations	2-Apr-20	6-Apr-20		Complete	Whole Group
	Formatting & Submission: congregating each product + submission to Quercus	6-Apr-20	6-Apr-20		Complete	Whole Group
Final Self Evulation	complete final self evulation	30-Mar-20	6-Apr-20		Upcoming	Whole Group
Final Billable Hours	complete billable hours and log onto excel sheet	30-Mar-20	6-Apr-20		Upcoming	Whole Group
			Burndown			
			Critical Path	68 Days		

Figure 9. Project Tasks and Schedule - Full Outline.

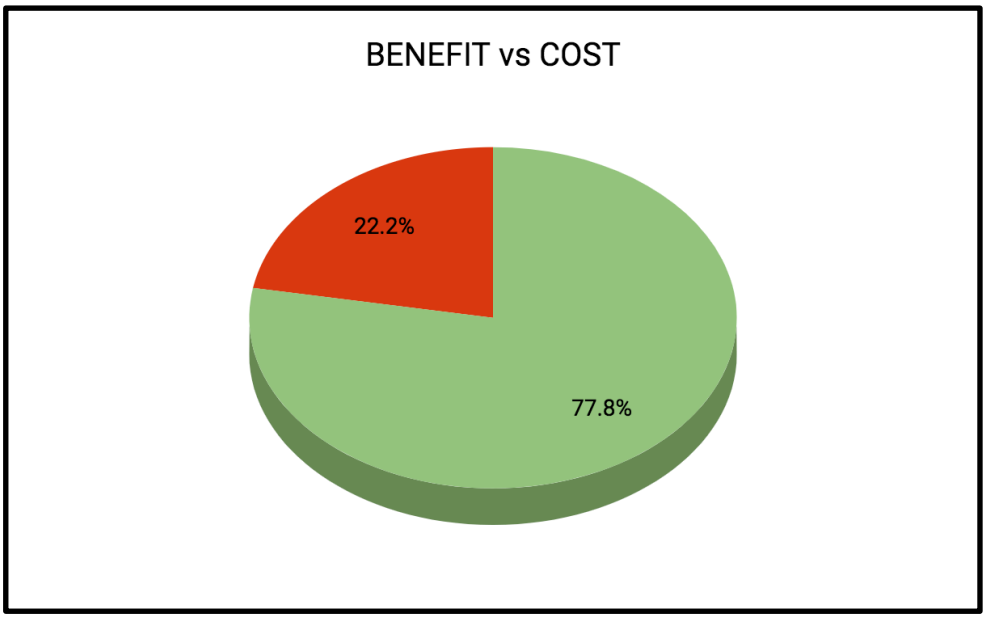

Figure 10. Cost-Benefit Analysis Summary Pie Chart. The above pie chart represents the total cost, in red, versus the total benefit in green, of all the above-explained factors involved in potential recommendations to the currently implemented BYOC program.

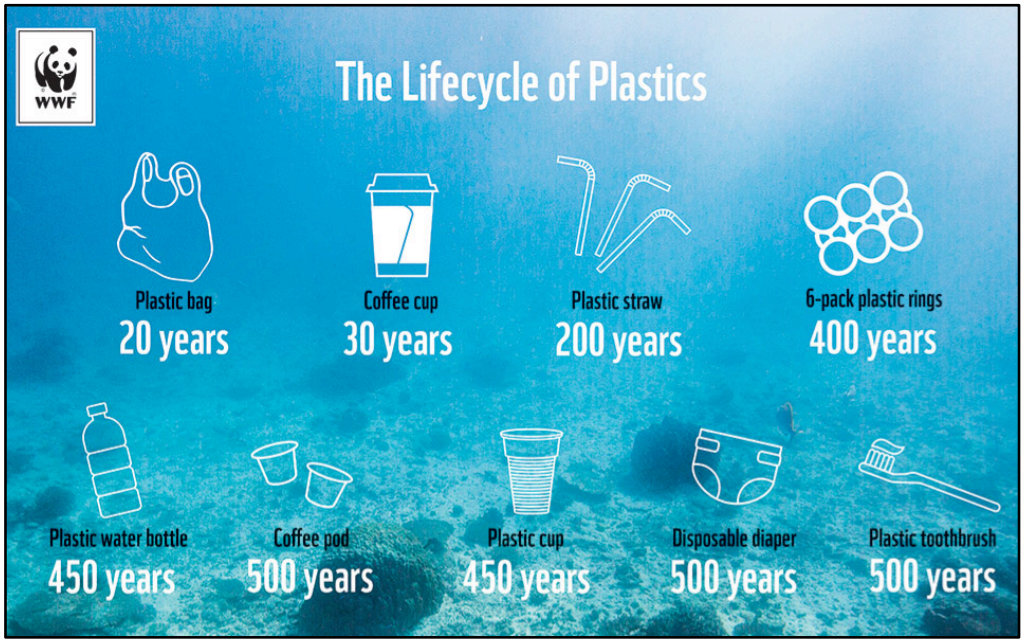

Figure 11. The Life Cycle of Plastics. Retrieved from WWF (2018). https://www.wwf.org.au/news/blogs/the-lifecycle-of-plastics

Figure 12. 17 Sustainable Development Goals. Retrieved from United Nations (2020). https://sustainabledevelopment.un.org/?menu=1300

Table 1. Faculty and Student Survey Response Examples

Faculty Responses	Student Responses
" The program is only appealing to those who buy their lunch at UTM." - Anonymous **" There needs to be a greater incentive… perhaps from Tim Hortons or Starbucks."** - Anonymous **"Faculty and staff in the environmental field have not heard about this, which is telling."** - Anonymous **" There needs to be more prominent information, more out there"** - Anonymous **" Even 0.50 cents may work but increasing it is necessary, 0.25 cents is not enough"** - Anonymous	**"More posters would make the program more well known. More advertising overall."** **"Campus should stop giving utensils and change to reusable ones."** **"0.25 cents? I'd rather make my own lunch."** **"Hygiene insurance is important!"** **"Incentive is too low."** **"Go bolder with incentives."** **"More infographics and appeal on posters, and without any political ideologies."**

Table 2. Summary of Cost-Benefit Analysis

Ineffective Impact	0.25 +0.10 x 5 days x 5 weeks x 9 months	$78.75
Dish Wash Station Implementation	Cost of installation	~ $730
Selling Reusable Containers for Use	Purchase of reusable containers	$13,290
Education Program	Workshops ($300), Posters ($60)	$360
Promotion	Posters, The Medium, UTM Radio	~$360
Switching Supplier Source & Amount	6.79 x 3000 over 6.79 x 5000	Save: $13,580
Discount	Loss of $125 annually + gain of 13,580	$3875
Reduction in Overall Waste	Save on the annual cost of trash per ton.	-