

Caffeine Without Consequence: Implementing a Reusable Cup System at The Daily Grind

An Independent Sustainability Project
Submitted for Consideration to Professor Barry Muchnick
For ENST 450: Applied Sustainability Practicum

By Eric Lee

Executive Summary

Waste reduction is one of the main concerns when it comes to sustainability, and college campuses around the world have a big role to play in that. Disposable food and beverage containers comprise a significant portion of trash from universities, making sustainable alternatives such as reusable cups a viable way to reduce overall waste. At St. Mary's College of Maryland, the on-campus coffee store The Daily Grind offers discounts on drinks for patrons who bring their own coffee mug in an attempt to encourage people not to use disposable paper cups. However, these efforts are currently not well advertised and used infrequently as a result. It is the goal of this project to improve on the existing system at The Daily Grind through improving awareness of both the program and the impact of disposable cups on the environment. In addition, to make it easier for students to participate in the program, reusable coffee mugs from the Campus Store will also be sold at The Daily Grind at a discounted price. With these additional measures put into place, I hope that more students will use reusable coffee mugs over disposable paper cups, reducing overall waste at St. Mary's and contributing to a more sustainable future.

Introduction

Colleges and universities have been increasingly recognized as key roleplayers in the sustainability movement over the years. In most of the cities where they are situated, Such institutions tend to represent both the highest population density and consumption rates in their respective cities. The sheer amount of resources both consumed and processed by colleges, means that they have a significant role to play in global sustainability. The efficient management and reduction of waste on college campuses is a vital part of environmental sustainability, and several studies have shown that disposable food containers such as paper/plastic cups and napkins comprise the bulk of produced waste at college campuses (Smyth et al., 2010). St. Mary's College of Maryland is no exception. One of the main sources of drinking container waste is the on-campus student-run coffee store: The Daily Grind.

Fortunately, The Daily Grind already has a system in place to encourage people to cut down on disposable cup usage. Normal drip coffees are charged at small prices regardless of the size purchased, and prices for any 'fancy' beverage are reduced by 20% for any patron who responsibly brings their own mug to be filled. Despite these incentives however, a large majority of customers at The Daily Grind still opt to have their drinks served in disposable paper cups. Lack of participation is a common hindrance to the successful implementation of environmentally sustainable practices, especially among college students. There are several reasons that the current system at The Daily Grind is failing to encourage an increased use of reusable beverage containers, one of the main ones being a lack of awareness and subsequent apathy amongst the customer base.

The current discount system to encourage reusable mug usage at The Daily Grind represents an opportunity to increase sustainability at St. Mary's, and the principal goal of this project is to improve on and enhance said system. I will attempt to accomplish this through a two pronged approach of raising awareness of the system and the environmental impact of disposable beverage containers, while encouraging use of the existing system by increasing the ease of its use and providing incentives. If a successful reusable cup program were to be implemented, it would likely significantly reduce the amount of overall waste produced by St. Mary's College of Maryland. This would not only be a step toward being a more environmentally friendly campus, but also a contribution to global sustainability.

Context

In *The Green Book: The Everyday Guide to Saving the Planet One Simple Step at a Time* (Rogers and Kostigen, 2007), waste reduction was identified as one of the most important and basic principles of environmental sustainability. Delaney and Madigan (2014) argued in their book *Beyond Sustainability: A Thriving Environment* that human beings have several philosophical and ethical reasons to make sustainability a priority, stating also that university campuses have a large stake in the matter. The book also suggested that switching to reusable containers and recycling in general may be the key to waste reduction worldwide. With regard to successfully implementing environmental practices through getting people to participate, Fetzer and Aaron (2010) proposed several strategies in their book *Climb the Green Ladder: Make Your Company and Career More Sustainable*. Interestingly, they argue for a departure from the 'old way' of bringing

about environmental change – relying on guilt, pressure and ‘preachiness’. Instead, they introduce a new green approach using human psychology and business logic. While such large-scale business concepts may not be directly applicable to the goals of this project, the book supports the idea that people respond better to incentives rather than guilt, an important principle to keep in mind when attempting to maximize customer participation. These sources highlight many important concepts and factors to consider when moving ahead with my project, namely that waste reduction is critical to achieving sustainability and that a new approach is required.

Campus sustainability at universities and colleges is an important subset of any discussion involving environmental progress. In the book *Sustainability on Campus: Stories and Strategies for Change* by Barlett and Chase (2004), several case studies and stories from many colleges were compiled. Of particular interest is a story from Illinois Wesleyan University, a small liberal arts college like St. Mary’s. They described the struggles to bring about environmental change with limited resources and manpower, and the huge psychological component with regard to losing motivation and towards goals. The lessons from the book suggest that participation is the hardest part in attempting to achieve sustainability, as this experiment has hypothesized. Klein (2010) argues in her book *Creating Interdisciplinary Campus Cultures: A Model for Strength and Sustainability* that fundamental cohesiveness among the different disciplines on campus is crucial to achieving campus-wide sustainability. This suggests that any environmental program needs to take into account multiple disciplines when planning.

In a waste characterization case done by Taghizadeh et al. (2012) at the University of Tabriz, Iran, it was found that 80% of the waste produced could be dealt

with sustainably through means such as recycling composting. They identified reusable cups as one of the best ways to reduce the amount of plastic waste generated, which comprised majority of overall waste. In another waste characterization study conducted closer to home at the Prince George campus of the University of Northern British Columbia (UNBC), Canada (Smyth et al., 2010), they came to a similar conclusion as the previous study. It was found that disposable drink containers represented one of the three most significant material types for targeted waste reduction efforts. Another Canadian study done by Molander and Lenihan (2007) at the Okanagan campus of the University of British Columbia (UBC) focused on identifying which types of food at the campus cafeteria were most responsible for waste production. The data collected found that non-food items such as napkins and plastic cups comprised the greatest portion of the garbage. These three studies point toward disposable beverage containers being a primary contributor of waste on college campuses, making implementation of a reusable cup system an important prospect.

Having identified reusable cups as a possible way to significantly reduce waste on college campuses, there are several factors to take into consideration should such a program be implemented. A study done by Garrido and del Castillo (2007) attempted to determine the environmental effects of reusable cups at the Universal Forum of Cultures, 2004, a large event in Barcelona. It was found that a reusable cup needed to be used at least 10 times to have less of an environmental impact than a disposable cup, providing a ballpark estimate of how much this project should encourage people to use their reusable coffee mugs. With that in mind, it is important to consider the type of cup used. Chang et al. (2011) evaluated the most sustainable type of cup to use for a green vending machine

at the University of British Columbia, with the options being disposable paper cups and reusable plastic, ceramic and stainless steel cups. Taking into account factors such as method of production, energy consumption over life cycle and ease of use, it was determined that stainless steel cups were the most sustainable option. Another study investigated the efficacy of the reusable cup programs at several locations at California State University of Sacramento (CSUS), namely: Starbucks, Java City and Jamba Juice (Mauricio, 2014). The results showed that not many students knew about the discounted cup program on campus, which led to a lack of participation. The study highlighted the importance of increasing awareness and effective marketing of the program if success is to be achieved.

Overall, these sources provide many different applicable lessons for my project. Waste reduction as the rightful end goal can only be brought about through the continued and sustained participation of the student population. To garner sufficient participation in the reusable cup program, not only must awareness be increased, but also incentive and convenience.

Case Studies

In the study done by Cox (2014) at California State University, Stanislaus, she evaluated the effectiveness of a personal prompt at encouraging customers at several coffee shops to use reusable cups. The study used a multiple baseline design across three Starbucks locations in Stanislaus County, California. At each location, baristas who worked during the observed hours implemented the personal prompting procedure. The baristas were trained in the proper execution of the personal prompt, which involved

asking the customer, “Would you like to get a discount and use one of our reusable cups?” following submission of the order. Each participating location had available reusable ceramic mugs and glassware of various sizes ranging from 8 to 20 ounces. To remind the baristas to deliver their personal prompts, they also wore a small device on their aprons that vibrated at timed intervals. After a baseline was established through 3 weeks of observation without personal prompts, the experiment was conducted. Treatment validity was maintained through use of “secret shoppers” which the baristas knew would visit the store periodically and check on their performance, these secret shoppers discretely took note of whether the baristas appropriately used the prompt or not. Unfortunately, the study was unable to determine whether the personal prompting procedure was an effective intervention in reducing the use of disposable cups at the three locations. While the personal prompt resulted in a decrease of disposable cup use in stores 1 and 2, an increase in disposable cup use was observed at store 3. This study has important implications for my project as it suggests that simply informing customers of a reusable cup option alone is not enough to bring about significant reduction in disposable cup usage. In addition, the study also shows that employee training is a critical component of a reusable cup system. As such, if the goal of this project is to successfully implement a reusable cup system at The Daily Grind, other approaches must be considered.

At Dalhousie University in Halifax, Canada, a study was done that focused on reducing the amount of waste produced by disposable cups (Alsop et al., 2004). With the long term goal of increasing Dalhousie’s sustainability, the study looked at the four most popular beverage outlets on campus: 2 Tim Horton’s, a Second Cup, and a Starbucks.

Customers at these four locations were surveyed to learn about consumer habits, where they investigated several questions about reusable cup use. It was found that even though 95% of respondents believed that disposable cups produced unnecessary waste, only 60% of them owned a reusable mug, with only 45% of owners using them regularly. The main reason for not owning a reusable mug was inconvenience (54%), though respondents said that factors such as a 10c discount (54%), free up size (62%), new mug (60.5%) would encourage reusable mug use. In addition to surveying the customers, the study also interviewed the two main companies responsible for the coffee shops: Sodexo and Aramark. Both companies had environmental policies in place, providing incentives for customers who used reusable mugs. To determine the amount of waste produced by disposable cups, the researchers first contacted facilities management to discover how much waste is removed from campus each month to establish baseline data. They then collected used disposable cups on campus to measure the volume, which in turn allowed them to determine what percentage of total waste they made up (~9%). Overall, the study concluded that focusing efforts on reusable cups would significantly reduce waste on campus, and that the best way to do that was to raise awareness of the benefits of using reusable mugs as well as the environmental costs of not doing so. In addition to providing valuable information as to how to coerce students into using a reusable cup scheme, this study was relevant to this project as it emphasized the importance of a well-educated customer base in bringing about successful environmental change.

A study was done at California Polytechnic State University that focused on determining factors that correlate with sustainable behavior (Sokoloski, 2015). One hundred and six students participated in a survey, where several sections, namely:

attitudes, behaviors, knowledge, social norms, social desirability, and a demographic section. The attitude section asked how the participant perceived sustainability initiatives would affect aspects of their lives. The behavior section had participants mark down how often they engaged in sustainable activities such as recycling. The knowledge section tested participants' basic understanding of sustainability through multiple-choice questions. The social norm section asked questions about how the individual's perception of their social groups matched their own attitudes and behaviors with regard to sustainability. Lastly, the social desirability section provided context to all the previous sections by allowing participants to rate their social desirability on a 1-10 scale, where scores above 5 were concerning as this may have meant that the participant was distorting his/her answers in order to appear more socially desirable. The study found that while attitudes and behaviors were correlated, knowledge and behaviors toward sustainability were unexpectedly not. It was also found that participants' attitudes were correlated to those of their friends and families but not their professors. Similarly, participants' behaviors were correlated only to their friends' attitudes. The study suggests that if a decent participation rate is to be achieved for the reusable cup program at The Daily Grind, getting a critical mass of people to use it is key. If we are able to make the project appeal to a wide variety of people or become 'cool', it would likely result in a 'snowball effect' that could potentially lead to widespread use of the reusable cup program.

Project Overview

With the concepts from my research in mind, there were two main areas I wanted to focus on with regard to improving the existing system: making it more well known and

making it easy to use. To reiterate, the current system to incentivize students to bring their own mug involves a 20% discount on 'fancy' drinks and charging any size (up to 24oz) drip coffee at the small price (Wagner, word of mouth). However, this system is poorly advertised, and requires students who do not own a reusable mug to go out of their way to get one elsewhere. The goal of my project was therefore to increase awareness of both the importance and existence of the bring-your-own-mug system at The Daily Grind, and also make it easier for students to own a reusable cup.

One of my first starting points for this project was to contact Bryanna Ulrick. I learned from attending an SGA (Student Government Association) that she had been trying to get reusable cups integrated into both The Daily Grind as well as the Great Room, and that she has presented several proposals to the SGA. When I met with her, we were both encouraged to find someone else passionate about improving St. Mary's in such a way, and agreed to meet with Richard Wagner, the director of the Campus Store and Daily Grind, together. We had several goals for this meeting. Firstly, we wanted to get information on how much SMCM students actually use the reusable cup program, as that would give us an idea on how much the system could be improved. I also wanted to propose the idea of selling St. Mary's branded coffee mugs from the campus store at the Grind, as doing so would increase the convenience of bringing your own mug as well as increasing campus store sales. To increase awareness of the program, we were going to propose both the design and display of a poster informing Grind customers of not only the perks of bringing your own mug, but also the impact that disposable cups have on the environment. Lastly, I wanted to ask if it was at all possible to implement an incremental

punch card system for using your own mug (e.g. bring your own mug 8 times get a free drink), as that would incentivize students further to bring their own mug.

Meeting with Richard Wagner was overall very helpful and I managed to accomplish most of my goals going on. He mentioned that the bring-your-own-mug program at the Grind was something that he has been meaning to improve on for quite some time, but never got around to it. He told us about a program that St. Mary's attempted quite some years (4-5) ago, where they distributed reusable plastic mugs to all students. This was done with the intention of reducing paper cup waste at the Grind, but the program failed since many students ended up losing their cups. The failed program cost the college a lot of money, and also ended up with a negative impact on the environment due to the wasted resources used in the lost mugs. St. Mary's uses approximated 20,000 disposable cups a year, roughly 60 a day, and only 5% of students and 10% of faculty bring their own mug (Wagner, word of mouth). Richard was very on board with the ideas I presented, namely the poster and the selling of mugs at the Grind itself. He said that he would send me the poster that they used to use, and that I would be able to use a graphic designer he knew as a resource should I want to create a new poster. He also said that it was not a problem to set up a small display of mugs at the Grind, in addition to offering a 20% discount and a free drip coffee to anyone who wanted to purchase them. Unfortunately, implementing the punch card system for frequent mug-users was deemed to be too administratively difficult.

With the information and ideas provided to us by Richard in mind, the only thing left for us to do was to design a poster to be put at the Grind. These designs were sent to

and critiqued by both Richard himself and also the classmates of ENST450 during a poster peer review session. This is an example of a poster that I made:

BRING YOUR OWN MUG!!

Did you know:

- The US uses 16,000,000,000 disposable cups a year
- The Grind goes through 20,000 a year, ~60 a day
- Disposable cups make up a significant portion of waste from college campuses
- Help St. Mary's and the environment cut down on waste!



BUT WHY SHOULD I USE MY OWN CUP??

- 20% discount on ANY drink, that's like buying 4 and getting your 5th free!!
- "Fancy" drinks of all sizes get charged as a small
- Get started today! Purchase your very own reusable mug from the Grind at 20% off the campus store price and get a free drip coffee!!

After a few back-and-forth email threads, Richard and I were able to settle on an appropriate poster design. He also agreed to set up a small display of Campus Store mugs at the Grind itself, in addition to informing the Grind employees to encourage people to use the program.

Outcomes

I faced several challenges over the course of this project's completion, and there are several aspects of this project that can be improved and expanded upon for future reference. One of the challenges I faced was initial contact with Richard Wagner himself. As the director of the Campus Store and Daily Grind, he is a busy man, and in the early stages it took Bryanna and I weeks to get a reply from him. However, once we met he

was passionate and interested enough about our project that contact wasn't a problem. Setting up a meeting time was also a bit of a challenge as we all had different schedules, but all of our correspondence after the first meeting was done over email, circumventing future problems with regard to meeting up. Personally, the biggest challenge I faced with this project was that I was not able to devote as much time and focus toward it as I would have liked, this was largely due to my having to complete my St. Mary's Project in biology. It is no secret at this school that an SMP in biology is one of the most time-consuming tasks a student can undertake, and I was unable to give this project my full attention as a result. Nevertheless, I managed to accomplish both of the goals that I set for this project: to put up a poster at the Grind, and to have reusable mugs sold at the counter.



That is the final poster that is currently set up at The Daily Grind alongside a display of the two mugs pictures there. While Richard and I both agreed on this design, there are a few things I would have done differently had I had more time to develop my

ideas. The main thing I would have added to the poster would be some environmental facts on it to inform people on how big of a problem waste management is at college campus, in addition to how much of that waste is comprised of paper cups. With regard to the rest of the project, given more time I would have pushed harder for the implementation of the punch card system. I believe that implementing such a system would encourage students to bring their own mug even more, and would truly revitalize the stagnant current system at the Grind. Another way in which I would have improved on the system given more time and research would have been to find not only cheaper alternatives to the mugs being sold at the Grind, but also more options to appeal to a wider customer base. Currently only two designs of fairly pricey mugs are being sold at the Grind, and there is a lot of room for improvement in this aspect.

Conclusions

Simple steps taken by a lot of people bring about environmental change, and this project strived to make one such step both well known and accessible to the students at St. Mary's College of Maryland. As the school represents one of the highest concentrations of people and resources in the area, we have a responsibility to be a sustainable part of the community. Reducing the amount of paper cup waste, which comprises a significant portion of overall waste at colleges worldwide, will go a long way to greening our campus and making it more sustainable. However, none of this would be able to be accomplished without the participation of the student population.

While this project has many opportunities for further improvement and expansion, its current form offers a virtually costless improvement on the existing bring-your-own-

cup system at the Grind. By simply reallocating resources already at our disposal, now there is a much better-known and easier to join version of the old program. It is the hope that the incentives and no-drawback design of my proposed improvements will encourage reusable cup use at the Grind.

Recommendations

There are several ideas that one should keep in mind with regard to moving forward and furthering this project. As briefly mentioned earlier, increasing the variety of mugs available for purchase and use would increase the appeal of using and being a part of the reusable mug system. An integration of a real punch card incremental reward system would also go a long way towards promoting long-term use of reusable mugs and making that a habit among students. While the poster at the Grind provides more awareness than the old system, there is still a lot of room for improvement with regard to advertising. In addition to a bigger poster, the Grind can also perhaps offer more rewards and incentives for people using their own mug. For example, to use concepts from the Green Cup, there could be a competition whereby the person who uses his or her reusable mug the most could earn free drinks. The final recommendation I would make for this project is that it could expand to other places on campus that use disposable cups such as the Pub and the Great Room. Patrons should be allowed to bring their own cup for beverages that they purchase from these places, and doing so would help reduce overall waste at St. Mary's.

References

- Alsop, J., T. Field, J. Kalkreuth, J. Kemp, S. Malach and A. Popper, 2004. Reusable Mugs: Reducing Waste on Dalhousie's Studley Campus.
- Barlett, P.F. and G.W. Chase, 2004. *Sustainability on Campus: Stories and Strategies for Change*, Binghamton Valley Composition, New York.
- Chang, A., D. Craig, J. Leclerc, T. Fang and N. Nikaein, 2011. An Investigation into Reusable Coffee Mugs.
- Cox, L.N., 2014. Effects of a Prompting Procedure on Coffee Shop Consumers' Use of Reusable Cups
- Delaney, T. and T. Madigan, 2014. *Beyond Sustainability: A Thriving Environment*. McFarland & Company Inc., Jefferson, North Carolina.
- Espinosa, R.M., S. Turpin, G. Polanco, A. De laTorre, I. Delfin and I. Raygoza, 2008. Integral urban solid waste management program in a Mexican university. *Waste Management* 28: S27-S32.
- Fetzer, A.V. and S. Aaron, 2010. *Climb the Green Ladder: Make Your Company and Career More Sustainable*. John Wiley & Sons Ltd, West Sussex, United Kingdom.
- Garrido, N. and M.D.A. del Castillo, 2007. Environmental evaluation of single-use and reusable cups. *The International Journal of Life Cycle Assessment* 12(4): 252-256.
- Hakala, S., V. Halbmann, C. Strobant and M. Wengert, 2013. Consumer education within film and reusable cup industry – a case study about corporate motivation and tools.
- Harris, B.K. and E.J. Probert, 2009. Waste minimization at a Welsh university: A viability study using choice modeling. *Resources, Conservation and Recycling* 53: 269-275.
- Klein, J. T., 2010. *Creating Interdisciplinary Campus Cultures: A Model for Strength and Sustainability*, John Wiley & Sons, San Francisco, CA.
- Mauricio, J.M., 2014. The Efficacy of Bring-Your-Own Cup Campaign on the CSUS Campus.
- Molander, S. and J. Lenihan, 2007. Ways to waste: The garbology of post-consumer refuse in the UBC Okanagan cafeteria.
- Rogers, E. and T.M. Kostigen, 2007. *The Green Book: The Everyday Guide to Saving the Planet One Simple Step at a Time*, Three Rivers Press, New York.
- Smyth, D.P., A.L. Fredeen and A.L. Booth, 2010. Reducing solid waste in higher education: The first step towards 'greening' a university campus. *Resources, Conservation and Recycling* 54: 1007-1016.
- Sokoloski, R., Evaluating sustainability on the Cal Poly Campus: attitudes, behaviors, knowledge, social norms and social desirability.
- Taghizadeh, S., H.R. Ghassemzadeh, M.M. Vahed and R. Fellegari, 2012. Solid waste characterization and management within university campuses case study: University of Tabriz. *Elixir Pollution* 43: 6650-6654.
- Ziada, H., 2009. Disposable Coffee Cup Waste Reduction Study