

Chapter 5: Waste Management at Main Campus Dining Services

5.1 Introduction

The average college student produces 640 pounds of solid waste each year, including 500 disposable cups (Boston College, 2013). Main campus dining establishments are estimated to produce a large proportion of Chapman’s post-consumer waste, since more than half of the undergraduate population lives off-campus (Chapman University, 2015, “General Information”). A reduction in both the pre-consumer and post-consumer waste resulting from on-campus dining services represents potentially significant cost savings for the university as well as the demonstration of the university’s commitment “to a campus culture that promotes a sustainable future... instrumental to Chapman’s mission to educate ethical and informed global citizens” (“Sustainability,” n.d.). Specifically, this chapter will examine:

- The amount of post-consumer waste produced at on-campus dining establishments and how much of this waste is successfully diverted.
- The impact of education and potential impact of incentive programs on waste reduction behavior.
- The purchasing options Chapman University and Sodexo have when it comes to main campus dining establishments and the waste those products produce. Specifically looking at the receptacles food is made and sold in (cups, plates, utensils, napkins, etc).
- If and how more sustainable purchasing options can be made for main campus dining waste.

5.2 History of Main Campus Dining Services at Chapman

5.2.1 Overview

Both the Waste Management and Recycling chapters of the 2013 Campus Environmental Audit at Chapman University (chapters 9 and 7, respectively) pointed out the current lack of information on the amount of waste being produced by the university. According to the Waste Management chapter, this is partly due to the basic operating procedures of the school’s waste service provider, CR&R, who “cannot solely weigh Chapman’s waste because they conduct other pick-ups around the area when making trips to the University campus” (Chapman University, 2013, Chapter 9). One of the recommendations of this chapter of the 2013 audit was to conduct a campus-wide waste audit of non-hazardous waste in order to fill this knowledge gap with empirical data on how much waste the university as a whole is producing (Chapman University, 2013, Chapter 9).

The 2013 Chapman University Campus Environmental Audit also fails to address the number of cups, lids, packaging debris and other non-reusable items used within main campus dining services. In 2013, students in the Environmental Science and Policy Capstone course conducted a Weigh the Waste initiative, but these specific aspects were not addressed. While walking through the dining services on campus, it became apparent that the trash cans were being filled with these unnecessary disposable recyclable products. This section of the audit will hopefully provide insight on how much waste this is really creating, and how easily it can be effectively prevented. This will also, in return, save the dining options money on shipments, while taking these green initiative steps.

5.2.2 Past accomplishments

- 2010: The first water bottle refilling station is installed in Henley Hall. The City of Orange changes its waste and recycling service provider from Waste Management to CR&R, and since Chapman is tied to the city contract, it also now relies on CR&R to provide waste pickup services (Chapman University, 2013, Chapters 7 & 9).
- 2011: Chapman participates in Recyclemania, a national college recycling tournament that promotes recycling and the reduction of waste. Argyros Forum now has waste bins divided into trash and recycling compartments, which makes recycling simpler since there is no need to search for individual trash and recycling bins (Chapman University, 2013, Chapter 9).
- 2013: First BigBelly waste receptacles are installed on main campus (three sets initially), replacing 13 trash and recycle bins (Chapman University, 2013, Chapter 9). At present, the BigBelly bins can be found at 15 locations on campus (“Waste Management,” n.d.).
- 2014: Four additional water bottle refilling stations are installed on campus, resulting in the current total of 17 stations (“Water Bottle Refilling Stations,” n.d.).

5.3 Current Status

5.3.1 Overview

Main campus dining establishments include the following:

- Starbucks
- Qdoba Mexican Grill
- SubConnection
- Einstein Bros Bagels
- Jamba Juice
- Rotunda Café

The post-consumer waste production data found in this section are from a series of waste audits performed at Starbucks and the first floor of Argyros Forum, which houses Einstein Bros

Bagels, Jamba Juice, Qdoba Mexican Grill, and SubConnection. The number and timing of waste audits were chosen to assess the effectiveness of educational waste sorting signage placed on or near waste bins. For Starbucks and the first floor of Argyros Forum, two waste audits were conducted: one before signage was posted, and one three weeks after signage was posted. While the waste audits were designed to assess whether the presence of educational signage near dining options increased the amounts of properly disposed of waste, the data from them can be used to answer many other questions regarding post-consumer waste at on-campus dining establishments.

5.3.2 Previous Studies: Disposable Post-Consumer Waste

Waste Minimization at a Welsh University, B.K. Harris and E.J. Probert

A study was done at Swansea University in the United Kingdom where researchers were ultimately trying to establish if consumers were willing to pay more for a coffee in a disposable cup, or get the same amount of coffee at a discounted price, if they used a reusable tumbler. The study wanted to specifically establish if consumers were willing to purchase a more expensive drink in return for convenience. This convenience factor could be not having to remember to bring in a reusable tumbler every time the consumer attempts to purchase a beverage, or not having to keep track of the reusable tumbler after the drink is finished.

The survey pool included both males and females and included all levels of education at the University. The price difference they used when they asked the university population was £0.77 (\$1.12 United States equivalent) for the beverage purchased in a disposable cup and £0.64 (\$0.93 United States equivalent) for the beverage purchased in a reusable cup brought from home by the consumer. The results showed that 37.5% of respondents were for the disposable cup and 62.5% of respondents were for the reusable cup. With this study occurring in the United Kingdom, it would be interesting to compare the data across nations.

5.3.3 Qualitative and Quantitative Data for Reusable Cups

In addition to encouraging education and behavior change throughout the mindsets of the Chapman University population, another way to reduce post-consumer waste from disposable items is to encourage the idea of the elimination of the need for these products. Starbucks is a company that has already initiated this idea by implementing their reusable tumbler discount. If a customer brings in a reusable tumbler for their drink purchase, they receive 10 cents off of their drink purchase.

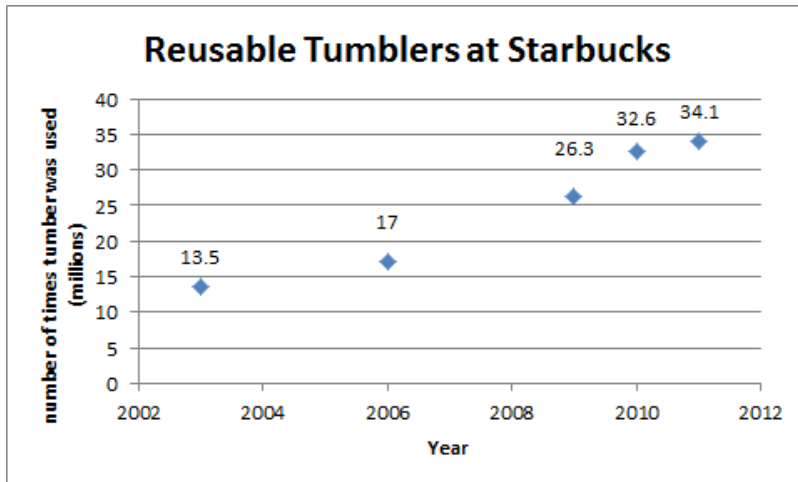


Figure 5.1. Number of times reusable tumbler discount was redeemed at Starbucks since inception.

As seen in **Figure 5.1**, the number of times this offer was redeemed throughout the Starbucks franchise has more than doubled from 2003 (the first year with given available data) to 2012 (the last year with this given available data). With these numbers reaching the millions, and a positive trend line present, it gave rise to questions as to whether this idea would be beneficial in the Chapman University dining service industry.

After reading these studies and collecting online data relevant to the subject, two waste audits were conducted on the trash and recycling bins surrounding the Starbucks area at Chapman University. The results showed the following:

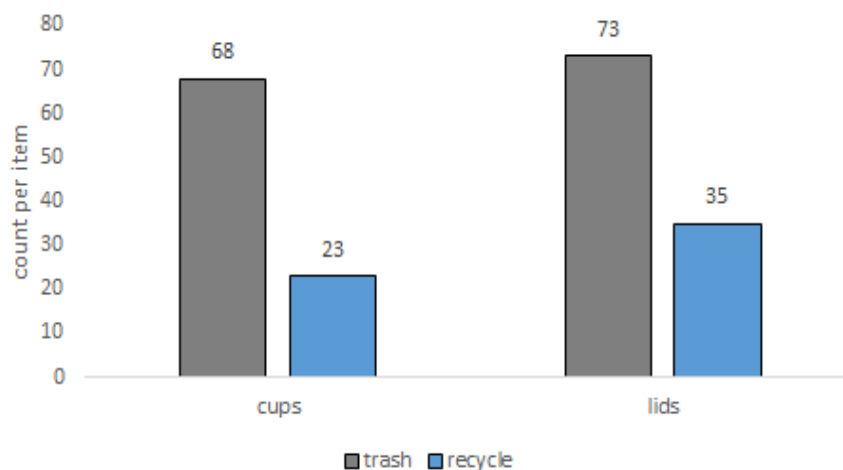


Figure 5.2. Number of plastic cups and lids found in trash vs. recycling bins in Audit 1.

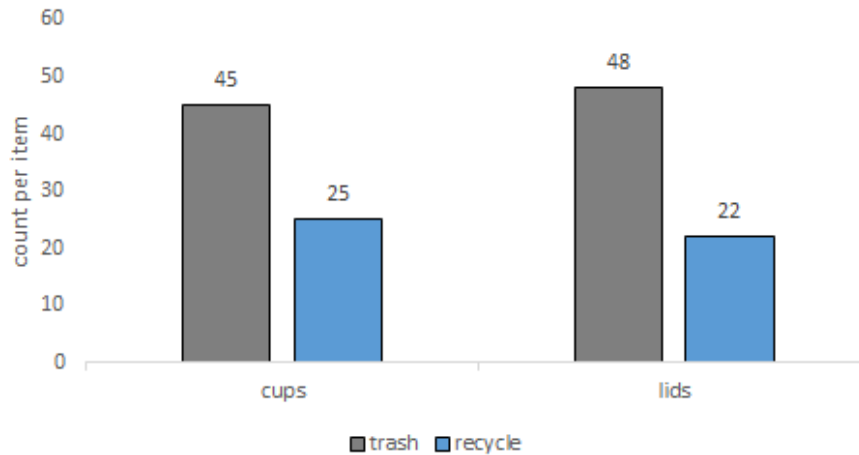


Figure 5.3. Number of plastic cups and lids found in trash vs. recycling bins in Audit 2.

The data collected in **Figures 5.2** and **5.3** shows the degree of difficulty the Chapman University population has when deciding what to place in the trash and what to place in the recycling bin. In almost every category, the number of items placed in the trash is at least double the amount of items placed in the recycling bin. This data becomes distressing because all of these disposable items could be placed in the recycling bins.

With the data collected from the waste audit and the research done on previous studies, the exploration of how much support this initiative would gain, from the Chapman University population, began. In the 2016 Chapman University Environmental survey, students were asked various questions in regards to this discount. When asked if they participated in this discount, 37% of respondents were unaware that the discount existed. When asked how students would feel if the price of a disposable cup was separated from the price of the drink, 58% of respondents were supportive while only 7% opposed it. This idea, plus the data shown in **Figure 5.4**, shows quantitative data as to why Chapman University should encourage on campus dining services to offer this discount not just at Starbucks and Jamba Juice, but at all on campus dining services.

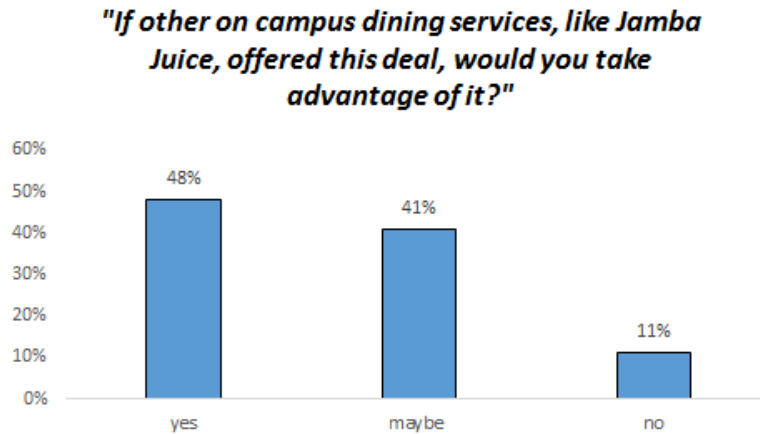


Figure 5.4. Percentage of responses to the survey question, “If other on campus dining services, like Jamba Juice, offered this deal, would you take advantage of it?”

By offering this discount, the need for these disposable items decreases, ultimately leading to a decrease in the number of disposable items that are wrongfully placed in the trash. This idea, paired with the idea of Sodexo employees giving out excess disposable items (lids, napkins, bags) to customers, is why this section of the audit focuses on how to ultimately decrease the amount of plastic wrongfully placed in the trash. When survey participants asked how often do dining services give respondents excess disposable items during purchase, 55% of respondents responded with always or often. Before this audit began, Qdoba employees were giving all customers a lid for their bowls, regardless of whether it was needed. A simple change in requiring employees to ask whether customers’ needs these items, and how many of each item they need, will ultimately lower this percentage. This idea becomes a necessity because currently, there is not a recycling bin in the immediate Qdoba dining area. With the quantitative data collected from the waste audit, and the voices from the Chapman University population, this section of the audit hopes it provides an effective and convincing argument to the university, as they consider the possibility of pursuing this green initiative.

5.3.4 Previous Studies: Education and Behavior Change

Research on behavior analysis and change regarding college campus sustainability efforts has shown that the following represent major barriers to increasing sustainable behaviors on college campuses: lack of time, lack of awareness of sustainability initiatives, issues with convenience, lack of knowledge about the cost or benefit of a behavior, and financial cost (Bezbatchenko, 2011; Horhota, Asman, Stratton, & Halfacre, 2014). A behavioral assessment conducted on a college campus in South Carolina by Horhota et al. (2014) found that one of the main barriers to reducing energy consumption in a high-use, public-access

building with high electricity consumption was the lack of knowledge about sustainable action among the building users. The authors then designed a behavioral intervention involving posting signs above light dimmer switches requesting that lights be dimmed after an event, as well as weekly feedback from the building manager to staff with graphs showing observed light usage and waste (Horhota et al., 2014). The cumulative effect of these educational interventions was a 16% decrease in wasted energy (Horhota et al., 2014). Since sustainability education is an important first step toward encouraging sustainable behaviors on college campuses, it is key to ensure that information about sustainable initiatives and the cost of behaviors that are not environmentally-friendly is made known through omnipresent and clear signage (Horhota et al., 2014).

With respect to behavior change, a main factor of understanding how knowledge about sustainability translates or does not translate into sustainable action is the insight that often, college students' concept of sustainability is more human- than eco-centric; that is, although students express that they care about sustainability as a social issue because they are educated citizens, their level of concern may not be active enough to translate into pro-environmental behavior unless the behavior is enforced by social norms or is convenient for them (Bezbatchenko, 2011). Horhota et al. (2014) agree that lack of convenience or time and the fact that students, faculty, and staff must attend to commitments or priorities other than acting sustainably are major barriers to pro-environmental behavior change. Lastly, financial cost can present another obstacle in terms of the high up-front costs of products or services that are better for the environment than those currently used (Horhota et al., 2014; Ozaki, 2011).

On the other side of the coin, cost savings can provide a powerful incentive for engaging in sustainable behaviors. An honors thesis project completed at Tufts University examined the effects of separating the cost of a disposable hot beverage cup from the price of the beverage at an on-campus café on the purchase of disposable cups (Fisher, 2008). Within this *price separation* scheme, the disposable cup and the hot beverage were listed as two separate menu items, and those customers who used their own reusable cup instead received a discount equivalent to the price of a disposable cup, in this case, 17 cents (Fisher, 2008). Compared to the amount of disposable cups saved by the café's previous incentive program, in which customers who use their own reusable mug received a 10 cent discount off the beverage purchase, under the cost separation program 2.63 times more hot beverage purchases were made without a disposable cup (Fisher, 2008). Thus, this study shows that providing customers with a discount that accurately represents the economic value of a disposable cup when they use their own reusable cups has created an effective price signal that encourages more sustainable behavior.

5.3.5 Education and Behavior Change at Main Campus Dining Options

Waste and recycling education at or near on-campus dining options is present, but not particularly widespread or noticeable. For example, the BigBelly waste receptacles on campus have posters on their sides with diagrams that explain which waste items are allowed to go in which bin (**Figure 5.5**; Chapman University, 2013, Chapter 7); however, these posters are not located at eye-level in a position that is likely to get the attention of someone who is disposing of an item. Argyros Forum (a.k.a. the student union) represents a blank slate for increasing the prevalence of educational signage, as it houses three of the six on-campus dining establishments;



Figure 5.5. Educational waste sorting diagram posted on the side of BigBelly receptacles.

Figure 5.6 displays examples of potential locations for permanent waste sorting signage in Argyros Forum. Aside for recycling sorting guides found in the waste disposal rooms of Chapman dormitories, this is the only example of on-campus educational waste sorting signage that this author has observed.

Results from the Chapman University 2016 Environmental Survey indicate that the Chapman community (including students, staff, and faculty) supports sustainability education and believes that signs near recycling bins that identify which waste items are recyclable would help them properly dispose of waste. **Figure 5.7** and **5.8** show the survey responses to the statement “Chapman should improve its sustainability education and awareness programs on campus” and the question “If there were signs with pictures of recyclable items near recycling bins, would it be easier to decide where your waste belongs?”. A 90% supportive response to improving campus sustainability education in addition to a 97% supportive response to the implementation of waste education signage on the Chapman University campus indicate that

such signage would benefit the Chapman community and its commitment “to a campus culture that promotes a sustainable future” (“Sustainability,” n.d.).



Figure 5.6. Potential locations for waste education signage in Argyros Forum near Qdoba Mexican grill. Signs would be placed on wall at eye-level above trash and recycling receptacles.

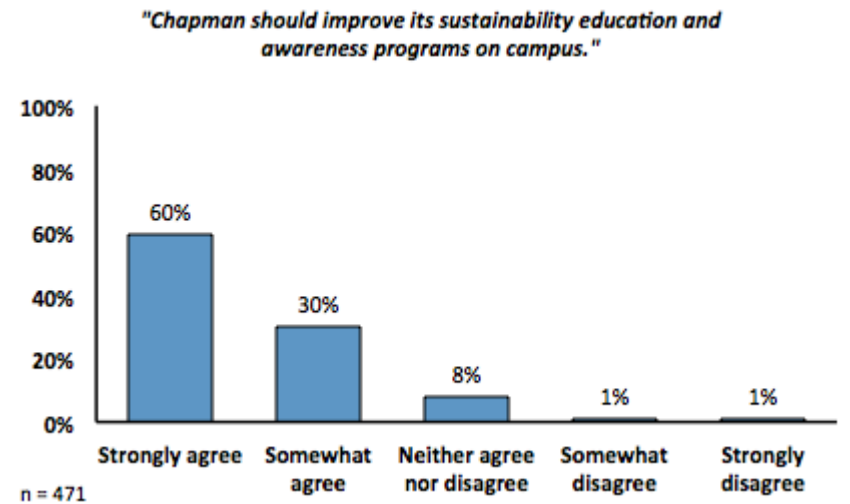


Figure 5.7. Percent response to the statement: “Chapman should improve its sustainability education and awareness programs on campus.” Answer choices were “Strongly agree,” “Somewhat agree,” “Neither agree nor disagree,” “Somewhat disagree,” and “Strongly disagree”. (n = 471)

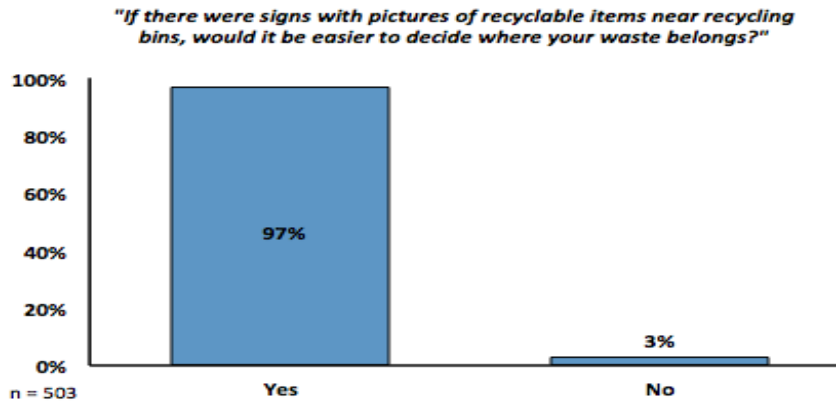


Figure 5.8. Percent response to the question: “If there were signs with pictures of recyclable items near recycling bins, would it be easier to decide where your waste belongs?”. Answer choices were “Yes” and “No”. (n = 503)

With respect to behavior change, the 2015 Environmental Audit contains a chapter concerning On-campus Behavior Change (Chapman University, 2015, Chapter 4). While the chapter discusses the fundamentals of behavior change theory and sustainability behavior change efforts at Chapman as they relate to academic and administrative departments, however, it does not discuss any behavior change efforts specifically aimed at dining services or the Chapman University population at-large (i.e. the general population of students, faculty, and staff) (Chapman University, 2015, Chapter 4).

Based on the major barriers to increasing sustainable behaviors identified by the case studies mentioned previously, the 2016 Survey asked, “Which of the following do you feel is the greatest barrier to making more sustainable choices in your everyday life?” with possible response choices of “Convenience,” “Financial Cost,” “Education/awareness,” “Lack of motivation”, and “Other (please specify).” The survey results for this question are presented in **Figure 5.9**. Free-response answers to the “Other” answer choice, which was chosen by 2% of respondents, included the combination of more than one barrier, the statement that “these all effect [sic] each other simultaneously,” and the additional barriers of “Availability,” “Governments,” and “Social Norms.” Since “Convenience” was chosen by nearly half of survey respondents and “Financial Cost” was chosen by over a third as the greatest barriers to increasing sustainable behaviors, both factors should be seriously considered by campus planners or by future participants in the Environmental Science & Policy capstone course who may be responsible for developing future sustainability initiatives for or behavior change studies of the Chapman community.

"Which of the following do you feel is the greatest barrier to making more sustainable choices in your everyday life?"

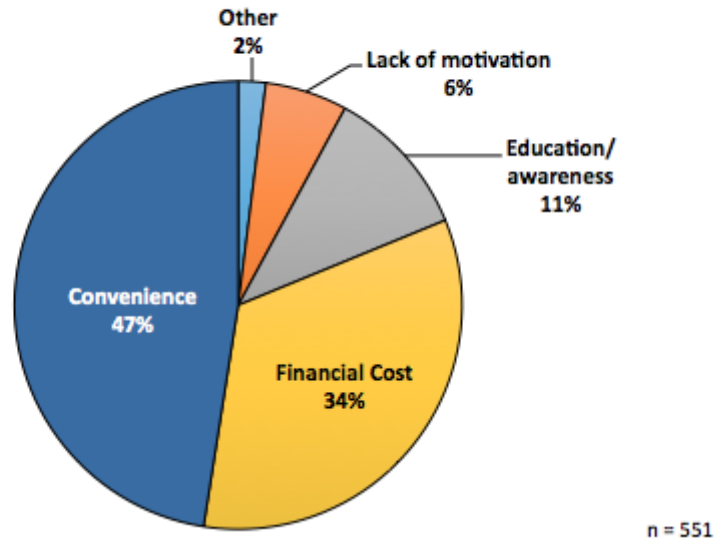


Figure 5.9. Percent response to the question: “Which of the following do you feel is the greatest barrier to making more sustainable choices in your everyday life?”. Answer choices were “Convenience,” “Financial Cost,” “Education/awareness,” “Lack of motivation”, and “Other (please specify).” (n = 551)

5.3.6 Education and Behavior Change Data: Waste Audit Results

In order to determine whether installing waste education signage at on-campus dining options reduces trash production and increases recycling rates, waste audits were conducted both before and after signage was posted at two locations on campus, Argyros Forum Student Union and Starbucks. The waste audit of Argyros Forum (AF) was conducted on March 30th, 2016. During this audit, waste was separated by building floor and waste bin type (trash or recycling), divided into categories based on item type (e.g. paper cup, plastic cup, utensil, etc.), and measured by weight. For the purpose of this chapter, we present results based on waste produced only from the first floor of AF because all of the dining establishments within the building are located on the first floor. We quantified an approximate count of the number of items in each category by determining the weight of the category as a whole, weighing the mass of one or two representative items in the category (individual weight), and dividing the collective weight of the category by this individual weight. A separate waste audit of Starbucks (situated within Beckman Hall) was conducted one week later on April 6th, 2016. The procedures were the same, except that plastic cups, lids, and straws were counted by hand. The individual weights measured during the AF waste audit were used to calculate approximate item counts for the rest of the categories.

The day following each of the audits, educational waste sorting signage was posted above the trash and recycling bins on the first floor of AF and on trash bins in Starbucks. The

design of the posters are shown in **Figure 5.10**. It is important to note that new waste receptacles were placed on the first floor of AF between the first and second audit and are shown in **Figure 5.11**; note that while compost bins were made available on the first floor of AF *after* the first waste audit had taken place, compost bins were not made available within Starbucks. In addition, prior to the first audit there were no recycling bins within the Starbucks café area, only outside the café. In between the first and second waste audit, additional recycling bins were placed inside the building as well. Lastly, during the first Starbucks waste audit, waste from the BigBelly receptacles immediately outside the Starbucks could not be used because they had just been emptied out due to the fact that Custodial Services is notified to empty them whenever they become full. Thus, the waste from the BigBelly receptacles slightly farther away from Starbucks (<20 feet away) had to be used instead. For the second waste audit, the waste from the BigBelly receptacles immediately outside the Starbucks were audited because they had not been emptied as with the first audit.



Figure 5.10. Educational waste sorting signs posted following the first waste audit, based on designs given to the capstone class by Anne Kriehoff, Program Coordinator for Solid Waste & Recycling at UC Irvine.



Figure 5.11 shows the new waste receptacles that were placed in Argyros Forum.

An analysis of the amount of improperly disposed of items from the waste audits (calculated as a percentage of total trash or recycling weight) shows that there was a slight decrease in improperly disposed of waste from the first waste audit to the second at both locations (**Figure 5.12**). The decrease is more modest for the first floor of AF relative to Starbucks, which most likely is related to the fact that there were no recycling bins in Starbucks at all before the first waste audit, but there were recycling bins in the building about halfway through the period between audits. Despite this decline in the percentage of recyclable items found in the trash and trash items found in the recycling, is important to note that this result was most likely affected by factors other than the signs alone, such as the presence of entirely new waste bins on the first floor of AF (which tends to be more noticeable than the presence of a new sign). Furthermore, the percentage of improperly disposed waste items did not decrease

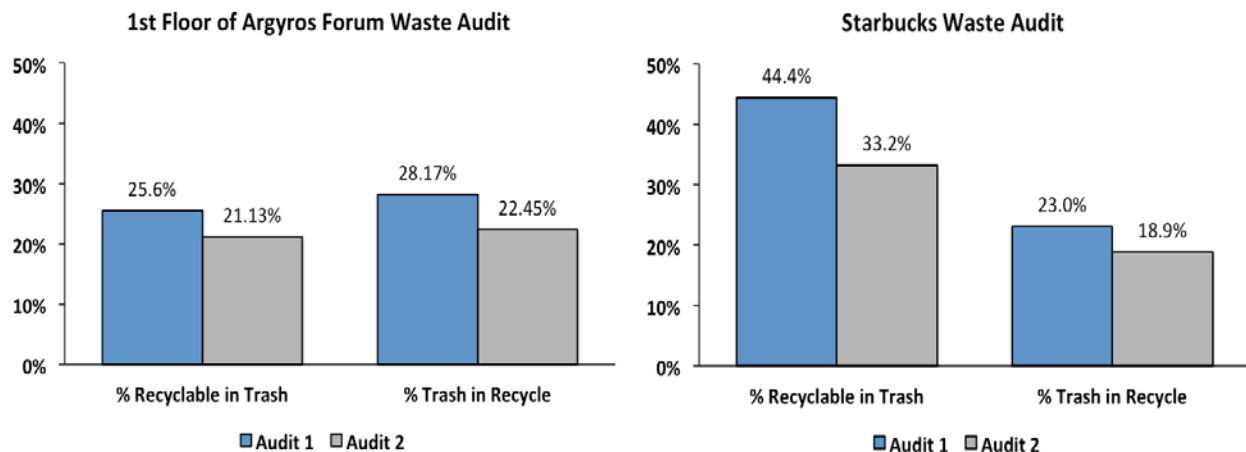


Figure 5.12. Percentage of improperly disposed waste items out of total trash or recycling weight. The percentage decreased from Audit 1 to Audit 2 for both locations on campus, but more modestly for the first floor of AF than for Starbucks.

from the first to the second audit for the other floors of AF, suggesting that there are more factors than education alone that are playing a role in these results.

Results from this audit suggest that Chapman University students, staff and faculty do not know how to recycle and dispose of items properly. Through the sorting of these waste containers, more recyclable items were disposed in the trash cans than in the recycling bins. This finding is alarming because the majority of waste bins in AF are double sided with trash and recycling containers attached, which should make it convenient for consumers to dispose of items properly. There was a considerably higher number of plastic cups, which are recyclable in the trash than in the recycling (56 and 14, respectively). Even more concerning, there were 190 plastic food containers (recyclable) counted in the trash bins while there were only 14 counted in recycling. This trend was similar with recyclable paper food bags, 191 were counted in trash and only 19 were counted in recycling. In all cases, except for disposable plastic

bottles, the presence of recyclable items was higher in the trash than in the recycling. It was promising to see that the Chapman community, for the most part, understands that plastic bottles are meant to be recycled!

In order to determine whether sustainable behavior change could be encouraged in the Chapman community, survey questions designed to assess the receptivity of students, faculty, and staff to economic incentive programs on campus were asked in the 2016 Survey. One of these incentives involves a *price separation* scheme at on-campus dining establishments, the purpose of which is to signal the cost of a disposable cup in the total price of a beverage by listing the cost of the cup and the cost of the drink as two separate menu items (see Fisher (2008) in the “References” section for more details). Customers who use their own reusable cup or mug at on-campus dining options would receive a discount equal to the cost of the disposable cup, thus creating an economic incentive to save resources and reduce waste by decreasing the demand for disposable cups. The survey responses of the questions related to this *price separation* program are shown in **Figure 5.13**.

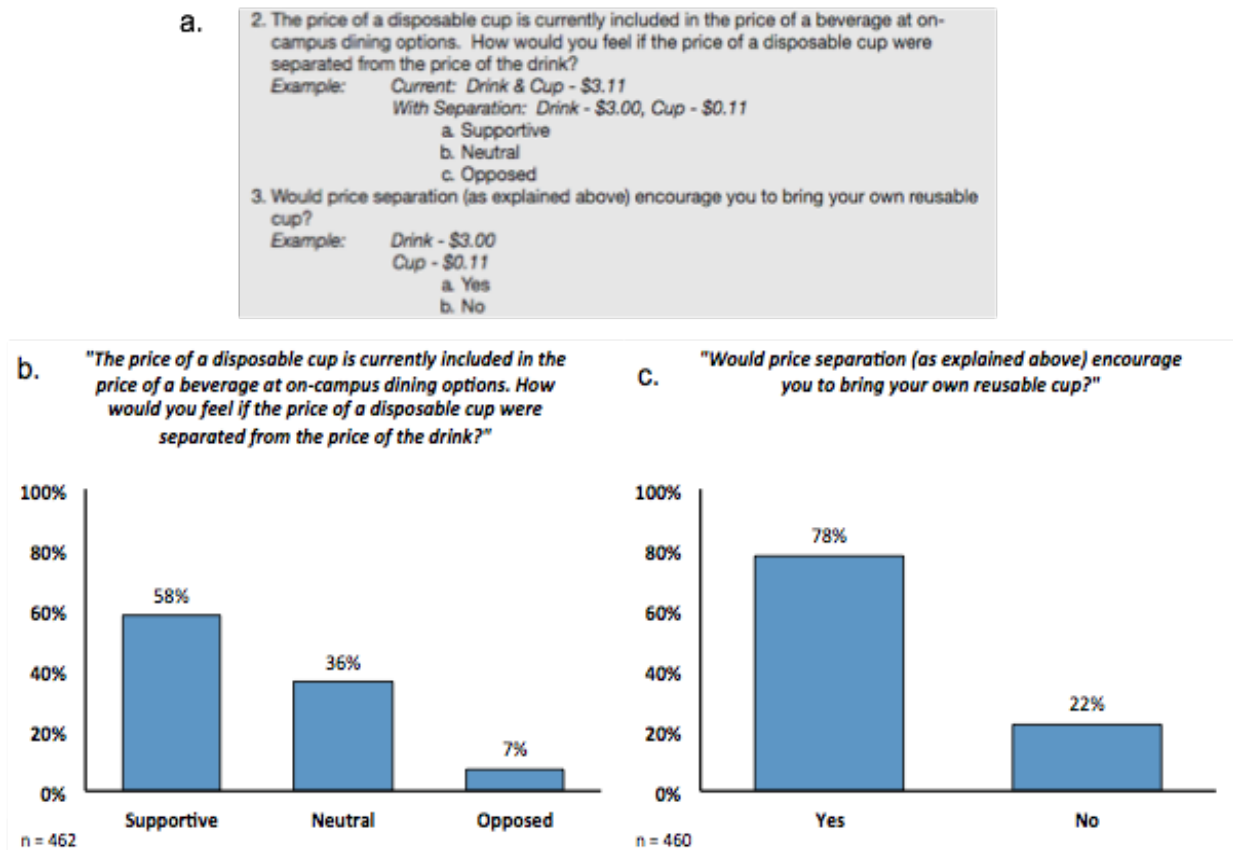


Figure 5.13. The format of and results from the two survey questions relating to the introduction of a price separation program at Chapman University on-campus dining establishments. Figure 5.13a shows the format of the questions as presented on the 2016 Survey. **Figure 5.13b** and **5.13c.** show the percentage responses to the various answer choices for each question.

Additional survey questions were asked to assess the receptivity of the Chapman community to economic incentives. These include “If you were entered in a raffle for a \$50 gift card when you use your own reusable cup instead of a disposable one at any of Chapman’s on-campus dining options, would you use a reusable cup?” and “If you knew you could save almost \$500 a year on average using a reusable water bottle instead of disposable ones, would you start using a reusable water bottle?” These questions are aimed at determining whether financial cost and gain are sufficient motivators to change less sustainable behaviors to more sustainable behaviors. The results for these questions are shown in **Figures 5.14** and **5.15**. The raffle question showed a greater than 80% supportive response, while the water bottle question indicated that almost 60% of respondents already use a reusable water bottle and at least 32% would be willing to use one based on the given cost-benefit information. These results indicate the power of incorporating financial information and incentives in efforts to encourage sustainable behavior.

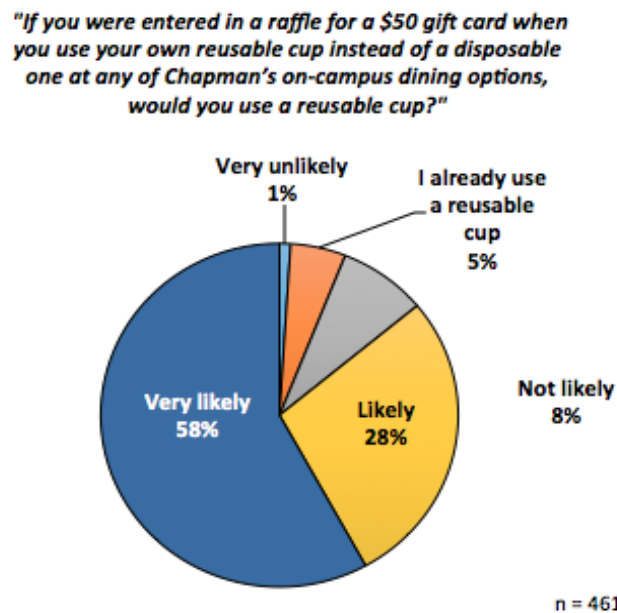


Figure 5.14. Percent response to the question: “If you were entered in a raffle for a \$50 gift card when you use your own reusable cup instead of a disposable one at any of Chapman’s on-campus dining options, would you use a reusable cup?”. Answer choices were “Very likely,” “Likely,” “Not likely,” “Very unlikely”, and “I already use a reusable cup.” (n = 461)

"If you knew you could save almost \$500 a year on average using a reusable water bottle instead of disposable ones, would you start using a reusable water bottle?"

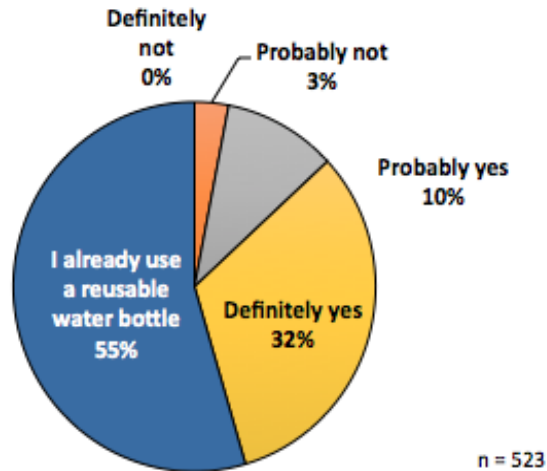


Figure 5.15. *Percent response to the question: "If you knew you could save almost \$500 a year on average using a reusable water bottle instead of disposable ones, would you start using a reusable water bottle?". Answer choices were "Definitely not," "Probably not," "Probably yes," "Definitely yes", and "I already use a reusable water bottle" (n = 523)*

5.4 Concluding Assessment

5.4.1 Areas where Chapman is doing well

- Educational waste sorting signage is currently present on campus due to the temporary installment of signs during this study.
- Compost bins were made available in Argyros Forum and recycling bins were made available at Starbucks, increasing the chances that waste will be diverted from the landfill.
- The waste audits showed less plastic water bottle usage than expected, and water bottles are generally disposed of properly.
- Some main-campus eateries are making efforts toward encouraging sustainable behavior (reusable cup discount at Starbucks)

5.4.2 Areas in which to improve

- Permanent educational waste sorting signs should be installed at all dining options on campus to ensure that educational measures continue to encourage waste diversion.

- Other methods of encouraging sustainable behaviors besides education should be considered to bring about a more meaningful decrease in waste generation at on-campus dining options.
- New, more sustainable disposable products should be purchased by on-campus eateries.
- The reusable cup discount at Starbucks should be advertised more effectively.

5.4.3 Existing Gaps in Knowledge

The waste management and dining services chapters of the 2013 audit lack information regarding the purchasing behavior of main campus dining services. This includes where they purchase all paper and plastic products used to serve food. With that said, it is difficult to determine how many of these materials are recyclable, made from recycled material, etc. It is also hard to determine how many of these products could be replaced with more sustainable options, such as 100% biodegradable napkins.

Currently, it is uncertain how pre-consumer waste is generated and disposed of at on-campus dining establishments. The current waste management practices of Sodexo staff--including recycling, waste sorting, color-coding of bins and trash bags, and presence of waste sorting signage--should be studied to determine how sustainable they are and to help decrease pre-consumer waste production. Training in the disposal of recyclable or compostable items should also be studied to determine whether staff feel they have sufficient knowledge of which items are or are not recyclable.

5.4.4 Future Areas of Research

A behavioral assessment of Chapman students, faculty, and/or staff similar to the one conducted by Horhota et. al (2014) should be undertaken, in which different behavior change mechanisms (economic incentives, fees, motivational empowerment) are tested to see which behavior change methods result in the greatest transition to sustainable behaviors. Future capstone classes should also examine the inventory data for disposable items at on-campus dining options. Using this data, current purchasing costs could be compared with potential cost savings if more sustainable products were purchased or if the reusable discount were used by customers more often. To ensure a positive outcome from implementing the reusable discount at on campus dining areas, it may be beneficial to use the sales and inventory reports to predict how well the discount will do at dining areas other than Starbucks. This can be done using, but is not limited to, the follow steps:

1. Total drink sales / number of cups used = (x)
2. Put into ratio how many times the offer was redeemed at Starbucks: Starbucks' (x)
3. Find other on campus dining services' (x)'s
4. Scale the ratio to remain consistent with each individual dining services' (x)'s.

5.5 Recommendations

5.5.1 Low effort

- Create a campus sustainability awareness campaign with informational prompts explaining how to save money and resources by switching to more sustainable behaviors



Figure 5.16. Example of a sustainability awareness “prompt.”

- Case studies of sustainability campaigns at other universities include:
 - UCI Anteaters Go Green: <https://ucigsrc.wordpress.com/about/>
 - Vanderbilt ThinkOne Energy Conservation Campaign: <https://www.vanderbilt.edu/sustainvu/thinkone/>
- Increase publicity for the reusable tumbler discount at Starbucks, ensuring that the pre-existing signage promoting the reusable tumbler discount remains up and visible.

5.5.2 Medium effort

- Implement a raffle entry program at all on-campus eateries in which each customer who uses a reusable cup instead of a disposable one is entered in a raffle for a \$50 gift card given out each month (an additional entry is created each time cup is used; this is tracked by swiping ID card).
- Obtain data on how many times the reusable tumbler discount was redeemed at the Starbucks on campus, and generate an estimate of how frequently it would be redeemed at other on campus dining options

- Switch to compostable products for food served in all main-campus dining locations. This includes paper cups, plates, bowls, utensils, etc.

5.5.3 High effort

- Implement a price separation program at one or more on-campus eateries in which the cost of a cup (averaged across sizes) is listed as a separate menu item from the beverage and those who use their own reusable cups receive a discount equal to the cost of the disposable cup (for more information, see Fisher, 2008).
- Encourage Chapman to develop a composting area/garden in a location on campus that is accessible to Aramark and Sodexo employees. If this proves to be successful, it could eventually be opened to the greater Chapman community.

5.6 Contacts

Eric Cameron - General Manager of Sodexo

Regan Winston - Director of Custodial Services, Aramark

Carlos Chavez-Garcia and Rosa Gonzalez - Custodial Services, Aramark

Eric Chimenti - Ideation Lab, Wilkinson College of Arts, Humanities, and Social Sciences

Anne Krieghoff - Program Coordinator for Solid Waste & Recycling, University of California Irvine.

5.7 References

Bezbatchenko, A. W. (2011). *Where meaning lies: Student attitudes and behaviors related to sustainability in college* (Doctoral dissertation). Retrieved from The Association for the Advancement of Sustainability in Higher Education.

Boston College. (2013, August 16). *Know Your Facts*. Retrieved from <http://www.bc.edu/offices/sustainability/what-you-can-do/know-facts.html>

Chapman University. (2013). 2013 Campus Sustainability Audit. Retrieved from <http://www.chapman.edu/campus-services/facilities-management/sustainability/environmental-audit/environmental-audit-2013.aspx>

Chapman University. (2015). 2015 Environmental Sustainability Audit. Retrieved from <http://www.chapman.edu/campus-services/sustainability/environmental-audit/environmental-audit-2015/index.aspx>

Chapman University. (2015). *Undergraduate Catalog 2015-2016*. Retrieved from <https://www.chapman.edu/catalog/oc/current/ug/>

Fisher, L. E. (2008). *Signaling Change: Studying the effect of price signals on disposable hot beverage cup consumption* (Honors thesis). Retrieved from The Association for the Advancement of Sustainability in Higher Education.

Harris, B.k., and E.j. Probert. "Waste Minimisation at a Welsh University: A Viability Study Using Choice Modelling." *Resources, Conservation and Recycling* 53.5 (2009): 269-75. Web.

- Horhota, M., Asman, J., Stratton, J. P., & Halfacre, A. C. (2014). Identifying behavioral barriers to campus sustainability. *International Journal of Sustainability in Higher Education*, 15(3), 343-358. doi: 10.1108/IJSHE-07-2012-0065
- Ozaki, R. (2011). Adopting sustainable innovation: What makes consumers sign up to green electricity? *Business Strategy and the Environment*, 20(1), 1-17. doi: 10.1002/bse.650
- Sustainability. (n.d.). Retrieved from <http://www.chapman.edu/campus-services/sustainability/index.aspx>
- Waste Management. (n.d.). Retrieved from <http://www.chapman.edu/campus-services/sustainability/waste-management.aspx>
- Water Bottle Refilling Stations. (n.d.). Retrieved from <http://www.chapman.edu/campus-services/sustainability/programs-opportunities/refilling-stations.aspx>