

Chapter 3: Reusables in Residential Life

3.1 Introduction

The Environmental Protection Agency (EPA) reports that on average, Americans produce 4.4 lbs. of waste a day, with only 1.5 lbs. making it to composting or recycling services (EPA). Of this waste, 55-60 percent is created in the residential space (EPA). In order to address these neglected behaviors, programs to facilitate sustainable practices for first year students are key to helping this population create lifelong habits of mindful consumption. Sustainability on the Chapman University campus can be improved by focusing on waste generating behaviors in the residence halls, specifically by presenting opportunities to reuse items and reducing the number of disposable items students are using.

Although recycling waste is extremely important, a reduction of consumption is even more imperative when attempting to improve sustainability. Generating less waste, even that which can be recycled, is essential, but students often lack the education and accessibility to do so. Purchasing gently used and reusable items is the initial step in reducing consumption. This chapter addresses the causal reasons why Americans produce double the waste per capita than any other country due to excessive packaging, the accessibility of convenience items, and disposable products (Chapman University on Waste Management). The goals of this chapter are as follows:

- Assess student behavior regarding single use materials through survey data
- Analyze waste audit data to find trends between the different floors in residential life
- Locate areas in residential life where new water bottle refill stations should be installed
- Identify potential opportunities and challenges for the implementation of a reusable takeout container program in Randall Dining Hall.
- Identify items sold at Doy's in the Henley Hall basement that can be sold in larger quantities to reduce waste from packaging and promote the use of dishware in the residence halls.
- Fill a void of information available online by producing online content through HerCampus highlighting additional tips on sustainable habits to be released in the Fall of 2016.

3.2 History of Reusables in Chapman Residence Life

3.2.1 Water Bottle Refill Stations

Since 2012, Chapman University has added a total of 17 EZH2O Water Bottle Filling Stations on main campus, in residential life, and at Panther Village. The most recent additions on

campus are located in Memorial Hall, Marion Knott Studio, and the Davis Community Center. Additional stations are planned for Hutton, Von Neumann, and Crean Hall in May of 2016. Each station has a tracker to display the number of 12-ounce plastic water bottles that it replaces over time. The data from the tracker helps quantify the bottles diverted from landfills and allows the university to evaluate the frequency of the use of these stations by the campus community. Currently, Henley Hall and Davis Community Center house the only refill stations within the residential halls. Unfortunately, the station in Henley is located in the basement and is not easily accessible to students from their dorm rooms. It is likely that most of the use from this station comes from students using the fitness center down the hall. Students must rely on the only two stations in the residential halls or walk to main campus, roughly a six-minute walk, for easily accessible water.

The 2013 Chapman University Environmental Survey concluded that 77.1% of the students surveyed used the water refill stations at least once a week, while 25.3% claimed they used a station every day. By March 2013, the refill stations saved more than 220,000 plastic water bottles; this is the equivalent of 1.65 tons of CO₂. The usage of the filling stations increased by 18% the following year, saving an additional 103,000 water bottles from entering a landfill. Unfortunately, there is no data that demonstrates if water bottle sales on campus have dropped since the installation of the filling stations. This data would be helpful in supporting the removal of the sale of plastic water bottles on campus and installing more filling stations. According to the 2013 Survey, 62% of students said they would support the ban of plastic bottled beverage sales on campus if additional soda fountains and water refill stations were installed.

3.2.2 Waste Reduction

After reviewing articles, by Verchot, Duke University and Brown University, located from general “green dorm” online search, the lack of awareness on utilizing reusable options or purchasing gently used items is apparent. Existing articles recommend purchasing items constructed from recycled materials, reusable water bottles, and drying racks, but more focus is paid to consuming ecologically friendly chemicals or recycled products, rather than purchasing gently used and multiuse items. For example, buying ‘green’ cleaning supplies is often suggested, without proposing the use of rags over disposable wipes. There is an evident need for the creation of an article, webpage, or guidebook outlining steps to reduce residential consumption.

On campus, little progress has been made to diminish consumption, as the focus has remained on increasing diversion rates. Chapman’s 2013 Environmental Audit recommended eliminating the sale of disposable water bottles and emphasized the utilization of reusable bottles. However, the campus store only sells reusable bottles, no other dishware. Chapman

University has not yet expressed an interest in implementing a reusable takeout container program nor a commitment to reduce packaging from sources other than plastic water bottles.

3.3 Current Status

3.3.1 Water Bottle Refill Stations

Although Chapman has been successful in installing conveniently located filling stations on campus, there needs to be a greater focus on creating more easily accessible water in residential halls. In order to encourage more sustainable behavior, Chapman should create systems that promote and increase opportunity to utilize reusable items in their residences. Even students who wish to use items like reusable water bottles struggle to fill the bottles in the sinks of the residence halls because they are too shallow to fill a water bottle or water filter (e.g. Brita), pushing students to buy single use bottles. In the 2016 Chapman University Environmental Survey, students were asked where they get water in the residence halls. Many students said they used a Brita water pitcher to filter water from the sink, and even the bathtub. Some would walk to Henley basement to use the water bottle refill station, even if they do not live there. Fortunately, the number of students that willingly went out of their way to fill up a reusable container outnumbered students that buy gallon jugs of water at convenience stores or solely rely on single use bottles. These barriers to accessible water can be overcome by the installation of new water bottle refill stations. **Figure 2.1** maps the location of all the current refill stations on main campus and residential life. Clearly, more stations need to be installed in the residential halls to accommodate all the students, rather than forcing them to walk to Davis Community Center, Henley Basement, or main campus.



Figure 2.1. Map of Chapman University main campus and the GPS location of refill stations.

Of the students surveyed, 87% stated that they “consistently use a reusable water bottle”. Those who do not use a reusable water bottle regularly criticized the lack of accessible water stations or a place for them to clean a personal bottle. If students are unable to maintain

reusable water bottles, silverware, or other non-disposable items in their rooms due to sink and space limitations, Chapman may want to consider a common kitchen area. Students would have the option to wash reusable goods, rather than resorting to options that create waste. San Diego State University, for example, has community kitchens in many of the residential halls for the freshman to use. As our campus continues to grow and future dorm layouts are designed, Chapman should consider installing a small kitchen to address this issue or deeper sinks that allow for easier washing of reusable bottles.

Mark Nolasco, a Project Manager for Chapman Facilities Management, was contacted to inquire about viable locations for refill stations installation in the future. He explained that the stations can easily be installed on the first floor lobby across from the public restroom of Henley and Pralle, where the necessary domestic water, sewer, and electrical components are present. More information should be gathered to understand necessary steps to install the water refill stations on higher floors, if possible, and what can be done in Glass Hall and Morlan Hall. Energy Conservation and Sustainability Manager, Mackenzie Crigger, suggests that all floors should have every necessary component for a station since water pipes, electrical wiring, and sewage lines already exist to accommodate the dorm rooms. However, the project could be more costly. Less focus is needed for other campus housing buildings since they are equipped with a kitchen and full sink.

3.2.2 Residence Life Waste Audits

On March 4th, a waste audit of 48 hours' worth of trash from all floors of Henley Hall was conducted. All pieces of waste in the trash and recycling bins were counted to determine the most common waste and evaluate if students are properly separating waste into corresponding bins. In total, 413 plastic bottles were thrown away in only two days in Henley Hall. Unfortunately, half of all the plastic bottles were placed in the trash bin, rather than the appropriate recycling bin. A lack of education is apparent and should be addressed in residential life. Furthermore, 195 bottles were from the 4th floor alone. It is acknowledged that students may have thrown all of their bottles away at once and skewed the data; however, it may also be likely that students on the 4th floor have a more difficult time accessing water since the nearest filling station is in the basement.

	Water Bottles	Other Plastic Bottles	Total Plastic Bottles
1st Floor	38	57	95
2nd Floor	29	36	65
3rd Floor	35	23	58
4th Floor	188	7	195
Total	290	123	413

Table 3.1. Total counts of water bottles and other plastic bottles by floor of Henley Hall.

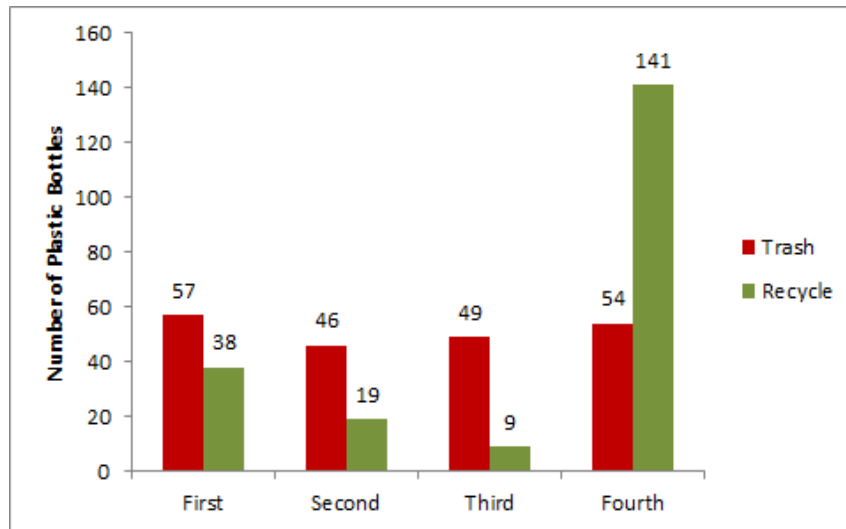


Figure 3.2. Number of plastic bottles in trash and recycling bin during the first 48-hour waste audit of Henley Hall.

A second waste audit was conducted on April 22nd in Henley Hall in which the most prevalently un-recycled items, cardboard, paper, plastic water bottles, and plastic utensils, were counted from the trash on each floor. This audit was less comprehensive than the first, since it only looked at the trash and not the recycling bin, due to time constraints. During the 48-hour period, 158 single use plastic water bottles were thrown away in the trash. This is slightly less than the number of bottles put in the trash in the previous waste audit. However, it is unknown if there were less bottles being used overall, or if the bottles were being placed in the correct recycle bins.

3.3.3 Plastic Water Bottle Bans

University campuses nationwide are currently advocating for the ban of plastic water bottles, however, there is evidence that implemented bans only created a greater waste problem on campus. For example, the University of Winnipeg in Ontario, Canada noted an increase in water bottles shipped to campus and that students were opting for other beverages, like sports drinks and sodas. Not only is this worse for overall health, but also the plastics used for these beverages are several times thicker than the plastics used for water, leading to an overall increase in plastic waste by volume (Taylor). The University of Vermont suffered similar consequences from the ban of water bottles on its campus (Thurston).

These studies suggest that plastic water bottles are not necessarily in competition with tap water, but rather with other bottled drinks. Students looking for the convenience of single use plastic bottles will buy other bottled drinks in the absence of water. Only 19% of Chapman students surveyed exclusively buy water bottles on campus, while 43% of the plastic water bottles students buy come from off campus, likely in bulk. Unfortunately, when asked if they would be in support of a plastic water bottle ban if there were more refill stations installed, only 64% felt that was a fair trade off and would be in support of the ban, only a 2% increase from the 2013 Survey.

3.4 Reusables and Education

3.4.1 Education for Sustainable Habits

Offering adoptable behaviors developed specifically for a student who is living in residence life is the first step in fostering improved habits and overall consciousness. A major tenet of this project is to provide educational materials to assist residents in recognizing opportunities and the tools to take advantage of the reusable option. The ultimate objective is to create long-lasting habits that result in sustained waste diversion habits. The information currently available online is both elementary and lacking, presenting the opportunity to develop additional resources for college students. Although this can be achieved by providing signage discussing innovative reusable solutions, online content generated through the HerCampus platform was chosen as it is available 24/7 and available to more than just the Chapman community. The site has contributors from over 300 campus chapters, thus it is an excellent medium to reach a wide span of individuals, even beyond the Chapman campus. Some tips featured in the article include:

- Avoid convenience items: choose large quantities of snacks when shopping as opposed to “snack packs”
- Acquire dishware and Tupperware to be able to consume food options that do not come in convenient packaging (i.e. leftovers, soup, etc.)
- Utilize second hand stores as many of the dorm necessities are only used for 9 months (i.e. storage containers, hangers, shoe racks, etc.)

- Trade or gift unwanted items to hall mates rather than disposing
- Have more than one reusable water bottle around to avoid the pain of constant cleaning
- Purchase drink packets or liquid flavoring over one-use soda or juice packaging
- Keep collapsible reusable bags around, especially in backpacks or purses
- Acquire a detachable sink hose to easily clean and fill bottles and dishware



Figure 3.2. Descriptive images on sustainable dorm opportunities

3.4.2 Reusable Takeout Container Program

A reusable takeout container program would provide students, staff, and faculty the opportunity to take food to go without using wasteful packaging. For the same price as one cafeteria swipe, an individual could drop off their previously used container for another disinfected one, fill it, and take their meal to-go. Container cost (ranging from \$3.50 to \$9.00) replaces the initial fee for participation; therefore, the program cost is transferred onto the beneficiaries. A persuasive 91% of respondents to the Chapman University 2016 Environmental Survey indicated that they would take their meal to go if this program existed in Randall Dining Commons. **Figure 3.3** explains that a majority, 61% of respondents, would use the program at on-campus eateries. It is also relevant to note that although Chapman University is exclusively serviced by Sodexo, the company has already implemented similar programs at multiple college locations. Implementing a reusable takeout container program may also increase student visits to Randall Dining Commons, and thus profitability, as time constraints would no longer be an issue for customers.

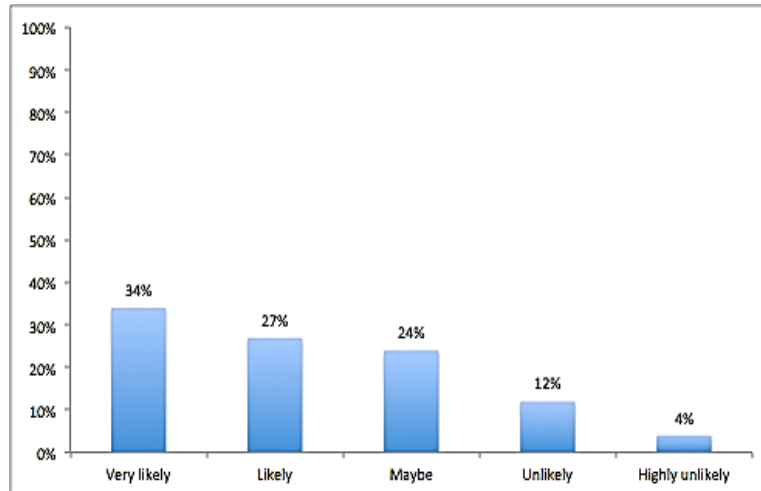


Figure 3.3. Respondents indicate high likeliness to participate in program to reduce packaging.

3.4.2.1 Case Study Indiana State University

Also exclusively serviced by Sodexo, Indiana State University has a successful Reusable Container Program, which was initially prompted by Sodexo itself, without suggestion from the school. Caroline Savage, the University Program Director at the Institute for Community Sustainability explained that Sodexo’s corporate office helps the local units’ source and set up the entire program. The containers allow students and faculty to take meals to go, bring back the dirty container, swap for a new container, and dine again. The cost of participation is \$8.50. Cost to replace a damaged or lost container is another \$8.50. Savage could not name any potential obstacles, claiming that Sodexo is fully capable of bringing the service to the Chapman campus.

3.4.3 Opportunity to Utilize Reusables

Consulting with Sodexo to allow students to take a meal to go in a reusable container, the reduction of food options in disposable packaging, and the installation of a GoodWill drop off station are currently being pursued to encourage sustainable habits. Chapman plans to install a GoodWill drop off station in Residence Life so that students, faculty and staff may donate items they no longer need or want. Providing access to donate items to be resold at second-hand prices and a commitment to decreased packaging are the initial steps in a commitment to avoiding waste sent to landfills. Such policies will ultimately foster a culture of environmental awareness.

Encouraging and educating first year residents on how to create opportunities to use their reusables is also key in diminishing waste in the dorms. This can be accomplished by providing larger sized food options, implementing the filtered water fountains in the dorms that are already found across campus, suggesting more sustainable practices like the purchasing of

cleaning rags opposed to disposable wipes, or choosing to give unwanted items away rather than sending it to a landfill.

Results featured in **Figure 3.4** indicate that 90% of respondents use reusable water bottles. Reusable lunch containers, coffee cups, and utensils are less common, but on average 40% of individuals participate in their use. This sustainable effort should be met with additional opportunities for students, faculty, and staff to incorporate multi-use dishware on campus and in residence life.

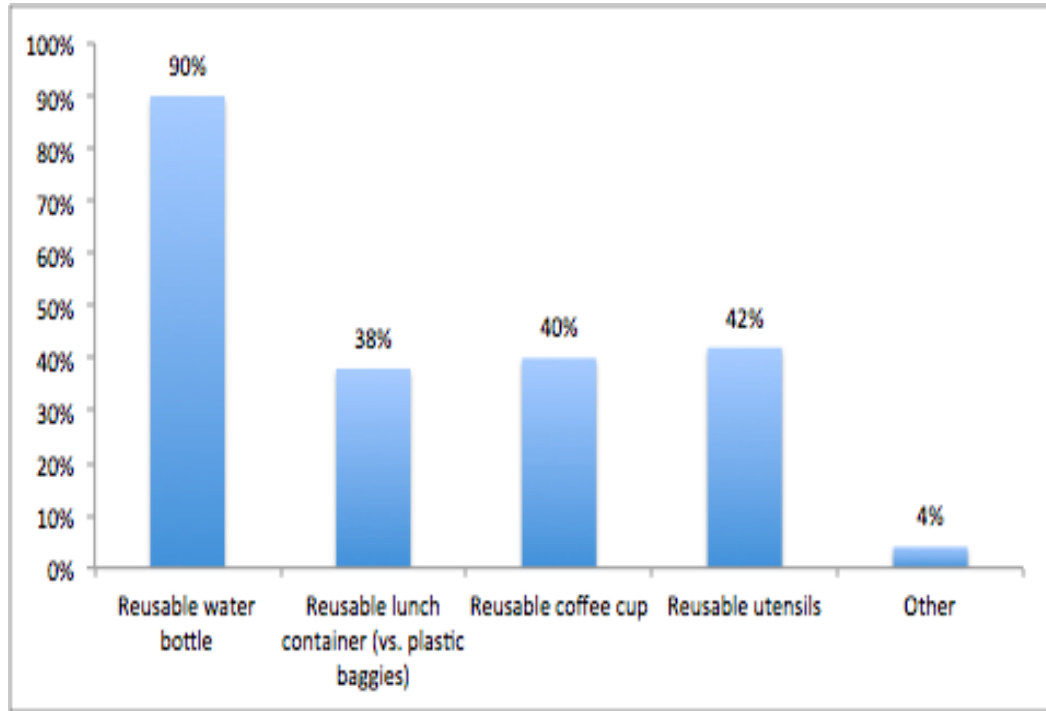


Figure 3.4 Respondents daily utilization of reusables items.

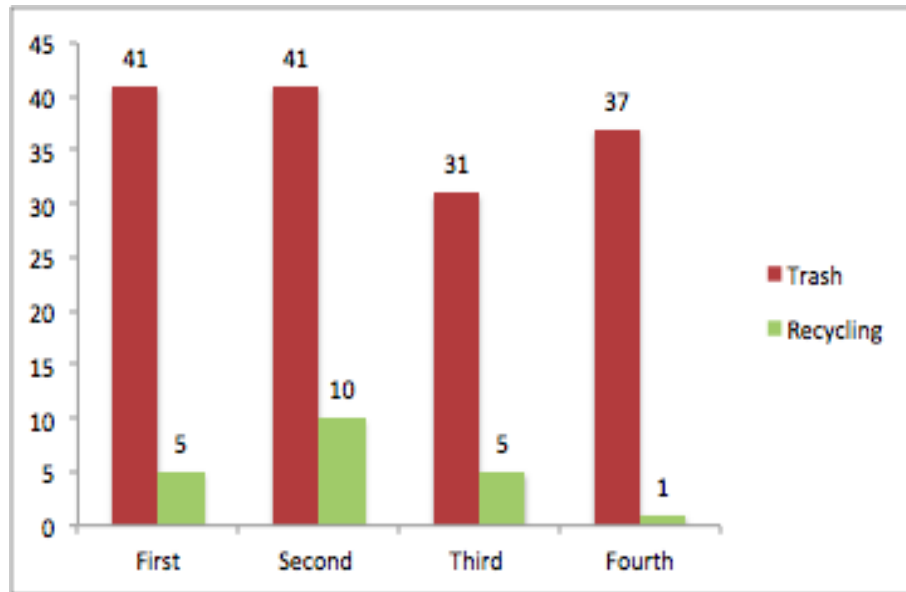


Figure 3.5. Waste audit data indicates excessive use of plastic utensils in Henley Hall and poor diversion rate.

Results in **Figure 3.5** indicate that Henley Hall residents used 171 utensils in just 48 hours, with only 12% properly disposed of. This is an opportunity to spread awareness on having reusable dishware in the dorm room as there is an evidenced need for utensils.

3.5 Concluding Assessment

Currently, the most important step in reducing waste from residence life is to educate the students on proper recycling and to encourage the use of reusables. Likewise, students will be more likely to use the filling stations if it becomes the most convenient option, as opposed to buying water bottles off campus. The clear campus interest in having the option to utilize a reusable container should be used to convince Sodexo to allow this option and help diminish the amount of packaging waste on campus and in Residence Life.

While some students have expressed frustrations with their inability to fill up water bottles in their sink, others have found an effective solution by filling up a Brita filter pitcher with their bathtub faucet. Students may have never thought to do so or may be concerned with the quality of shower water, even though it is the same water that comes from the sink. Providing students with uncommon solutions to common issues could be an important task for Resident Assistants to create a sustainable culture.

Ultimately, education seems to be the biggest barrier to the success of reusables in the residence life area. Education and suggestions should be delivered through signage created by the chapter on Environmental Education in Residence Life and an article written by Her Campus or the Panther. This will help to circulate the program as it is followed by the Chapman community and often shared on social media.

3.6 Recommendations

3.6.1 Easy

At the very least, the students living in Residence Life need to be educated on the proper recycling techniques so that the plastic they are using will end up at the correct waste stream. If we cannot eliminate the waste being produced, signage would be sufficient at diverting waste from the trash to recycling.

An inexpensive solution for students who would like to clean the reusable items, like water bottles and silverware, would be to buy a “Detachable Hand Held Sink Hose Sprayer”. It would be even more successful if the University would supply them to students at the beginning of the year. Have a hose like the one pictured in **Figure 3.5** would allow students to clean their personal reusable items and have easier access to tap water in their rooms. This could provide an easy, low cost solution for students seeking greater water accessibility.



Figure 2.5. This “Detachable Hand Held Sink Hose Sprayer” is available on eBay for \$8.98.

Another relatively inexpensive step towards sustainability would be to supply incoming freshman with a plastic reusable water bottle. The University could buy them in bulk for about \$2.58 a piece, depending on customization and water bottle type. Assuming the average class size is about 1,500 students, the University would pay just under \$4,000 for each student to own a water bottle. This is comparable in cost to installing just one water bottle refill station.

Resident Advisors can also be tasked with the responsibility of helping students make sustainable choices in the residential halls. Utilizing the one on one meetings upon move in

with the resident advisor as a space to review sustainable habits would be a great opportunity to educate students.

The various mediums to disperse information to the Chapman population should include the HerCampus article, especially during the first weeks before and following the first day of the fall 2016 semester. Sustainable consumption, especially pertaining to dorm shopping, should be stressed in information given to incoming students and their parents.

3.5.2 Moderate

Since water is significantly more difficult to access in the freshman dorms, it is important to install new refill stations to encourage students to refill their own cups or water bottles so that they do not need to spend money on single use bottles and add to the waste stream. While this is the most expensive option at \$4,000 to \$6,000 per station, Chapman has already proven a willingness to devote resources to install water bottle refill stations. To install one station on each floor of Henley, Pralle-Sodaro, Glass, and Morlan Hall, Chapman would need to budget for more than \$56,000. However, adding one per building to begin, significantly reduces the cost. To add one station at each dorm would cost between \$16,000 and \$24,000, and then more stations could be gradually added stations. This will give every student at least one accessible refill station in their residential hall.

Chapman University could require Sodexo to implement a Reusable Takeout Container Program in Randall dining hall, beginning in the fall of 2016. The Chapman University 2016 Environmental Survey determined that 91 percent of beneficiaries would take their meals out of the cafeteria if the materials existed to do so. Sixty-one percent indicated that they are likely to use the program if it was available.

3.5.3 Difficult

At this time, the most difficult recommendation would be to ban the sale of water bottles on campus. It could be challenging to convince University Administration to support the ban if it could actually lead to an increase in waste and unhealthy habits.

Doy's in Henley basement advertises itself as a 'convenience store'. Using purchasing data, Sodexo should increase look into providing more bulk purchases that are available to students in an effort to avoid excessive packaging. This will allow students to use reusable dishware, cut down on packaging waste, and promote a lifestyle of mindful consumption.

Once the Reusable Takeout Container model is fit to suit the parameters of the food services, in terms of the necessary space for cleaning, storage, payment, etc., it shall be applied to the food options located on main campus.

3.6 Future Areas of Study

Apart from following up on data depicting trends of consumption, behavior, and interest in sustainability, additional research should be conducted to further support chapter goals. Data comparing the installation with sale of plastic water bottles would be relevant in understanding the factors influencing purchasing. Additionally, information should be collected to understand necessary steps to installing refill stations in non-ground level floors. Additionally, more research is needed to see if other Universities were able to achieve a more positive outcome from the ban of plastic water bottles.

3.7 Contacts

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