



UCLA Sustainability Action Research

Food Waste Team 2017 Midterm Report

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I. Abstract

This past Winter quarter was spent organizing and collecting data for the Food Team. We brainstormed project ideas for the first few weeks and then mapped out a plan of when to do everything before we got started working on the logistics of our first goal. This goal was to survey diners at two separate dining locations, B-Plate and De Neve, and to collect data that could be used to correlate certain demographics (meal plan, favorite dining hall, allergies etc.) to how much food they wasted. This was done so by taking pictures with diners' dishes, from each of the aforementioned dining halls, next to a survey that we had them fill out. Our next step will be focusing our education and outreach efforts based on these trends. We also ran a focus group to get a better understanding of student views from a sustainability themed learning community in Rieber Hall and we hope to continue more events like these in the future.

II. Introduction

Food waste is a topic gaining interest globally fast and college dining halls seem to act as a catalyst to this trend. With food waste accounting for such a large portion of what is going into landfills in America, it is something that affects every single individual. In order to best understand this issue, it is important to explore the behavioral trends behind what is causing the waste, the negative effects of food waste, the scale of the problems and what is being done at the university level to combat food waste.

A. Composting

According to the Environmental Protection Agency, "approximately 31% of the overall food supply is wasted". This affects food security and resource conservation, as well as

contributes significantly to greenhouse gas emissions. One way to mitigate these effects is through the process of composting. The composting process is fairly complex, necessitating the use of aerobic microorganisms that “require oxygen, moisture, and food in order to grow and multiply” (US Composting Council). This process is characterized by a subsequent high temperature stage where the product is sanitized and decomposed, followed by a lower temperature stage where this waste is allowed to “stabilize while still decomposing at a lower rate” (US Composting Council). Compost materials include food scraps such as egg shells, banana peels, green stems, soiled pizza boxes and laundry lint.

Many colleges have implemented composting programs to reduce their carbon footprint and repurpose food waste. For example, Harvard University replaced chemical fertilizers with compost for organic landscaping across its campus (Harvard University). Cornell University has a very successful composting program in their dining halls, where chefs separate composting items during meal preparation and consumers compost their waste afterwards. In fact, they composted 515 tons of food and organic waste in dining halls between 2012 and 2013, prompting the school to plan expansions of this program into residential halls, campus food establishments and offices (Cornell University). Many universities have opted to buy compostable take-out containers and utensils instead of regular plastic ones to further reduce the amount of waste sent to landfills (McClure).

B. Behavioral/Psychological Studies

One of the main focuses of our research is on educating the consumers that eat at the dining halls. A big component of figuring out how to educate them is figuring out the

psychology behind behaviors that waste large amounts of food. In Linda Poon's article *When Food Is Too Good To Waste, College Kids Pick Up The Scraps*, there was a psychological study done about how having trays in dining halls tends to make people to take more food to fill the tray. Our thoughts about food also affect how much we initially pile onto our plates. For example, if people know that they like a certain type of food, they tend to get a bigger portion of it without thinking about the aftermath of getting too much food. With this example, it might also be good to think about self-served stations versus portion-controlled stations in dining halls: which food items are more appropriate as self-served (such as rice, pasta, and other side dishes) versus food items like meat and vegetables that should be portion controlled (Eva). At Loyola University Chicago, there was a study about how the size of plates also affect how much food people would grab at buffets: people would grab more food if they had bigger plates. At the university, they found that by "getting rid of trays and reducing plate sizes makes about a 25 percent reduction in food waste" (Poon).

Besides researching what dining halls can do to psychologically draw people to take less food, it is also important to look at human behavior in general. In 2015, Vivianne Visschers completed an extensive study on what could actually change habits and patterns in relation to food waste. A strong factor that helped reduce food waste was the negative attitudes towards it, most people felt ashamed and concerned when they threw away food. People's own consciousness about their actions is the strongest and most efficient way to reduce food waste according to this study. The results of Visscher's study also showed that financial concerns and active intention to avoid or reduce food were the other two big factors that affected the amount of food waste.

C. Other Food Waste Initiatives at Various Institutions

After thoroughly reading through the studies done by the Food Waste SAR Teams in the years of 2009 and 2014, it is evident that a great amount of post-consumer food waste is still being produced within UCLA dining halls today. With this proven fact via the past collected data, the next step to be taken is reduction, or to a further extent, prevention of disposed uneaten or half-eaten food. To better understand this issue, we reviewed initiatives that have taken place at other collegiate institutions.

The issue of students' unawareness of their flexible dietary options, or even the lack of choices, also contributes to excessive food waste. Along with Chapman University having trayless dining, the institution also has a "Just Ask Initiative". This initiative consists of signs posted at food stations that inform students of alternative meal options such as half portions or no rice or pasta for reducing wastes from all uneaten food as well as added health benefits. The signs also have valuable facts regarding post-consumer wastes and their negative effects on the environment. By having students being well-informed of how to actively take the step to customize their meals, benefits go both ways. Students are more satisfied with what they're eating and less food waste can be produced (Merrow, Penzien, et. al).

The Dining Services at UC Davis have also done extensive research into the issue of food waste on their campus. In addition to diverting as much food as possible from landfills, by composting, reusing, recycling, and reducing overall consumption, the school also provides education to students who eat in their dining halls on the importance of reducing food waste. Similarly to Chapman University, UC Davis also has a 'Just Ask' program that allows students

to change their portion sizes in the dining halls. Not only does this help reduce food waste, it has also been helpful in starting conversations around the topic.

The Try-a-Taste program is another tool UC Davis is testing out to reduce food waste. With Try-a-Taste, diners can sample an entrée before they decide how much or how little of it they would like to be served. This sampling program prevents students from unknowingly choosing an entrée they don't like and potentially wasting more of a food they do not like. In order to implement this program, the school provides Reusable 4 oz china ramekins or 2 oz ceramic soup spoons for students to sample with. The sample portions are served and refreshed frequently, just like a typical entrée (UC Davis). While the program does require additional dishes and manpower from the cooking staff, the school has seen a 40% reduction in food since the program started, which is a significant step in achieving their goal of zero waste by 2020.

III. Methodology

Our research goal is to reduce food waste generation, focusing on the education of consumers. Therefore, we decided to focus on consumer awareness after conversing with our stakeholder, Emma Sorrell, and the Associate Director for UCLA Dining Services, Charles Wilcots. The greatest food waste contributor is post-consumer waste; therefore, we decided to steer away from waste generated through the production side. In fact, dining services already does a great job at reducing waste by tracking the number of guests, dish popularity, and using leftover vegetables and fruits in next day's preparation. After looking at past groups' work, we decided we wanted to take a different approach to tackling food waste.

The last food waste oriented SAR team weighed out how much food waste was being generated

at dining halls and analyzed it in total, so we decided to explore whether there were any demographic trends between students and the amount of food waste produced in order to make our study more specific. To meet this goal, we decided to conduct surveys where students would answer questions regarding their demographics (i.e. meal plan, year of school, dietary preferences) and then later pair the survey answers with pictures of their food waste to explore any trends. The ultimate goal of this will be to direct signage in the dining locations towards groups that tend to waste more food, if any trends are uncovered. The signage and messaging we plan to create will be next quarter's focus, because we were focused on data collection and analysis this last one. Before creating any messaging, we wanted to get feedback from students in regards to what messaging was most effective and what tended to catch students' attention and we hosted a focus group to begin to understand this. We structured a time with other sustainability-oriented individuals to brainstorm ideas for potential signage and messaging and had an open discussion about students who lived in the dorms' perspective. For next quarter, we plan to hold more focus groups with students on separate floors in order to get a better idea of opinions across the dorms. We also plan on filming a short video about the path of an individual's food waste from the consumer's plate to the composting bin. We already met with a representative from the ResLife media team and they have agreed to work with us to the film this.

Our team decided that we will divide our main project objectives by quarter. Winter Quarter primarily focused on data collection and analyzation of food waste and its possible causes, while Spring Quarter will focus on education and community outreach to increase awareness of food waste inspired by the results we have found. Our two main projects that we

have performed this quarter are the surveys and the focus group.

When creating our surveys, we wanted to incorporate as many beneficial aspects as we could in order to encourage students to complete them. One of the main focuses was to keep the survey short and simple. We initially had the survey formatted as requiring someone to write his or her answers to questions word for word, but after taking advice from our stakeholder, Emma Sorrell, we decided to change the answer format to circling the given options. Not only did this make the overall survey appear simpler but it was a positive aspect to mention when explaining the surveys to students in the dining halls. In addition to the format of the questions we made sure to keep the total number of questions small (exactly eight).

Via recommendations given from the Associate Director of Residential Dining, Charles Wilcots, we decided to have surveys conducted in two dining halls - De Neve and Bruin Plate. To keep track of our survey counts, we made sure to number each survey. We felt that two lunch survey rounds and two dinner survey rounds, per dining hall, was an adequate number and began our first lunch surveying period at De Neve on February 22. As a group, we would randomly decide on a section of a dining hall to focus on for survey distribution and then divide the section into subsections for each member to cover. After one of us would approach a group of students, we would explain what we are doing with a brief elevator pitch of what the survey was about. We would then ask for students to flip their surveys over to ensure the number on the back was visible, when they were done with their food and survey. As an incentive to encourage more students to participate in the survey, we also stated that we would clear away each student's plates, should they chose to participate. In addition to this being an incentive, this step was important because it was necessary for us to take pictures of each individual's finished plates

with the survey they filled out to ensure a media to measure the food waste. For each surveyed meal period, we had three to five team members distributing, collecting, taking pictures, and bussing.

In addition to our survey, our team decided to hold a focus group to gather opinions and alternative perspectives regarding the topic of food waste. Through this project, we hoped to gain a closer, more detailed, outlook regarding the issue of food waste. Therefore, we had the freedom to ask questions that required more detailed answers. The focus group was held with student residents on the Sustainable Living Community in Rieber Hall. Our reasoning for this was that we wanted to hear some early perspective from students who were more likely to be conscious of their and the school's waste. The focus group was conducted by our team leaders, Eric and Danna, who asked multiple questions regarding food waste and facilitated discussion for close to forty minutes. Some questions were "What type of food do you think students waste the most of and why?" and "What media of advertisement/information giving works best for you?"

An overall trend that we noticed from the given answers was that many students had the common misconception that food waste occurs mostly on the production end. The focus group also expressed that they felt social media is not the best medium to educate students, for when they are using it they are in a mindless state in which they are not fully absorbing the content they are looking at and often perceive it to be dishonest.

Our team received a positive response from this project and helpful knowledge on what factors we can put more focus into when spreading awareness regarding food waste here at UCLA. We plan to have additional focus groups in the future with a different groups of students to compare opinions that might be shared amongst many students across the dorms.

IV. Challenges and Difficulties

We encountered two major problems while conducting research this quarter: collecting pictures of food waste in dining halls and quantifying that waste. Both of these problems stem from the surveys that we provided to diners at De Neve and Bruin Plate dining locations. While passing out these surveys, we asked diners to flip them over at the end of their meal to signify that they were ready for us to collect their dishes and take them to this dish drop. Doing so was essential for our data collection because before clearing the plates we would take a picture of them with the corresponding survey. Without these pictures, we will have to exclude those students' responses during the data analyzation process. Despite our efforts, many people did not leave their plates for us at the end of their meal. Some of those that did this claimed they felt bad for us and did not want us to clear them, while others forgot that we asked them to leave their plates or did not fully comprehend what we had asked of them.

Despite this, a majority of people still did leave their plates to be cleared and as a result, we have a lot of survey responses with pictures of the corresponding food waste. Our next challenge was, 'how do we record this data as accurately and efficiently as possible?' Food portions, plate sizes, amount of non-edible food and food options available all change depending on the meal period. With all of these factors, we were challenged to come up with a way to measure the amount of food wasted per person based on the pictures we took at the end of each surveyed meal. Finding this solution proved to be quite difficult.

To resolve our issue collecting pictures, we had to act quickly. We realized on our first night passing out surveys that we needed to create several different approaches, depending on

each situation. Sometimes we just needed to be more clear and direct - "Please place the survey down, flipped over, next to your dishes when you are done eating and that will show us that you are ready for us to clear your plates". When people insisted they wanted to clear their own plates, we told them that it was required to take the survey and that we really needed to clear their plates ourselves so we could record the data. When all else failed, we did our best to intercept people getting up and grabbing their own dishes en route to the dish drop.

Our issue of quantifying food waste was a bit harder to resolve. After much discussion, our team decided to give each plate a ranking between 0-3; 0 being no edible food at all and 3 being an unacceptable and egregious amount of waste. A 1 is an acceptable or standard amount of food waste based on the cuisine and a 2 is above average food waste, but less of an abhorrent amount than a 3. We have divided the food waste pictures by meal period and each meal period will be sorted through and scored by a team of two people in order to ensure a more standardized, yet efficient, ranking system.

Our team has learned a lot this quarter about how to best communicate with dining staff, students outside of the SAR program, as well as each other. Next quarter, we will need to improve rely on these skills and continue to improve. We plan to present our work to dining staff that we have not interacted with thus far with and we will be working to persuade students to waste less food, so it will be imperative that we communicate as effectively and convincingly as possible.

V. Plans for Spring Quarter

Over the course of the quarter, we have been consistent with our goals. Our main goal for

winter quarter was to finish handing out the demographic surveys, analyze the results, and hold a focus group, all of which we accomplished. With the help of Emma Sorrell and Charles Wilcots, our team has managed to narrow our focus on changing consumer behavior and mindset, focusing our efforts on educating students and dining hall guests about the real main sources of food waste and what they can do to minimize their food waste.

During the last week of winter quarter, we finished up aggregating the food waste so for the beginning of spring quarter, we will be compiling data. This will be our first task for spring quarter because we need to decide whether or not the demographic questions we asked on the survey actually correlate with patterns of food waste or if food waste in dining halls is truly randomized throughout these regards. If we do find patterns of food waste within certain demographics, we will try to focus our signage to target those that waste the most food. If we don't find strong correlations, our efforts will be directed towards a broader crowd to attempt to minimize food waste as much as possible.

Originally, we wanted to do a live simulation of the accumulation of food waste each person contributes to UCLA Dining's total waste, but after going over logistics and understanding potential sanitation issues, we decided against this idea. Instead, we decided it would be best to work to work with The Hill's Marketing Team to create a minute to minute and a half video to help educate people on the backend process that the dining team needs to go through to compost all the food waste in dining locations. With this video, we hope that we can show UCLA students a glimpse of how much food they collectively waste and hopefully make them more aware of the actual carbon footprint that still comes despite the best efforts of composting.

Our goals for spring quarter primarily center around our education and outreach efforts. We plan on making signage for the dining halls soon, hopefully to encourage people to eat with their stomach rather than to eat with their eyes. Along with making signage, we are planning on holding focus groups to see what makes for the most effective signage. We are looking to partner with other floors on the hill to target those who aren't as environmentally conscious and figure out what catches their eyes and attention. We are also planning on creating some sort of statistical display on the dining website, particularly on the menu sites. Charles Wilcots will help us in deciding which menu sites get the most clicks and visits to maximize our reach of people.

Beyond signage, we do have some presentations and event opportunities to participate at. Charles Wilcots has asked us to create a presentation to educate the dining staff on our research and findings, hoping that whatever presentation we create will be able to be passed down. We will also try to suggest things the dining staff can do to help minimize food waste. Events in spring quarter that we may appear at include, the Earth Day Fair, Sustainival on the Hill, and potentially at the weekly UCLA Farmer's Markets. We want to finish making video by the Earth Day Fair, so we can have the video playing throughout the day and use it for our other education and outreach events.

VI. Conclusion

The progress our team has experienced this quarter has far exceeded our initial expectations. We were able to meet our goal of at least one focus group as well as completion of all survey data collection. Furthermore, we were able to get past some challenges successfully as a team, resolving issues including students not leaving their plates behind for us to clear and

quantifying food waste. Even with not collecting pictures to go along with some individuals' surveys, we were able to collect over 400 photographs. Our next goal is to analyze the data to determine whether or not there are any demographic trends relating to students food wasting behavior. While we have completed many steps, we still have much further to go. Our team looks forward to all of the great opportunities we have to promote our findings about food waste and to utilize our conclusions for further educational outreach.

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Appendix

Dining Hall Survey

UCLA Dining Survey:

1. Which meal plan do you have?

19P 19R 14P 14R 11R
Non-Resident Plan None

2. What year in school are you?

1st 2nd 3rd 4th 5th Graduate N/A
Transfer: Yes No

3. Which dining location do you visit most frequently?

B-Plate De Neve Covell Feast
Café 1919 B-Café Rendezvous Hedrick Study

4. Do you have any food allergies? If so, what?

No
Yes _____

5. Do you have any dietary preferences/restrictions?

(e.g. gluten free, vegetarian)

No
Yes _____

6. Did you know you can customize your meals?

(e.g. no beans, no rice, etc.)

Yes No

7. Do you tend to get all of your food at the beginning of your meal or in multiple stages?

Beginning Multiple stages

8. Do you think that more food is wasted in dining locations during meal preparation or during consumption?

Meal Prep Consumption

Focus Group Questions

Ice Breaker Question (3 min)

- What is your favorite food?

1. What type of food do you think students waste the most of? Why? (8 min)
 - a. Keep this open-ended; see what they have to say without probing or prompting them. (Focus initially on their views of other students - no blame, shame, or guilt-tripping)
 - **Probe:** What items do you observe students' leaving on their plates? How about you: what items do you find hard to finish?

2. When it comes to food waste, getting the message out makes a difference. What kinds of messages typically catch your attention? What about for your friends on campus: what messages catch their attention? (8 min)

Prompts

- Humor - a funny story about students wasting food
- Facts - statistics about how much food is wasted each day, week, year.
- Positive - what students are doing themselves about curtailing food waste
- Negative - guilt or shame-inducing messages

3. What media work best for you? What about for your friends on campus? - Keep this open-ended; see what they have to say without prompting them; only prompt when they cannot come up with anything more to say. (8 min)

Prompts:

- Email - for you; for your friends?
- Social media - for you; for your friends?
- Signage
 - Table tents - for you; for your friends?
 - Digital displays - for you; for your friends?
 - Stanchion signs - for you; for your friends?
- Word of mouth- for you; for your friends?
 - What signage do you pay the most/least attention to?

4. Do long waits in line affect how much food you take? (8 min)

- 4a. What about a line for a certain item, say an omelette, what happens when you get tired of waiting? Probe: Will you just give up and get something else? And do you eat that substitute item, or toss it?

Concluding questions (8 min)

- How would you tackle food waste on campus?
- What's the best way to educate students about food waste