Garbology Research Proposal

Labeling and trash diversion on University of Washington Campus

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Abstract

This research will address the issue of landfill diversion rates through looking at solid waste bin labeling on University of Washington Seattle campus. There are three types materials collected on campus that we will examine; compost, recycle, and trash or landfill material. Through analysis of materials collected at two sites on campus we will determine if the labeling of bins makes a difference in the amount of material correctly deposited in each bin, and therefore diverted from landfills. There are two parts to this project. The first part involves comparing two locations of bins in Paccar Hall Orin's Place Cafe and Suzzalo Library Espresso Cafe. These two locations have different systems for labeling waste receptacles, but are similar in both being on the main campus and having a café that sells coffee and food items. The bins will be collected and sorted by type to measure the contamination level in each bin over the course of four weeks. The second part is a comparison to determine which location has the more desired result of less contamination per bin. Once the preferred labeling is determined we will implement that labeling in the location that had higher contamination levels and repeat the comparison. The second part will use the same method of sorting over four additional weeks. Depending on the results we may be able to recommend one system of labeling over another and implement it in multiple locations across campus. This research could have broad results of lessening the environmental impact of UW's waste and lower the costs associated with disposal.

Objectives

In UW Recycling's last annual report (fiscal year 2011) stated a goal of diverting 70% of UW's waste from the landfill by 2020[1]. According to the same report currently about 57% of UW's waste is being diverted from landfills. This is a very good number when compared to other organizations of UW's size, but could be improved. Based on prior research, and the annual report, we can see that a significant amount of compost and recycle are ending up in the trash bins, and subsequently are sent to the landfill. The UW

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[1] Annual Report 2011. washington.edu/facilities/building/recyclingandsolidwaste/files/2011Report.pdf

Garbology Project estimates at least 60% of the material currently sent to the landfill by UW could be composted, accounting for the largest area in need of improvement[2].

At least some of the materials that are improperly put into the trash by users are due to the inconsistencies in labeling of bins. Observational work has shown that there are many different types of labeling of bins that are are used by students and the public on campus. An example of this inconsistency can be found in the two locations proposed for this research; in Paccar Hall Orin's Place Cafe and Suzzalo Library Espresso Café. In Paccar the main area of waste disposal features two compost bins, one recycle, and one trash. They are labeled "Compost", "Recycle", "Waste", and each has a list of common items that are typically found on campus and can be deposited of in each bin. The second location, Suzzalo Café, features an entirely different system of labeling. There is one bin for each compost, recycle, and trash, however they are labeled "Compost", "Aluminum Cans, Plastics, Glass Bottles" and no label on the trash bin. This location does not include a visible list of items that can be disposed on in these bins however there is a small detached sign with examples of item and small arrows pointing to the bins . (See attachment 1 for examples.)

It is important to find out if the labeling has an impact on the total amount of materials put in the wrong bins, or more concisely called the contamination level. If we can reduce the amount of contamination in these bins then more items will end up in the compost and recycle, therefore reducing the environmental impact of UW's waste, and reducing the cost of disposal at the same time.

Methods

There are two parts to this project but the same methods will be employed in both. To complete this research we will need a team of four trash sorting volunteers over the course of eight weeks. The first

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[2] The UW Garbology Project. uwgarbology.weebly.com/

four weeks, part one, we will use to get a baseline measurement of the waste in Paccar Hall Café and Suzzalo Café. There are a few reasons we chose these locations. The cafes are similar in being both heavily used by students, having a Tully's coffee, and both having various food items available for purchase. In addition to this, the locations sell many items that are compostable. Both locations also have an area where students tend to congregate for extended periods of time. Finally, the areas are similar because at each location there is a main waste collection site near the entrance of the building. We will collect both location's waste and sort it by type; compost, recycle, and trash. These are the types that UW uses for disposal and therefore are the same we will analyze. After they are sorted each type will be measured by weight for two reasons. The first is that weight is the only method feasible seeing that volume is not appropriate for trash, and second UW is charged by weight to dispose of material that is sent to the landfill.

Part one of this project will take place over the course of four weeks with trash collected on Wednesdays each week for both locations. The team of sorters will collect data by our three types of material; compost, recycle, and trash. We will use these sorted types to determine contamination rates by weight. After the initial four week period we will analyze the data to determine if there is a significant difference between the contaminations levels at each location. If the level is significant part two of the project will take place.

 In part two we will implement the superior labeling system to the location being tested. The superior location is the one with lower contamination levels and we will call this the high performance location. The location being tested is the one that yielded the inferior results of higher contamination rates. The high performance location will not change, and we will continue to collect trash and sort it in the same way as done in part one. Over the course of another four weeks using the same student trash sorters, in the same locations, and using the same collection day, we will again measure the contamination levels

by weight to determine if there is a change from our high performance location. The reason the sorters must not change is because new trash sorters may not be as highly trained as our original group. The high performance location and its labeling system will stay the same in order to determine if there is a change in use patterns as the school quarter progresses.

If the data shows an improvement in landfill material diverted by changing the labeling we will use this information to argue further research and advocacy.

Products

The goal of this research is to find out if the labeling of bins makes a difference in the material disposed of by the public, as expressed in material diverted from the landfill. We are most concerned with if labeling can lower the amount of compost and recycle that end up in the trash bins and therefore landfill. This research will answer our question and determine to what extent labeling of bins can have an impact on diversion rates. If labeling does make a difference in this small scale, further research campus wide may be able to shed light on which system is the most effective in communicating the proper way to dispose of items to the public.

The ultimate goal of this project will be to recommend a standard labeling system to be implemented across UW campus. With this information it would be possible to lower costs associated with waste disposal, and improve UW's environmental sustainability.

Budget

ITEM	COST
4 Student Volunteers, one paid assistant	500.00
Safety Equipment (tyvek suites, eyewear, gloves, masks) total for 4 students, one assistant	59.80
Sorting tools (4 plastic spatulas, one mini shovel)	32.50
Cleanup materials- 2 sponges, one 16 oz bottle hand sanitizer	13.94
Bins for sorting (borrow from UW Garbology Project)	0
2 tarps (borrow from UW Garbology Project)	0
Location- facilities management	0
Scale (borrow from UW Garbology Project)	0

Total: 606.24

Attachment 1

Suzzalo Labels

Close up of Paccar Labels