Electronics Recycling in F.I.T. Residence Halls, with a Focus on Move-out Opportunities

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Introduction

Electronics recycling or e-cycling, applies to consumer and business electronic equipment that is at the end of its life cycle, including computers, peripheral devices, and analog electronics. E-cycling is a better alternative than discarding electronics because it removes toxins from landfills, recycles natural resources, and is creating new industries. The Univ. of San Diego developed an electronics recycling program that generated over $200,000 in revenue and 750,000 pounds of e-waste (Catanzaro and Morreal, 2014). At the Univ. of Pennsylvania, a program was created in the residence halls to incentivize students to recycle traditional and electronic goods, support local sustainable businesses, and promote a culture of sustainability (Goresko and Rowland, 2014).

E-cycling resources are not currently coordinated or advertised at F.I.T. This study focuses on building a systems-based program to initiate coordinated e-cycling on- and off-campus, with an initial focus on residence halls. The goal is to increase the measurable volume of e-cycling products among seven residence halls using three objectives:

- Objective 1: to identify the current structure of the electronics recycling system at F.I.T.
- Objective 2: to plan and deploy the placement of Electronic Recycling Stations (ERSs) in residence halls on and off campus.
- Objective 3: to transfer the project to new generations of students and staff to ensure maintenance of the program over time.

Methods

Objective 1: Structure of Current E-cycling and Residence Halls

Meetings were conducted with university staff responsible for recycling and the large residence halls move-out process that occurs at the end of each academic year (Apr-May). These meetings produced useful information and new ideas regarding e-cycling, vendors used, and residence opportunities. Electronics categories that can be recycled are diverse and include computers, peripheral devices, mobile, and other devices. Cross-campus team planning is now underway to optimize the structure of the overall system and the recycling paths of e-components.

Objective 2: ERS's in Residence Halls and Scenarios

An Electronic Recycling Station (ERS) consists of informational poster on e-cycling and a bin to collect student e-cyclables. Based on scoping described in Objective 1, ERSs will be set up in seven FIT residence halls: Harris Village, Columbia Village, Roberts Hall, the Quad, Mary Star of the Sea, Greek Village, and Southgate. ERSs will be placed be the RA offices or other sites in all of the halls.

Information specific to this project will be included in move-out guidelines provided to all residents. The data collected will be categorized among the seven residence halls within four sub-categories of electronics: computers; peripherals incl. monitors and printers; mobile devices; and other items that occur (appliances).

The variables that will be measured for the four categories are: volume of electronics in the bin, weight and the number of items in each bin. Since there has not been past monitoring of recycling volumes, three hypothetical scenarios for e-cycling trajectories were developed. Scenario 1 is the current campus status of electronic recycling: no advertising or measurement of volumes/types of components recycled. Scenario 2 involves light-intermediate increases in e-cycling effort. Scenario 3 involves substantial increases in campus e-cycling, including wide advertising.

Objective 3: Project Transfer

There are currently no dedicated campus staff to coordinate e-cycling. However, key residence hall staff and students have been included in the process to assist many components of Objective 2. Work is underway to identify students, clubs and campus staff to maintain project momentum over coming semesters.

Results

Structure of Current Residence Hall E-cycling Systems

Of the seven residence halls examined, there are over 2100 students. The Quad has the most with 530, HV has 360, CV has 350 (Chart 1). In all 7 halls, campus staff and select RAs are preparing to increase measureable e-cycling during the Apr-May move-out.

On the back-end of the product life cycle, the Property Management office contacts our e-cycling vendors when the bins are full. The vendors include Panik Electronics and AERC Recycling Solutions.

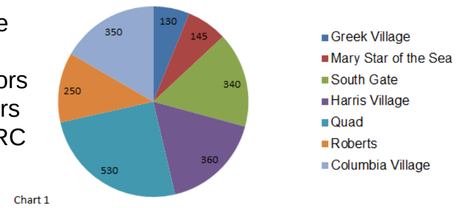


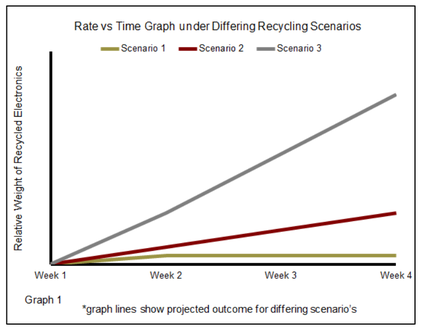
Chart 1

ERS in Residence Halls with Preliminary Scenarios

By April 6, 2014, two pilot ERS's will be set up in the RA offices at Robert's Hall and Harris Village with students and staff from as points of contact (A. Miller, G. Connell). 100 oversized flyers will be deployed across all halls to advertise e-cycling on campus. The ERS's will be positioned outside RA offices during office hours.

Table 1 and Graph 1 represents basic scenarios. Scenario 1 represents the current FIT electronic recycling system. Scenario 2 indicates a light-mid-scale increase in e-cycling (2x). Scenario 3 involves a substantial increase in efforts on all aspects of campus e-cycling (3x).

Based on the details of the move-out operation in early May, I predict a measureable increase in the amount of electronics collected, as seen in scenario 2 for the first yr. These numbers could increase, particularly with successful transfer of project management over time.



Graph 1

Scenario Results		
Scenario	**Variable**	**Residence Halls**
Scenario 1: Current recycling volumes (numbers not available)*	Number	-
	Volume (per bin)	-
	Weight (per bin)	-
Scenario 2: Light Recycling	Number	2X
	Volume (per bin)	2X
	Weight (per bin)	2X
Scenario 3: Heavy Recycling	Number	3X
	Volume (per bin)	3X
	Weight (per bin)	3X

Table 1 *data will be collected during residence hall move-out, May, 2015.

Project Transfer

In order for this new project to sustain itself, a student organization would ideally continue the project in coordination with Residence and Property staff.

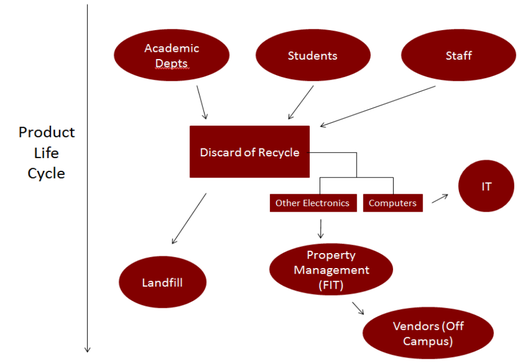


Chart 2. Product life cycle and F.I.T. processing paths.

Discussion

Based on the findings, shown in Graph 1 and Table 1, scenario 3 would create the biggest impact on the environment. However, due to limitations, scenario 2 would be the more realistic. The limitations are; resources, money, time, and data. Delimitations that will affect the measurements and data are, no previous data to compare the change over time. As the program increases and there is more campus/community involvement, the project could evolve into scenario 3. By increasing the ROI, there would limitless possibilities of project outcomes; such as, evolving from a campus project, to a community project, or into a state project. The results would be much more rewarding on the fight to minimize waste in landfills, protect the environment, and increase employment.

Literature Cited

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