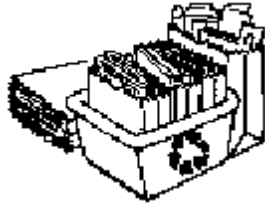


Packaging Persuasion:  
The Incorporation of Social Marketing into Brown  
University's Recycling Communications



Jeffrey A. Klein

This thesis is submitted in partial fulfillment of a Bachelor of Arts Degree with honors in  
Environmental Studies.

May, 2001



By signing below, I hereby certify that Jeffrey Klein has fulfilled the thesis criterion for an A.B.  
Degree with Honors Distinction in Environmental Studies.

Christina Zarcadoolas  
Assistant Professor, Research  
Center for Environmental Studies

Kurt Teichert  
Environmental Coordinator  
Brown University

John Wilson  
Director of Custodial Services  
Facilities Management



## Table of Contents

Executive Summary	Page -1-
Introduction	Page -3-
Research Background	Page -5-
Brown University .....	Page -5-
National Attention.....	Page -6-
Principles of Social Marketing.....	Page -8-
Applications of Social Marketing .....	Page -10-
Study Design	Page -13-
Findings	Page -19-
Baseline Data .....	Page -19-
Rebellion.....	Page -21-
Ethnographic Observations.....	Page -21-
Commitment Test.....	Page -22-
Final Survey .....	Page -22-
Focus Group.....	Page -24-
Discussion and Recommendations	Page -27-
Works Cited	Page -30-
Appendix A	
Statistics	Page -31-
Appendix B	
Baseline Survey	Page -33-
Appendix C	
Final Survey	Page -35-
Appendix D	
Focus Group Protocol	Page -37-
Appendix E	
Tailored Letters	Page -39-



## Executive Summary

As Americans, we consume more than any other nation in the world per capita. Research in the 1980s indicates that Americans generate more than 150 million tons of trash. One possible solution to these troubling numbers is to increase recycling efforts nationwide. In the 1980s, people began studying tactics to increase recycling participation by focusing a bit more on persuasive communication and social marketing as a mode of change. Social marketing uses the fundamentals of commercial advertising for social good. Examples range from seatbelt campaigns to Smokey the Bear to anti-smoking ads. In this study, I considered the effectiveness of two social marketing tactics in a Brown University dormitory. I compared these two approaches to a regulatory message and traditional environmental communication, using both quantitative and qualitative evaluations. *Methods.*

I divided a large dormitory into four groups. Each group received a new recycling bin along with a different communication about recycling on Brown's campus. Group 1 received a traditional environmental communication, telling them only what to recycle. Group 2 received a regulatory message requiring them to recycle and threatening monitoring. Group 3 received a social marketing message which employed the commitment building strategy. A final group, Group 4, received another social marketing message, which used appeals to conscience and norms. A baseline survey was given at the beginning of the study to determine the attitudes and behaviors of students before any communications were given out.

After the communications were sent, I recorded ethnographic observations on each floor, looking to see how students were using their bins. The second phase of communications were sent out in February. At this point, every student received a letter asking them print out a recycling sign and put it on their door. Again, I recorded ethnographic observations on each floor and counted the number of signs each floor had. A week later, the final survey, resembling the baseline survey but pointed more toward recycling, was sent to all students on all floors. This data was compared with the baseline survey to detect changes in attitude and behavior on each floor. Finally, the survey asked students to volunteer for a focus group to discuss these issues. I pulled out themes from this hour-long focus group and triangulated them with the more quantitative data from the survey.

*Findings and Recommendations*

Survey data indicated that students felt recycling was a priority in dorm and 90% of respondents claim to recycle in dorms. However, they correctly identified recyclable items only 54% of the time. Students showed significant preference for the social marketing letters over regulation and traditional letter, but knowledge did not significantly vary among floors after treatment. The focus group corroborated this idea that regulating students would not be helpful or practical. The regulatory floor was more likely to get rid of the new bins, probably as a backlash. The focus group also indicated that email is an effective form of communication and the >30% response rate for both surveys confirms this.

Students in the focus group thought that the use of prompts was also a very effective method to encourage recycling in the dorms. This was also observed in the number and distribution of posters put up during the commitment test. Posters were put in clusters, implying that students were reminded by the initial poster to put one up themselves. Facilities Management could capitalize on this by establishing “dorm leaders,” who remind students to recycle on a regular basis. Their constant presence would prompt students to recycle. Finally, focus group data along with the number of survey responses by email indicate that email can be an effective communication in moderation. Facilities should send out varied information, such as feedback mechanisms, sporadically to achieve maximum effect. Using these findings and recommendations, Brown may be able to substantially increase its recycling rates in the coming years.

## Introduction

Waste disposal has held several different spots on the shelf of environmental consciousness. As Americans, we consume more than any other nation in the world per capita. Research in the 80s indicates that Americans generate more than 150 million tons of trash (Burn and Oskamp, 1986). Often centering around Earth Day events, such issues have come to light and prompted concern about future storage and disposal. Many suggested that landfill would fill up and leave Americans nowhere else to store the accumulating trash. Recycling arrived on the scene in the early 1970s as a proposed remedy to what some said was imminent catastrophe. By the 1980s, recycling had become widespread in municipalities nationwide and by 1990, 40% of the public was served by a curbside recycling program ( [www.edf.org/pubs/report/advrec.htm](http://www.edf.org/pubs/report/advrec.htm)). Recycling saves landfill space simply by diverting the path of trash back to the production stream . Further, it mitigates issues of resource scarcity by entering recycle materials to production in place of virgin ore or timber.

For over two decades, research has been done to determine how best to get the public to practice recycling. Many studies in the 1970s suggested the use of incentives to help increase recycling (Gellar, Chaffee, and Ingram, 1975). During the 1980s, research began to focus a bit more on persuasive communication as a mode of change (Burn and Oskamp, 1986). Within that same genre, this study looks at some examples of social marketing and discusses the feasibility of implementing these strategies in Brown University's waste management program.

Background research will set the stage for the central questions of this study:

- \$ *What are the advantages of incorporating a social marketing strategy into recycling communications?*
- \$ *Would such a strategy be more effective than other strategies of promoting recycling?*
- \$ *Can such strategies be tested in a real world setting (a dormitory)?*
- \$ *How could social marketing strategies be included into Brown's existing recycling program?*

By asking these questions and developing a study to help answer them, I may be able to establish concrete recommendations for Brown's recycling program. On a broader level, we can

use this information as a litmus test for how different media campaigns may be received by college students at this and peer institutions.

This paper will be divided into four sections, each with several subsections. The first section will look at the background leading up to and prompting this study. Brown's recycling history and the definition/application of social marketing in environmental communication. Next, I will discuss the methodology of the study, including site selection and communication strategy. I will then address the findings (both quantitative and qualitative), highlighting specific themes that were found throughout the data. This section will incorporate the baseline data gathered before any variables were present, as well as final data collection. The final section will discuss the conclusions based on the findings. Along with these findings, I will recommend specific changes for Facilities Management to implement in its future recycling planning.

## Part I. Research Background

### Brown University.

Brown University is the seventh oldest college in the country, founded in 1764. Located in Providence, Rhode Island, the school’s current enrollment is roughly 5500 undergraduate students. The majority of these students live in dormitories on campus, which are cleaned and maintained by Facilities Management. All waste and recycling from these dorms is brought to designated trash rooms by students, taken to dumpsters or curbside by Facilities Management and eventually hauled per contract by Waste Management to the Johnston Landfill.

Brown’s recycling history began modestly in the early 1970s amidst a flurry of environmental action nationwide. In 1972, S.A.V.E. (Students Actively Volunteering for the Environment) began and two dedicated students put together a program to collect old newspapers at a central location. The program quickly expanded, with almost 10 tons of glass collected in the 1972-73 academic year. By the end of the next year, permanent collection areas were established for students to recycle newspapers, clear glass and aluminum cans.

This voluntary drop-off system continued through 1984, when the template was created for a campus wide recycling program. The program was then implemented in 1987 for every dorm on campus. At this point, a system similar to Brown’s current recycling program developed. Office paper, plastics, and cardboard entered the recycling stream. Meanwhile, Rhode Island adopted its first statewide regulation requiring separation of trash and recycling for municipal pickup.

Brown’s program continued to serve as a model for many other institutions in the area throughout the 1990s. Waste composition studies in 1992 revealed that optimum recycling levels would hover between 45% and 50%, excluding yard and food waste.<sup>1</sup> While the ideal percentage seems high, tonnages from the last decade suggest a formidable divide between potential and actual recycling rates

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>Percent Recycled Curbside</b>	<b>10%</b>	<b>13%</b>	<b>18%</b>	<b>18%</b>	<b>19%</b>	<b>17%</b>	<b>18%</b>	<b>19%</b>	<b>20%</b>	<b>18%</b>
<b>Total Tons Solid Waste</b>	<b>2,788</b>	<b>2,452</b>	<b>2,431</b>	<b>2,483</b>	<b>2,457</b>	<b>2,651</b>	<b>2,483</b>	<b>2,887</b>	<b>3,290</b>	<b>3,315</b>
<b>Ttl Tons Trash</b>	<b>2,500</b>	<b>2,144</b>	<b>1,996</b>	<b>2,041</b>	<b>1,986</b>	<b>2,193</b>	<b>2,041</b>	<b>2,342</b>	<b>2,642</b>	<b>2,728</b>
<b>Ttl Curbside Tons Recycled</b>	<b>288</b>	<b>308</b>	<b>435</b>	<b>442</b>	<b>471</b>	<b>458</b>	<b>442</b>	<b>545</b>	<b>648</b>	<b>587</b>

Table 1. Trash and recycling percentages through 2000. *Note: 1998-2000 are estimates.* Data courtesy of Kurt Teichert.

---

<sup>1</sup>Both yard waste and food waste get recycled, but are handled by private haulers and will not be addressed in this paper.

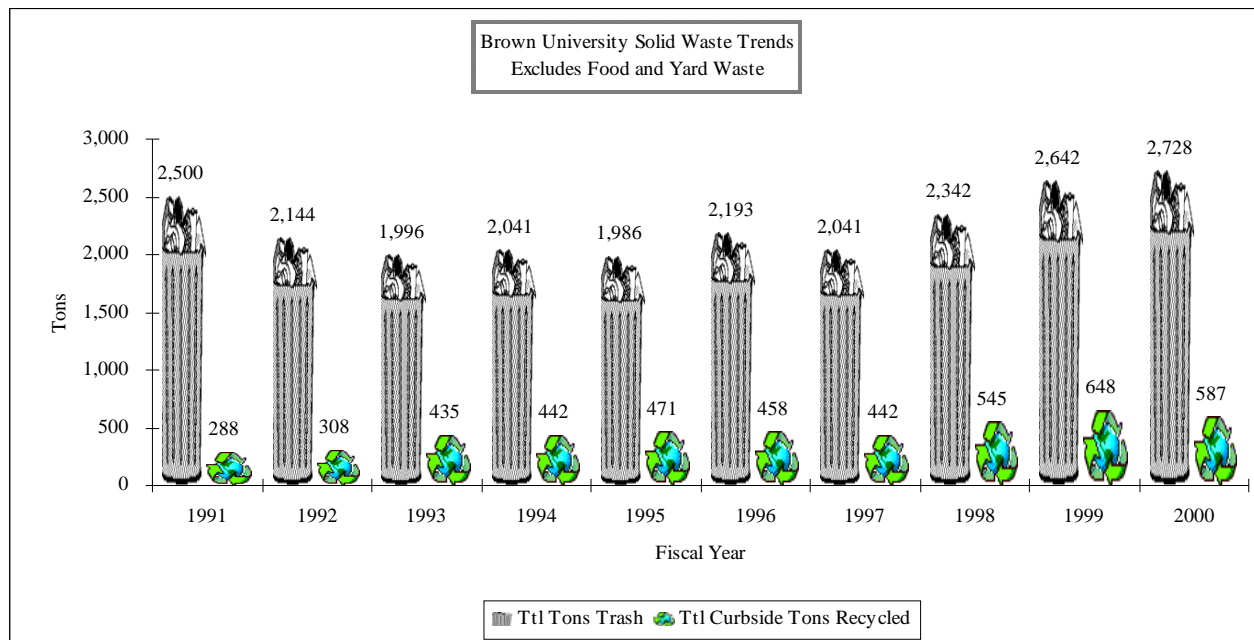


Figure 1. Graphical representation of recycling and waste disposal from 1991 to 2000. *Note: 98-2000 are estimates.* (Teichert)

### National Attention.

While Brown has a higher *potential* recycling rate than many other municipalities, the *actual* average waste diverted to recycling for the past 3 years, 19%, is consistent with the national average among municipalities. Nationally, much has been done in the past two decades to increase recycling participation. I divide these efforts into two key types: 1) *regulation* and 2) *traditional environmental communication*. In this section we will discuss each of these.

Regulations or regulatory communications are simply a command and control form of instituting behavioral change. A regulation may require a certain behavior or prohibit one. Often incentives or punishments are also incorporated into regulatory messages. For example, speeding in a motor vehicle is considered unsafe and has been regulated against. The punishment is, as many of us know, a speeding ticket. Regulations work on a local, state, or national level. The benefits of regulating behavior is that there can be little marketing involved. The law states emphatically that speeding should not happen and getting a ticket reinforces that point. The ticket is in place of a marketing campaign.<sup>2</sup>

<sup>2</sup>Regulations can, along with their enforcement, incorporate a marketing campaign as well. This is the case with seatbelts, which are the subject of both regulation and marketing. Often, however, regulations stand alone, as in the case with speeding tickets or noise ordinances.

Regulations have been the path of many environmental issues in the past few decades. During droughts, mandatory water restrictions exist in place of voluntary compliance mechanisms. While these can and have been proven effective in certain cases, particularly when accompanied by a marketing campaign, there are several problems with using a regulatory approach alone for changing behavior:

1) Approval. Regulations need to be approved by either public officials or the affected group themselves. Because often people are resistant to taxes and punishments, such regulations are difficult to enact in the first place. A proven method of source reduction, for example, is the *pay-as-you-throw* model, which taxes households for each bag of garbage they produce. In pilot communities, we've seen this work, and yet it has been very slow to get adopted nationally because nobody wants to be burdened with yet another tax.

2) Backlash potential. Smoking bans and helmet laws have seen such backlashes, where, on principle, people will defy regulations in public situations.

3) Internalization. Finally, regulations are seldom internalized. Returning to the speeding example, we recall that the punishment for speeding, the ticket, is the central method for gaining compliance with the speeding regulation. Now suppose speeding tickets were abolished. Would people begin speeding again? Evidence suggests they would because the behavior, driving the speed limit, is not internalized. People obey the speed limit for fear of being caught, not because their attitude about speeding has changed. Similarly, research shows that deposits on bottles have decreased aluminum can and bottle litter up to 75%. However, once the deposits were stopped, there was almost a complete reversal of this trend (Zimbardo and Liewpe, 1991).

*Problems with regulation:*

A *Hard to implement*

A *Can create a backlash*

A *Behavior doesn't "stick," no internalization.*

The second commonly used tactic for increasing recycling participation is the traditional environmental communication. Such communications are similar in several ways. First, they are oriented toward factual information. For example, a recycling communication in the traditional form would present a list of what items are and aren't recyclable. Included might also

be a list of places to drop off recyclable goods. This information would be depicted in text, sometimes not incorporating many images. Such communications

also try to appeal to a large “target audience” with little differentiation among subsets of the population . Because environmental issues concern a large number of people, the communications aimed at these issues tend to address a large group of people. Since this large group may include people who speak several different languages or are of several different literacy levels, the communications may not appeal well to many of the people it is trying to reach.

Several problems exist with this form of communication. Again, the issue is seldom internalized. Often, after an anti-litter campaign has ended, litter rates return to pre-campaign levels. Second, there is a low salience of environmental issues. Philip Zimbardo writes that “we do not... see our behavior... as a cause of environmental harm unless the harm clearly reveals itself.” The payoff of doing an environmental good is not immediate and traditional communications do not clearly explain that payoff. When you recycle, you don’t suddenly notice cleaner yards or bluer skies, and thus payoff is not an incentive for you to recycle because of that

*Obstacles to traditional environmental communications*

- L Low salience*
- L Payoff is not immediate*
- L Often not internalized*
- L Diverse target audience*

**The Principles of Social Marketing.**

To help address the problems presented by regulatory messages and traditional environmental communications, environmental campaigns have employed a new approach in the past decade: social marketing. Social marketing is exactly what it sounds like, using marketing techniques for social causes. Alan Andreasen defines it more formally as “the application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society” (Andreasen, 1995).



Figure 2 A traditional communication describing recyclable items.

A key difference between social marketing and traditional environmental communications is that social marketing works to change behavior *along with* attitudes. Using persuasion or educational approaches may get a person to agree to a concept, but the social pressures of doing such a behavior may limit them from doing it (Andreasen, 1995). One example of this problem within the environmental field is public transportation. Environmental groups have held many campaigns explaining the benefits of public transportation. Many commuters admit to understanding that public transportation helps air quality and traffic control. Despite this, however, thousands of commuters still drive on congested streets into cities (Mackenzie-Mohr and Smith, 1999). In this case, knowing that taking a bus is more eco-friendly does not outweigh the social stigmas that come from it. Social marketers would address this problem by making people *want* to take the bus, not just making them aware that it is a good choice.

Just as Folgers Crystals can use poignant images of families laughing together to advertise nothing more than coffee, so then can the environmental movement utilize similar tactics to increase recycling participation. One example from the environmental movement is the anti-litter campaigns of the 70s and early 80s. There, an American Indian is seen picking up litter from a speeding car and letting one tear fall from his eye. This campaign was not designed to sell any product, and does not give a particularly rational argument for not littering. Instead, it plays on the emotions of guilt and anger, and encourages proper litter disposal through them. There are three key components to social marketing: 1. Communications appeal to a specific audience. 2. Communications are appropriate to educational and literacy levels and cultural norms of audience. 3. Communications incorporate “behavior changing tools.” Before discussing behavior changing tools in greater detail, let’s look at the first three components briefly (Andreasen, 1995).

Despite the fact that certain environmental issues affect everybody, we must understand that people perceive these issues differently. Each audience responds to different communications. In commercial and social marketing, each demographic often gets messages tailored specifically to them. Using the cultural norms of each targeted demographic, the social marketer may have several different communications going out to the different audiences receiving them. Ads appearing in the New York Times can be text heavy and complex, hoping

to appeal to a largely college educated audience. Rather than a catchy slogan, these ads might follow precise arguments to prove a point. On the other end, the very same issue may be presented to a lower literacy audience with simpler text or comparatively more images and slogans. Along with these techniques, social marketing communications employ behavior changing tools. These tools are simply applications of psychological models. We will study two such techniques in greater detail.

*Principles of Social Marketing*

- L Targeted to specific audience*
- L Appropriate to culture and literacy level*
- L Incorporates Behavior changing tools*
- L Limited copy reinforced repeatedly*

**Applications of Social Marketing.**

Robert Cialdini and several other social psychologists have shed light on a phenomenon that marketers have known for years: commitment building. Individuals are more likely to comply with a behavior if they commit to doing so. At first, this doesn't seem shocking, since people would more commit to something they were willing to do to begin with. However, a study in 1966 by Freedman and Fraser has proven just how effective commitment-building can be. They took two large, demographically similar neighborhoods and put the commitment theory to the test. A researcher posed as a volunteer in one of the neighborhoods. He went door to door and asked residents if they would be willing to put a small (3x3 inch) sticker on their mailboxes which read "be a safe driver." The other group received no such request. Because it was small and unoffensive, most everyone in the group agreed to display the sticker. Two weeks later, residents in both groups were asked to display a large billboard in their front yards. The billboard was ugly and poorly lettered, reading "Drive Carefully" in capital letters. In the group without any prior contact, about 83% refused to put the sign up. In the group who agreed to the smaller sign, however, an astonishing 76% of the residents *agreed* to have this ugly billboard in their yards. Freedman and Fraser account for this difference with commitment.

"What may occur is a change in the person's feelings about getting involved or taking action. Once he has agreed to a request, he may become, in his eyes, the kind of person who does this

sort of thing...who cooperates with good causes.” Simply put, people change to fit their actions as much their actions change to fit them. What’s even more astonishing is that the same significant difference occurred when, instead of getting a small “be a safe driver” sticker, residents signed a petition to “keep California beautiful.” This has little or nothing to do with driving safe, yet residents who signed the petition were twice as likely to agree to put the drive carefully sign on their lawns. Again, those residents found themselves agreeing to something large because they felt it was in their nature (“I signed that petition two weeks ago, I guess I’m just a giving person. Sure, I’ll put up the sign.”).

A job of the social marketer is to capitalize on this attitude change and use it encourage behavior change. For example, Smokey the Bear and his famous slogan do just that. “Only *you* can prevent forest fires.” Here, there isn’t even an initial commitment, just the implication of one. You haven’t agreed to do anything about forest fires, but Smokey still puts you in charge of preventing them. The mental process at work here is that “if the bear is targeting *me* specifically, it must be for a reason. Maybe it’s because of the backpacking trips I go on from time to time. I guess I *am* the kind of person who practices fire prevention. I better keep up the good work.” It may seem funny, but Smokey’s slogan has been amazingly effective in fire prevention.

Another form of social marketing common to environmental communications is using community norms to affect behavior. People have an inherent desire to fit in with their behaviors and actions. Examples of this are everywhere in our society. When people all around you give money to a Salvation Army volunteer on the street, you are more likely to do so. When people all around you throw a “daily specials” coupon on the floor of the grocery store, you are more likely to do so as well. Social marketers work to create a norm of sustainability in the community. If just keeping an area clean helps prevent littering, imagine what seeing people just like you not littering could do. Because of that, many anti-litter or pro-recycling campaigns focus on creating a norm, something like this: “Your entire community is recycling. Everyone knows how good it is for the environment. Shouldn’t you?” Again, this would seem trivial if not so effective.



## **Part II. Study Design.**

Given that social marketing is becoming widespread in the communication of environmental messages, I sought to determine, using a case-control model, how much more effective (if at all) social marketing strategies could be than regulations or traditional environmental communication for increasing recycling participation. Ideally, testing various different forms of communication would allow me to determine a more cost effective and results driven strategy possible. This section explains the methodology used in this case-control study. The design relies on three assumptions listed here. 1. Information is universally available. Before and during the study, students could easily attain the recycling list given to them at the beginning of the school year, available on the web, and posted in every trash room on campus. 2. Students want to do the right thing. If recycling were easy and convenient, students would act in the interest of resource conservation. 3. Universes are independent. Because each group of students in the study received a different communication, it was important that groups did not communicate with other groups. For the purpose of this study, we assume that groups are independent of one another, and don't discuss the recycling communications they receive (even within a dorm).

### **Methods Overview.**

Early in the Fall Semester, I divided a large dormitory on the Brown University campus into four groups. Each group received a new recycling bin along with a different communication about recycling on Brown's campus. Group 1 received a traditional environmental communication, telling them only what to recycle. Group 2 received a regulatory message requiring them to recycle and threatening monitoring. Group 3 received a social marketing message which employed the commitment building strategy. A final group, Group 4, received another social marketing message, which used appeals to conscience and norms. A baseline survey was given by email at the beginning of the study to determine the attitudes and behaviors of students before any communications were given out.

After the communications were sent, I recorded ethnographic observations on each floor, looking to see how students were using their bins. The second phase of communications were sent out in February. At this point, every student received a letter asking them to print out a recycling sign

and put it on their door. Again, I recorded ethnographic observations on each floor and counted the number of signs each floor had actually posted on their doors. A week later, the final survey, resembling the baseline survey but focused more toward recycling, was emailed to all students on all floors. This data was compared with the baseline survey to detect changes in attitude and behavior on each floor. Finally, the survey asked students to volunteer for a focus group to discuss these issues. I pulled out themes from this hour-long focus group and triangulated this data with the more quantitative data from the survey. Each facet of this study will be discussed in more detail below.

Date	Communication or Evaluation	Medium
11.13.2000	Baseline Survey	email (by counselors)
11.29.2000	Tailored Letters	email (by counselors)
11.29.2000	New Bins along with basic recycling information	delivered to each room in person
12.15.2000	Ethnographic observation and bin counting	in person
02.(13 and 20).2001	Commitment Letter (and reminder email on 20th)	email (by me)
02.21.2001	Observation to count letters on doors	in person
03.02.2001	Final Survey	email (by me)
03.17.2001	Focus Group	in person

Table 2: Timetable of Communications and Evaluation.

### Site Selection.

In order to study the effects of the experimental communications, all factors in the test sites must be relatively equal. This meant that the most ideal dormitory would be one with four symmetrical floors. Emery-Woolley proved to be the most effective site for several reasons.

§ All four floors contain the same floor layout and therefore establish further control in the study. Each floor has its own “unit” with separate counselors for each floor.<sup>3</sup>

---

<sup>3</sup>All First-Year dorms are divided into units, which contain 3 counselors and about 40 students each.

- § The trash rooms are in the same location on each floor. This controls for differences in trash room proximity which may encourage certain floors to recycle more.
- § The dormitory has a sizable population, one which could yield significant results.
- § Both Emery and Woolley are slated for renovations and were supposed to be getting new recycling bins. These bins were then distributed to the students along with the different communications.

Each floor would then receive a specific message about recycling, and it would be unique for that floor. This prevents (as much as possible) discussion among populations about their respective communications.

### **Baseline Survey.**

Each population (floor) contains approximately 54 students.<sup>4</sup> Anomalies in terms of previous knowledge would easily skew the data. If, for example, a group of students on the fourth floor happened to be involved more in environmental studies, then we could mistakenly attribute their additional recycling to the communication for that floor. Thus, a baseline survey was designed and sent by email with hard copies available to 214 students in Emery-Woolley. Each floor received the surveys at the same time. The survey contained questions regarding students' environmental habits and beliefs. A separate section was devoted to recycling. Questions dealt with specific knowledge about recycling and also asked students to rate their opinions on various environmental issues (see appendix).

### **Tailored Letters.**

The first set of tailored messages were sent out on the 29<sup>th</sup> of November 2000, about two weeks after the baseline survey was sent out. This was also the day that all students in the dorm received their new recycling bins with basic information on what to recycle (this information is comparable to a traditional environmental communication). The tailored messages varied for each floor. Full text of these messages is located in the appendix. Floor 1 received the "community letter," the 2<sup>nd</sup> floor received the "commitment letter," the 3<sup>rd</sup> floor received the control, which stated only that Facilities Management delivered the bins along with the traditional communication, and the 4<sup>th</sup> floor received the regulatory message, citing an actual

---

<sup>4</sup>According to Residential Life Data (Grapevine, 2000)

regulation from the Rhode Island Department of Environmental Management,<sup>5</sup> which mandated recycling in all commercial residences in the state.

The next tailored message was a commitment building test based on Freedman and Fraser's "drive carefully" experiment. On the 12<sup>th</sup> of February, every student in all four groups received an email asking them to print out an attached document, containing information on what to recycle, and put it on their doors. Again, refer to the full text of this document in the appendix.

### **Dissemination of Messages.**

All messages were delivered by email, with the exception of the bins themselves and the informative sign with each of them. However, in order to manage the large number of emails to be sent out, the majority of the communications were delivered through the counselors on each floor. There were several advantages to this. The first is that there are separate counselors for each floor and so one counselor can manage a given floor. Whatever responses or questions generated by the emails could be collected and sent by a different counselor for each floor. Second, the counselors were familiar with the students and could possibly garner a higher response rate on surveys because of this familiarity. The counselors distributed both the baseline survey and the first communications. I sent out the commitment test and final survey.

### **Ethnographic Observations.**

During the course of study, I recorded some basic ethnographic data on each of the floors. One measure was how many students on each floor still had a recycling bin after a certain period of time. I asked students who had bins in their room how they used those bins. I also probed to see if they had any specific opinions on the new bins or the recycling program. While discussing these issues, I looked to see how much recyclable material (if there was any) was correctly put in the bin. Some specific quotes given by students were recorded verbatim and broken up into themes by content.

### **Backlash Observations.**

Initially, this evaluative measure was not part of the study. For reasons outlined in greater detail in the findings section, I decided to set up an area in the basement of the dormitory

---

<sup>5</sup> RIDEM regulation # 12-070-003, September, 1996.

where students could return their bins, if they no longer wanted them. The area was divided such that students would put their bin under the sign for their floor. I counted the number of bins under each floor sign during my ethnographic observations on the floor.

### **Commitment Test.**

After the 2<sup>nd</sup> communication was sent out, I recorded the number of doors on each floor with signs on them. This data was then correlated with the findings of the focus group and surveys.

### **Final Survey Evaluation.**

This final survey focused only on recycling questions and was specifically designed to compare against the earlier questions of the baseline data (sent out on the 3<sup>rd</sup> of March 2001). All 214 participants received the same survey. It had 8 questions, 7 of which paralleled the baseline survey. Again, this survey was sent out by email. The results were compared to the results of the baseline survey and changes in attitude and behavior were looked at. To determine the analyze the survey data, I performed statistical analysis specifically looked for differences (statistical or otherwise) between certain answers on the baseline and final surveys.

### **Focus Group.**

The final question of the final survey asked students if they wanted to participate in a focus group about recycling and the letters they've received this semester. Focus groups generally contain anywhere from 4 to 10 subjects (Krueger, 1994) , and I hoped to get a group about that size. The students responding favorably to this question were asked to meet in the Emery-Woolley Lounge for one hour to discuss "issues about recycling."

The focus group discussion followed a protocol written to include several key issues regarding the recycling program. For example, the 6 participants were asked to discuss the effectiveness of email as a dissemination tool. They were then asked to read each of the communications and talk about how effective each one was. The full protocol is located in the appendix. The meeting itself was recorded on microcassette and notes were taken immediately proceeding the meeting. I then listened to the tape and took more detailed notes, this time recording quotes by themes that occurred throughout the meeting. This provided a third piece of data for *triangulation*. By using three distinct sources of data (baseline data, final survey data, and the focus group), I was able to more effectively draw conclusions. I began by finding out

what students already knew (the baseline survey). I then determined what they learned (the final survey and commitment test). Then, I was able to get insight into their feelings about the process (ethnographic observations and focus groups). After all this data was triangulated, I could then draw more conclusive themes from the data.

### **Part III. Findings**

This section will begin by addressing the baseline survey, then discuss some other the reactions to the new recycling bins. I will then discuss the commitment test's results, followed by the final survey. Finally, the focus group findings will be discussed by theme. Following the findings section will be a triangulation of these results. Here, I will also use these findings to make some implication and recommendations for Facilities Management to implement.

#### **Baseline Data.**

The reply to the baseline survey was greatest during the first 12 hours after the survey was sent, though responses continued to come in for roughly 3 days. In total, 70 students replied to the survey. 19 students replied from the First, Third, and Fourth floor, and only 13 from the Second. There is no conceivable reason for the 2<sup>nd</sup> floor's fewer responses, but the difference is not significant. While the survey data was looked at individually for each floor, no statistical variance was noted between floors.<sup>6</sup>

According to survey responses students throughout the dormitory seemed to care a good deal about the environment. When asked about the importance of various environmental issues, students gave an average reply score of 1.7, meaning they felt the issues were somewhere between "important" and "very important." When asked to rate these same issues, clean air and clean water seemed to be the most important to them (with 50% and 49% respectively citing them as one of the two most important environmental issues). Recycling, too, was cited by 31% of the students as one of the two most important environmental issues. The majority, 63 of 70 respondents (a full 90%), claimed to recycle in their dormitory. Not surprisingly, these individuals believed that recycling was a more important environmental issue (1.5 on a 5 point scale) than the 10% who did not recycle at all (2 on the 5 point scale). With this type of commitment to recycling in the beginning of the survey, one would assume that students were dedicated to recycling. Most (59%) claimed to take their trash and recycling out once a week.

When it came to evaluating actual knowledge of the recycling program, students scored, on average, below a standard passing mark. The students were given 13 items taken from the recycling posters in every trash room on campus and asked whether or not these items were

---

<sup>6</sup>We would expect this, because the student composition of the floors is random.

recyclable. A total average revealed that the students were approximately 52% correct overall. Furthermore, a notable divide seemed to exist between *mixed containers* recyclables and *paper* recyclables. Mixed container items, such as yogurt containers, colored glass, and tin cans are all recyclable, and 60% of the students knew this. However, this average is tempered by only 44% correct answers in mixed paper category, which includes carbon paper, napkins, and cereal boxes. Comparing these percentages with the recycling importance data above, there appears to be a gap between what people think is important (or what they say is important) and what they actually do to carry out this opinion.

Of the students who did not recycle, only one of them actually had a bin for recycling. However, even among the 56 students who had bins for recycling, there seemed to be consensus that a new bin would be useful (1.5 on a 5 point scale with 1 being “very likely to use”). This question did not address what a new bin might look like, only that it was “designed for specifically for recycling.”

Finally, students were asked what, if any, additional campaigns the University should adopt to increase recycling, given a 5 point scale where 1 means “strongly agree” and 5 “strongly disagree.” Students responded with the following rankings:

1. The University should strictly regulate and enforce on-campus recycling behavior. **2.9**
2. The University should encourage recycling with media campaigns. **1.9**
3. The University should establish campus-wide recycling events in which people recycle as much as they can during a given day. **2.5**
4. The University should only provide information on what to recycle. **3.1**

Using an Analysis Of Variables (ANOVA), I found a significant difference in preference for these options, the preference for encouragement over control was the highest differential.<sup>7</sup>

Thus, at this point I had found that students are in favor of some kind of additional campaign beyond just making recycling information available. A hypothesis could be made that tailored messages will have more of an effect than the control messages. If the opinion of the students translates into what is most effective, a letter encouraging students to recycle and nothing more should be more effective than a regulatory letter as well.

## Rebellion!

The following section describes my observations in relation to students returning their bins to the basement as discussed briefly in the Methods section. The new bins had been distributed on a Wednesday. Many students were not in their rooms at the time of the distribution, and the bins were left outside of their rooms. Four days later, on Sunday, many of the bins were still remaining outside of the rooms. By the middle of the next week, some bins were still in the hall. On Thursday, one of the counselors in charge of sending out the communications for the 4<sup>th</sup> floor (the regulatory floor) sent me the following email:

Hey Jeff,

I have a few questions for you. First of all, a bunch of the students have not brought the new recycling bins into their rooms, they have left them out in the hall. Some of them have indicated that they don't want them because they are too big and want to know where they can put them.

Others are using the bins, but leaving them in the hallway. We're having fire inspections this week, and I'm afraid that the fire marshal might object to the bins in the hall...

What should I tell the kids? They're asking me questions.

Obviously, students who stated they would be likely to use the new bins had changed their mind or were disappointed by the size of the bins. Upon receiving this email, I quickly set aside a small area of the basement to collect any unwanted bins from students. Mounted on a wall was a sign explaining to students that any unwanted bin could be dropped off in this basement area under the appropriate floor number.

At first the turn-in was low. After 3 days, only one person had put their bin in the appropriate location by the wall. By the end of a week, however, several on all floors began to pile up. At the end of the second week, the following numbers were recorded:

---

<sup>7</sup>ANOVA test indicates that there is a .0001 chance that these numbers occurred by chance. For a full listing of the statistical evidence, see the appendix.

8 bins turned in from the first floor (the community floor), 5 bins from the 2<sup>nd</sup> (commitment) floor, 3 bins from the control floor, and 12 bins from the regulatory floor. A comparison of the regulatory floor with the control shows a significant difference in bins sent to the basement.<sup>8</sup>

### **Ethnographic Observations.**

After so many students wanted to get rid of their bins, I had reason to make a round through the dorm and see how the bins were getting used and what people were saying about them. Because this involved going into people's rooms and looking at their trash, it was necessary that students were in their rooms. Further, this data was to be gathered without giving away anything about the study. Because of this, the data was slightly limited in scope and should be considered supplementary.

Many students on all four floors did not have green bins. Several indicated they had put them in the basement, though others said the bin was taken from them by Facilities Management. Apparently, if the bin was left outside and unused for 5 days, the bin was taken to the basement without being put in the appropriate floor location. Of the students who still had their bin, most used it for recycling paper on one side and cans and bottles on the other. Some indicated that they use it for trash on one side and recycling on the other. Several students, particularly on the 2<sup>nd</sup> floor (commitment), didn't seem to be using their bin for much of anything. Some left it in the side of the room, others used it as a television stand or chair.

### **Commitment Test.**

As stated in the Methods section, an email was sent out to all students asking them to put a poster up on their doors. The posters were available electronically and in hard copy. At first, the email achieved very little success. After 24 hours, only two students had put the poster up. The email was sent out again after 5 days, this time with slightly higher rates of success. After 11:00 on the 21<sup>th</sup> of February, the maximum distribution occurred:  
1<sup>st</sup> floor- 2 posters, 2<sup>nd</sup> floor- 2 posters, 3<sup>rd</sup> floor- 2 posters, 4<sup>th</sup> floor- 7 posters.

### **Final Survey.**

The survey was sent out on a Friday, and received 32 replies within 12 hours. On Sunday, the email was sent again and this time elicited an additional 31 replies, bring the total to

---

<sup>8</sup>This was determined by a two sampled T-test assuming equal variances.

63. Compared to the 70 of the baseline survey, the rate of return was almost identical (29% and 33% respectively).

The number of students claiming to recycle increased to 92% from the previous 90%, a non significant change. There was, however, a significant increase in the number of correct answers on the list of recyclable items. In the post survey, students correctly labeled recyclable and non recyclable items at a rate of 62%, a full 10% more than the baseline<sup>9</sup>. This number also contains a smaller divide between knowledge of paper recycling and mixed containers. Recall that the baseline data showed 44% and 60% respectively for these two commodities. This 16% divide was cut to just 5% in the post survey, where paper recycling knowledge was at 59% and mixed containers at 64%. This data also indicated that people were more confident in judging items not recyclable than recyclable. The highest rate of correct answers was that carbon paper was not recyclable (87%), followed by napkins at 75%, followed by pizza boxes at 72%. This seems to indicate that people are more likely to *not* recycle items when they are in doubt.

More students had their original white bins than the new green bins by this point in the study. The majority of students, therefore, must have either moved their bin to the basement, put it somewhere else, or had it taken by Facilities Management. Since a total of 28 bins had been put in the basement out of 214 students, we can surmise that several students removed their bins without putting them in the appropriate basement area. This possibly adds a new dimension to the regulatory floor who turned in the most bins to the basement. Rather than assuming that they were turned off by the letter and rebelling, we might assume that they were more apt to follow the directions of putting the bins in the proper area. This particular issue is not one that can easily be figured out with numbers alone. In total, people with green bins are neither more or less satisfied with them than those with the original white bin (2.3 and 2.2 respectively on a 5 point scale of satisfaction). Students who made or bought another bin for recycling were also only marginally happier with them (2.1). However, these numbers do not reflect the contempt that many students had for the larger green bins. Along with the survey, one student wrote: "I just want to add that the green recycling bins that we were given were just too big. My room is VERY small, and even though the 2 compartment design was better than the white bins, I could

---

<sup>9</sup>Because of the large variance, the significance level is .14 for these figures.

not keep a bin that big in my room. I felt like it was unfair to even expect me to do so.” Other students echoed this concern unprompted along with their surveys.

Some final analysis of the post survey yields more significant results concerning a question asked in the baseline survey: *In addition to providing information on what to recycle, the University should do which of the following?* Again, the four answers mimicked the study design, asking students to pick from regulations, encouragement, commitment building, and nothing (control). The ANOVA test proved significant in the same general pattern. The thought of doing nothing became even less favorable, dropping to 3.4 from 3.1. Encouragement still maintained a favorable approval at 2 from 1.9. Both commitment and regulation stayed the same at 2.5 and 3.0 respectively. F-tests indicated a strong preference for encouragement over nothing and over regulation.<sup>10</sup> The most significant variation between floors occurred in this question as well. Of the four options, the 4<sup>th</sup> floor was significantly more opposed to doing nothing to increase recycling.<sup>11</sup>

The floors did not vary significantly at the end of the study on any of the other questions. However, findings need not be statistical in nature, particularly with such easily accessible students. **Focus Group.**

After getting recruited by the survey, 6 students attended the focus group conducted in the lounge of Emery-Woolley. The protocol of the hour long meeting is located in the appendix of this paper. The following section is divided up into central topics and findings are listed as general themes supported by quotes from participants.

#### *Attitudes and behavior.*

Participants agreed that much of the knowledge they have about recycling came from home. They brought the ideas of they could and couldn't recycle to Brown and continued in that pattern. When they found that the system was different, many became discouraged and confused. One participant pointed out that this could be a reason that people aren't recycling here. Further, the students agreed that this might explain the divide between what was talked

---

<sup>10</sup>Both were significant to the .05 alpha level.

<sup>11</sup>Floors 1-4 varied at 3.3, 2.8, 3.2, 3.8 respectively, yielding a significance of .11, a number generally not accepted in statistical theory, but close nonetheless

about in the baseline survey and what was actually found. As one student put it, “people agree in principle, but when it comes to putting your beliefs into practice... well....”

*Information.*

When asked how to best get students recycling more, all students agreed that “information must be persistent” and constant throughout the semester. Some students suggested doing a skit during orientation, though most agreed that this may not work given the bulk of information during that time. One student suggested that information be “on each container when we got the room.” This would make it available for students whenever they needed it. People already know that recycling exists, they simply need to be convinced that it’s easy and quick..

*Dissemination.*

Participants were asked how they felt email worked in relation to other communication, and everyone agreed that email was an effective tool for communication. However, they felt it must be used “correctly.” One student pointed out that “there are tons of organizations that I get email from that I just delete.” This student stressed that redundancy in emails (like the crime report, or weekly reminders or updates) is what makes them ineffective. The email would need to be sporadic and only contain pertinent information. Others agreed, but were quick to say that email is much better than box slips. Another participant noted she gets “so many box slips that say ‘do this’, ‘do that’, ‘join this,’ or ‘join that,’” and she throws them all away before really reading them. With email, she continued, “I always read I get, because I don’t know what it’s going to say.” All the students corroborated this idea. Adding to that, another student said that messages should be in noticeable areas, like the bends of stairs.

*Regulatory letter.*

At this point in the discussion, I passed copies of the letters out to the participants and asked them to review the letters. I began with the “regulatory” letter. The group gave this letter mixed reviews. On one hand, everyone agreed that it makes you think about the issue. On the other, people knew it couldn’t be enforced and thought that if the University tried to do so, there would be a substantial recycling backlash (like speeding because there isn’t a cop in sight). The enforcement, they argued, would be impossible since some people don’t sort their trash until they get to the trash room. This seemed to be a large issue for these students.

*Commitment letter.*

Again came the issue of enforcement. Students were skeptical of the reward or what the actual contest was. “It doesn’t tell you what’s going to happen,” one student remarked. The idea that students should recycle as much as possible in a given time frame should come with a prize for the most recycled material.

*Community letter.*

“This just makes me laugh” was the first impression of one of the students. Other students agreed that this letter is condescending and “would only work if people didn’t know there was a recycling program at all.” The letter leaves out important details and “just seems silly.” One student vocally disagreed with the consensus by saying it was a very effective email. “It’s easy enough to dismiss, but short enough to read.” He argued that the gain of the letter may be marginal, but it would not create a backlash and certainly couldn’t hurt. Upon hearing this, other students agreed that, while silly, this letter was innocuous enough.

*Poster and other considerations.*

The poster is clear and informative, according to the students. The problem lies in its invariability. “I’ve become numb to it,” one student remarked. To effectively spread the message, there needs to be more creativity in it. “Run clever ads in the Herald... like the way they advertise for frat parties.” The students also seemed to think that more information about the big picture would be helpful. “I’d like to hear about the larger plan going on with recycling... where does it go, what proof is there that it’s getting used again?” “Another student concurred and suggested that the ads tell her what kind of new technology makes recycling more efficient.

A final thought was that peer pressure is very effective. If people knew or thought that everyone else is recycling in their dorm, they would be more apt to do so themselves. “Nobody wants to be the person left out.”

#### Part IV. Discussion and Recommendations

Many of the results discussed in this paper share common themes which can be seen in both quantitative and qualitative data. Below is a summary of these themes. Along with some of these themes, I've included some key recommendations for Facilities Management to consider when planning future recycling campaigns. These recommendations have been drawn directly from the findings above and represent the synthesis of both qualitative and quantitative research.

Λ **Students care about recycling and consider it an important issue.** However, these students I sampled do not necessarily know the correct parameters of the recycling program on Brown's campus. Most everyone says they recycle, but few recycle correctly.

Λ **Students want the University to take action about recycling.** In surveys before and after the study, the most significant finding was that students do not support the University in presenting only the information on what to recycle. Students want the message to be "persistent and constant" during the academic year.

T *Policy Recommendation: **Label all bins before the students arrive.** Currently, every incoming freshman receives a welcome packet from Brown with the recycling poster in it. Instead, that poster should be in place on the bins themselves. Because all freshman live in doubles, this will save paper and increase the likelihood of visibility.*

Λ **New recycling bins are important for those who have none, but do not greatly affect those with bins already.** Only one of the 7 students who did not recycle in the dormitories actually had a bin for recycling. While it isn't clear from the survey whether they got rid of their bins because they don't recycle or they don't recycle because they have no bins, the data indicates that students with bins recycle more than those who do not. Though many of the students stated that they would be very likely to use a new bin given to them, there was no change in bin satisfaction for those who had switched bins. This is likely because the added space of a second bin turned many people off. Green bins should only take the place of, rather than supplement, the white bins.

T *Policy Recommendation: **Exchange white bins with green bins during the summer.** This will cut down on confusion and make sure that students have only one*

*bin during the academic year. The green bins should not be placed in Perkins, where the rooms are small and students may get frustrated.*

**Λ Norms and Prompts are effective in dormitories.** This study has seen two examples of how norms and prompts work. The first occurred in during the Commitment test, when the 4<sup>th</sup> floor had more posters up than any other floor. Initially, this data seems startling particularly because Freedman and Fraser’s research would point to the commitment floor (floor 2) to have the most posters up. However, it is important to recognize the pattern of posters on each floor. On each of the first 3 floors, the two posters that were up were within 3 rooms of one another. This type of clustering implies that peer pressure, prompting, and norms were all at work here. On the 4th floor, where the largest distribution occurred, there were only 3 clusters of contiguous posters. Such data may suggest that establishing community “models,” essentially students who are willing to learn more information and actively engage other students in the issue of recycling, might be a helpful way of jump-starting these clusters.

The second example of prompts and models comes from the focus group. All students in the group stated that if their was some way of showing a model recycling behavior, it would be more likely to catch on. Specifically, students seem to indicate that peer pressure would be an big motivator for them to recycle. One student stated that if “you knew you were the only one on the floor who doesn’t recycle, you would be more likely to.”

**T** *Policy Recommendation: Establish “Dorm Leaders” throughout campus. Through the counseling program, one or two students should be labeled as dorm leaders. These students would simply learn the recycling information thoroughly and serve as a resource for students with questions. They would also monitor the trash room and note specific problems (i.e. “Nobody seems to know that Stonyfield Yogurt containers can be recycled. I should put a sign up!”) These Dorm Leaders could actually be paid a small amount of money based upon*

**Λ Email can work in moderation.** Students get bombarded from all sides with box slips, and email is a paperless way of spreading the message. Too many emails, or very similar

emails will cause students to delete them immediately. Students claim they do this with the weekly crime report.

T *Policy Recommendation: **Incorporate email into communications.** No more than twice a semester, Facilities should email the student body with some of the information described above. Perhaps an explanation (in broad terms) of our contract with Waste Management would provide students with an economic incentive for recycling. Each month, the per ton prices of all our recyclable grades are published. If students understood these economic benefits, they could more fairly decide how valuable recycling is.*

Λ **Information should be interesting and varied.** The survey data suggests that the information currently around campus has not been internalized. Focus group participants stated the they “become numb” to the same poster over and over again. Instead, the poster should be slightly varied to fit different situations. Also, students seemed interested in the idea of knowing where the recycling goes and how it gets used. This validates the process of recycling.

T *Policy Recommendation: **Establish feedback mechanisms.** Students want to know if their recycling efforts amount to anything. By explaining where their trash goes and how much they recycle in a given month, students will be able to see their improvements and note the affect of certain occasions such as Spring Weekend or Graduation*

With these recommendations, Brown’s recycling program will continue to expand in participation and scope. Let us return to the question at the beginning of the study: “*Can Brown University’s recycling program incorporate a social marketing strategy?*” The above recommendations suggest that it can, and that such a program would be beneficial to Brown, its student body, and the surrounding ecosystems for years to come.

## Works Cited

Andraesen, Alan. Marketing Social Change. San Francisco: Jossey-Bass Publishers, 1995.

Burn, S., and Oskamp, S. (1986) *Increasing Community Recycling with Persuasive Communication and Public Commitment*. *Journal of Applied Social Psychology*, 16, 29-41.

Cialdini, Robert B. Influence: The Psychology of Persuasion. New York: William Morrow Co, 1984.

Gellar, E., Chaffee, J., & Ingram, R. (1975) *Promoting Paper Recycling on a College Campus*. *Journal of Environmental Systems*, 5, 39-57.

Krueger, Richard. Focus Groups: A Practical Guide for Applied Research. California: Sage Publications, c.1994

Mckenzie-Mohr, D. and Smith, W. Fostering Sustainable Behavior. BC, Canada: New Society Publishers, 1999.

Zarcadoolas, Christina, and Hunter, Lori. *"Talking Trash"* An unpublished manuscript, 1994.

Zimbardo, Philip G, and Lieppe, M.R. The Psychology of Attitude Change and Social Influence. Philadelphia: Temple University Press, 1991.

## Appendix A Statistics

This is a small sample of the two key statistical tests run in the course of the analysis. These tests were used on multiple occasions, though only two samples are shown here.

SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
Row 1	69	200	2.898551	1.151321		
Row 2	69	133	1.927536	0.597613		
Row 3	69	177	2.565217	1.249361		
Row 4	70	221	3.157143	1.641615		
ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	58.74343	3	19.58114	16.85499	4.5E-10	2.63767
Within Groups	317.1555	273	1.161742			
Total	375.8989	276				

Analysis of variables for baseline survey, question 11. Note that value is significant to .0001, meaning that there is significant differences in opinion. The same test was run for the post survey data and similar significant results were yielded.

F-Test Two-Sample for Variances		
	<i>Variable 1</i>	<i>Variable 2</i>
Mean	1.95082	3.42623
Variance	0.880874	1.415301
Observations	61	61
df	60	60
F	0.622394	
P(F<=f) one-tail	0.034346	
F Critical one-tail	0.651757	

A sample F-Test for Encouragement vs. Nothing in the post survey question 7. These were run for all the permutations of data sets.



## Appendix B Baseline Survey

Dear Student,

Facilities Management and the Center for Environmental Studies have recently begun a survey to assess environmental attitudes on campus. You and students in various different dormitories have been asked to respond. The survey is very short and should only take 3-5 minutes. Your name will in no way be associated with your responses. Please take the time to fill this survey out. Scroll down to begin.

Dorm Name:

Floor Number:

1. How important are the following issues to having a clean environment in our country today?

1 Very Important    2 Important    3 Somewhat Important    4 Not Very Important    5 Not Important At All

- \_\_\_\_\_ Addressing Clean Water
- \_\_\_\_\_ Addressing Clean Air
- \_\_\_\_\_ Addressing Global Warming
- \_\_\_\_\_ Addressing Ozone Depletion
- \_\_\_\_\_ Addressing Toxic Waste
- \_\_\_\_\_ Other (please name): \_\_\_\_\_

2. Which two of the following environmental issues are the most important in our country today?

- \_\_\_\_\_ Using Solar Power or Other Renewable Energy
- \_\_\_\_\_ Having Clean Water
- \_\_\_\_\_ Having Clean Air
- \_\_\_\_\_ Curbing Global Warming
- \_\_\_\_\_ Increasing Recycling Efforts
- \_\_\_\_\_ Cleaning Up Toxic Waste
- \_\_\_\_\_ Other (please name): \_\_\_\_\_

35. When traveling to destinations within the state of Rhode Island, how likely are you to take public transportation (RIPTA)? Circle One:

1 very likely    2 likely    3 somewhat likely    4 not very likely    5 not likely at all

4. Do you think the state public transportation system (RIPTA) has made a dramatic impact on the environment in Rhode Island? Circle One:

Yes    No    Don't Know

These next six questions deal with personal recycling habits in your dormitory.

5. Do you personally recycle in your dormitory?

Yes    No

6. How important do you think recycling is? Circle one:

1 Very Important    2 Important    3 Somewhat Important    4 Not Very Important    5 Not Important At All

7. How often do you take your trash and/or recycling to the trash room per month?

- \_\_\_\_\_ twice a week
- \_\_\_\_\_ once a week
- \_\_\_\_\_ twice a month
- \_\_\_\_\_ once a month

\_\_\_ less than once a month

8. Please put a check next to the items that recyclable at Brown.

- a. \_\_\_ Yogurt containers
- b. \_\_\_ Carbon Paper
- c. \_\_\_ Envelopes with cellophane windows
- d. \_\_\_ Colored Glass
- e. \_\_\_ Shampoo Bottles
- f. \_\_\_ Glossy catalogs
- g. \_\_\_ Napkins
- h. \_\_\_ Computer boxes
- i. \_\_\_ Spiral notebooks
- j. \_\_\_ Soft-cover books
- k. \_\_\_ Pizza boxes
- l. \_\_\_ Tin cans
- m. \_\_\_ Cereal boxes

9. Do you have a bin designed for recycling?

Yes    No

10. If you were given new bins designed for specifically for keeping recyclable materials, how likely would you be to use them on regular basis? Circle or check one:

1 very likely    2 likely    3 somewhat likely    4 not very likely    5 not likely at all

11. In addition to providing information on what to recycle, the University should do which of the following? Please use the following scale for each of the next four sentences.

1 strongly agree    2 agree    3 undecided    4 disagree    5 strongly disagree

\_\_\_ The University should strictly regulate and enforce on-campus recycling behavior.

\_\_\_ The University should encourage recycling with media campaigns

\_\_\_ The University should establish campus-wide recycling events in which people recycle as much as they can during a given day.

\_\_\_ The University should only provide information on what to recycle.

12. Are you involved in any of the environmental groups on campus?

Yes    No

13. (If Yes) Please check which groups:

Brown Environmental Coalition

Sierra Student Coalition

Brown Is Green

Brown Animal Rights Coalition

River of Words

Other (please name): \_\_\_\_\_

## Appendix C Final Survey

Dorm Name:

Floor Number:

1. Do you personally recycle in your dormitory?

Yes      No

2. How important do you think recycling is? Circle one:

1 Very Important    2 Important    3 Somewhat Important    4 Not Very Important    5 Not Important At All

3. How often do you take your trash and/or recycling to the trash room per month?

- \_\_\_ twice a week
- \_\_\_ once a week
- \_\_\_ twice a month
- \_\_\_ once a month
- \_\_\_ less than once a month

4. Please put a check next to the items that recyclable at Brown.

- a. \_\_\_ Yogurt containers
- b. \_\_\_ Carbon Paper
- c. \_\_\_ Envelopes with cellophane windows
- d. \_\_\_ Colored Glass
- e. \_\_\_ Shampoo Bottles
- f. \_\_\_ Glossy catalogs
- g. \_\_\_ Napkins
- h. \_\_\_ Computer boxes
- i. \_\_\_ Spiral notebooks
- j. \_\_\_ Soft-cover books
- k. \_\_\_ Pizza boxes
- l. \_\_\_ Tin cans
- m. \_\_\_ Cereal boxes

5. Which of the these recycling bins do you have in your room currently (check all that apply)?

- \_\_\_ White 5-Gallon Bin
- \_\_\_ Green 2-Container Bin
- \_\_\_ Personally Made or Store-Bought Bin
- \_\_\_ None of the Above

6. How satisfied are you with the bin you currently use for recycling?

1 very satisfied    2 satisfied    3 somewhat satisfied    4 not very satisfied    5 not satisfied at all

7. In addition to providing information on what to recycle, the University should do which of the following? Please use the following scale for each of the next four sentences.

1 strongly agree    2 agree    3 undecided    4 disagree    5 strongly disagree

The University should strictly regulate and enforce on-campus recycling behavior.

The University should encourage recycling with media campaigns

The University should establish campus-wide recycling events in which people recycle as much as they can during a given day.

The University should only provide information on what to recycle.

8. We'd like to hear more of your comments about recycling and recycling communication on campus. In the next week, we will be organizing a voluntary 1-hour focus group for students to discuss and help Facilities Management plan for the future.

May we contact you to invite you to participate in one of the sessions?

If Yes, please fill out below:

Name \_\_\_\_\_ Email \_\_\_\_\_ Phone \_\_\_\_\_



## Appendix D

### Focus Group Protocol.

#### **Introduction.**

1. Let's quickly go around the table and say our names and concentrations. [go around the table]

1a. We're going to be talking a lot about Brown's recycling program in the next hour. Before we get into that, I'd like to know if your home town has recycling. Was it a good program? Did your family recycle?

#### **Recycling and Communication Background.**

:We did some surveys in your dorm throughout this semester and found some interesting information out. The people in your dorm who filled out the survey cited clean air and clean water as central concerns. They also said that recycling was very important. However, on the same survey, students got an average of 60% incorrect when asked if certain items are recyclable. Why do you think that is?

2. The University wants to see as much material get recycled as possible. What types of issues should the University address to help increase recycling in dormitories?

3. You've mentioned several issues. Now think about how recycling information is given out. How important do you think this is compared to the other issues mentioned?

[if communication was mentioned in #2, this question should be read: *One of the issues you mentioned was communication campaigns for recycling. How important do you think this is compared to the other issues mentioned?*]

#### **Message and Communication Dissemination.**

4. Do you recall any messages or information about recycling in the past two semesters? What types of messages do you recall?

5. How did you receive these messages? For example, did you see them in the trash room, did some tell you information, were they sent to you personally, etc?

6. The University would like to use less paper when trying to disseminate recycling messages. Some possibilities are to use email, hold information sessions, or appoint "dorm leaders" who helped explain what to recycle and why it's important. What do you think about these ideas? Which of these ideas do you think would be effective and which would not?

#### **Social Marketing.**

7. I'd like to switch gears now and talk about specific messages that have been sent out in the past few months by email. Facilities Management is deciding how best to communicate the recycling message to students and has experimented with four letters. I'm going to pass out 3 of these letters now. Please take a minute to read them and then we can discuss your reactions to them.

A. Let's start with the letter labeled "Regulatory." What is your reaction to the letter? Does it make you want to recycle more in your dorm?

B. Now we'll talk about the "Community" letter.

C. The "Commitment" letter asks you to do something small just to get you into the habit of recycling. Is this an effective tactic? Did any of you get this letter and follow its instructions?

D. The final idea is for Facilities Management to try a more "laissez faire" approach and provide only information. How much do you think students will recycle under such an approach?

8. Of these four approaches, which would make you the most likely to recycle?

#### **Conclusions and Summary.**

9. So let me review some of the key points I've heard in the last hour. [Summarize points from 6 and 7.] Is there anything you would change or add to that?

10. Our goal is to find the most effective communication strategy for increasing recycling. Have we missed anything?

11. Do you have any advice for us?



**Appendix E**  
Tailored Letters.

*Regulatory Letter*

\_\_\_\_\_, from Facilities Management, asked me to forward this to you. Please read the whole thing.  
Thanks, \_\_\_\_\_

In September of 1996, the Rhode Island Department of Environmental Management approved a **regulation requiring** all commercial and non-municipal residential units to incorporate recycling into their solid waste stream (Regulation # 12-070-003). In part, this regulation stated that **periodic internal audits** are to be conducted to insure that people are recycling as much as possible. At random, the 2<sup>nd</sup> floor of Emery and Woolley has been chosen as an audit site. We ask that all students recycle as much as possible effective immediately. **Occasional monitoring will take place** in the dormitory trash room and in specific rooms. Rooms will be entered only with your cooperation and permission.

*Commitment Letter*

\_\_\_\_\_, from Facilities Management, asked me to forward this to you.. Please read the whole thing.  
Thanks, \_\_\_\_\_.

Last week, you and other students in your dorm were given new containers for recycling. We know that students at Brown want to be environmentally friendly, and we're writing to let you know how you can **become more involved**. To show Facilities Management that there is a commitment to recycling, we are asking everyone on the **4<sup>th</sup> floor** of Emery and Woolley to recycle as much as they possibly can in the **next 24 hours**. Please help by doing your small part in the next 24 hours. I'm sure you'll feel good about it.

*Community Letter*

\_\_\_\_\_, from the Facilities Management, asked me to forward this to you. Please read the whole thing. Thanks, \_\_\_\_\_

I'm writing this message to you about recycling. Right now, the US consumes more, and throws away more than any other country in the world. These days, we should all **be concerned** about how we can make our environment cleaner for ourselves and future generations. Some people don't know that recycling can be one of the **best things** you do for the environment. In fact, new technology has made recycling even more efficient. So I'd simply like to remind everyone to recycle as much as they can in their dormitories. It's the **right thing to do**. Thanks!

*Control Letter*

\_\_\_\_\_, from the Facilities Management, asked me to forward this to you. Please read the whole thing. Thanks,

This is a message to let you know that a student-worker of Facilities Management distributed bins to all of Emery and Woolley on Wednesday, November 29th. Each room, both singles and doubles, were given one new bins. Thank you for your cooperation.