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Executive Summary

This Project was done in collaboration with Julie Rosenbach, the Bates College Sustainability Manager. The focus was on determining how to best increase recycling rates on campus through determining what current barriers and norms that limit the amount of recycling at Bates exist. The recycling rate at Bates is currently around 30-40% according to the data provided by Julie. The goal is to get this rate up to 50% over the next few years. The overall goal of our project was to research barriers to improving our recycling rate and recommend strategies to remove these barriers.

The study of social norms is one critical aspect of this study. Social norms are defined as by Ann Carlson as "non-legal rules or obligations that certain individuals feel compelled to follow despite the lack of formal legal sanctions, whether because defiance would subject them to sanctions from others or because they would feel guilty for failing to conform to the norm" (Carlson, 2001, p. 1238). Therefore, the social norms could influence the Bates community's recycling habits because they feel obligated to recycle more or will feel guilty if they do not. Our project studies the social norms and barriers that are already in place at Bates.

One problem Bates faces right now is the miscommunication between facilities and the Sustainability Office as to where the recycling goes and how much of each relevant material gets recycled. In addition, there is not much information regarding what is being measured and how accurate these measurements are. The information that has been recorded in the past is not consistent and does not accurately reflect Bates' recycling rate. Therefore, the current recycling rate is a tentative percentage because there is no concrete information on recycling at Bates. For this reason, one of the long-term goals is to create a better, more precise system for facilities to accurately and efficiently record data on the amount of trash and recycling produced by Bates.

Another problem at Bates is that there is little to no uniformity between the trash and recycling bins around campus (See Appendix A for photos). During our discussion with representatives from other NESCAC schools, we found that the common denominator in starting to improve recycling rates was to distribute the same style, color, and size bins around campus.

The primary results of this project indicate that there needs to be a unified recycling system at Bates. In addition, there needs to be more education about what can be recycled. This will require more effective outreach to ensure that all the students are informed.

The next steps for this project would be to create a better platform of communication between facilities and the Sustainability Office to ensure both groups are on the same page, to make sure all the bins around campus are uniform in size and color, and to create a system where social norms are catered towards Bates students wanting to recycle.

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Introduction

Recycling at Bates

Recycling awareness and action has been lacking at Bates College. This is due in part to the current recycling system. In this study we will work to analyze recycling habits, determine why recycling rates are currently fairly low, and propose a plan to increase recycling. At the start of 2014 Bates recycled about 30-40% of all recyclable materials. Julie Rosenbach, the Manager of Sustainability at Bates, would like to increase this rate to around 50%. Using a pragmatic approach of community-based work with Bates students, faculty, and staff, we have "[identified] the barriers and benefits associated with the selected behavior; [designed] a strategy that utilizes behavior-change tools to address these barriers and benefits" (McKenzie-Mohr, 2010, p. 8). This information will be used to "[pilot] the strategy with a small segment of a community; and finally; [evaluate] the impact of the program once it has been implemented broadly" (McKenzie-Mohr, 2010, p. 8). As a group, we will mirror this pragmatic approach to increase recycling tendencies at Bates to match and/or surpass this of our competitors at other New England Small Collegiate Schools.

History of US Recycling

The practice of recycling has been around for ages, and the very beginning is hard to identify, but there seemed to be a particular surge of recycling efforts around WWII (Benefits of Recycling, 2014). Prior to the war and excessive commercial production, recycling was more of a common household practice. As America began to industrialize and items became more readily available with the development of new technology, it wasn't as necessary to reuse and recycle household goods. It was much easier to simply dispose of things than to go out of the way to recycle (All-Recycling-Facts.com). Around the time of the war, the American culture became more frugal, so citizens were encouraged to recycle scrap metal that could be repurposed into war materials. Targeting the patriotism of Americans, recycling became a better-known concept and very widely used practice. However, after the war was over recycling again dropped off the map (Benefits of Recycling, 2014). There was then another increase in recycling around the 60s and 70s when the environmental movement was gaining momentum and becoming more of a political statement (City of Orem). As overconsumption and the excess production of goods continued to grow, people needed an easier way to recycle. Drop-off and curbside programs began to arise to aid people in their recycling (Institute for Local Self Reliance). Drop-off programs provided a space where people could take their recyclables and discard them in individual bins and curbside programs gave people the option to leave their waste outside to be picked up. The implementation of these programs across the country began to make recycling more accessible and aided in increasing recycling rates and awareness.

Today, recycling has drastically increased and come to the forefront of the environmental and sustainability movement. The current recycling rate of the US seems to be between 23.8% and 32% compared to about 9.6% in 1980 (Waste Atlas, NRDC, The Economist). Recycling is becoming easier for people as new practices such as single-stream recycling and recycling drop-off programs with bottle returns become more widely spread. Despite the increasing awareness of and participation in recycling, our waste is still increasing. According to the Natural Resources Defense Council, we produce 250 million tons of municipal waste each

year, in addition to 15 billion tons of industrial waste (NRDC). Recycling has grown immensely over the past few decades, but we still have a long way to go to reduce our waste and increase recycling to make an impact on the growing environmental concerns of our world.

Recycling in Maine

Recycling in Maine has been a prominent problem for many years, as the state has recently struggled to increase recycling rates. In fact, "recycling in Maine has experienced virtually no growth in the last decade" (Recycling in Maine Municipalities) and the rates have declined since 2011 (Bangor Daily News, 2013). As of 2006, recycling rates were around 36% but Maine has struggled to make this number grow. According to an article published in the Bangor Daily News, Maine is rapidly running out of landfill space. It was predicted that by 2025, landfill space here will be totally overused. One solution to this problem is to increase the recycling rates. The state's goal is to get to 50% in the very near future. The article stated that Maine officials wanted to reach this goal by January of last year, but it seems that these rates are at a stand still. Many counties in Maine are working to increase their own rates through single-stream recycling programs and other initiatives, but the state as a whole still struggles to increase the amount of recycling. (Bangor Daily News, 2013)

Part of the low recycling rate issue has to do with a lack of perceived incentives. However, the Portland area has shown that there are definitely monetary incentives for recycling. In 2010, the city of Portland recycled about 5,358 tons of recyclable material. With a cost of $88 to dispose of every ton of trash sent to a landfill or incinerator, the city technically saved $471,504, and that was just at a 35% recycling rate where many recyclable items were still being thrown away (Maine Cities Save With Recycling). This saved money can then be put into beneficial community projects or increased recycling infrastructure.

History of Single-stream Recycling

Single stream recycling is one method that has been implemented in many places to help make recycling more streamlined and easy. This is done by making it so that several different types of commonly recycled items can all go into the same bin. This recycling method arose in California in the 90's as a way to divert more waste from the waste stream. Due to their Integrated Waste Management Act, there was a push in California to have a 25% diversion rate by 1995 and a 50% rate by 2000. Prior to this act, citizens had to divide their waste into multiple categories such as newspaper, bottles, cans, etc, but this was not leading to high enough recycling rates. Hoping to increase participation, the recycling program began to change over to single stream. Single stream recycling allows for all recyclable items, including paper, plastic, glass, and cardboard, to be collected in one bin rather than being sorted into separate bins and handled separately. Studies done in California in different cities before and after a switch to single stream overall showed that there was an increase in the amount of items diverted from the waste stream (Wang, 2006). Since this time, single stream recycling programs have been spreading over the country, becoming a regular practice for cities, towns, schools, and other institutions.

Single Stream Recycling at Bates

Bates transitioned from item-specific recycling (office paper, #2 plastic, metal, etc.) to a single-stream recycling system in 2012. Single-stream recycling is becoming much more present around the country and at other colleges, including many of the NESCAC schools. This practice has also been adopted by Lewiston, making the practice of recycling much simpler for community members and sanitation workers (Lewiston, ME Official Website). "Single-stream recycling makes it almost as easy to use the recycling bin as it is to use the trash can, so for the previously unconverted, there's no excuse for not recycling" (Eco-cycle). For example, all plastic containers, all paper materials, metals, glass, etc. can be co-mingled in one bin. Though this is true, there are still many obstacles Bates is facing with this new system. This has helped increase recycling on Bates campus and made it more accessible for students, but there is still room for further improvement. With the introduction of the single-stream recycling system, Bates' recycling rate went from around 30% to 40%. However, 60% of what we throw away can still be recycled under single-stream. In theory, single-stream recycling makes it easier than ever to recycle because there are only two bin choices. However, there are still barriers that prevent our recycling rate from improving.

Changing Behavior

The bulk of our research has been done to help us understanding the norms and stereotypes associated with recycling. As McKenzie-Mohr observed, "Social science research indicated that we are most likely to change our behavior in response to direct appeals to others," (McKenzie-Mohr, 2010, p. 10). There are a number of factors that contribute to behavioral change in our actions. These include both physical barriers and social implications. We will discuss how to alter these stereotypes and promote more recycling on campus. We have also compared the recycling initiatives at Bates to those at other schools to further assess what has proven to be effective.

Barriers

It is important to note that in order to figure out how to get people to recycle, you must first determine what the difficulties are and what might be preventing them from doing so. One of the major barriers is a lack of incentive. People may find it hard to start recycling because they don't feel any inclination to do so. If no positive impact or benefit can be observed or felt, it is hard to perceive something as beneficial, whether it be to individuals, or on a broader scale.

Hornik et al. (1995) have researched various types of incentives to determine what the best way to incentivize the desired behavior is. They have divided the incentives into three categories: extrinsic incentives, intrinsic incentives, and internal facilitators. Extrinsic incentives are essentially rewards for performing the desired task. The most obvious example of this is a monetary reward. People are more likely to recycle if they are rewarded for doing so, but participation tends to decline as soon as the reward stops being provided (Hornick et al., 1995, 108). Intrinsic incentives have also been shown to work. These incentives are internal and can vary across different people. In this case, people act a certain way because it makes them feel good about themselves. For example, someone might recycle because they like knowing that they are making a difference or living a sustainable lifestyle (Hornik et al., 1995, 108-109). Lastly, internal facilitators encourage certain behavior

through awareness: “Internal facilitators are those cognitive variables which enable an individual to recycle. These include variables such as awareness of the importance of recycling and knowledge about recycling programs” (Hornik et al., 1995, 109). This essentially means that people are much more likely to recycle if they are aware of how to do it and why they should do it. Hornik et al. point out that general ignorance as well as confusion regarding how to recycle (i.e. what goes where) are big contributors to low recycling rates. (Hornik et al., 1995, 108-108) These incentives can be observed in the figure below:

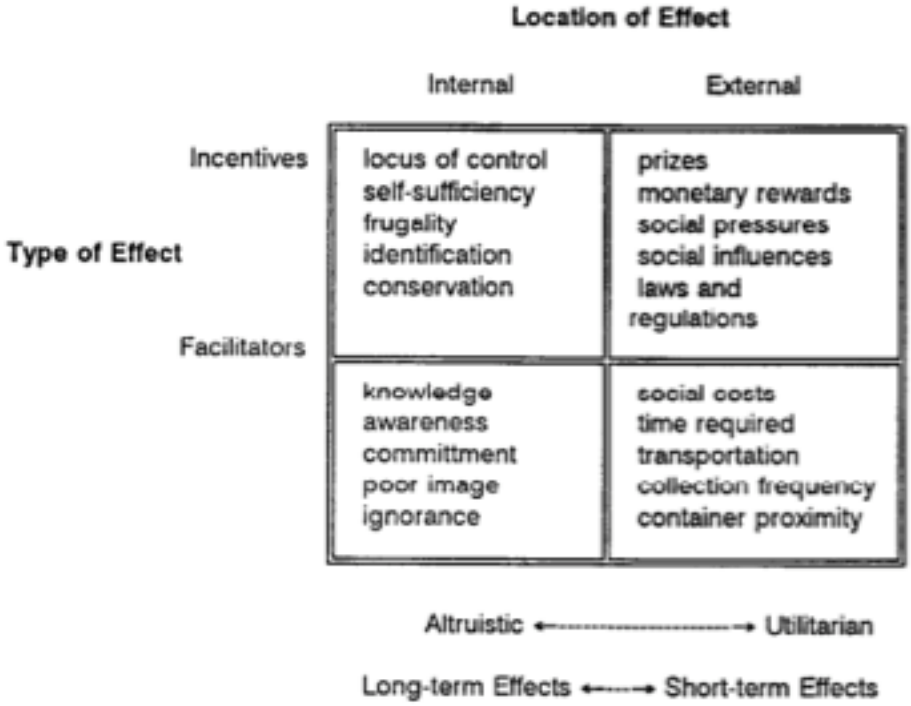


Figure 1. Four Classes of Variables Used in Recycling Studies

This figure serves as a visual to help relate incentives and facilitators to internal and external factors (Hornik et al., 1995).

Another major factor that contributes to low recycling rates is inconvenience. People are much more likely to recycle if there are recycling bins that are easy to use nearby (Derksen and Gartrell, 1993, 435). The action of recycling comes more naturally if the concept is on peoples’ minds. If someone sees a recycling bin, it will occur to him or her to recycle, but if there isn’t one in sight, they may not remember to recycle their waste.

Social Norms

Another behavioral problem analyzed to determine barriers to recycling was social norms. “Recycling...may be understood as altruistic behavior guided by norms,” (Hopper and Nielsen, 1991, p. 1999). Carlson defines social norms as “Non-legal rules or obligations that certain individuals feel compelled to follow despite the lack of formal legal sanctions, whether because defiance would subject them to sanctions from others or because they would feel guilty for failing to conform

to the norm," (2001, p. 1238). They incorporate a cost-benefit analysis between individuals who weigh the psychic costs and benefits of violating norms. Social norms are what we characterize as normatively appropriate, whether this be the conventional mode of behavior or not (Viscusi et. al, 2011, p. 65). They are more likely to develop in small groups (Carlson, 2001, p. 1235). The intrinsic satisfaction of recycling, or doing the right thing, will come with the approval from friends and/or family (Carlson, 2001, p. 1232). People who consider themselves an "environmentalist" have a 0.31 higher probability of expressing a personal norm and a 0.10 higher probability of expressing an external social norm (Viscusi et. al, 2011, p. 65). Managing social norms may be a cheap and effective alternative to fixing the recycling problem. Governments can strengthen social norms by strengthening the involvement of "labor-intensive, highly personal face-to-face contact, and detailed behavioral feedback" (Carlson, 2001, p. 1235).

In a study done at a retirement home involving 24 elderly residents, the subjects recycled 47% more paper than they had during the baseline testing after they signed a group commitment waiver. Therefore, when groups commit to an activity together, they are more likely to demonstrate the action. "Recycling has good potential for success because it is endorsed by a large majority of people (Hopper and Nielson, 1991, p. 196).

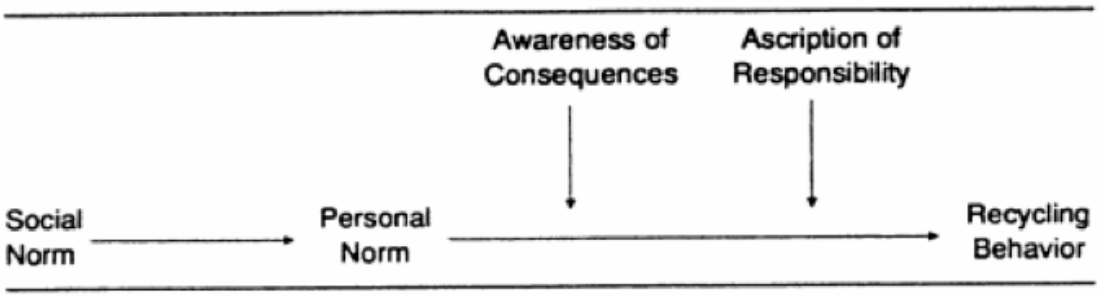


Figure 1: Model of Altruistic Behavior

This figure serves as a visual to help understand the different factors that contribute to recycling behavior (Hopper and Nielson, 1991, p.200).

Recycling Convenience

As Stewart Barr points out in his study on recycling habits in the UK, recycling has almost everything to do with convenience. Of course people who care about the environment and the waste they produce will go out of their way to recycle, but unfortunately not everyone cares that much. Barr has even found a direct relationship between how much people recycle and how far they must travel to do so (Barr 2007, 439). "The other psychological factor that has importance is the convenience/effort scale that not surprisingly predicts both an intention to recycling and behavior itself" (Barr 2007, 468). This suggests that recycling must be convenient in order for more people to do it. One way to make it more convenient is by increasing the number of recycling bins and putting them in locations where people are likely to need them.

Recycling Demographics

In generating more recycling habits, social variables come into play: "...as a very crude stereotype, it has been found that young, female, single-family dwelling, high-income earning, well-educated, and politically liberal individuals tend to play an active part in waste management activities. The socio-demographic hypothesis is, nonetheless, subject to accusations that highlight spurious relationships. Nonetheless, it does appear that there is some relationship between social characteristics and waste management behavior" (Barr 2007, 439). The fact that people don't necessarily all fall into these categories makes it more difficult to get everyone on the same page, when it comes to recycling. This is the case in part because they come from a fairly broad array of backgrounds and hold varying viewpoints.

Community-Based Social Marketing

The concept of social marketing must be employed when trying to get groups of people to change their behavior. This is because you can't just tell someone to change the way they do things and expect immediate results, you have to "sell" the idea of altering behavior. Simply put, community-based social marketing entails "designing a program to overcome the barriers to the selected behavior; piloting the program; and then evaluating it once it is broadly implemented" (McKenzie-Mohr & Smith, 1999 as Cited in McKenzie-Mohr, 2000, 546). In this outline of process, the survey and report is our first step. The survey provides insight into what the barriers to recycling here at Bates are. With this information, we can design and implement new programs to increase recycling and then evaluate them. However, the process is never quite that straight forward. There are always other variables to account for. For example, as McKenzie-Mohr points out, there is a big difference between changing people's behavior in a one-time situation (i.e. the example he uses of buying an efficient car) and in a repetitive situation (such as closing the blinds when you leave the house each day or turning off the water when you brush your teeth). This is why the social marketing of recycling must be carefully thought out and done in a way that makes it easy for people to make it a repetitive action without having to think too hard about it. As stated earlier, if it is too difficult or removed from current norms people will be less likely to participate.

Regular Prompting

Joseph Hopper and Joyce Nielson (1991) conducted a study on recycling, looking at it as an altruistic behavior. Their study investigated the success of recycling in different neighborhoods through the implementation of a program utilizing hands on recycling representatives. These representatives talked to the community about recycling through casual conversations and organized programs, in addition to handing out pamphlets and sending out reminders periodically to recycle. It was found that this approach was extremely successful, where "regular prompting increased recycling: 20% of the households receiving prompts plus information were recycling regularly during the experiment, whereas none had been recycling during the 17 months prior" (Hopper and Nielson 1991, 216). The approach in this study was extremely personal and involved, especially with the frequent reminders about recycling, making it much less work for the people involved in the study. Taking this into consideration, improving recycling programs may require a more involved program such as this one. The authors stated that

"...deliberately introducing social interactions around recycling effort can substantially increase behavior, whatever the motivations may be" (217). People will recycling for their own reasons, but the more information, attention, and accessibility we as a school are able to bring to campus, the more likely people may be to increase their own recycling.

Responses from other schools

We investigated recycling programs at other schools in order to gain a fuller understand of recycling at colleges. We began by doing research on other NESCAC schools, looking at their websites and reading about different programs they had. We then personally contacted ten schools in the NESCAC, reaching out to their Sustainability Manager. In the end, we only received five responses, but were still able to benefit from the information from each school. We learned about how other schools implemented uniform bins, what kinds of signage they used, how they dealt with sorting recycled items, campaigns to increase awareness about recycling, and struggles they were facing with recycling.

Bowdoin College is currently having great success with their recycling program. They similarly recently switched over to single stream recycling and were able to increase their recycling rates from 29% to 35% in just last year. They have added more zero sort bins, included more materials in what can be recycled, and become a part of the WasteWise program. Their efforts between the student body and the faculty seem to have generated more awareness about recycling and have statistically improved the amount of waste recycled. Due to our similarities and close proximity to Bowdoin, their efforts could be very applicable to our current dilemma with recycling at Bates (Bowdoin, 2014).

Connecticut College (Connecticut, 2014) worked for the past two years on standardizing all the recycling bins on campus. They have had success throughout academic buildings, dorms, office buildings, and along pathways. Connecticut College Co-Director of Office of Sustainability, Josh Stoffell, stressed the importance of clarity in communication in regards to what can be recycled and where. The bins are now the same color and have the same symbols. Connecticut College facilities, like Bates, do not collect data as accurately as Sustainability Office would like them too. There is a communication barrier between what should be recorded, how often, and where to report this information. The recycling rate at Connecticut College is about 25% as of Fall 2014 (Josh Stoffell).

Wesleyan University is struggling a bit more to get ahead on distributing uniformed recycling bins around campus. Like Bates, this is a goal the Sustainability Office would like to accomplish within the next school year. One challenge Wesleyan faces is that the disposable cups the dining halls provide are not recyclable. Representatives at Wesleyan University are working on a project to get affordable recyclable cups to offer in the dining halls. Jennifer Kleindiest, the Sustainability Coordinator at Wesleyan, is working to make recycling more visible at large events around campus. Kleindiest added that Wesleyan is interested in conducting a Waste Audit this Fall. The recycling rate at Wesleyan is currently about 33% (Jennifer Kleindiest).

Amherst College: Amherst's current recycling rate is 30-35% and has been so since 2010. They recently switched to single-stream recycling but have yet to see an impact of that. The woman we talked to, Laura Draucker, just entered her role as sustainability coordinator last month, a position that had previously not existed. As

such, she believes there is still improvement in their program to be had. They have added recycling bin next to every indoor trash can on campus and created signage to promote the single-stream program, but Laura believes they could do more work in educating about the program and making it clearer for students. They also found that students were much less likely to recycle if there wasn't a bin very close by. Because of this, they tried to relocate some of the bins in dorms to make them more accessible (Laura Drauker).

Middlebury College: We contacted Kristin Smith, the school's sustainability director and learned that Middlebury is definitely a leader amongst all of the small New England schools when it comes to recycling. They have very high rates of recycling, but these rates cannot all be attributed to sustainable behavior from students and faculty because all of the schools waste gets sorted and recyclables are picked out of the trash before the waste is disposed of. Kristin said that she is happy to see high recycling rates, but she is concerned about the school's system because it doesn't necessarily encourage long-term sustainable habits. Because of this, Middlebury is working to increase recycling awareness just like us. They just switched to a single-stream/zero-sort system with over 1,000 matching bins across the campus. Kristin also said that the school has 20 years of relatively accurate waste data that is put out on the tables in the dining halls to help raise awareness. (Kristin Smith)

Methodological Approach

Survey

The survey was our main source of information for this project. The overall goal of the survey was to identify the barriers of recycling at Bates and how we could implement solutions to overcome them. We used Google Forms to create the survey from scratch. We began by meeting with our community partner, Julie Rosenbach, to get an idea of what kinds of questions she was looking for on the survey. Many drafts of the survey were made in order to put forth questions that would result in productive and helpful answers regarding how to improve recycling. It was important for us to pay attention to how the questions were worded, what order we put them in, how long the survey was, and the options we gave for each question. All of these variables impact how many people would be willing to take the survey. It needed to be short enough that people wouldn't stop taking it half way through but long enough that we received enough information. It took a lot of back and forth with Julie to come to the final survey we were able to send out to Bates campus.

The survey collected information on respondent demographics, the importance of recycling to each person, actions and background knowledge, current recycling structure at Bates, personal background information, social context and barriers, and knowledge of current recycling initiatives on campus. We began the survey by asking background questions such as what year students are and where they live on campus. This was followed by asking how important recycling is to students and an investigation of their knowledge of recycling. Then we looked at students' actions in favor of recycling, i.e. if they carry a water bottle or if they encourage their friends to recycle. Julie was particularly interested in seeing if the EcoReps programs were making an impact on campus, so the next section of our

survey addressed their work and how students responded to it. Lastly, we asked about liquids in recycling, a major problem the school is dealing with right now. Overall, we wanted to assess the current knowledge and recycling behaviors of students so we could use this information to inform further efforts to improve recycling.

We eventually sent out our Google Forms survey in an Announce to the Bates campus, as well as to other clubs and teams our group members were a part of. In addition, we posted the survey to Facebook in hopes of reaching more students. The survey went live on November 6 and was stopped November 19. We received 202 responses. Google Forms gathers all of the results from completed surveys and puts them into different types of graphs based on the question (see below). We used these final graphs to analyze our survey and the current success of recycling at Bates.

Shortcomings of Survey

Something important to note is that this was an optional survey. We believe that many of the people who did take our survey may have been those already more interested in recycling. It is difficult to get people to take a few minutes out of their day to take a survey on a topic they don't care about. The survey was open to Bates students for ten days, although we had hoped it could be open for a longer period of time. Despite this short amount of time, we recorded over 200 responses. However, 72% of the responses were from Females; Only 27% of the survey responses were Males. Another potential error in the survey data is that people's responses may not always line up with their actions. It is a lot easier to say you are an active recycler than to actually recycle. In addition, we had trouble creating the survey questions because we made the survey after finishing the literature review. We originally wrote the questions with certain responses in mind. However, after multiple drafts of the survey, we compiled a list of non-biased questions.

Research

Research of literature was a large part of our project. Julie wanted us to investigate the norms associated with recycling and what kind of behavioral actions surrounded recycling. We found a handful of scholarly sources, many of which did case studies in different communities about recycling to see why people were or weren't recycling. We compiled the information and included the most relevant findings in this report.

Results

Survey Discussion

Participation in the survey was relatively well distributed across the four class years with 54 respondents from the class of 2015, 59 from 2016, 39 from 2017, and 50 from 2018 (Appendix B, Figure 1). Gender was not nearly as equally distributed with 146 female respondents and 54 male respondents (Appendix B, Figure 2). The majority of the students polled live in dorms as opposed to houses (Appendix B, Figure 3).

One of the most interesting aspects of the survey results is the fact that there does not appear to be a consistent connection between students' mentalities and actions. When asked "How important is recycling to you?" a combined 88% of the

respondents replied with either “Very important, I always recycle,” or “Pretty important, I recycle most of the time” (Figure 4).

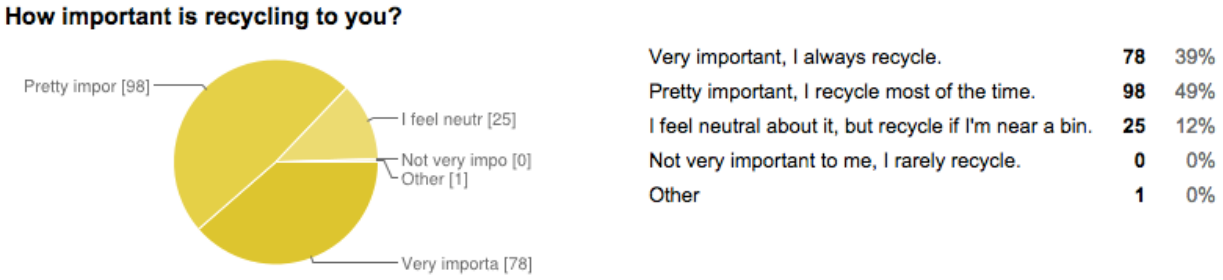


Figure 4

These responses were contrasted by the results in figures 5-13 (See Appendix B) where students were asked how frequently they recycle specific items that can go into single stream recycling. These items ranged from bottles and cans, to pizza boxes, to shampoo bottles. The most popular response for all of the items was “I recycle this item all the time,” but the rest of the responses tended to be varied with occasional “never” responses and lots of “most of the time” and “sometimes” responses. Even more interesting were the responses to “If you don’t recycle these [single stream] items, please explain why” (Figure 14).

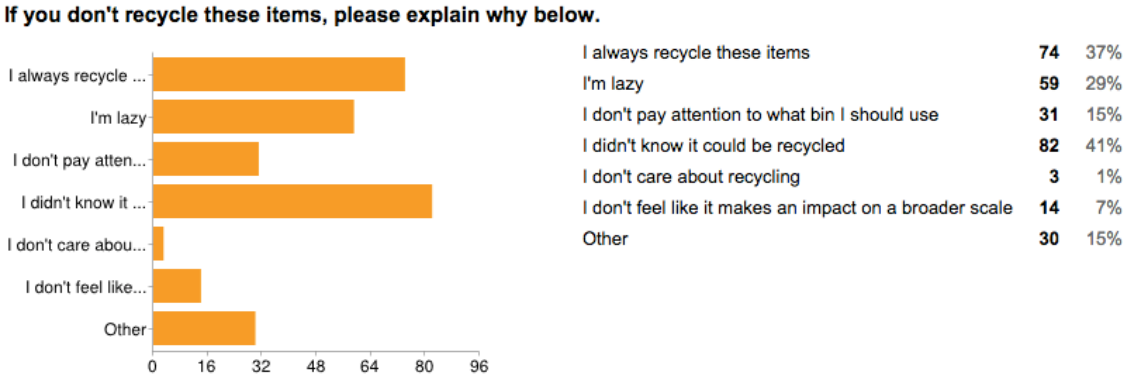
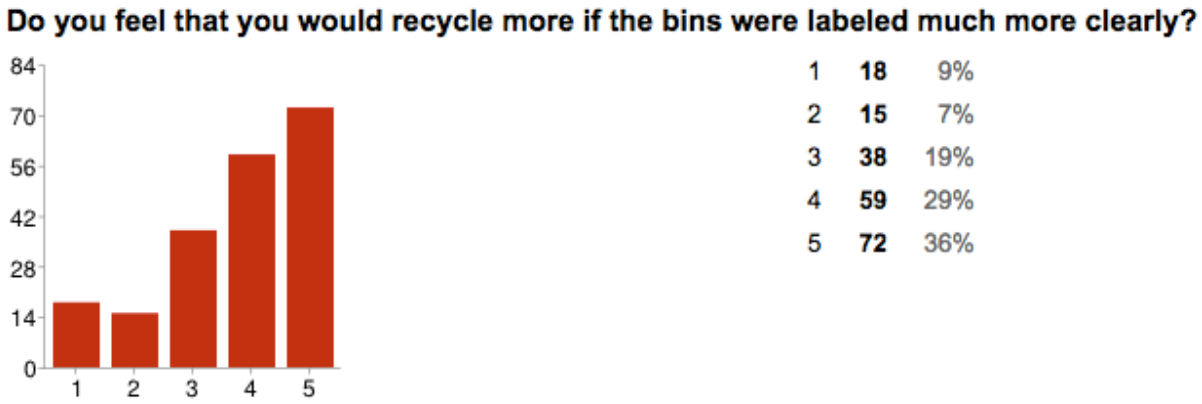


Figure 14

Only 37% said that they always recycle all of the single stream items listed. The most popular response was that students were not aware that many of the listed items could be recycled at 41%, followed by “I’m lazy” at 29%. These percentages appear in contrast to those of Figure 4 where 39% claimed to always recycle and another 49% claimed to recycle most of the time. This could be largely due to the fact that it is easy to “care” about something, but much harder to make your actions show that.

The question “Do you feel that you would recycle more if the bins were labeled much more clearly?” (Figure 15) is helpful in assessing this issue.



(1=No, 5=Definitely)
Figure 15

In this question, the most popular response was 5, “definitely,” at 36%. Confusing and inconsistent bins and labels make it difficult to figure out what goes where, which can lead to the laziness and lack of knowledge addressed in figure 14. (See Appendix A for photos of inconsistent bins in Ladd Library)

Students were also surveyed on the social context of recycling at Bates. When asked “Do you encourage your friends to recycle?,” (Figure 18) 54% of the respondents claimed that they do so all the time.

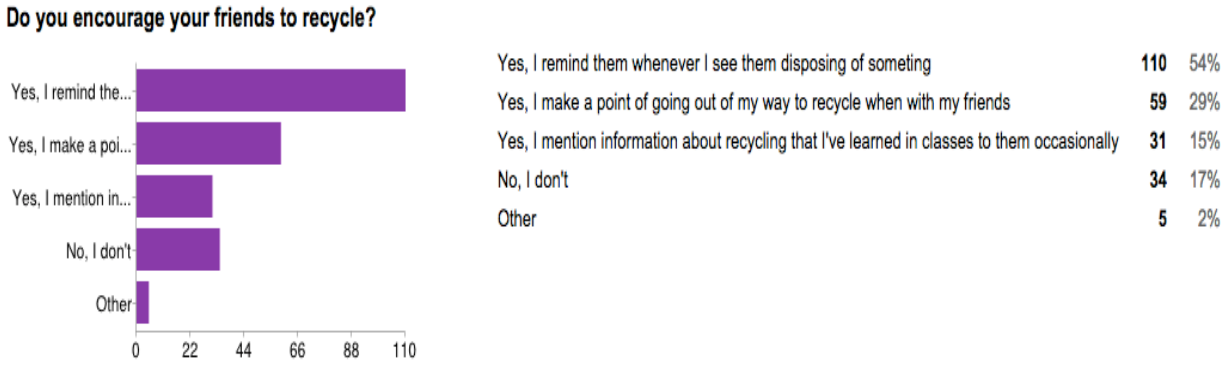


Figure 18

Another 29% reported that they go out of their way to recycle when their friends are around. Students were then asked if they felt pressure from their friends to recycle (Figure 19).

Figure 19

Most of the surveyed students don't feel a general pressure from all their friends, but most feel some amount of pressure from certain friends. Assuming these responses are accurate and that they can be applied to the entire student body, the answers to this question suggest that peers can serve as a powerful tool to use when trying to get more people to engage in recycling. Most students (79%) then said that they continue to recycle when their friends aren't around (Appendix B, Figure 20)

The final part of the survey attempts to determine the effectiveness of current campus recycling initiatives put on by the EcoReps in order to gain insight on how to implement future outreach and awareness events. 39% of the students surveyed reported that they were well aware of the recycling initiatives while 46% said they were "sort of" aware of them (Appendix B, Figure 21). When students were asked about two specific initiatives, the flyer placed on desks and the 'drain the dregs' campaign, students did not suggest they were affected by them (Appendix B, Figures 22-23). This is made evident in Figure 24 where students were asked if these two things changed their behavior.

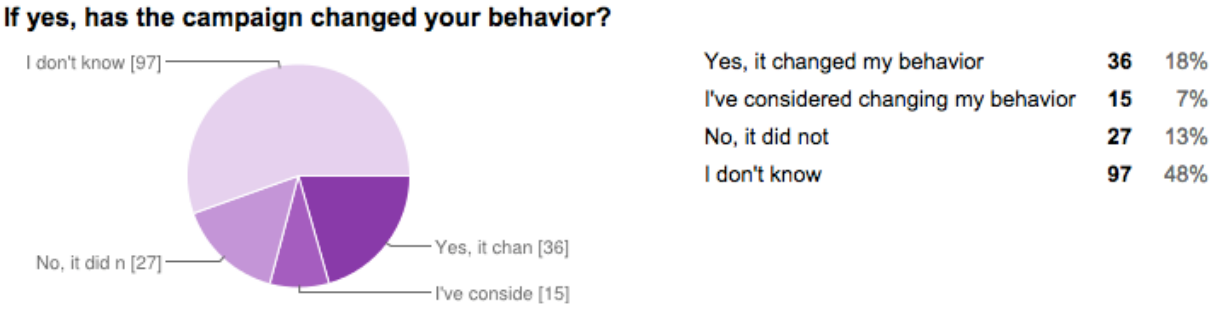


Figure 24

Only 18% said that they were directly affected while 48% said they aren't sure if their behavior was changed. This suggests that future initiatives should be more engaging and concrete in order for students to better draw connections between their knowledge and actions.

Note: For a full list of results from all questions asked, see Appendix B.

Outcomes and Implications

The results from our survey, research, and discussions with other schools show that Bates could be doing better with regards to recycling and the students are looking for improvement. In talking to other NESCAC schools, it is clear that many of our small liberal arts college counterparts are ahead of us in their recycling rates, uniform bins, and unique and engaging programs. Our survey showed us that people do care about recycling, but there is still a general lack of knowledge about recycling practices. Most importantly, these beliefs don't always carry over into actions. Recycling is an important issue to many students, specifically to those that took our survey, but the accessibility of the current recycling program is not as great as it needs to be. Uniform bins and clear signage across campus could reduce the confusion some students have when recycling and result in more frequent recycling habits.

The implications of this suggest that a new and improved recycling system is necessary to get people to recycle. In addition, educational programs could provide additional information to encourage students to recycle. Our research and survey showed us that there are many limitations to recycling in general and particularly in getting students to recycle. General recycling knowledge, the proximity of a recycling bin, what can go in each bin, and the signage of the bins are all obstacles our recycling program is still grappling with which will need to be addressed to increase recycling rates and have a more successful program.

Next Steps

We have a limited amount of time as ENVR417 is only a semester long course. However, we have provided the initial groundwork for improving the recycling rate on campus. By conducting the campus-wide survey and reading scholarly journals about recycling and it's barriers, we have obtained the necessary data to conclude that people generally care about recycling. However, there is consensus that there is confusion regarding what can be recycled. In addition, students who took the survey indicated that they are interested in more uniformity and availability of recycling bins. The EcoReps are currently working on solving the problem regarding liquids in recycling bins. Liquids pose as a threat to recycling bins because they contaminate the recycling bins and turn the entire bin into trash. The next steps for this project would be to create a better platform of communication between facilities and the Sustainability Office to ensure both groups are on the same page. This will clear and concise communication on what is to be recorded, when facilities should record this data, and where to report the information. In addition, The Office of Sustainability will be working on a project to ensure uniformity of recycling bins around campus. This involves making sure the bins are the same color and have the same labels. Lastly, the Bates College campus will need to work on creating a system where social norms are catered towards Bates students wanting to recycle.

Acknowledgments

In order to complete this project, we needed the help of a few individuals. We would like to first thank Julie Rosenbach for leading us through this project. Julie's dedication in ensuring the survey we created was the best, and served its purpose in the most effective and efficient way was very encouraging. Second, we would like to thank Jennifer Kleindiest of Wesleyan University, Josh Stoffell of Connecticut College, Laura Draucker of Amherst College, Bowdoin College, and Kristiin Smith of Middlebury College for giving us the time to discuss recycling initiatives at their respective schools. We would also like to thank Sonja Pieck and John Smedley for providing constant feedback and support throughout the project. We would like to thank everyone who completed our survey and allowed us to record over 200 responses. Lastly, we would like to thank our classmates for providing us with support and encouragement throughout this process.

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Appendices

Appendix A: Recycling Bins on first floor of the George & Helen Ladd Library

Figure 1:

Figure 2:

Figure 3:

0

Figure 4:

Figure 5:

Appendix B: List of Survey Figures

Demographic Information:

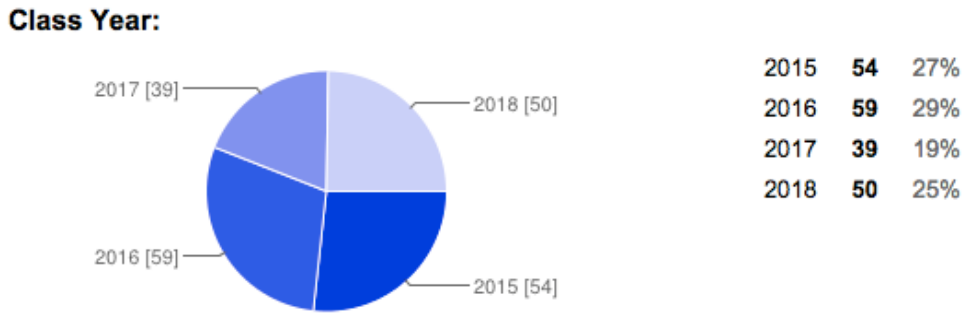
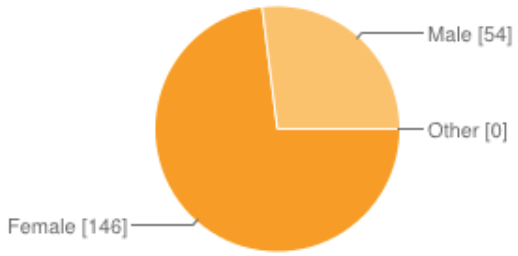


Figure 1

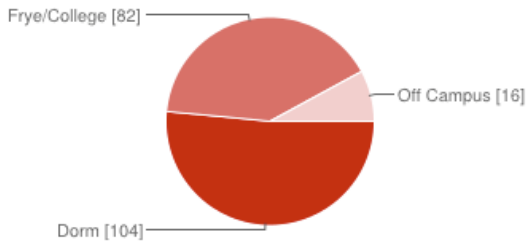
Gender:



Female	**146**	72%
Male	**54**	27%
Other	**0**	0%

Figure 2

Where do you live?

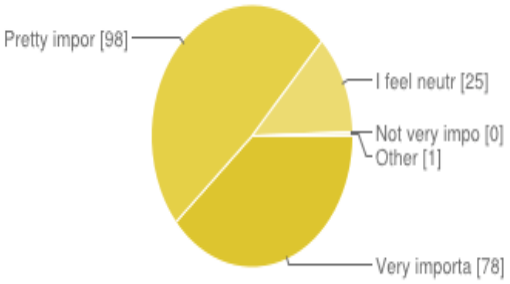


Dorm	**104**	51%
Frye/College/Wood Street House	**82**	41%
Off Campus	**16**	8%

Figure 3

<u>Importance:</u>

How important is recycling to you?



Very important, I always recycle.	**78**	39%
Pretty important, I recycle most of the time.	**98**	49%
I feel neutral about it, but recycle if I'm near a bin.	**25**	12%
Not very important to me, I rarely recycle.	**0**	0%
Other	**1**	0%

Figure 4

Actions and knowledge:

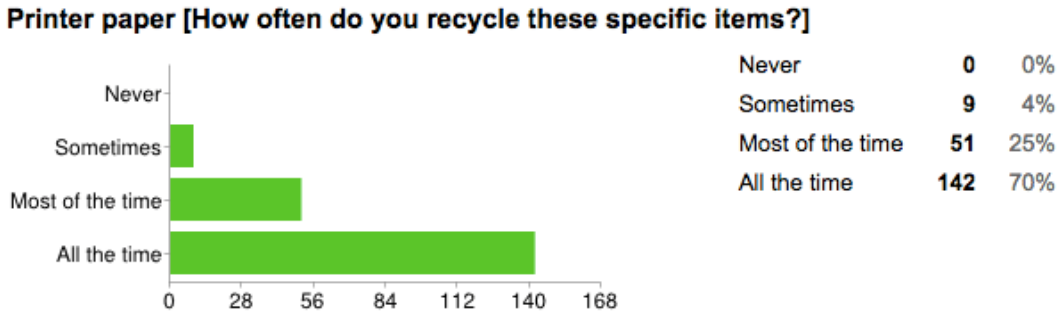


Figure 5

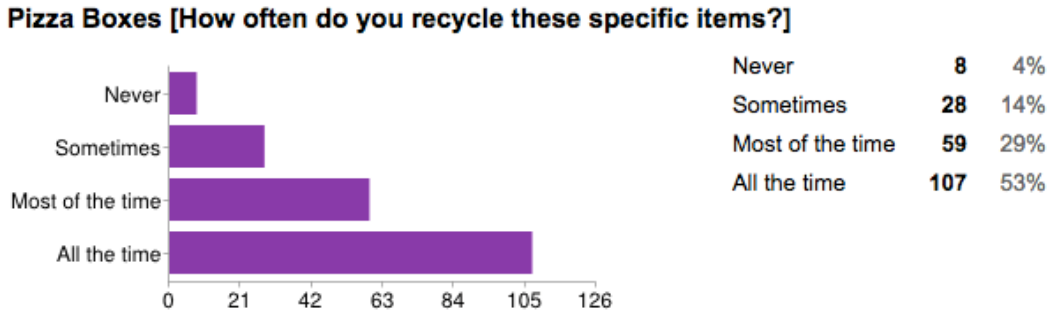


Figure 6

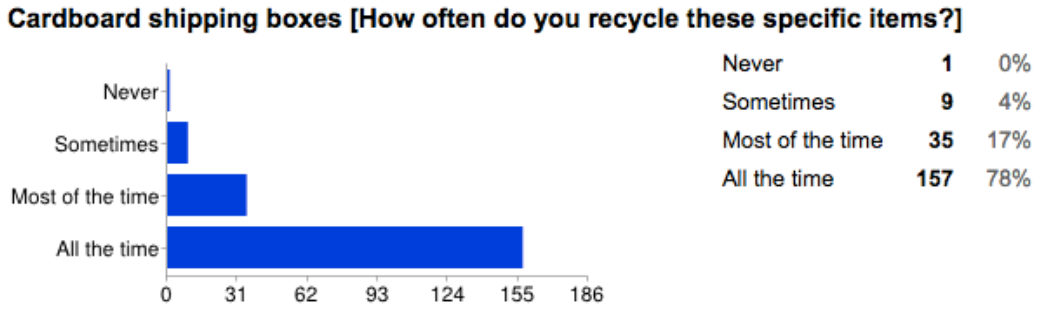


Figure 7

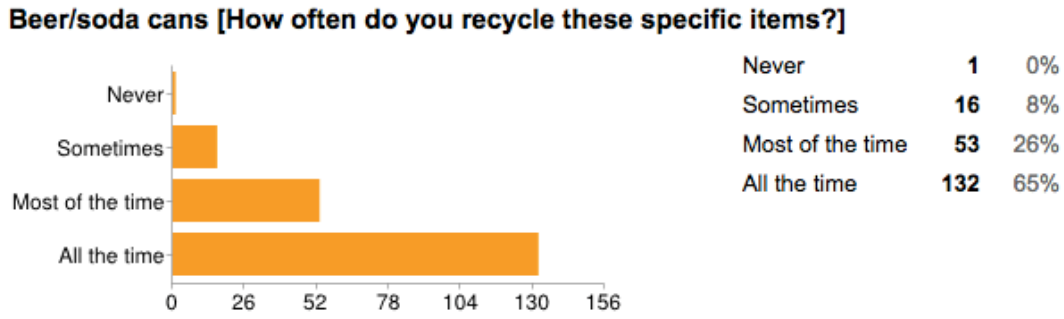


Figure 8

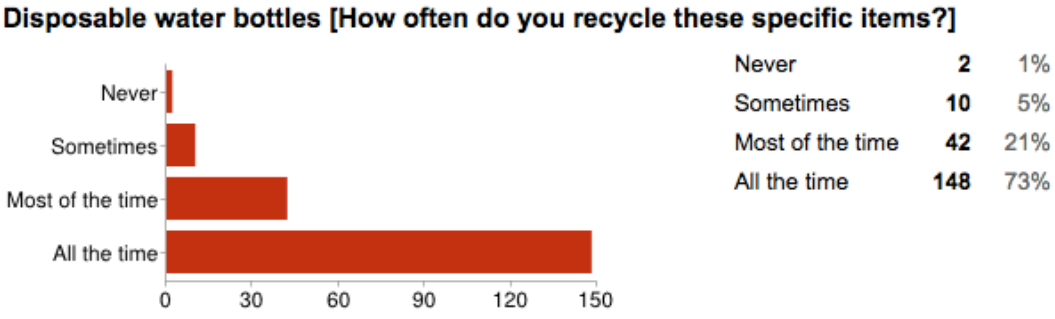


Figure 9

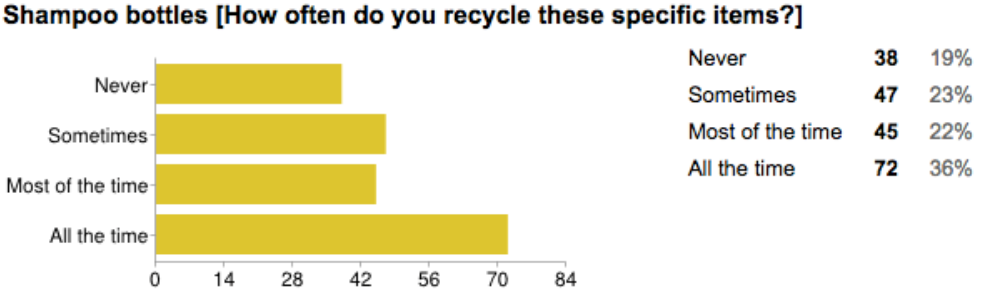


Figure 10

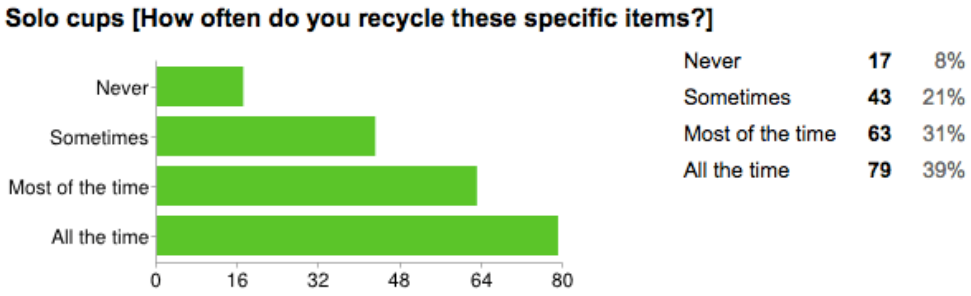


Figure 11

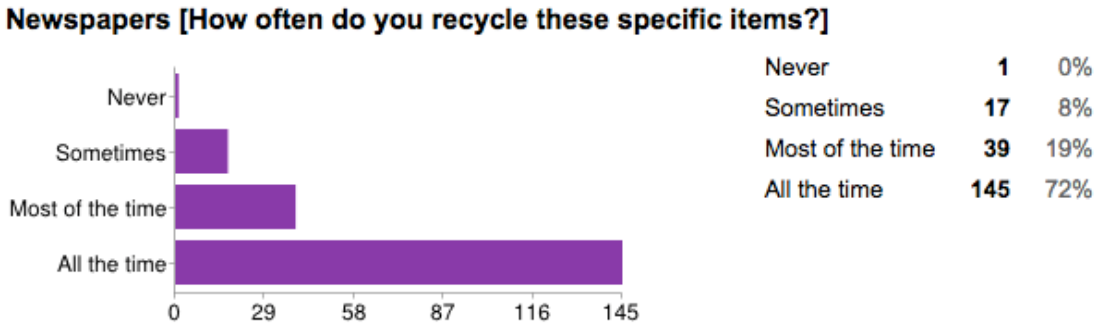


Figure 12

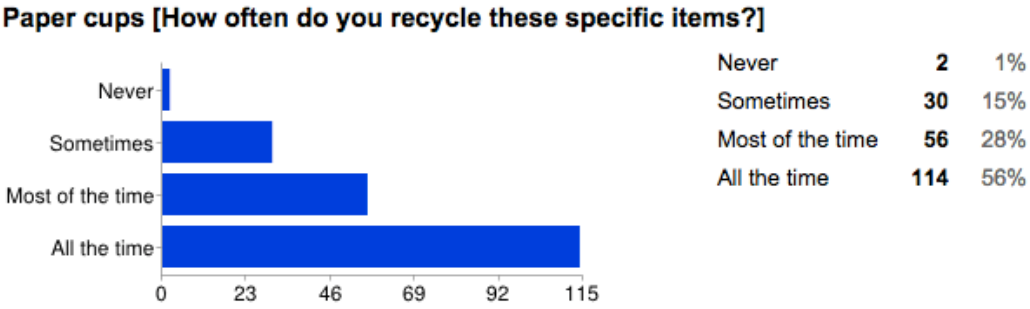
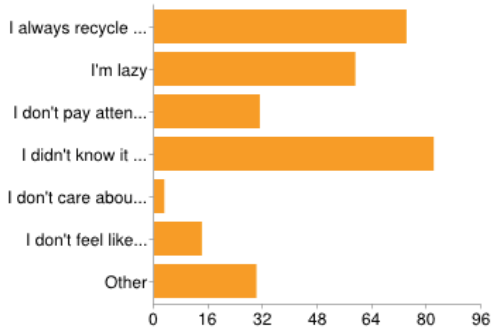


Figure 13

Analysis of Actions:

If you don't recycle these items, please explain why below.

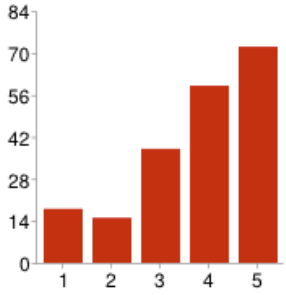


I always recycle these items	**74**	37%
I'm lazy	**59**	29%
I don't pay attention to what bin I should use	**31**	15%
I didn't know it could be recycled	**82**	41%
I don't care about recycling	**3**	1%
I don't feel like it makes an impact on a broader scale	**14**	7%
Other	**30**	15%

Figure 14

Structure:

Do you feel that you would recycle more if the bins were labeled much more clearly?

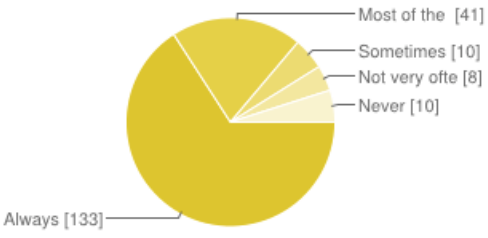


1	**18**	9%
2	**15**	7%
3	**38**	19%
4	**59**	29%
5	**72**	36%

(1=No, 5=Definitely)
Figure 15

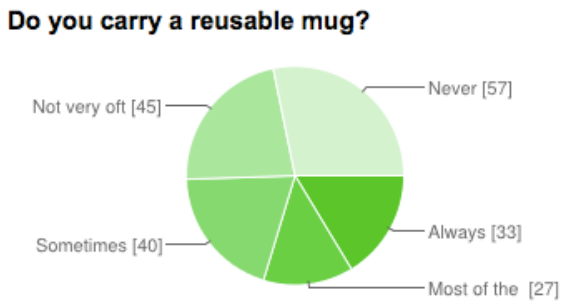
Background:

Do you carry a reusable water bottle?



Always	**133**	66%
Most of the time	**41**	20%
Sometimes	**10**	5%
Not very often	**8**	4%
Never	**10**	5%

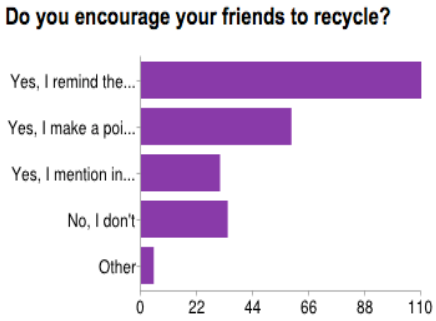
Figure 16



Always	33	16%
Most of the time	27	13%
Sometimes	40	20%
Not very often	45	22%
Never	57	28%

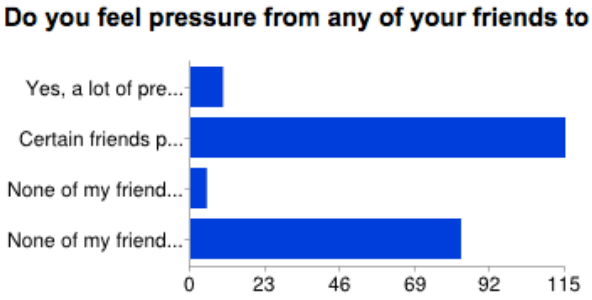
Figure 17

Social Context:



Yes, I remind them whenever I see them disposing of someting	110	54%
Yes, I make a point of going out of my way to recycle when with my friends	59	29%
Yes, I mention information about recycling that I've learned in classes to them occasionally	31	15%
No, I don't	34	17%
Other	5	2%

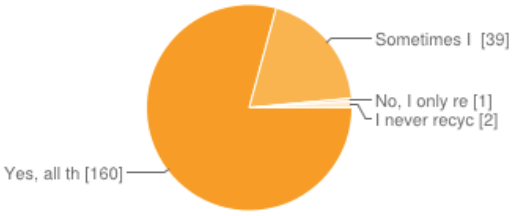
Figure 18



Yes, a lot of pressure	10	5%
Certain friends pressure me more than others	115	57%
None of my friends recycle	5	2%
None of my friends pressure me	83	41%

Figure 19

Do you continue to recycle when your friends aren't around?

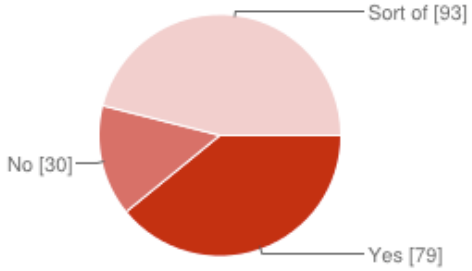


Yes, all the time	**160**	79%
Sometimes I continue to recycle	**39**	19%
No, I only recycle when my friends are around	**1**	0%
I never recycle	**2**	1%

Figure 20

Current Initiatives:

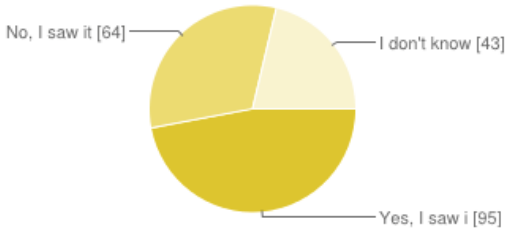
Are you aware of the recycling initiatives put on by the EcoReps?



Yes	**79**	39%
No	**30**	15%
Sort of	**93**	46%

Figure 21

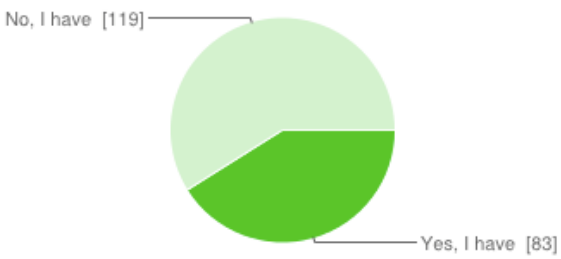
When you moved into your room this year, did you read the flyer on your desk about recycling?



Yes, I saw it and read it	**95**	47%
No, I saw it but did not read it	**64**	32%
I don't know what you're talking about	**43**	21%

Figure 22

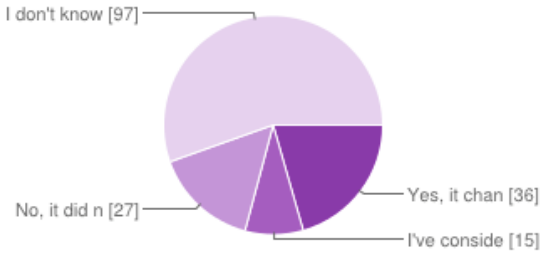
Have you heard of the 'Drain the Dregs' campaign?



Yes, I have heard of it	**83**	41%
No, I have never heard of it	**119**	59%

Figure 23

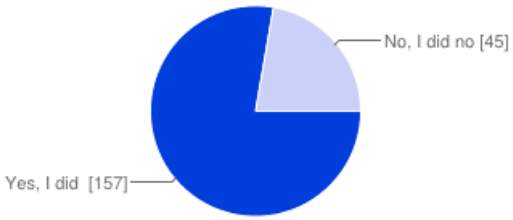
If yes, has the campaign changed your behavior?



Yes, it changed my behavior	**36**	18%
I've considered changing my behavior	**15**	7%
No, it did not	**27**	13%
I don't know	**97**	48%

Figure 24

Did you know that you can't put liquids in the recycling?



Yes, I did know that	**157**	78%
No, I did not know that	**45**	22%

Figure 25

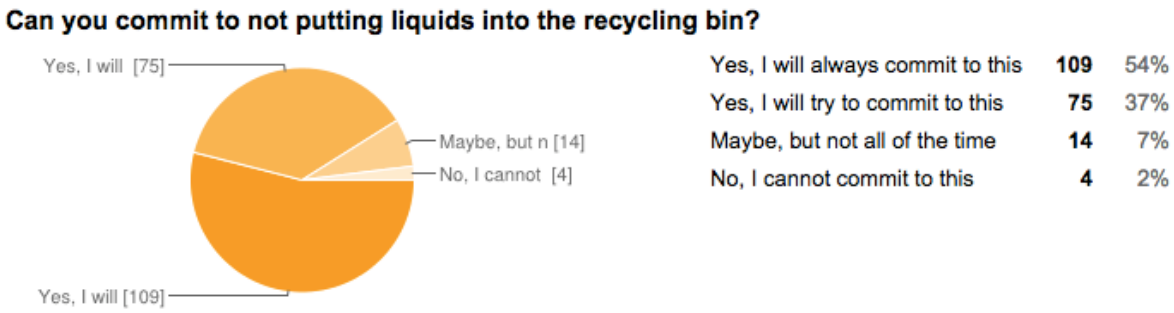

Can you commit to not putting liquids into the recycling bin?
Yes, I will [75]
Maybe, but n [14]
No, I cannot [4]
Yes, I will [109]
Yes, I will always commit to this 109 54%
Yes, I will try to commit to this 75 37%
Maybe, but not all of the time 14 7%
No, I cannot commit to this 4 2%

Figure 26
