



The Effects of Different Marketing and Awareness Strategies on Recycling and Waste Minimization in the Residence Halls

2012-2013 UW-System Solid Waste Research Program

This study was completed in the residence halls of the University of Wisconsin-Whitewater to observe the effects of different marketing and awareness techniques on recycling percentages and waste minimization. Five different campaigns were conducted in ten different residence halls on campus, including a purely passive marketing campaign, an educational programming campaign, the creation of an Eco-Representative program, and a social media campaign. The statistical significance of each was measured and found that all forms of marketing had their merits.



Contents

INTRODUCTION	2
BACKGROUND and RESOURCES	3
Collaboration	3
Funding	3
METHOD	4
Divison of the Residence Halls into Study Groups	4
Purpose and Activities of the Individual Study Groups	5
Measurement of the Waste	7
RESULTS	8
Control Group Results	8
Passive Marketing Group Results	9
Educational Programming Group Results	10
Eco-Representative Program Group Results	12
Facebook Group Results	13
DATA ANALYSIS	15
Analysis of Passive Programming	15
Analysis of Educational Programming	15
Analysis of the Eco-Rep Program	16
Analysis of the Facebook Group	17
DISCUSSION	18
Limitations	18
Recommendations	19
Conclusion	20
ACKNOWLEDGEMENTS	21
APPENDIX A	22
Passive Poster #1: “Recycle-It’s Easy” from the Wisconsin Department of Natural Resources	22
Passive Poster #2: “Put It In The Bin” from the American Forest & Paper Association	23
Passive Poster #3: “E-cycling” Original	23
Passive Poster #4: “A Clean Wisconsin Recycles” from Clean Wisconsin	24
APPENDIX B	25
Eco-Rep Poster #1: “What? – Recycling Facts”, an original poster	25
Eco-Rep Poster #2: “8 Ways to Reuse a Banana!” an original poster	26
Eco-Rep Poster #3: “A Clean Wisconsin Recycles” from Clean Wisconsin	27

Introduction

The overall behavior of a student body is extremely difficult to change. Students will often arrive to a college environment with a particular mindset and particular habits, and no matter how much programming, marketing, and focused educational efforts are aimed at them, those habits will likely not change in a significant way. This is a reality that sustainability and outreach coordinators struggle with every day, and this is a “reality” that this study aims to disprove.

The primary goal of many sustainability coordinators is to create an environment that fosters education about the world we live in, mainly environmental in nature, and create an atmosphere that allows students to utilize what they have learned to create a cleaner, more sustainable world. Along with this educational component, coordinators must also create a behavioral component as well, ensuring that the behaviors learned at the university are actually taken part in and not just spoken of as theory.

The purpose of this study was to actively employ several different marketing techniques in the residence halls at the University of Wisconsin-Whitewater and to measure the effects on those residence halls’ recycling and waste numbers. Upon receiving those measurements, a determination of which marketing techniques are most effective could be established. The goal was to use this information to find the best marketing strategy for reducing waste and increasing recycling percentages on college campuses in the UW-System.

With this information, sustainability and outreach coordinators can ensure that the marketing techniques employed constitute an efficient allocation of assets and actually affect behaviors of students.

Background and Resources

Collaboration

The research and data collection for this study involved a number of collaborators from the University of Wisconsin-Whitewater and the Whitewater Community. John's Disposal and Recycling was the service used for data collection for this study. John's Disposal is Whitewater's garbage and waste collector, as well as the waste collector for the University of Wisconsin-Whitewater. John's Disposal drivers recorded the volumes of trash and recycling each week and reported them to Residence Life at UW-Whitewater via E-mail.

Residence Life at UW-Whitewater was also a collaborator in this study. Numerous resources were provided by Residence Life, including student workers, staff, and all facets used for residence hall programming. Residence Life had to provide consent for nearly all marketing materials and programming that took place in the residence halls.

Funding

Funding for this study came from a University of Wisconsin System Solid Waste Research Grant. This grant was awarded in the Spring of 2012 for program implementation due to take place in the following academic year (August 2012-May 2013). The UW-System Solid Waste Research Program has been in existence since 1990, and provides funding for several student and faculty sustainability projects each year. A summary of the Solid Waste Research Program can be found at the following web address:

<http://www.uwsa.edu/oslp/swrp/>.

The funding provided by the Solid Waste Research Program was used in this study for all promotional materials, incentives, programs, and student wages.

Method

Division of Residence Halls into Study Groups

To test the effectiveness of several different marketing strategies, ten of the residence halls on campus were randomly divided into five groups. Starin Hall, a suite-style residence hall, was left out of this study due to the different living environment inherent in a suite-style hall. The two off-campus apartment complexes, Cambridge Apartments and Fox Meadows Apartments, were also left out of this study due to the different living environment inherent in an apartment setting. Fricker Hall was initially included in this study. However, due to a large increase in waste caused by unanticipated construction in the middle of the study, it was omitted from the study. The five groups of residence halls are as follows:

Group 1	Lee Hall Fischer Hall
Group 2	Arey Hall Knilians Hall
Group 3	Clem Hall Bigelow Hall
Group 4	Tutt Hall Benson Hall
Group 5	Wells West Hall Wells East Hall Fricker Hall ^{1*}

Table 1: Hall Groupings

Five different marketing techniques were then randomly assigned to the five groups. The distributions of the marketing techniques are as follows:

Group 1	Control Group (No extra marketing)
Group 2	Passive Marketing Group
Group 3	Educational Programming Group
Group 4	Eco-Rep Program Group
Group 5	Facebook Marketing Group

Table 2: Group Names and Marketing Techniques

Below are more detailed descriptions of each group, as well as the specific forms of marketing attributed to each.

¹ * Was omitted from final results due to unanticipated construction and following unanticipated increase in waste.

Activities of the Individual Study Groups

Group 1: Control Group

The control group for this study was not subjected to any additional marketing initiatives. The initiatives that had always been administered in the residence halls for this group continued to be administered without any modifications. The initiatives that these halls took part in were floor activities, social gatherings, and awareness campaigns. No marketing from the central office was administered to these halls for the duration of the study.

Group 2: Passive Marketing Group

The purpose of this group was to administer strictly passive marketing techniques, including posters and digital signage. There would be no additional face-to-face or actively engaging initiatives taking place in the halls involved (i.e. Arey Hall and Knilans Hall).

Each month, a new digital signage campaign was sent to each of the residence halls in this group. A new poster campaign was also sent monthly. The posters were placed on each floor, by the front desk, and in the basements of each hall, while the digital signage was sent to monitors located in each of the halls' lobbies. The poster campaigns used for the passive marketing group can be found in Appendix A of this report.

Group 3: Educational Programming Group

The purpose of the educational programming group was to provide strictly educational and actively engaging programming to the residence halls in this group. No additional signage was placed in these residence halls for the duration of the study. Clem and Bigelow Halls were the site of three different speakers, one appearing each month. Each speaker gave a presentation focused on a topic in sustainability.

I made an appearance as the Residence Life Student Sustainability Coordinator to educate the students in attendance about the strides Residence Life takes to implement effective programming, as well as to bring to light some of the efforts Residence Life was actively involved in. Another program featured our Campus Sustainability Coordinator, Wes Enterline. Wes informed the students present about the campus's sustainability efforts, as well as creating discussion about certain sustainability issues in the world today. A member of the John's Disposal team, our local trash collector, also came to inform the students about what could and could not be recycled.

Aside from speakers, other programming was also implemented in Clem and Bigelow Halls. Events in the basement of the halls took place that focused on teaching residents about recycling and sustainability issues facing the world today. The events that were coordinated were a Recycling Olympics event, a race to recycle event, and other Resident Assistant (RA)-planned activities.

Group 4: Eco-Rep Program Group

The purpose of this group was not only to use Eco-Representatives (Eco-Reps) as sustainability ambassadors in the residence halls, but also to test the program for possible future full-scale implementation in the residence halls at UW-Whitewater.

Two Eco-Reps were hired in each residence hall after a formal interview process. Each Eco-Rep was paid a stipend of \$300 for the semester, payment of which was contingent upon the completion of three programming events, three signage campaigns, and bi-weekly meetings with the Residence Life Sustainability Coordinator to update the central office on their progress. The Eco-Rep job description and pay schedule used for this study can be found in Appendix C of this report. These Eco-Reps were also allowed to work with their co-reps in order to combine efforts and implement signage campaigns and programs more effectively in both residence halls. The completed signage campaigns can be found in Appendix B of this report. Certain campaigns were also carried out through the use of whiteboards on the Eco-Reps' room doors, usually displaying facts and figures relative to recycling and consumption for college students.²

The programs implemented by the Eco-Reps were planned and completed at their discretion with no direction from myself or the central office, other than letting them know their budget and the limitations of the programs. Programs that were implemented in Tutt and Benson Halls were as follows:

- “What’s Your Reason” Recycling Video posted to Youtube featuring residence hall students stating their reasons for recycling and being “green”
- A Recycled Clay Event where residence hall students were able to make clay from dryer lint
- A Recycling Center program allowing residence hall students to bring recyclable items to the basement of their residence hall and the opportunity to win prizes and ice cream
- Eco-movie night featuring documentaries about sustainability in the basement the residence halls
- Halloween decorations using recycled materials

² Whiteboard initiatives are not displayed in Appendix B of this report.

- Thanksgiving decorations using recycled materials

As well as adhering to the requirements stated, the Eco-Reps were also asked to be open to any questions that their residents may have had regarding sustainability and recycling.

Group 5: Facebook Marketing Group

The purpose of this group was to test the effectiveness of simple social media marketing. One Facebook page was created for this event and all students in the halls for this group, which were Wells East and Wells West, were invited to the page via E-mail at the beginning of the semester.

Weekly updates and news were posted on the Facebook page to disseminate information to students, including upcoming events, helpful tips, and links to resources. Every week there was also a question posted for students to answer, and the first person to get the answer correct would win a gift card. Each week a member of the page would also be randomly selected as a winner of a gift card as well, offering an incentive for merely joining the page and being subject to the weekly messages.

At the end of the study, there were 208 members of the nearly 1,100 residents in those two halls, or about 19 percent of the total population, on the Facebook page.

Measurement of the Waste

Our collaborator for this study was John's Disposal of Whitewater, our regular trash and recycling collector on campus. We have worked with John's in the past, collaborating for previous studies and Recycle Mania competitions in the residence halls. John's measures the volumes of each of the dumpsters, for both trash and recycling, and records it for each pickup day. These numbers are then transferred to a spreadsheet and sent to us via E-mail. We then put these volumes into a spreadsheet on our end to calculate the estimated weights for both trash and recycling.³

³ *The estimated weight formulas were based on the Recycle Mania estimated weight formulas, set forth by Recycle Mania.*

Results

The results herein will be reported by group. The specific data measured is the relative percentage of recycling to total waste in the residence halls. Recycling and waste data from the last three years in each of the residence halls were used to create benchmarks for each of the groups. These benchmarks were then compared to the data collected during this study, and t-tests were administered to each of the groups to test for any statistically significant change in recycling percentage relative to total waste. The statistical significance and data for each group will be explained in turn below.

As a separate component, graphical analysis was also completed regarding the percent change in recycling and trash. The control group was used to establish a baseline for the percentage increase in waste each year. The other groups were then compared against this percentage change to analyze if the other marketing techniques were successful in changing student behavior on a per capita weight basis. A percentage change above the established baseline (i.e. a percentage change higher than the percentage change found in the control group) would conclude that there was an increase in that particular behavior (i.e. a percentage increase in recycling above the baseline would indicate that the residents in that particular group recycled more materials than in the control group, indicating that the marketing strategy employed was efficient in increasing that behavior, assuming this was a statistically significant change). This analysis takes into consideration the actual volume of waste, as opposed to the measurement of the percentage of recycling to total waste, which takes no consideration of volume into account.

Control Group Results

Recycling as a Percentage of Total Waste

Figure 1 shows the graph for the per capita trash and recycling numbers for the control group. The average recycling relative to total waste percentage for the past three years has been 45.9 percent, and the average recycling relative to total waste percentage for this study was 46.8 percent. While there was a slight increase in the percentage of recycling to total waste for this study, the p-value yielded in a

t-test was $p=0.1434$, which is not significant.⁴ Because this is our control group, this result was to be expected.

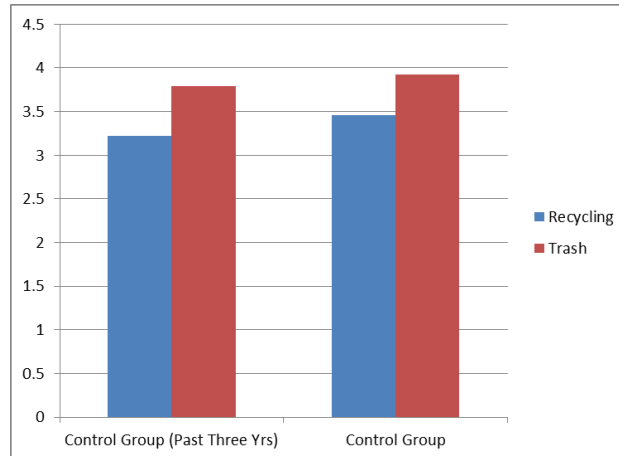


Figure 1: Control Group Recycling Percentages

Percentage Increases of Recycling, Trash, and Total Waste

As shown in Figure 2, the percentage increases in recycling, trash, and total waste for this group as compared to the last three years were 7.39 percent, 3.51 percent, and 5.29 percent respectively. These percentages will be used as a baseline to measure the other groups' percentage changes. For example, a change in recycling of 10 percent would show an increase in recycling behavior because it is about 3 percent higher than the change shown in the control group.

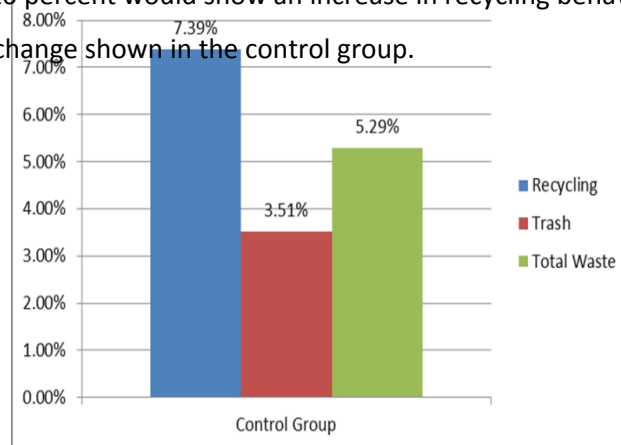


Figure 2: Control Group Increase Percentages

⁴ Based on significance of $p < 0.05$

Passive Marketing Group Results

Recycling as a Percentage of Total Waste

Figure 3 shows the graph for the per capita trash and recycling numbers for the passive marketing group. The average recycling relative to total waste percentage for the past three years has been 49.2 percent, and the average recycling relative to total waste percentage for this study was 52.4 percent. The p-value yielded in a t-test for this group was $p=0.0191$, which shows statistical significance.⁵

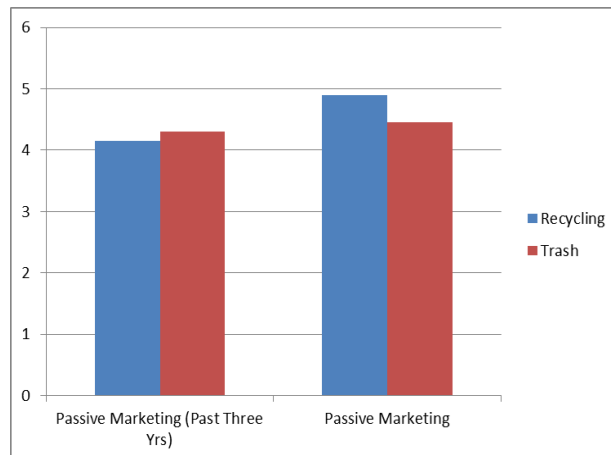
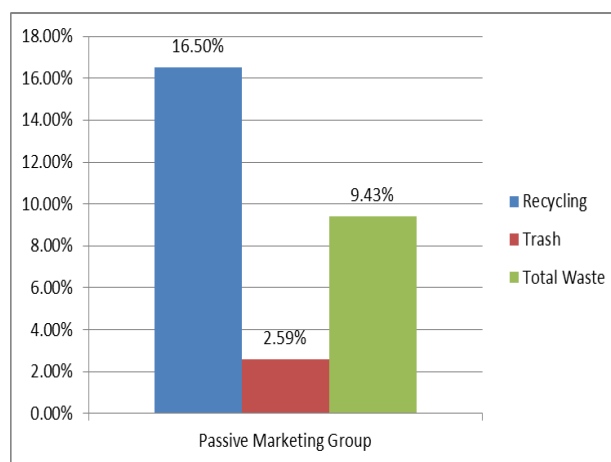


Figure 3: Passive Marketing Recycling Percentages

Percentage Increases of Recycling, Trash, and Total Waste

As shown in Figure 4, the percentage increases in recycling, trash, and total waste for this group as compared to the last three years were 16.50 percent, 2.59 percent, and 9.43 percent respectively. As we can see from Figure 4, there was an increase in recycling behavior and a decrease in trash compared to the control group, while the total amount of waste increased when compared to the past three years.



⁵ Based on significance of $p<0.05$

Figure 4: Passive Marketing Increase Percentages

Educational Programming Group Results

Recycling as a Percentage of Total Waste

Figure 5 shows the graph for the per capita trash and recycling numbers for the educational programming group. The average recycling relative to total waste percentage for the past three years has been 53.1 percent, and the average recycling relative to total waste percentage for this study was 56.2 percent. The p-value yielded in a t-test for this group was $p= 0.0160$, which shows statistical significance.⁶

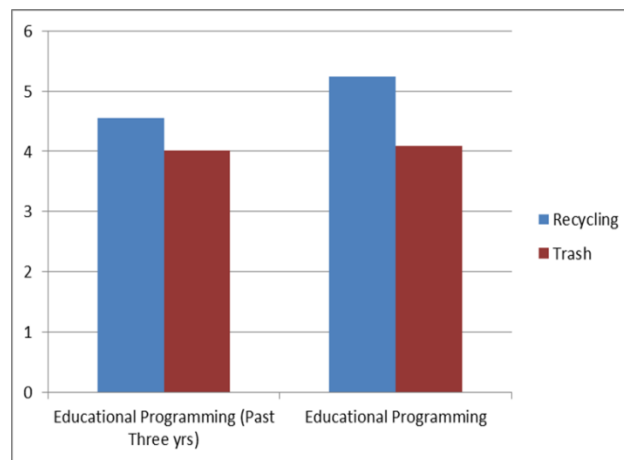
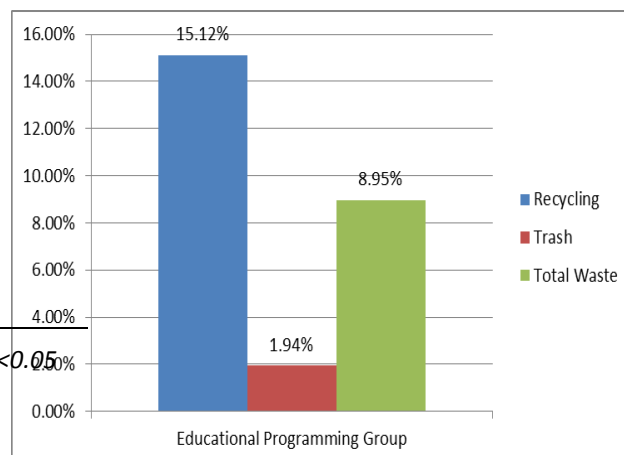


Figure 5: Educational Programming Recycling Percentages

Percentage Increases of Recycling, Trash, and Total Waste

As shown in Figure 6, the percentage increases in recycling, trash, and total waste for this group as compared to the last three years were 15.12 percent, 1.94 percent, and 8.95 percent respectively. As we can see from Figure 6, there was an increase in recycling behavior and a decrease in trash compared to the control group, while the total amount of waste increased when compared to the past three years.



⁶ Based on significance of $p < 0.05$

Figure 6: Educational Programming Increase Percentages

Eco-Representative Program Group Results

Recycling as a Percentage of Total Waste

Figure 7 shows the graph for the per capita trash and recycling numbers for the Eco-Rep program group. The average recycling relative to total waste percentage for the past three years has been 51.8 percent, and the average recycling relative to total waste percentage for this study was 54.4 percent. The p-value yielded in a t-test for this group was $p=0.0001$, or essentially zero, which shows statistical significance.⁷

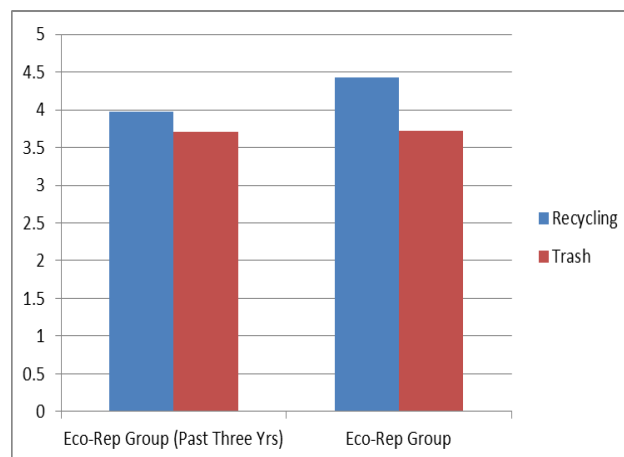


Figure 7: Eco-Rep Recycling Percentages

Percentage Increases of Recycling, Trash, and Total Waste

As shown in Figure 8, the percentage increases in recycling, trash, and total waste for this group as compared to the last three years were 11.36 percent, 0.31 percent, and 6.03 percent respectively. As we can see from Figure 8, there was an increase in recycling behavior and a decrease in trash compared to the control group, while the total amount of waste increased when compared to the past three years.

⁷ Based on significance of $p<.001$

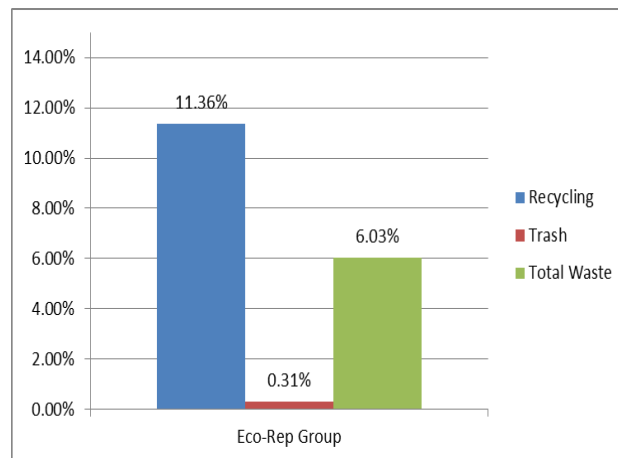
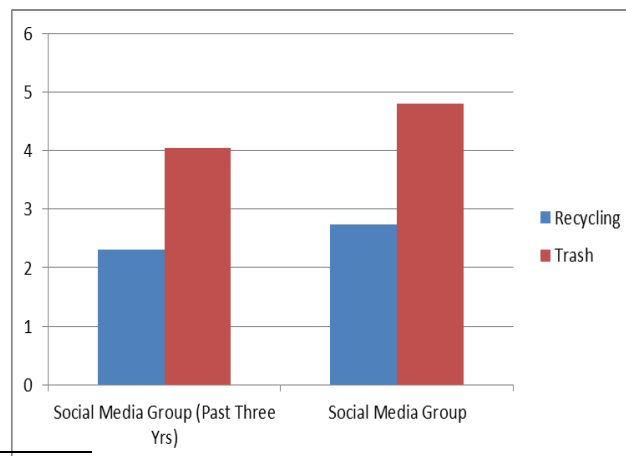


Figure 8: Eco-Rep Increase Percentages

Facebook Group Results

Recycling as a Percentage of Total Waste

Figure 9 shows the graph for the per capita trash and recycling numbers for the Facebook group. The average recycling relative to total waste percentage for the past three years has been 36.2 percent, and the average recycling relative to total waste percentage for this study was 37.4 percent. The p-value yielded in a t-test for this group was $p = 0.3200$, which does not show statistical significance.⁸



⁸ Based on significance of $p < .05$

Figure 9: Facebook Group Recycling Percentages

Percentage Increases of Recycling, Trash, and Total Waste

As shown in Figure 10, the percentage increases in recycling, trash, and total waste for this group as compared to the last three years were 19.11 percent, 18.29 percent, and 18.59 percent respectively. As we can see from Figure 10, there was an increase in recycling behavior and an increase in trash compared to the control group, while the total amount of waste increased when compared to the past three years.

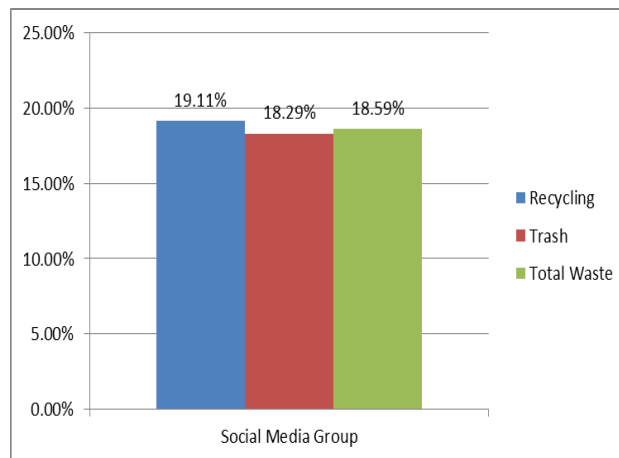


Figure 10: Facebook Group Increase Percentages

Data Analysis

Analysis of Passive Programming

The data for the passive marketing programs shows that these passive activities were effective in both increasing the percentage of recycling relative to the total amount of waste and contributing to an increase in recycling behavior and decrease in trash as compared to the control group.

The recycling percentage when compared to total waste numbers shows an increase of 3.2 percent (49.2 percent to 52.4 percent). This jump was considered to be statistically significant when administering a t-test for significance, which means that there was less than a 5 percent probability that the change in recycling was caused by coincidence. This means that the change in recycling behavior was most likely caused by our programming efforts.

When reviewing the percentage changes in trash, recycling, and total waste, we can see that the effect of the passive marketing was large. The 16.50 percent increase in recycling behavior over the previous three years was 9.11 percent higher than our control group's percentage increase, indicating that passive marketing was effective in increasing recycling behavior. The increase in trash was only 2.59 percent, which is 0.92 percent lower than our control group. This indicates that passive marketing was effective in changing behavior regarding trash as well.

Analysis of Educational Programming

The data for the educational programming shows that these educational and engaging activities were effective in both increasing the percentage of recycling relative to the total amount of waste and contributing to an increase in recycling behavior and decrease in trash as compared to the control group.

The recycling percentage when compared to total waste numbers shows an increase of 3.1 percent (53.1 percent to 56.2 percent). This jump was considered to be statistically significant when administering a t-test for significance, which means that there was less than a 5 percent probability that the change in recycling was caused by coincidence. This means that the change in recycling behavior was most likely caused by our programming efforts.

When reviewing the percentage changes in trash, recycling, and total waste, we can see that the effect of the educational marketing was just as large as that of passive marketing. The 15.12 percent increase in recycling behavior over the previous three years was 7.73 percent higher than our control group's percentage increase, indicating that educational programming was effective in increasing recycling behavior. The increase in trash was only 1.94 percent, which is 1.57 percent lower than our control group. This indicates that educational and engaging marketing strategies were effective in changing behavior regarding trash as well.

Analysis of the Eco-Rep Program

The data for the Eco-Rep sustainability ambassador programs shows that these student positions were extremely effective in both increasing the percentage of recycling relative to the total amount of waste and contributing to an increase in recycling behavior and decrease in trash as compared to the control group.

The recycling percentage when compared to total waste numbers shows an increase of 2.6 percent (51.8 percent to 54.4 percent). This jump was considered to be statistically significant when administering a t-test for significance, which means that there was less than a 0.1 percent probability that the change in recycling was caused by coincidence. In fact, the probability that the change in recycling behavior was caused by chance is essentially zero (0.0001). This means that the change in recycling behavior was very likely to be caused by our Eco-Reps' efforts.

When reviewing the percentage changes in trash, recycling, and total waste, we can see that the effect of the Eco-Rep program was very large. The 11.36 percent increase in recycling behavior over the previous three years was 3.97 percent higher than our control group's percentage increase, indicating that the Eco-Rep program was effective in increasing recycling behavior. The increase in trash was only 0.31 percent, which is 3.20 percent lower than our control group. This indicates that the Eco-Rep program was effective in changing behavior regarding trash as well.

Analysis of the Facebook Group

The data for the Facebook group shows that these social media activities did not have a statistically significant effect on recycling rates in the residence halls under study.

The recycling percentage when compared to total waste numbers shows an increase of 1.2 percent (36.2 percent to 37.4 percent). This slight increase was not considered to be statistically significant when administering a t-test for significance. This means that our social media efforts were not likely to have changed student behaviors surrounding recycling.

When reviewing the percentage change in trash, recycling, and total waste, we can see that the Facebook posting may have had a minimal effect. The 19.11 percent increase in recycling behavior over the previous three years was 11.72 percent higher than our control group's percentage increase, and was also the greatest increase in recycling that we saw in this study. This increase may indicate that social media was effective in increasing recycling behavior. However, the increase in trash was also much higher than the control group, increasing by 14.78 percent to 18.29 percent. This increase in trash calls into question whether the Facebook group really did increase recycling, or whether the recycling stayed at a consistent rate while the total waste increased. Because the recycling percentage only 1.2 percent (which is much lower than for our other groups), we are more apt to adopt the conclusion that there was merely an increase in waste with a consistent recycling rate.

Discussion

Limitations

The method of data collection was a major limitation for this study. Unfortunately, actual weights could not be measured on the scale we needed, so we had to suffice with simple volume to weight conversions, leaving room for error and variances. Excessive abnormal trash production in Fricker Hall was also a limitation and caused fewer students and residence halls to be able to be a part of this study.

Another limitation was the distribution of the student populations in the groups being dealt with. While all weights were calculated on a per capita basis, the margin of error for the getting the calculated weights correct was higher for the groups with higher populations (i.e. more dumpsters) due to the mathematical conversion necessary to acquire the weights. For example, the Facebook group was randomly selected to contain the two highest population residence halls: Wells East and Wells West. This group, while consisting of two residence halls, or 20 percent of the total number of halls in the study (2 of 10), it also consisted of 39.4 percent of the students in the study (1153 of 2921). This could have caused the margin of error to increase to a point that skewed data.

Another limitation that existed for the Facebook/social media group was the access students had to the social media site. Facebook was the only social media site used for this study. Many students also have Twitter, Tumblr, Pinterest, and Instagram accounts. The use of only Facebook resulted in buy-in from only about 18 percent of the students in the residence halls involved. More coverage would have yielded more accurate results. It should be noted, however, that most residence hall Facebook pages rarely have over 25 percent of their student members regularly looking at or checking in on the page.

Another major limitation was the size of the study. When considering the study being administered on a residence hall basis, there were only two residence halls in each group, which is fewer halls than desired. If the time frame for this study was longer, it would be desirable to have all halls on campus administer one type of marketing each year and measure the changes from year to year. Of course, this would require a five-year study instead of a one-year study.

Recommendations

With the results of this study, many recommendations can be made. The following points are ones considered to be necessary for a useful and effective recycling program on a college campus and in the residence halls as dictated by these results.

1. **Create a Student Sustainability Ambassador Position:** In analyzing the data from this study, it was apparent that the Eco-Rep group minimized their waste the most while still significantly increasing their recycling percentage. Sustainability ambassadors give residents in the halls the opportunity to be educated and informed by an individual who is their peer, rather than having information given to them by a member of administration. This may be cause for more buy-in from the student population, and it creates employment and an educational environment for the student ambassador as well. The student ambassador for sustainability can also implement all other forms of engagement used in this study.
2. **Actively Engage Students:** The data in this study show that educational programming administered face-to-face had more effect on behavior change than passive programming initiatives. Engaging programming also minimized waste more effectively than passive programming, and the change in recycling percentage as compared to total waste was more statistically significant.
3. **Use Digital Signage:** If digital signage is available on your campus, use it. Digital signage is just as effective as physical posters. For this study, digital signage and physical signage were used interchangeably. One limitation for the use of digital signage, however, is the space in which it can be used and the mobility that it lacks.
4. **Use Social Media:** The social media group for this study did not show a an effect on waste minimization, and it did not show a statistically significant effect on the recycling percentage as compared to total waste. However, when coupled with other methods of marketing, we believe that it can be useful. Also, it is important to note that these pages are easy to administer and update, and come (for the most part) completely free to the user.
5. **Create Accountability:** If you desire to create a program for sustainability, create some form of accountability for that program's leaders. This accountability could be in the form of a salary, a stipend, gift cards, college credit, etc. Although it was not included in this study, a student group was created in 2011 involving members of the Leadership Involvement Teams (LIT) of each residence hall at UW-Whitewater. This council of members was created to spread

sustainability initiatives on the campus and actively engage students voluntarily. Meeting attendance was spotty and engagement was minimal. In contrast, the Eco-Reps hired for this study, who were also students involved in their LITs in the residence halls, came to all meetings and completed all tasks on or before the date required.

Conclusion

Each program and marketing technique applied to the residence halls of the University of Wisconsin-Whitewater has its merits. It is unfair to place more importance on one marketing technique than the other. Below is a table that places rankings in three general areas of sustainability that campuses are looking for: Effectiveness of technique on recycling percentage as compared to total waste⁹, waste minimization¹⁰, and increase in recycling by volume¹¹.

	Recycling Percentage as Compared to Total Waste	Waste Minimization	Increase in Recycling by Volume
Most Effective	Eco-Rep Program	Eco-Rep Program	Social Media Group
Second Most Effective	Passive Marketing	Educational Programming	Passive Marketing
Third Most Effective	Educational Programming	Passive Marketing	Educational Programming
Least Effective	Social Media Group	Social Media Group	Eco-Rep Program

Table 3: Technique Effectiveness

⁹ As per p-value in the t-testing phase of this research. A lower p-value indicates a more effective marketing technique.

¹⁰ As per the percentage increase in total waste for the duration of the research. A lower percentage increase in total waste indicates a better candidate for waste minimization.

¹¹ As per the percentage increase in recycling for the duration of the research. *Note: An increase in recycling is not the same as an increase in recycling percentage as compared to total waste. An increase in recycling percentage as compared to total waste is a relative metric that does not take weights or measures into consideration. An increase in recycling takes an actual percentage increase in the amount of waste being recycled. A good candidate for increased recycling may actually have a low recycling percentage as compared to total waste.*

Acknowledgements

I would like to thank all of the contributors that made this study a success. A special thanks goes to Eileen Norby of the University of Wisconsin System, without whose support and review in the preliminary stages of the grant writing none of this would have been possible. Thanks also to Wesley Enterline, University of Wisconsin-Whitewater Sustainability Coordinator, who provided prior data and support throughout the study. Thanks to Residence Life at UW-Whitewater, including the promotions office, all Assistant Complex Directors and Complex Directors, participating Residence Assistants, and the many administrative positions that contributed to this study. A special thanks goes to Brent Flikkema of John's Disposal, as well as the staff and drivers of John's Disposal, for providing data and collaboration for this study. Also, thank you to student contributors Amy Boerst, Trista Radloff, Jalen Capesius, and Emily Rigg. Also, thank you to my supervisor and grant advisor, Amanda Krier-Jenkins. With her support and resources this study was a success.

APPENDIX A: Passive Marketing Posters

Passive Poster #1: "Recycle-It's Easy" from the Wisconsin Department of Natural Resources

Recycle — It's Easy

You can recycle by following these simple directions.

Plastic containers

Collect by recycling code

Rinse

Remove caps and rings

Flatten

Place in recycling bin or cart

Glass bottles and jars

Rinse

No need to remove labels

Separate colors (if required)

Clear Brown Green

No lightbulbs

No dishes or glasses

No windows

Place in recycling bin or cart

Aluminum

Aluminum cans

Foil

Pie plates

Magnets won't attract aluminum

Rinse

Place in recycling bin or cart

Tin cans

Rinse

Remove the label (if required)

Place in recycling bin or cart

Check with your local government or recycling center to find out what is recyclable in your community.

Mixed paper and newspaper

Place in recycling bin or cart

Bundle and tie newspaper

Corrugated cardboard

Place in recycling bin or cart

Flatten the cardboard

Look for the ribbed, wavy layer.

- Paper**
- Paperboard (cereal boxes, paper egg cartons, paper towel rolls, etc.)
 - Corrugated Cardboard
 - Mixed Paper (junk mail, office type paper)
 - Newspapers, Magazines & Catalogs
 - Phone Books
- Cans & Glass**
- Glass Bottles and Jars, all colors
 - Aluminum Cans
 - Aluminum Pans/Foil
 - Steel/Tin Cans
 - Empty Steel Paint Cans
 - Empty Aerosol Cans
- Plastic Containers**
- PET #1 Plastic Bottles & Jars
 - HDPE #2 Plastic Bottles & Jars
 - #2 Tubs and Containers
 - #3 - #7 Bottles and Containers
- Wise Recyclers**
- Wisconsin Department of Natural Resources © 2009

Passive Poster #2: "Put It In The Bin" from the American Forest & Paper Association

Put It In The Bin

paperrecycles.org

Preparing Paper for Recycling

- Remove paperclips and rubber bands
- Remove any packaging tape or sticky tabs
- Staples may or may not need to be removed (*check your local recycling guidelines*)
- Break boxes down so that they lie flat

Recycle These...

- Cardboard
- Direct Mail
- Envelopes
- Magazines and Catalogs
- Newspaper
- Office Paper





American Forest & Paper Association

Improving Tomorrow's Environment Today





Passive Poster #3: "E-cycling" Original

The disposal of many types of electronic devices by way of incineration and landfills was banned in Wisconsin on September 1, 2010 by the Department of Natural Resources. **These items must now be recycled.**

What Can I Recycle?

- Computers (desktop and laptop, including netbooks and tablet computers)
- Desktop Printers
- Computer Monitors
- DVD players, DVRs and VCRs
- Mice and Keyboards
- Televisions
- Fax Machines
- Computer Accessories (speakers, hard drives, flash drives, modems, etc.)
- Cell Phones

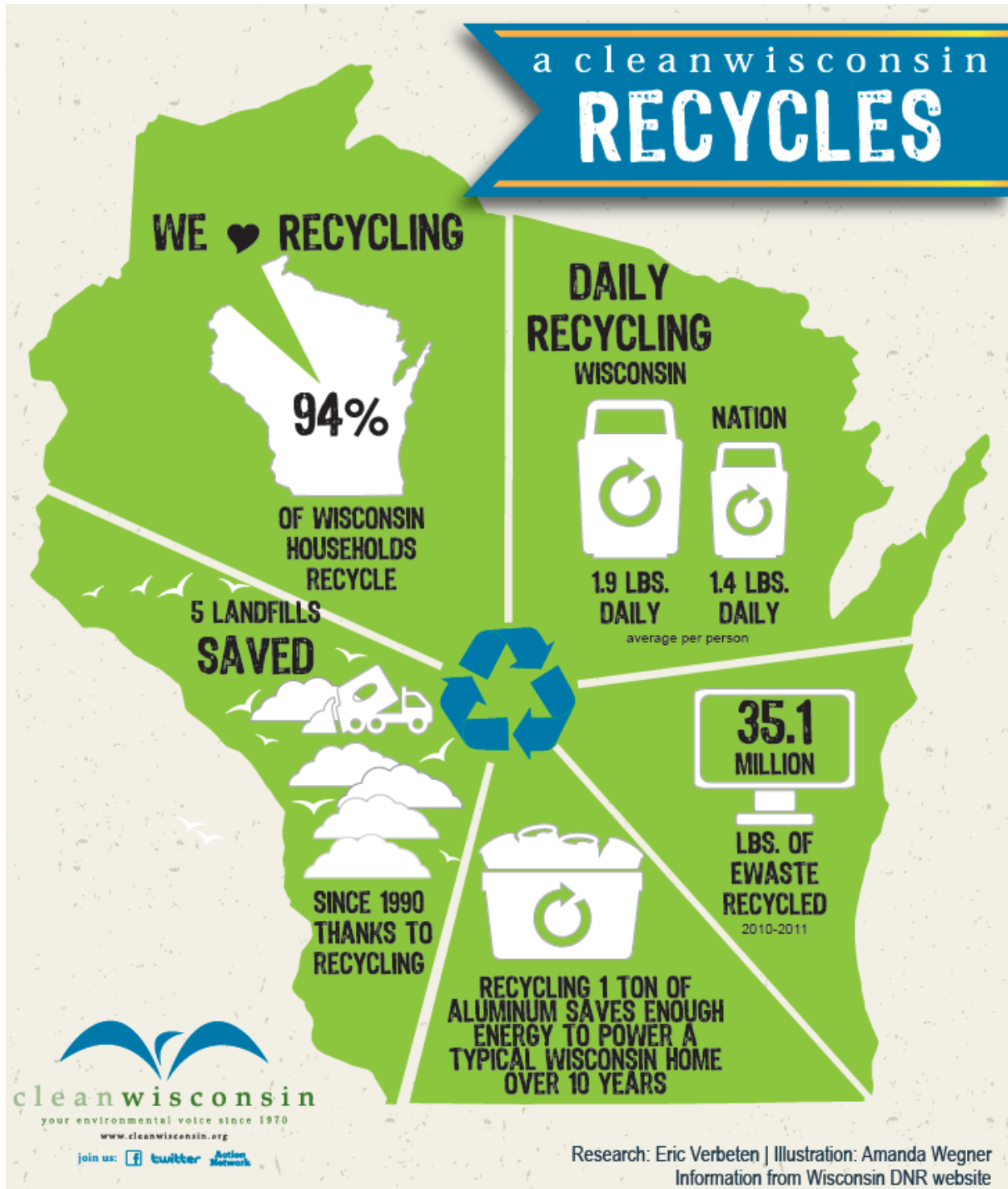




For more information and a list of recycling locations go to: dnr.wi.gov/ecyclewisconsin

Source: <http://dnr.wi.gov/org/aw/wm/publications/anevpub/wa426.pdf>

Passive Poster #4: "A Clean Wisconsin Recycles" from Clean Wisconsin



APPENDIX B: Eco-Rep Group Posters

Eco-Rep Poster #1: “What? – Recycling Facts”, an original poster



- **Once an aluminum can is recycled, it can be part of a new can within six weeks.**
- **An aluminum can that is thrown away will still be a can 500 years from now!**
- **To produce each week's Sunday newspapers, 500,000 trees must be cut down.**
- **More than 20,000,000 Hershey's Kisses are wrapped each day, using 133 square miles of tinfoil. All that foil can be recycled.**
- **One-third of the water used in most homes is flushed down the toilet.**
- **You can walk 1 mile along an average highway in the United States and see about 1,457 pieces of litter.**
- **On average, it costs \$30 per ton to recycle trash, \$50 to send it to the landfill, and \$65 to \$75 to burn it.**
- **About one-third of an average dump is made up of packaging material!**
- **A modern glass bottle would take 4,000 years or more to decompose -- and even longer if it's in the landfill.**

Eco-Rep Poster #2: "8 Ways to Reuse a Banana!" an original poster

8 Ways to Reuse a Banana!

Here are some great tips from Trish Smith. To get more tips about sustainability visit recyclebank.com

1. Rub a banana peel on a mosquito bite or red fire ant bite. It will stop it from itching and from becoming inflamed.

2. Bananas are great fertilizers!

3. Shine your leather shoes by simply rubbing the inside of a banana peel on your shoe.

4. Have a wart problem? "The potassium in banana peels can cure warts in less than 2 weeks!"

5. Teeth whitener! By simply gargling water and salt and rubbing a mixture of banana peel onto your teeth, it can make your teeth whiter within two weeks.

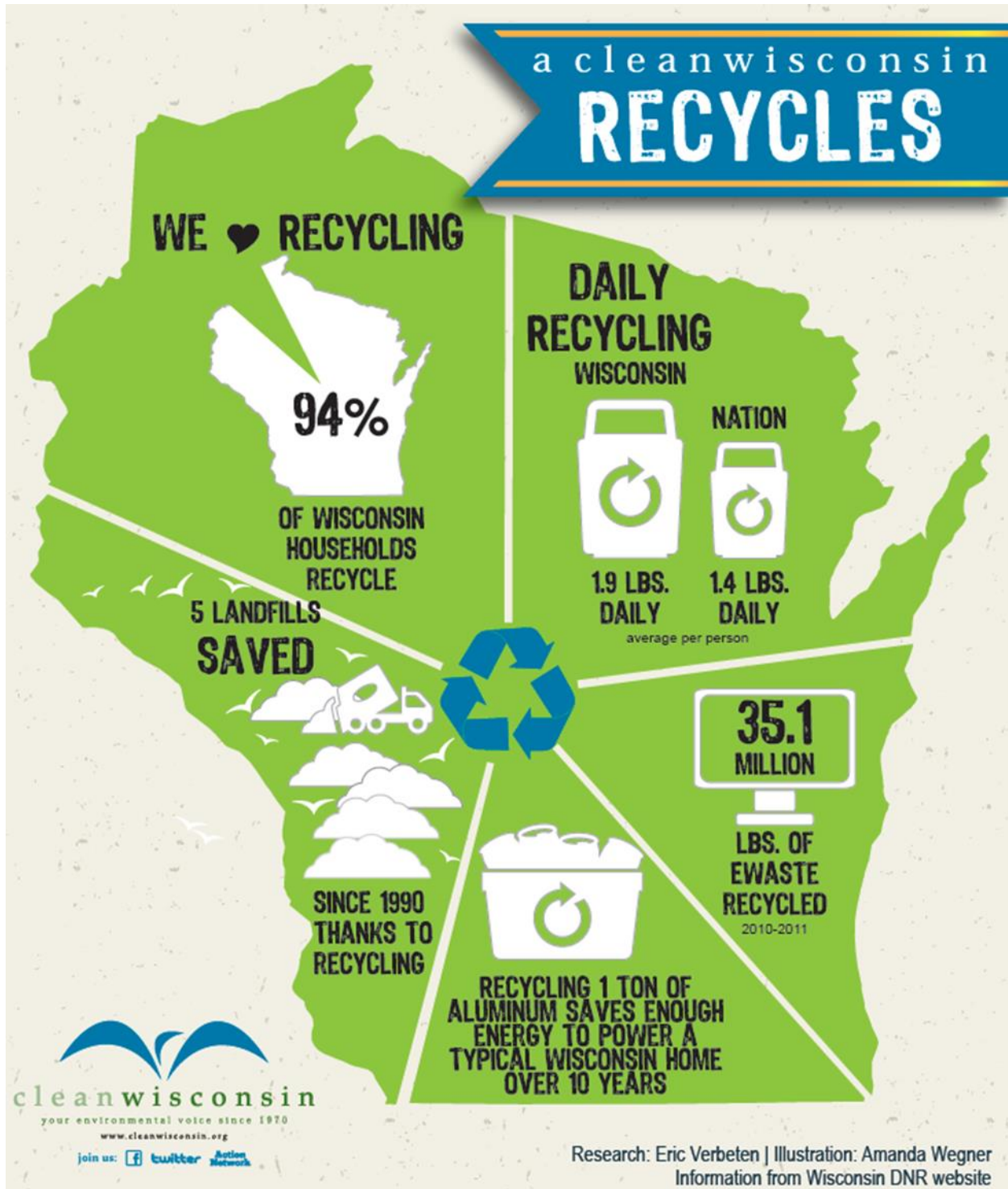
6. Pain reliever, if you have a scratch on your knee or elbow, the natural oils in a banana peel will relieve some of your pain.

7. Combine honey, cream, and smashed banana you will create a wonderful conditioner.

8. Hate using a tweezers to get out splinters? Instead, put a little piece of banana peel over the top of and then place the band aid over Trish Smith says, "The enzymes will both take the splinter out and heal the wound."



Eco-Rep Poster #3: "A Clean Wisconsin Recycles" from Clean Wisconsin



APPENDIX C: Eco-Rep Job Description and Pay Schedule

Eco Rep Job Description for Residence Life

Position Title: Residence Life Eco-Representative

Position Reports To: Residence Life Sustainability Coordinator

General Scope: Eco-Reps are ambassadors of sustainability for their individual residence halls. They are appointed to help residents with recycling and waste minimization initiatives, activities, tips, advice, and overall help. Eco-Reps will also aid the Residence Life Sustainability Coordinator in carrying out activities in their perspective residence halls.

Time Commitment: Eco-Reps will be expected to complete their activities in a timely manner and are expected to meet with the sustainability at least bi-weekly to report progress for specific activities.

Duties and Responsibilities:

- Create three activities or campaigns that actively engage residents in the respective residence hall
- Attend bi-weekly meetings with the Residence Life Sustainability Coordinator
- Help RAs with any sustainability issues that may arise
- Stay current with campus sustainability news and communicate new news to residents
- Are responsible for creating passive marketing campaigns for sustainability on their respective floors
- Provide information and educate residents about recycling, waste minimization, and sustainability

Qualifications:

- Must be a resident in respective residence hall and a student at UW-Whitewater
- Must be creative, outgoing, insightful, and eager to engage students

Compensation: Eco-Reps are paid upon completion of activities. These activities and their approximate worth are TBD. Task must be completed in a timely manner and completed in accordance with the event specifications. Total compensation for completion of all events will be \$300 cumulatively.

Eco-Rep Compensation Schedule

Meeting 1	\$15
Meeting 2	\$15
Meeting 3	\$15
Meeting 4	\$15
Meeting 5	\$15
Meeting 6	\$15
Meeting 7	\$15
Meeting 8	\$15
Engaging Activity 1	\$40
Engaging Activity 2	\$40
Engaging Activity 3	\$40
Passive Marketing Campaign 1	\$20
Passive Marketing Campaign 2	\$20
Passive Marketing Campaign 3	<u>\$20</u>
TOTAL	\$300