ILLINOIS

Research Report

Lighting Resources LLC

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We grant permission to share this report with future MR students

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Executive Summary

In this report, our team looks to help assist with Lighting Resources LLC's research question and find the most effective design and branding strategies to boost student engagement in recycling of batteries and lightbulbs. After going through some background, research design, and methodology our team will present the analysis of survey responses. By analyzing survey responses, the study explores how elements like interactive and visually appealing recycling stations, as well as campus-wide recycling competitions, influence students' likelihood to recycle items such as batteries and lightbulbs. Additionally, the study will use frequency statistics to analyze the effectiveness of various images in conveying the importance of recycling and encouraging participation, identifying which visual elements resonate most with students. The findings provide a data-driven foundation for developing design and branding strategies to help Lighting Resources LLC's recycling bins to excel at college campuses.

Background

Lighting Resources is the nation's largest bulb recycler, delivering environmentally sound processing to businesses and commercial contractors for more than 25 years. With 14 facilities, their own fleet of permitted vehicles, and a comprehensive mail-back recycling program, Lighting Resources is uniquely positioned to manage universal waste by the unit or truckload.

Lighting Resources also delivers waste processing and management solutions for all types of bulbs, batteries, PCB and non-PCB ballasts, tritium exit signs, smoke detectors, airbags, mercury-containing devices, and electronic waste. The company is now the nation's largest bulb recycler picking up large quantities of waste from companies and institutions across the

country. In addition to bulbs, Lighting Resources also manages spent batteries, lamp ballasts, mercury-containing devices, automotive airbags, and electronic and computer waste.

Lighting Resources is the nation's largest fluorescent lamp recycler. Operating 13 locations throughout the United States and a nationwide truck fleet, they also recycle electronic scrap, batteries, ballasts, thermostats, tritium exit signs, and smoke detectors. They also help customers manage small quantities of recyclables with a full line of prepaid, mail back Recycle Kits for light bulbs, batteries, ballasts, e-scrap, mercury devices, smoke detectors, and tritium exit signs.

Research Question

To develop our research problem, C1 utilized information provided by John and focused on the decision problem: Lighting Resources wants to know how to increase college students' engagement with recycling. From this, we formulated our final research question: What are the most effective design and branding strategies for Lighting Resources recycling bin to attract more UIUC college students' recycling?

Research Design

  Exploratory Research

Exploratory research is an inquiry method used in the early stages of a research project when little to no existing knowledge or information is available. This dynamic and flexible approach is aimed at gaining insights, uncovering trends, and generating initial hypotheses. There are numerous methods to conduct exploratory research- literature search, in depth interview, focus group, ZMET, video capture, unstructured observation, ethnography, and netnogrpahy.

Out of these exploratory research methods, C1 has decided to gather data through literature review and ZMET. By conducting this highly effective research method, our group will gain a comprehensive understanding of the existing knowledge and research on sustainability and effective recycling solutions. From that, C1 will be able to learn about the current best practices and evidence-based solutions that have been tested and validated which will guide this project towards a more effective and reliable outcome for Lighting Resources LLC. Also, we will be conducting research through ZMET. Where literature search is more evidence based, or quantitative, ZMET tends to the emotional side to gather deep insights. By using images and metaphors that C1 came up with, our ZMET will uncover deep and often subconscious thoughts and feelings about our project. This generates rich, qualitative data that provides a comprehensive understanding of our perceptions and experiences which is invaluable for creating effective strategies and solutions for Lighting Resources LLC. Overall, by combining literature review and ZMET will provide comprehensive exploratory research, ensuring that Lighting Resources LLC benefits from both evidence-based insights and emotional understanding to enhance their recycling solutions

Descriptive Research

Descriptive research aims to describe the characteristics of a specific population or phenomenon. It answers the "what" and "how" of a situation, providing detailed information about patterns, behaviors, or attitudes.

There are many ways to conduct descriptive research, including Surveys (Collecting data through questionnaires, either online, by phone, or in person), Longitudinal Studies (Watching and recording behaviors or actions amongst variables over a long span of time), and Cross-

Sectional Studies (Collecting data at a single point in time to analyze a population). We will use surveys to conduct descriptive research. Surveys are a powerful tool for collecting quantitative data on preferences, behaviors, and attitudes across a broad sample. For example, surveys are an efficient way to collect data from a large sample when utilizing a cross-sectional study because they provide clear and measurable insights into recycling trends within college institutions.

Causal Research

   Causal research is a type of study with the intention of finding a cause-and-effect relationship between variables. The primary goal is to determine whether one variable is directly responsible for influencing the other. To conduct causal research, one can conduct experiments, have a test market, or use A/B testing. C1 will not be conducting any causal research. However, if we were to conduct such research, we would consider using a test market to see how effective our recycling bins would be on a college campus. We would place Lighting Resources' recycling bins at one of Illinois' most populated buildings, the CIF for example, and see how effective the LED display screen or the appealing aesthetic of the bin would be in getting students to recycle their lightbulbs and batteries. We will determine the success of the bins by calculating the number of lightbulbs and batteries that we have found in the bin.

Secondary Data

Design and Branding

        The NCBI article underscores the potential of design to influence recycling behavior. Effective design goes beyond aesthetics, incorporating ergonomic and psychological elements

that encourage recycling habits. For instance, placing a recycling bin's opening can influence the likelihood of use—designs that make depositing recyclables easier and more intuitive can increase usage rates. Additionally, designs incorporating feedback mechanisms—such as a counter showing the number of recyclables collected or sensors that thank the user—can reinforce positive behavior through immediate gratification.

Additionally, recycling studies emphasize the need for adequate labeling, as it improves compliance. In a recent study, labeling recycling bins leads to a 47% reduction in contamination and increased recycling rates by 20% (Lancen, 2022). Cities including Seattle, Stockholm, and Tokyo have integrated color coded bins and concise instructions have seen significant increase in participation and improved material quality. Below is an example of informative labeling that will lead to reduced contamination will enhance user confidence and make them more likely to prioritize recycling. For Lighting Resources LLC, the graphic would be altered to end to lightbulbs and batteries.

(Hnettles, 2024)

Along with clear labeling, there are many other features that increase recycling involvement. One way is through using different colors, "A University of Michigan study from 2012 showed that switching from identically colored recycling and trash bins to two different colors increased the recycling rate from 55 percent to 88 percent" (Cooley, 2016). Also, having smaller openings that require users to consciously think about where their item goes reduces the likelihood of them containing recycling by tossing their item into the first hole they see.

Finally, consistency amongst all factors-color, labeling, and restrictive lids-within a facility can minimize confusion. Taking all of this into account, below are some examples of bins Lighting Resources LLC could integrate. These images are just basic models, so adding more details about UIUC would be beneficial.

Boosting Student Engagement

Student engagement is a critical aspect of university recycling. Creating peer-led initiatives, holding recycling competitions, and collaborating with student organizations can generate enthusiasm and foster a sense of shared responsibility. Reward-based programs, where students and staff are recognized for their contributions to sustainability, further incentivize active participation. In addition, involving students in decision-making processes—such as designing recycling stations or setting sustainability goals—can increase buy-in and commitment.

The *Inside Higher Ed* articles highlight disparities in student participation in extracurricular activities and campus events, which parallels with engagement in recycling programs. Just as certain student groups, such as first-generation students and those receiving

financial aid, are less involved in campus activities, they may also be less engaged in recycling efforts. This lack of involvement links to broader socioeconomic factors and the necessity for some students to work long hours, leaving little time for extracurricular activities, including sustainability initiatives.

Engagement in campus activities, including recycling programs, is associated with higher academic achievement, better retention rates, and a stronger sense of belonging. Promoting recycling can similarly enhance students' overall college experience by fostering a sense of community and shared responsibility. Even minimal involvement in recycling efforts can significantly contribute to a more sustainable campus environment and enhance students' satisfaction with their college experience.

Improving Campus Recycling Programs

A key challenge in campus recycling is contamination, often caused by improper disposal of non-recyclable items. To mitigate this issue, universities can introduce targeted educational campaigns and training sessions, especially during move-in and move-out periods or large events when waste levels spike. Successful programs also leverage technology and data tracking to monitor waste streams and identify areas for improvement. For example, implementing a system to track recycling rates by building or department allows campuses to pinpoint and address specific problem areas.

Universities can also partner with local recycling facilities and industry experts to keep their programs up-to-date and align with broader community goals. This collaboration ensures that campuses remain aware of changes in recycling technology or regulations and can adapt accordingly. Setting measurable goals and using metrics like diversion rates, contamination levels, and participation rates allows schools to track progress and make informed decisions.

The *CampusGroups* article outlines strategies that can be adapted to promote recycling on campus. Raising awareness about recycling resources and programs is crucial. This can be achieved through digital tools, social media campaigns, and informational sessions that highlight the benefits of recycling and how students can get involved. Hosting key events, such as campus clean-up days and recycling competitions, can also foster a sense of community and encourage participation.

Encouraging early involvement in recycling initiatives can help students build connections and become more engaged in sustainability efforts. Leveraging the support network around students, including advisors, mentors, and peers, can enhance their engagement and success in recycling programs. Institutions should create a supportive environment that encourages student involvement in sustainability initiatives.

Creating more inclusive and accessible opportunities for all students to take part in recycling programs can help bridge the engagement gap but involves understanding the unique challenges faced by underrepresented student groups and addressing them through targeted initiatives. For example, providing these recycling bins in dormitories and common areas, offering incentives for participation, and integrating recycling education into orientation programs can make it easier for all students to get involved.

The Towson Telegraph article hints at the potential of integrating educational components into recycling programs. This can be expanded into structured educational campaigns that inform and engage students through interactive learning modules about the benefits of recycling and the specific impact of their actions. For example, digital signage or apps that display real-time data on the amount of waste diverted from landfills due to campus recycling efforts could provide a tangible connection between individual actions and larger environmental impacts.

While technology integration is discussed in the Towson University article, there is room to explore more advanced technological solutions. These could include using AI and machine learning to analyze waste management data, predict patterns, and optimize recycling processes. Such technologies could also personalize communication and feedback to students based on their recycling habits, making the educational aspect more relevant and engaging.

Primary Data

Qualitative (ZMET)

The Zaltman Metaphor Elicitation Technique (ZMET) is a powerful qualitative research tool that taps into consumers' deeper emotions and perceptions by utilizing visual and sensory imagery. This method is particularly effective in uncovering the thoughts and feelings that consumers might have towards a specific brand or industry, which they often struggle to articulate with words alone. By encouraging participants to select images that resonate with their personal experiences and emotions, ZMET helps to reveal underlying attitudes, beliefs, and associations that might otherwise remain hidden. Through these images, participants can better communicate complex or abstract feelings, allowing researchers to gain a richer and more nuanced understanding of how a brand is perceived. This approach not only sheds light on consumers' subconscious thoughts but also aids marketers in crafting more meaningful and emotionally resonant messaging strategies

Through our ZMET research, we identified three recurring themes that consistently emerged in relation to our project: Collaboration, Waste, and Recycling. These themes highlight the interconnected nature of environmental responsibility and the steps we can all take to contribute to a more sustainable future. Collaboration emphasizes the importance of working together—across communities, businesses, and individuals—to tackle environmental

challenges. Waste reduction emerged as a key focus, with participants expressing concerns about excessive consumption and the need to minimize it. Recycling, particularly of items like bulbs and batteries, was frequently mentioned as a practical way to reduce environmental impact. By fostering collaboration and encouraging waste reduction and recycling, we can collectively work towards making the world a cleaner, healthier place. This commitment not only benefits our current well-being but also ensures a better environment for future generations.

Quantitative (Qualtrics Survey)

Our Qualtrics survey included 21 questions and took approximately 5 minutes to complete. We gathered responses from 107 participants by distributing the survey to friends, professors, and other members of our campus community to ensure a diverse and representative sample. Demographic information, including year in school, gender, and college, is shown in Figure 1.

This survey will collect information on participants' recycling habits, factors that influence recycling behaviors, and key characteristics of respondents and trends that we find within their responses. We also gauged the interest in recycling competitions with motivational rewards. Participants were also asked questions regarding what incentives would encourage them to recycle more frequently. Lastly, participants were shown three AI-generated images to test their effectiveness in encouraging recycling and to inspire potential design ideas for Lighting Resources LLC's next recycling bins
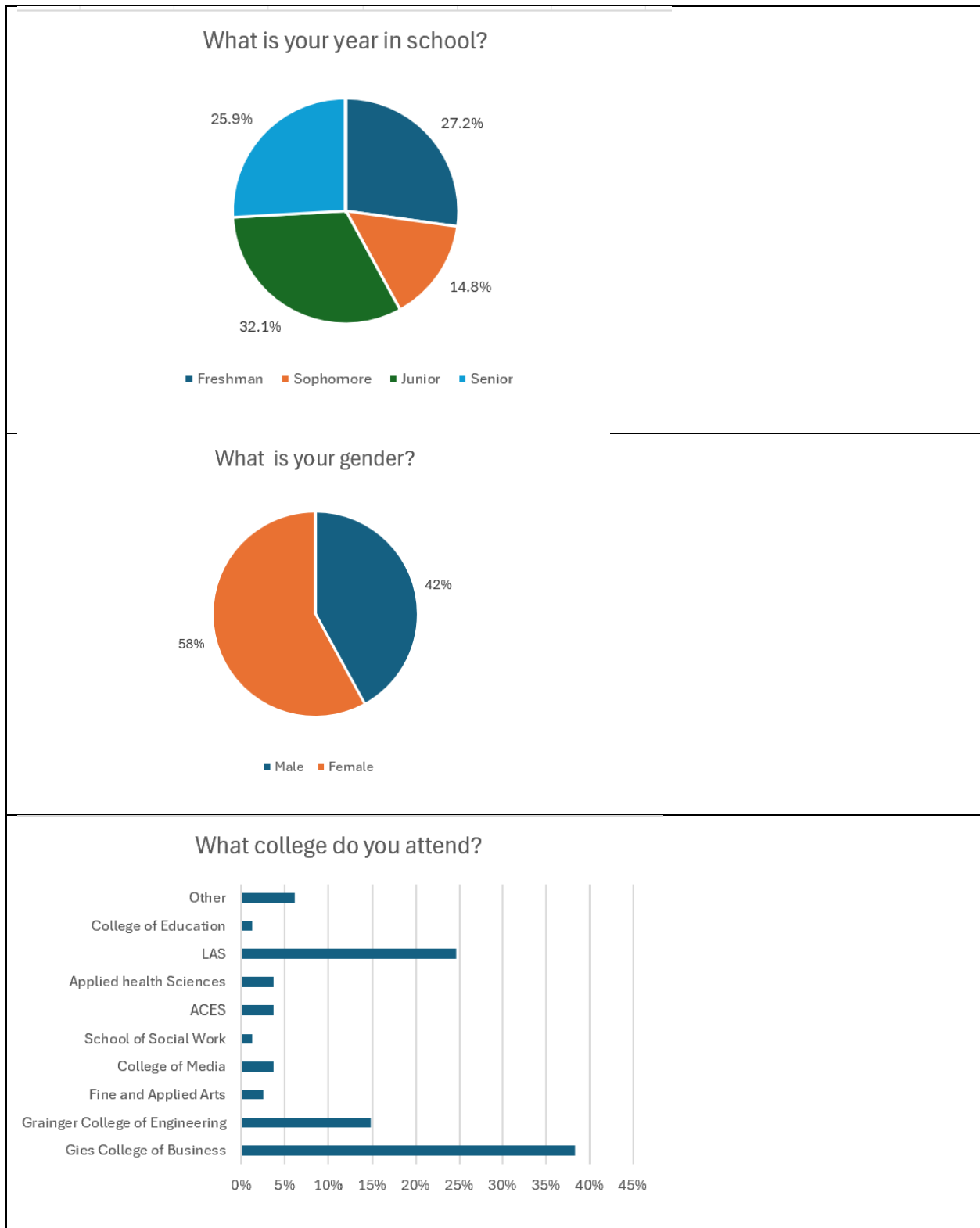
What is your year in school?

25.9%   27.2%

14.8%

32.1%

■ Freshman   ■ Sophomore   ■ Junior   ■ Senior

What is your gender?

42%

58%

■ Male   ■ Female

What college do you attend?

Other
College of Education
LAS
Applied health Sciences
ACES
School of Social Work
College of Media
Fine and Applied Arts
Grainger College of Engineering
Gies College of Business

0% 5% 10% 15% 20% 25% 30% 35% 40% 45%

Figure 1

Data Analysis

For quantitative data analysis, C1 will use both univariate and multivariate techniques to gather insights from the Qualtrics survey data. Univariate analysis will include using both frequency and descriptive statistics for both categorical and continuous variables. To examine the potential relationships among variables, multivariate analysis will include the Chi Square test, Pearson Correlation, T-test, and Regression analysis. These tests will be developed based on the proposed hypotheses.

Conclusions

Frequency Analysis

After performing both univariate and multivariate analyses, including frequency and descriptive statistics, correlation models, independent t-tests, and regression analysis, we arrived at several key conclusions to help Lighting Resources LLC boost recycling engagement at UIUC. Our first analysis included a frequency analysis and revealed that among the design elements influencing students' likelihood to recycle, a progress counter and clear, easy-to-understand labels were the most effective while a QR code connected to a mobile app to be least effective (Figure 2).
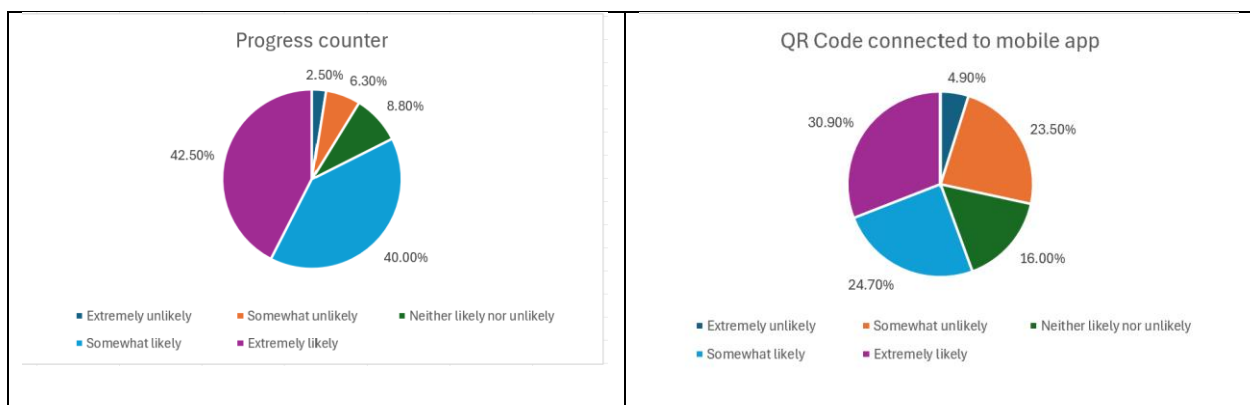
Figure 2

Additionally, the survey presented participants with three AI generated images that captured the design choices listed above. Participants were then asked to rate the effectiveness of each image (Figure 3). The results indicated that Image 1 was the most successful in encouraging recycling, receiving a mean rating of 4.22 out of 5 (Figure 4). These findings further reinforce the conclusion from the pie charts that a progress counter is an excellent design choice. The next effective image was Image 2, which captures the least effective design element we found above- a QR code connected to a mobile recycling app. We believe this may be due to the fact that Image 3, with its bright and somewhat abrasive LED lights, did not fully capture the intended concept. Initially, we envisioned including a screen that would play videos relevant to UIUC and then display an image with a 'Thank you for recycling' message to create a more interactive and appreciative experience. However, AI was unable to provide such image, which highlights one of the limitations in our methodology

| Image 1 | Image 2 | Image 3 |
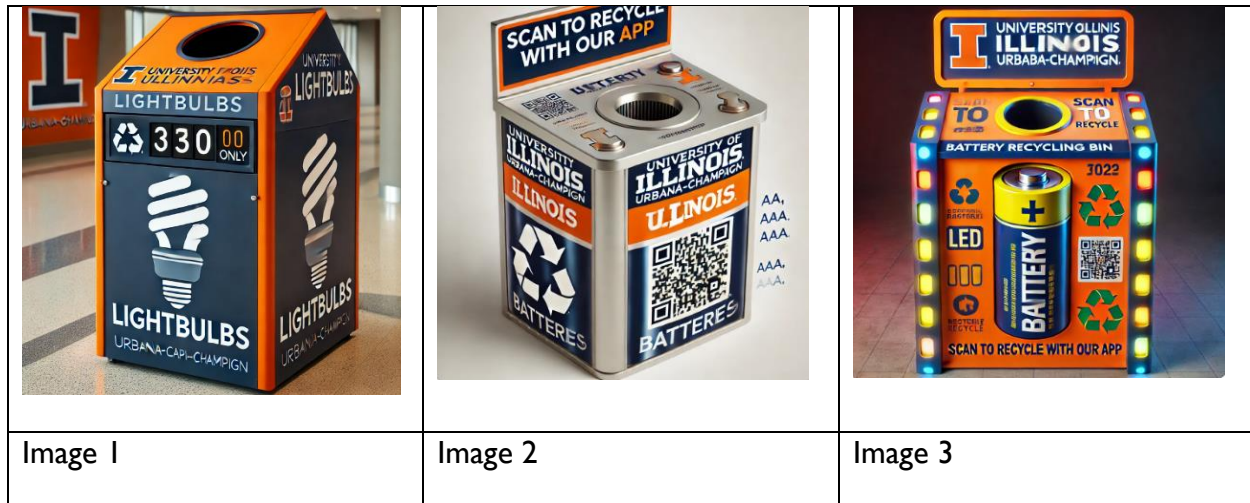
Figure 3

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q13. What design elements influenced your decision? - Easy to understand labels (images of what goes in specific bins)	81	1	5	4.22	.975
Q13. What design elements influenced your decision? - Progress counter (visual displays showing how many batteries or bulbs have been recycled)	80	1	5	4.14	.990
Q13. What design elements influenced your decision? - Bright colors and eye-catching design	81	1	5	3.63	1.078

Figure 4

Descriptive Statistics

Next, we aimed to test which incentives would encourage the most recycling for

Lighting Resources LLC. To do so, we performed a descriptive statistic test and found that the

three most effective incentives included recycling rewards point systems, VIP exclusive access,

and a mobile app (Figure 5). The rewards point system allows students to earn points for every

lightbulb/battery they recycle, which can be redeemed for discounts on food at the Union, free

entry into sports games, discounted merch from bookstore, etc. VIP exclusive access would

offer recyclers the opportunity to win special access to special campus events such as Spring

Jam and more. Finally, the mobile app would provide essential resources in one place including a

bin locator, reminders and notifications, educational information, and rewards. It is interesting

to note that while a QR code connected to said mobile app was the least effective design

choice, the app itself remains one of the most effective branding strategies.

LED lights on bin that change color when you recycle	3.3
Recycling rewards point system	4.11
Mobile app with bin locator, notifications, etc.	3.7
Targeted educational campaigns	3.22
Dorm vs. Dorm competition	3.69
VIP exclusive access to UIUC events	3.83
Social media challenge	3.2
Recycling scavenger hunt	3.09
Mystery boxes placed at bins	3.62
*all incentives are based on a 5 point scale of effectiveness of encouraging recycling	

Figure 5

Correlation Analysis

The next analysis includes a correlation between variables to measure the strength of

their relationship. Since we have already made conclusions regarding design and branding

choices, for our correlation analysis, we decided to focus on how likely students are to

participate in a campus-wide recycling competition and how likely they are to recycle batteries

and lightbulbs. All of the highlighted significant p values in Figure 6 are <0.001 indicating that the

correlations between the variables are statistically significant with a very high level of

confidence. Additionally, students seem more inclined to recycle batteries, as the correlation

between Q15 (batteries) and Q16(batteries in a competition) shows a moderate positive

relationship. While the other three combinations also show moderate positive correlations, they are not as strong.

Correlations

		Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Batteries	Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Lightbulbs	Q16. How likely would you be to participate in a campus-wide recycling competition for the following items if one were organized? - Batteries	Q16. How likely would you be to participate in a campus-wide recycling competition for the following items if one were organized? - Lightbulbs
Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Batteries	Pearson Correlation	1	.853**	.580**	.404**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	81	81	80	81
Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Lightbulbs	Pearson Correlation	.853**	1	.562**	.504**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	81	81	80	81
Q16. How likely would you be to participate in a campus-wide recycling competition for the following items if one were organized? - Batteries	Pearson Correlation	.580**	.562**	1	.833**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	80	80	80	80
Q16. How likely would you be to participate in a campus-wide recycling competition for the following items if one were organized? - Lightbulbs	Pearson Correlation	.404**	.504**	.833**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	81	81	80	81

Figure 6

Independent T-tests

The next analysis involved conducting a t-test on various variables to examine whether there were significant differences between the means of two groups. Specifically, these tests evaluated the relationship between year in school (freshman vs. senior) and gender (males vs. female) and their likelihood to recycle batteries and lightbulbs.

Figure 7 focuses on the comparison between freshman and seniors in their likelihood to recycle. With p-values of 0.661 and 0.642 respectively, this indicates that the differences between these two groups are not statistically significant. To put it into perspective, being a freshman or senior does not significantly influence recycling behavior for batteries and lightbulbs.

Figure 8 examines the relationship between gender and recycling likelihood. With p-values of 0.01 and <0.01 respectively, we can conclude that there is a significant difference in

recycling likelihood between males and females. This implies that gender plays a meaningful role in influencing recycling behavior for batteries and lightbulbs. While the data suggests that females may recycle more than males, this assumption is not certain and would require further testing and analysis to confirm.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	Lower	Upper
						One-Sided p	Two-Sided p				
Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Batteries	Equal variances assumed	.904	.347	-.441	41	.331	.661	-.141	.319	-.784	.503
	Equal variances not assumed			-.443	40.278	.330	.660	-.141	.317	-.782	.501
Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Lightbulbs	Equal variances assumed	.571	.454	-.469	41	.321	.642	-.145	.309	-.770	.480
	Equal variances not assumed			-.473	37.480	.320	.639	-.145	.307	-.767	.477

Figure 7

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	Lower	Upper
						One-Sided p	Two-Sided p				
Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Batteries	Equal variances assumed	1.849	.178	-3.304	79	<.001	.001	-.755	.229	-1.210	-.300
	Equal variances not assumed			-3.245	66.316	<.001	.002	-.755	.233	-1.220	-.291
Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs? - Lightbulbs	Equal variances assumed	4.443	.038	-3.430	79	<.001	<.001	-.760	.222	-1.202	-.319
	Equal variances not assumed			-3.284	59.011	<.001	.002	-.760	.232	-1.224	-.297

Figure 8

Regression Analysis

The final analysis we conducted to help Lighting Resources LLC determine the best design and branding strategies to boost recycling engagement was a regression analysis. This

test examines the relationship between a dependent variable and one or more independent variables and allows us to predict outcomes based on the independent variables. In our model, we aimed to predict the likelihood of people recycling batteries based off of variables including gender, year in school, college, how often do you recycle, current knowledge, image, incentives, and design elements.

Our findings revealed that none of the independent variables were statistically significant at the 0.05 level. The closet was the perceived effectiveness of LED lights in encouraging recycling with a significance level of 0.051. Overall, our model has a significant level of 0.094 (Figure 9) indicating our model is not statistically significant. This means that the independent variables included in our model do not explain a significant amount of variance in the dependent variable.

Despite this, our model has a high R value of 0.995 and an R^2 value of 0.990 (Figure 10), suggesting that 99% of the variance in the dependent variable is explained by our model, indicating a very strong relationship between the predictors and the outcome.

While our model demonstrates a very strong positive relationship, its lack of statistical significance may seem counterintuitive. This discrepancy can arise for several reasons including overfitting, where the model includes too many predictors relative to sample size, and multicollinearity, which occurs when two or more variables in the model are highly correlated. For example, predicting the selling price of a home based on both square footage and the number of bedrooms could lead to multicollinearity since these variables are often closely related. In our model, we believe the lack of significance is primarily due to overfitting, with multicollinearity playing a secondary role.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.793	23	1.817	10.080	.094[b]
	Residual	.361	2	.180		
	Total	42.154	25			

Figure 9

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.995[a]	.990	.880	.430

Figure 10

Recommendations

Based on the findings of our research, we recommend implementing interactive recycling bins that integrate features to engage students effectively while aligning with their preferences for functionality and aesthetics. Below are our key suggestions:

Interactive Counter with LED Display

1. **LED Counter:** Equip the bins with an LED screen that displays the total number of items recycled in real time. This feature fosters a sense of collective achievement and encourages students to participate in recycling efforts actively.
2. **Dynamic Content:** Use the LED screen to showcase content like sports team highlights, campus news, or other visually appealing but non-intrusive updates. This dual-purpose functionality ensures the bins remain a focal point without relying on bright, flashy visuals that may detract from their surroundings.

Additional Engagement Strategies

1. **Gamification:** Consider introducing gamified elements, such as friendly competitions between dorms or campus organizations to see who can recycle the most items. The LED counter could highlight weekly or monthly leaders to drive continued participation.
2. **QR Code Integration:** Add QR codes on the bins linking to educational content about the importance of recycling batteries and lightbulbs or details about where the recycled materials go.
3. **Implementing an App**: Develop a mobile app to enhance engagement with features such as incentive programs, a bin locator, and a progress tracker.
4. **Strategic Placement:** Position bins in high-traffic areas like libraries, student unions, and dormitories to maximize visibility and convenience.

Design Considerations

Our research indicates that students are drawn to innovative yet practical designs. We recommend using subdued, ambient LED lighting to frame the recycling counter and highlight the bin's features without being overpowering. For instance, soft green or blue lights can align with sustainability themes while maintaining a polished and professional look.

Expected Outcomes

These enhancements are expected to:

- Increase recycling participation rates.
- Raise awareness about sustainability on campus.
- Create a visually appealing and functional solution that aligns with students' preferences.

By adopting these recommendations, the company can effectively engage the campus community, fostering an environment that values sustainability and innovative solutions.

Limitations

1. **Sample Bias**

   a. Our survey consisted of 107 participants that included friends, campus community, and professors. This ultimately limits the representativeness of our sample, and as a result may not truly reflect the attitudes and behaviors of the broader UIUC population.

2. **Overfitting and Multicollinearity**

   a. Our regression analysis indicates the high R-squared value along with the lack of statistical significance. This results in our model being less reliable and reduces the ability for us to draw strong predictive conclusions. This overfitting may have occurred due to the extensive number of independent variables relative to the sample size.

3. **Lack of Awareness**

   a. Many students may not be fully aware of what specific items (lightbulbs and batteries) are recyclable or where the bins are located on campus. Without having targeted educational campaigns or awareness initiatives, students may not be inclined or improperly engage with the recycling program.

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Appendix

Qualtrics Survey:

ILLINOIS

Default Question Block

Hello! We are students conducting a survey for our Marketing Research Class at the University of Illinois at Urbana-Champaign. The purpose of this survey is to understand students' perceptions on recycling batteries and lightbulbs on campus and what design/strategies would increase involvement. This survey will take approximately 5 minutes to complete. Your responses will remain strictly confidential and anonymous. Thank you for participating in our survey!

Q1. How often do you recycle?

	Never	Sometimes	About half the time	Most of the time	Always
On campus	○	○	○	○	○
At home	○	○	○	○	○

Q2. What items do you typically recycle?

	Never	Sometimes	About half the time	Most of the time	Always

Paper	○	○	○	○	○
Plastic	○	○	○	○	○
Metal	○	○	○	○	○
Glass	○	○	○	○	○
Lightbulbs	○	○	○	○	○
Batteries	○	○	○	○	○
Other (specify)	○	○	○	○	○

Q3. How much do you agree with the follow statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I am aware of current recycling facilities at UIUC	○	○	○	○	○
I feel UIUC provides adequate information on how to recycle properly	○	○	○	○	○
More should be done to promote recycling at UIUC	○	○	○	○	○
Sustainability and caring for the environment are important and a priorities of mine	○	○	○	○	○
I am interested in learning more about sustainable practices at UIUC	○	○	○	○	○

Q4. How would you rate your current knowledge about recycling (e.g., what can be recycled and where)?

○ Terrible
○ Poor
○ Average
○ Good
○ Excellent

Q5. What factors influence your decision to recycle?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Convenience	○	○	○	○	○
Availability of Bins	○	○	○	○	○
Environmental Concerns	○	○	○	○	○
Peer Influences	○	○	○	○	○
Lack of Knowledge about Recyclings	○	○	○	○	○
Other (specify)	○	○	○	○	○

Q6. Which of the following locations would make you more likely to recycle?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
On campus recycling (dorm, libraries, academic buildings)	○	○	○	○	○
Nearby grocery or connivence stores	○	○	○	○	○
Off campus housing complexes	○	○	○	○	○
Local coffee shops or cafes	○	○	○	○	○
Dedicated recycling drop-off sites within walking distance	○	○	○	○	○

Q7. Have you ever recycled these items before?

	Never	Sometimes	About half the time	Most of the time	Always
Lightbulbs	○	○	○	○	○
Batteries	○	○	○	○	○

Q8. Do you currently know where to recycle for the following items?

	Definitely not	Probably not	Might or might not	Probably yes	Definitely yes
Batteries	○	○	○	○	○
Lightbulbs	○	○	○	○	○

Q9. How interested would you be in recycling on campus if facilities were available?

	Not interested at all	Slightly interesting	Moderately interesting	Very interesting	Extremely interesting
Batteries	○	○	○	○	○
Lightbulbs	○	○	○	○	○

Q10. How likely are you to use on-campus recycling stations for the following items?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
Batteries	○	○	○	○	○
Lightbulbs	○	○	○	○	○

Q11. What would motivate you to recycle batteries or lightbulbs?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
Ease of Access to Bins	○	○	○	○	○
Environmental Impact	○	○	○	○	○
Incentives (Rewards, Discounts, etc)	○	○	○	○	○
I don't think I would recycle these items	○	○	○	○	○

Interactive Design and Recycling

Utilize Images 1-3 to answer questions

Image 1- Lightbulb recycling bin that includes a LED progress counter of the number of bulbs recycled up to date.

Image 2- Battery recycling bin that has easy-to-read labels along with a QR code that would direct users to a mobile app to find locations to recycle, partake in informative recycling news, and much more.

Image 3- Battery recycling bin that has an eye-catching design with bright colors to get users attention.

Q12. Based off of the three proposed recycling bin, how likely would you be to recycle batteries and lightbulbs?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
Image 1	○	○	○	○	○
Image 2	○	○	○	○	○
Image 3	○	○	○	○	○

Q13. What design elements influenced your decision?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
Easy to understand labels (images of what goes in specific bins)	○	○	○	○	○
Progress counter (visual displays showing how many batteries or bulbs have been recycled)	○	○	○	○	○
Bright colors and eye-catching design	○	○	○	○	○
QR Code connected to mobile app	○	○	○	○	○
Other (specify)	○	○	○	○	○

Q14. How effective do you think both of these incentives would be in encouraging more recycling batteries and lightbulbs?

	Not effective at all	Slightly effective	Moderately effective	Very effective	Extremely effective
LED lights on bin that change color when you recycle	○	○	○	○	○
Recycling rewards point systems- receive points for every battery/lightbulb recycled and redeem points for discount on food in the Union, free entry into sports game, discounted merch from the bookstore, etc.	○	○	○	○	○

Mobile app including bin locator, reminders and notifications, educational information, and rewards	○	○	○	○	○
Targeted educational campaigns and training sessions	○	○	○	○	○
Dorm vs. dorm competition- semester-long recycling competition where winners can collect prizes such as a pizza party or catered dinner	○	○	○	○	○
VIP exclusive access- offers recyclers the chance to win VIP access to special campus events, such as Spring Jam and more	○	○	○	○	○
Social media challenge- students post on social media with specific recycling, each post is an entry for a prize raffle	○	○	○	○	○
Recycling quest- recycling turned into a scavenger hunt with checkpoints across campus. Students who recycle at different bins can collect virtual stamps or tokens, leading to a prize at the end of the semester.	○	○	○	○	○
Surprise boxes- "mystery boxes" will be placed randomly at recycling bins for students to win when they recycle. Prizes can range from small items like snacks or a drink to larger items such as a free ticket to a football gam	○	○	○	○	○
Other (specify) [ ]	○	○	○	○	○

Q15. How likely would you be to recycle the following items if recycling stations were more prominent or included technology like interactive designs?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
Batteries	○	○	○	○	○
Lightbulbs	○	○	○	○	○

Q16. How likely would you be to participate in a campus-wide recycling competition for the following items if one were organized?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
Batteries	○	○	○	○	○
Lightbulbs	○	○	○	○	○

Q17. What improvements would you suggest to increase the effectiveness of recycling participation on campus?

	Not effective at all	Slightly effective	Moderately effective	Very effective	Extremely effective
Regular collection and maintenance	○	○	○	○	○
Feedback and suggestions	○	○	○	○	○
Increased awareness campaigns	○	○	○	○	○

Q18. What is your year in school?

○ Freshman
○ Sophomore
○ Junior
○ Senior

Q19. What is your gender?

○ Male
○ Female
○ Other

Q20. What college do you attend?

○ Gies College of Business
○ Grainger College of Engineering
○ Fine and Applied Arts
○ College of Media
○ School of Social Work
○ ACES
○ Applied Health Sciences
○ LAS
○ iSchool
○ College of Education
○ Other

Codebook:

Section & Team Number: C1

Your Survey (Client) Name: Lighting Resources LLC

Variable Name	Scale Type	Q #	Description	Response Options
ID			Questionnaire identification number	
Often_oncampus	1	1	How often do you recycle on campus?	1=Never 2=Sometimes 3=About half the time 4=Most of the time 5=Always
Often_athome	1	1	How often do you recycle at home?	1=Never 2=Sometimes 3=About half the time 4=Most of the time 5=Always
Typically_paper	1	2	How often do you recycle paper?	1 = Never 2 = Sometimes 3 = About half the time 4 = Most of the time 5 = Always
Typically_plastic	1	2	How often do you recycle plastic?	1 = Never 2 = Sometimes 3 = About half the time 4 = Most of the time 5 = Always
Typically_metal	1	2	How often do you recycle glass?	1 = Never 2 = Sometimes 3 = About half the time 4 = Most of the time 5 = Always

Typically_glass	1	2	How often do you recycle glass?	1 = Never 2 = Sometimes 3 = About half the time 4 = Most of the time 5 = Always
Typically_lightbulbs	1	2	How often do you recycle lightbulbs?	1 = Never 2 = Sometimes 3 = About half the time 4 = Most of the time 5 = Always
Typically_batteries	1	2	How often do you recycle batteries?	1 = Never 2 = Sometimes 3 = About half the time 4 = Most of the time 5 = Always
Typically_other	1	2		1 = Never 2 = Sometimes 3 = About half the time 4 = Most of the time 5 = Always
Agree_aware	1	3	I am aware of current recycling facilities at UIUC	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Agree_adequate	1	3	I feel UIUC provides adequate information on how to recycle properly	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree

Agree_promote	1	3	More should be done to promote recycling at UIUC	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Agree_sustainability	1	3	Sustainability and caring for the environment are important and a priorities of mine	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Agree_learning	1	3	I am interested in learning more about sustainable practices at UIUC	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Knowledge_rating	1	4	How would you rate your current knowledge about recycling (e.g., what can be recycled and where)?	1=Terrible 2=Poor 3=Average 4=Good 5=Excellent
Factors_convenience	1	5	Does convenience influence your decision to recycle?	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Factors_availability	1	5	Does availability of bins influence your decision to recycle?	1=Strongly disagree 2=Somewhat disagree

				3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Factors_concerns	1	5	Does environmental concerns influence your decision to recycle?	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Factors_peer	1	5	Does peer influences influence your decision to recycle?	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Factors_knowledge	1	5	Does lack of knowledge about recycling influence your decision to recycle?	1=Strongly disagree 2=Somewhat disagree 3=Neither agree nor disagree 4=Somewhat agree 5=Strongly agree
Factors_other	1	5		
Locations_oncampus	1	6	Would on campus recycling locations (dorms, libraries, academic buildings) make you more likely to recycle?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Locations_stores	1	6	Would nearby grocery or convenience stores make you more likely to recycle?	1=Extremely unlikely 2=Somewhat unlikely

				3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Locations_offcampus	1	6	Would off campus housing complexes make you more likely to recycle?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Locations_cafes	1	6	Would local coffee shops or cafes make you more likely to recycle?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Locations_dedicated	1	6	Would dedicated recycling drop-off sites make you more likely to recycle?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Experience_batteries	1	7	Have you ever recycled lightbulbs before?	1=Never 2=Sometimes 3=About half the time 4=Most of the time 5=Always
Recycle_Batteries	1		Do you currently recycle batteries?	1 = Definitely not 2 = Probably not 3 = Might or might not 4 = Probably yes 5 = Definitely yes
Recycle_Lightbulbs	1	8	Do you currently recycle lightbulbs?	1 = Definitely not 2 = Probably not 3 = Might or might not 4 = Probably yes

				5 = Definitely yes
Interest_Batteries	1	9	How interested would you be in recycling batteries on campus if facilities were available?	1 = Not interested at all 2 = Slightly interesting 3 = Moderately interesting 4 = Very interesting 5 = Extremely interesting
Interest_Lightbulbs	1	9	How interested would you be in recycling lightbulbs on campus if facilities were available?	1 = Not interested at all 2 = Slightly interesting 3 = Moderately interesting 4 = Very interesting 5 = Extremely interesting
Oncampus_batteries	1	10	How interested would you be in recycling batteries on campus if facilities were available?	1=Not interested at all 2=Slightly interesting 3=Moderately interesting 4=Very interesting 5=Extremely interesting
Oncampus_lightbulbs	1	10	How interested would you be in recycling lightbulbs on campus if facilities were available?	1=Not interested at all 2=Slightly interesting 3=Moderately interesting 4=Very interesting 5=Extremely interesting
Motivate_ease_access	1	11	Would ease of access to bins motivate you to recycle lightbulbs or batteries?	1- Extremely Unlikely 2 – Somewhat Unlikely 3 – Neither Likely nor unlikely

				4 – Somewhat Likely 5 – Extremely Likely
Motivate_Environmental_Impact	1	11	Would environmental impacts motivate you to recycle lightbulbs or batteries?	1- Extremely Unlikely 2 – Somewhat Unlikely 3 – Neither Likely nor unlikely 4 – Somewhat Likely 5 – Extremely Likely
Motivate_Incentives	1	11	Would incentives motivate you to recycle lightbulbs or batteries?	1- Extremely Unlikely 2 – Somewhat Unlikely 3 – Neither Likely nor unlikely 4 – Somewhat Likely 5 – Extremely Likely
Motivate_would_not_recycle	1	11	I don't think I would recycle these items	1- Extremely Unlikely 2 – Somewhat Unlikely 3 – Neither Likely nor unlikely 4 – Somewhat Likely 5 – Extremely Likely
Proposed_Image1	1	12	How likely would you be to recycle batteries and lightbulbs based off of image 1?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Proposed_Image2	1	12	How likely would you be to recycle batteries and lightbulbs based off of image 2?	1=Extremely unlikely 2=Somewhat unlikely

				3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Proposed_Image3	1	12	How likely would you be to recycle batteries and lightbulbs based off of image 3?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Design_labels	1	13	Did easy to understand labels influence your design?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Design_progress	1	13	Did the progress counter showing how many batteries or bulbs have been recycled influence your design?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Design_colors	1	13	Did bright colors and eye-catching design influence your design?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Design_QR	1	13	Did QR code connected to a mobile app influence your design?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Design_other	1	13		1=Extremely unlikely

				2=Somewhat unlikely 3=Neither likely nor unlikely 4=Somewhat likely 5=Extremely likely
Incentive_Led_lights	1	14	How effective are LED lights to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_Rewards	1	14	How effective are rewards/points systems to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_app	1	14	How effective are reminders to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_Educational	1	14	How effective are campaigns to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_Competition	1	14	How effective would a competition be to incentivize individual's	1 = Not effective at all 2 = Slightly effective

			decisions when recycling?	3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_VIP	1	14	How effective is it to have VIP access to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_challenge	1	14	How effective are social media challenges to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_hunt	1	14	How effective would a quest/scavenger hunt game be to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_mystery	1	14	How effective are mystery boxes to incentivize individual's decisions when recycling?	1 = Not effective at all 2 = Slightly effective 3 = Moderately effective 4 = Very effective 5 = Extremely effective
Incentive_Other	1	14		1 = Not effective at all 2 = Slightly effective

				3 = Moderately effective 4 = Very effective 5 = Extremely effective
Recycling_likelihood	I	15	How likely would you be to recycle the lightbulbs if recycling stations were more prominent or included technology like interactive designs?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither unlikely nor likely 4=Somewhat likely 5=Extremely likely
Competition_Batteries	I	16	How likely would you be to participate in a campus wide recycling competition for batteries?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither unlikely nor likely 4=Somewhat likely 5=Extremely likely
Competition-_Lightbulbs	I	16	How likely would you be to participate in a campus wide recycling competition for lightbulbs?	1=Extremely unlikely 2=Somewhat unlikely 3=Neither unlikely nor likely 4=Somewhat likely 5=Extremely likely
Improvements_collection	I	17	Do you believe regular collection and maintenance would be effective in increasing recycling participation on campus?	1=Not effective at all 2=Slightly effective 3=Moderately effective 4=Very effective 5=Extremely effective
Improvements_feedback	I	17	Do you believe feedback and suggestions would be effective in increasing recycling participation on campus?	1=Not effective at all 2=Slightly effective 3=Moderately effective 4=Very effective 5=Extremely effective

Improvements_awareness	I	17	Do you believe increased awareness campaigns would be effective in increasing recycling participation on campus?	1=Not effective at all 2=Slightly effective 3=Moderately effective 4=Very effective 5=Extremely effective
Year	O	18	What is your year in school?	1= Freshmen 2 = Sophomore 3 = Junior 4 = Senior
Gender	N	19	What is your gender?	1 = Male 2 = Female 3 = Other
College	N	20	What college do you attend?	1=Gies College of Business 2=Grainger College of Engineering 3=Fine and Applied Arts 4=College of Media 5=School of Social Work 6=ACES 7=Applied Health Sciences 8=LAS 9=iSchool 10=College of Education 11=Other

ZMET:

Saul Guzman

Image	Description

	I used this image because we are very focused on recycling. So, in these past few days, whenever I would pass by a recycling bin, I think about Lighting LLC and keeping the world clean.
	A thought about what types of students would mainly be contributing to the lightbulb and battery disposal, and I thought of engineering students. They are always using technology and mechanics, so when I thought about who would be using these bins, I thought of them
	Obviously, when thinking about Lighting LLC and what they do, I thought of lightbulbs, because that is what they do. So, I had to put lightbulbs in.
	I also put an image of batteries because that is also what Lighting LLC does recycle batteries. They do this to take materials and turn them into something new. So, I had to add batteries as well

	Every time I walk by a recycling bin, I think of Lighting LLC. So, whenever I throw a can in the recycling bin, I feel like I am making the world a cleaner place.
	I just thought this is what the recycling bin looked like with the LED display. Also, AVA is holding a light bulb, so it reminded me of Lighting LLC
	Knowing that LLC uses the materials from the batteries to create things like glass sculptures, I added this image to show the beauty of what LLC is making.

Will Hale

Image	Description
	Knowing this companying is allowing the reuse of martials, which helps the planet because they don't need to be extracted and thus less emissions are put out, thus making a happy sun show this well
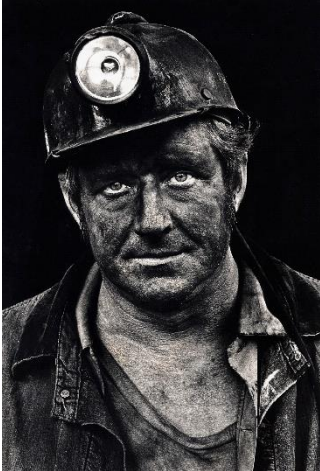
	This shows me the hard life some people go through to get the materials that are just being thrown out and it can help people stop having to do this
	This image is showing together, this company work based off people putting their own stuff into it and thus it takes everyone working together to make it happen.
	Again, the feeling of nature and allowing it to prosper, thus reminds me of the beauty of the earth
	This is showing teamwork and also children getting involved, showing that everyone needs to be involved similar to that the company is trying to expand to other campuses

Image	Description
	This image resonated because it showed the benefits of continuing to recycle, with some of the martials this company is recycling are very hard to extract from the earth and are very harmful if not disposed properly.
	This image stuck out to me because it may take one person to help another to do good for the planet. This is representative of the company; the usual person is not able recycle a battery or a light bulb in an effective manner. So, this company is allowing people to participate in something they previously would not have been able to.

Charlie Stein

Image	Description
	This image represents sustainability which makes me think of Lighting LLC because they are trying to expand their company to influence surrounding universities by encouraging the students to be more responsible when it comes to recycling.
	This image represents teamwork/collaboration which reminded me of the meeting we had with John regarding Lighting LLC's mission and future missions to promote cleanliness and pro-recycling.

	I found this image to be very meaningful to me and the mission of Lighting LLC due to the portrayal of the results from communities not actively participating in recycling. This reflects many individuals' poor choices and should strike most viewers as disturbing by the harm caused to the environment.
	This image resonated with me because it took me a moment to realize what the image was depicting. This image represents the wasted material's thrown away, rather than being recycled and reused to craft other supplies (ex. Metal scraps for metal ingots). This shows that we are missing a lot of potential revenue that could have been utilized in society rather than discarded.
	This image represents the innovative technology that Lighting LLC is trying to incorporate into an everyday recycling bin. With the recent update in technology along with Generative AI, I am confident that Lighting LLC will create a product that will be futuristic with interactive features.
	This image stood out to me because I find it to be a great representation of the effort our communities should be putting in to make our society cleaner and more productive. It doesn't take much effort to throw your belongings away into a bin but will make a drastic impact if we all begin to recycle as a community.

	This image allowed me to see how important it is to teach younger generations how to be sustainable to allow those habits to develop into adulthood.

Jason Fu

Image	Description
	For the image, means the combined efforts from students and faculties can make a substantial impact on sustainability goals at the university.
	We focus on the batteries recycling. Lighting LLC maintaining environmental sustainability. The recycling symbol represents the endless cycle of reuse and renewal, suggesting that materials like batteries can have a life beyond their initial use.
	We also focus on the lighting recycling. Lighting and batteries are 2 major items Lighting LLC advocates for the recycling.

Image	Description
	We decided to motivate students and faculty by competing to see which school put the most light bulbs and batteries in our recycling bins.
	Let me think about environmental protection more.
	Put bulbs and batteries in to recycling bins, not just for making money, but also it is everyone's responsibility.
	We need to find more strategies to attract people put bulbs and batteries in the recycling bins on campus.

Danielle Caccamo

Image	Description

	The main focus of our research is into the world of recycling and how we can improve it at UIUC.
	By completing this project, we are going to be helping out the environment and preserve the beauty in it. This image shows our inspiration as global warming and climate change has been on the rise in the past couple of decades
	This depicts collaboration which is key for the success of our project. Already, we have had multiple meetings with our client who has a lot of great ideas, however, they take a lot of work. In order to have this project be manageable for all of us, we have to come together to keep our client happy and delegate work accordingly.
	This image represents the original recycling bin idea from our client. I see this as a starting point, and I'm interested to see how our idea will change over time. I'm wondering if the design or the logistics behind it will change over time.

	When thinking about Lighting Resources LLC, I think about their mission in regards to recycling and bettering the environment as a whole. These lightbulbs represent one of the products they are looking to increase the amount of recycling. Now, looking at lightbulbs, I really wonder how they get recycled and reused, as it was something I never thought of before.
	This image represents the technology that Lighting Resources LLC has to offer. In on of our client meeting, John was able to show us some of the virtual spaces that can be integrated into our project somehow. It is amazing to see how technology has the potential to add exponentially to our project.
	This was the most meaningful picture in my opinion in my ZMET. It represents our Earth on the left if we put more effort and dedication into recycling while on the right is what would happen if nothing changes. This is also a huge inspiration and shows how much impact our project could have on the Earth.