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## Evaluating college students' attitudes and understanding of recycling

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EVALUATING COLLEGE STUDENTS' ATTITUDES AND UNDERSTANDING OF  
RECYCLING

A Thesis Submitted  
in Partial Fulfillment  
of the Requirements for the Designation  
University Honors

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University of Northern Iowa  
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## **Introduction**

Individuals have different habits, beliefs, and knowledge regarding recycling. These can be due to a variety of reasons such as peers, upbringing, accessibility of recycling, or prior knowledge of what can be recycled. A school setting, in particular, can be influential to a student's motivation to recycle; schools can provide an environment for students to learn about the importance of recycling and other various sustainability initiatives. Like most campuses, students' recycling behaviors on the University of Northern Iowa's (UNI) campus are likely to be affected to some degree by the reasons listed above as well as other life experiences.

Recycling is a valuable sustainability initiative in today's climate. Recycling saves energy, reduces wastes sent to landfills, and creates jobs along with a list of other things (Recycling Basic, 2020). It is important to create habits like recycling at a young age. Therefore, understanding factors that influence students' recycling decisions is valuable and allows for proper educational opportunities and interventions. To assess this, I conducted a survey of UNI undergraduate students to gauge their current habits, beliefs, and knowledge surrounding recycling. The survey allowed me to evaluate students' attitudes about current recycling efforts and whether additional education should be provided to students about proper recycling. It was my a priori belief that UNI students' awareness of recycling and concern of environmental issues has increased over the past couple of years and that students would benefit from additional education about what can be properly recycled at UNI.

Through the survey, I assessed factors that influence UNI students' attitudes towards recycling such as education, convenience, and social pressures. Wilcox (2014) previously conducted a recycling survey of UNI undergraduate students focused on attitudes and behaviors surrounding recycling; my updated survey included a handful of similar questions to allow for

comparisons. Through my comparisons, I was able to assess how beliefs and habits of UNI undergraduate students regarding recycling have changed or persisted over time. Further, it allowed for the consideration of recent campus changes that might have led to a change in attitudes surrounding recycling such as social media engagement and the availability of a sustainability certificate and coursework.

My survey also provided new insights about UNI undergraduate recycling habits, beliefs and knowledge. I included questions that assess students' general knowledge of proper recycling. The survey also asked questions regarding students' degree of support or lack thereof for a (hypothetical) increase in the UNI student green fee. In addition, I gathered data on students' priorities regarding current campus sustainability initiatives and suggestions for new campus-wide sustainability initiatives. These latter components provided information that will benefit and inform the UNI Office of Sustainability efforts. With results in hand, adjustments on campus may need to be made to better educate students on sustainability, specifically recycling. Further, the data on students' ranking of sustainability initiatives may aid the allocation of the student green fee fund in the future.

### **Literature Review & Background**

Recycling is both an individual and collective environmental action. Recycling leads to cleaner land, air, and water which in turn leads to a healthier, more sustainable economy (Largo-Wight et al., 2012). Recycling is healthful as it reduces energy consumption, emissions, and demand for raw materials (Largo-Wight et al., 2013). Reduced pollution as a result of recycling can also lower healthcare costs (Aguilar-Jurado et al., 2019). In the long run, proper recycling saves money.

When evaluating the costs and benefits of recycling, a majority of the benefits are related to environmental protection, which can be hard to quantify. The price or cost to recycle tends to be easier to quantify. Interviews with recycling managers indicated that not all recycling programs systematically track the costs and benefits of their efforts (Lounsbury, 2001). However, Schrad's (2010) comparison of nine universities shows that seven of the institutions saved money by recycling.

Recycling on a university campus requires a recycling program, which is a system that manages wastes effectively. This consists of collecting materials that would have otherwise been thrown in the trash. These items can then be provided to a third party for the potential to create new products. This can be done by students, staff, or administration. For some universities, new positions are created and staffed by ecological activists. At other schools, ecologically ambivalent custodial directors assumed additional responsibilities for recycling (Lounsbury, 2001). These are the people who are responsible for recycling efforts, so it is ideal, although not necessary, to have a passionate individual lead the way. Lounsbury (2001) did a comparison of creating a new role (status creation) versus filling the role by adding responsibilities to a current employee (role accretion). As expected, universities that used status creation had a more dedicated individual in charge of recycling efforts than those using role accretion. Educating students and the overall public is most effective when the spokesperson has the adequate knowledge and time to do so.

Universities have an important role in young adults' recycling habits. According to Wan et al. (2012), universities are like miniature societies. They reflect how society functions. Largo-Wight et al. shared, "Recent recycling programs such as "RecycleMania" have targeted colleges and universities because they '...are small cities that consume large amounts of

resources and generate much solid waste” (2012). Another program highlighted by Lounsbury (2001) is Student Environmental Action Coalition (SEAC), which is a national social movement organization. These efforts are driven by the potential long-run social benefits that can arise from educating college students about waste management and proper recycling.

Existing research has explored factors that underlie college students’ desire to recycle. Some commonly identified factors include education, convenience, and societal pressures. Wan et al. (2012) used a questionnaire to test recycling intention and behavior using recycling attitudes, subjective norms, ability to perform certain behaviors, awareness of consequences, moral norms, and convenience. Largo-Wight et al. (2012) conducted a similar survey that measured attitudes, moral obligation, subjective norms, intentions, and descriptive norms all in regards to recycling. Largo-Wight et al. (2012) found that moral obligation is the largest predictor when it comes to recycling behavior. Wan et al. (2012) also found attitude (attitude is defined as a function of an individual's beliefs towards a behavior and a subjective evaluation of that behavior) to be a very important factor when it came to recycling behaviors. They argue that the right attitude can be achieved through education and promotion. Largo-Wight et al. (2012) echoed Wan et al. (2012) stating that behavioral beliefs ought to be addressed through education and awareness campaigns. In a follow-up article, however, Largo-Wight et al. (2013) argued that convenience of recycling should come before educational strategies. This is because individuals in today’s world expect tasks to be easy to complete and are focused on instant gratification.

The study conducted by Largo-Wight et al. (2013) found that recycling volume increased by 65% in classrooms and 250% in administrative buildings when indoor recycling opportunities were introduced. In Wan et al (2012) study, it was concluded that more recycling facilities and drop-off points should be added to campuses to make recycling more convenient. Both studies

highlight the importance of convenience when it comes to recycling. However, neither study can definitively conclude that convenience outweighs educational content.

### *Recycling & Sustainability at UNI*

At UNI, there is a formal position of a Sustainability Coordinator currently held by Eric O'Brien. The UNI Sustainability Coordinator is dedicated to educating the campus on sustainability initiatives and programs; the position also includes oversight of the recycling program. Although viewed as important, recycling on campus often bears substantial financial costs as well as, counterintuitively, environmental (social) costs such as the energy used to transport it. In Fall 2020, the cost to recycle one ton of recyclable material was more than double the cost to dispose of one ton of garbage. Further, recyclable materials from UNI are currently transported from Cedar Falls to Cedar Rapids which adds an environmental (social) cost not included in the financial costs. As of mid-Spring 2021, the financial cost to recycle fell while the cost to dispose of trash increased. As a result, the cost to recycle is down to one and a half times as much as trash now. Because of the high costs of recycling, the university has been considering other options such as hauling recycling to Independence, Iowa every two to three weeks which would further lower the financial cost to recycle (Eric O'Brien). However, the COVID-19 pandemic introduced new struggles in regards to recycling and put a pause on some developing ideas. UNI has had to change how things were being collected, and the costs of these changes are still to be determined.

UNI also has a Student Sustainability Engagement Committee under the direction of Eric O'Brien. This is a committee of up to 12 UNI students who raise awareness about sustainability, work to solve sustainability issues on campus and in the community, and allocate the Green

Fund's resources. The Green Fund is collected through a student "green fee" on a yearly basis and included in the students' tuition payment. As discussed by Eric O'Brien, 5 years ago, UNI modeled the Green Fee after other institutions such as Southern Oregon, a similar caliber university, and Illinois University, a much larger institution. The money collected via the student green fee goes toward sustainability projects that benefit students. Funding applications are received through the Student Sustainability Engagement Committee website and evaluated on a monthly basis.

UNI currently has seven key sustainability initiatives: educational initiatives, energy efficiency efforts, protecting or restoring campus ecosystems, recycling/waste diversion initiatives, student focused speakers, student focused projects, and sustainability themed events. These initiatives are areas of focus for the allocation of the Green Fund by the Student Sustainability Engagement Committee. Within these initiatives, there is some overlap, for example, educational initiatives overlap with sustainability themed events. Educational initiatives are, for the most part, signage around campus to inform students on what can and cannot be recycled and other directions. However, themed events such as Earth Day and Earth Month are dedicated to educating and engaging students in hopes to create lifestyle changes. There has also been social media engagement activities to inform students on the importance of recycling. An example for energy efficiency efforts is when the green fee was used to fund the replacement of old, halogen lights in Latham Hall with energy efficient lights. This project was taken on by students as opposed to the maintenance staff which labeled it a sustainability themed event and allowed the lights to be swapped out much quicker than asking maintenance to do it. For protecting or restoring campus ecosystem, there is a \$10,000 tree order project underway.

The Green Fund supplied half of the cost of this project which will bring a diverse set of trees to campus by the next semester, Fall 2021.

Recycling/waste diversion initiatives are focused on generating ideas on how to better current recycling systems. A new recycling system for the residence halls was close to implementation when Covid hit and put the plan on hold. Another example related to recycling/waste diversion was the implementation of water bottle filling stations in Shull Hall which happened to be the only building without one. Student focused speakers initiatives are typically in partnership with the Aldo Leopold Distinguished Lecture Series. The Green Fund has contributed around \$200 (the hotel cost) to bring speakers like Erin Brockovich to campus. Lastly, the Green Fund has potential to support student research projects such as my recycling survey. The requirement is that it must directly impact students on campus.

Two previous studies have analyzed recycling at UNI: Schrad (2010) and Wilcox (2014). Similar to other university-related studies, Schrad (2010) found that UNI students appear to find convenience extremely important. The study estimated students' recycling habits before and after recycling bins were put into each dorm room. Recycling habits were 387% higher in the 8 week period with a bin in each room compared to the 8 week period without a bin in each room. UNI provides easy access to recycling bins in all buildings and dorm rooms. Most outdoor recycling bins, however, have been removed since the Schrad (2010) study due to the large amount of trash being deposited in them (Eric O'Brien).

The Wilcox (2014) study centered around college students' attitudes and behaviors related to recycling. He included questions pertaining to recycling habits, beliefs about recycling, and factors that affect the decision to recycle using a Likert-scale (2014). Wilcox (2014) surveyed multiple college campuses (UNI, Wartburg, and Hawkeye Community College) and

was able to send his survey out to all undergraduate students at each campus giving him a pool of around 19,600 students. While the sample base was large, the response rate was extremely low. For UNI in particular, he received less than a 2% response rate from the initial base of 12,273 students. This response rate raises questions about adequate testing of results. However, Wilcox found that the majority of his survey respondents from UNI recycled; UNI respondents who did not recycle stated that a lack of awareness and not having room to store recyclable were the top two reasons they did not recycle. Further, saving energy and resources and that recycling is the socially responsible thing to do were the main reasons for those that did recycle. While the findings from Wilcox (2014) provide a good first assessment of UNI students' recycling habits, the limited survey response rate does raise some concerns about the representative nature of the respondent sample.

Based on his survey results, Wilcox (2014) provided suggestions to improve UNI recycling efforts including recommendations to display the amount of energy conserved by recycling and the use of social media to increase awareness. In 2020, UNI did seem to be doing more social media efforts to increase awareness and engagement, specifically posting on Facebook (UNI Sustainability), Instagram (UNIsustain), and Twitter (UNIsustain) accounts. However, as of mid-spring 2021, the social media efforts have died down. Another thing Wilcox (2014) drew from his study is the need for sustainability classes on campus. In Fall 2014, UNI introduced a university-wide Certificate in Sustainability which includes one required course (Introduction to Sustainability) and four sustainability-related elective courses that can be taken from a wide variety of departments campus wide. The Sustainability Certificate is a dynamic program that incorporates new courses as they develop. This is just one way that the UNI campus has developed in regards to sustainability since the Wilcox (2014) study. As a result, it is

an opportune time to reassess the recycling behaviors of UNI students which will benefit UNI's campus.

### **Methodology and Survey Design**

I created an online survey to collect data regarding UNI students' recycling knowledge, attitudes, and habits. The survey consisted of a series of questions regarding students' environmental background, recycling behaviors and perceptions, and demographics. The survey was sent via email to a representative sample of 1000 UNI undergraduate students populated by the UNI Office of Institutional Research & Effectiveness. To be able to conduct the survey, I completed IRB training through the Citi Program. The survey was disseminated in early January 2021 and open for three weeks with two email reminders. The full survey is provided in Appendix A.

The survey started off by asking a series of questions regarding their environmental background such as level of concern for the environment and involvement in sustainability projects or courses. Then, students were asked to indicate their reaction to 9 (randomly ordered) statements regarding recycling using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree); the 9 statements are listed below. This block was designed to assess what might influence their motivation to recycle.

- "Whether I recycle depends on how easy it is"
- "Recycling makes me feel like I am doing my part to protect the environment"
- "Recycling is a hassle and not really worth the effort"
- "Recycling makes me feel good"
- "I will recycle only if required"
- "Recycling is a necessary activity"
- "My recycling efforts, or lack thereof, are influenced by my peers"
- "My recycling efforts, or lack thereof, are influenced by my family"
- "My recycling efforts, or lack thereof, are influenced by what I've learned in school"

For comparative purposes and to evaluate potential trends or changes over time, the questions about whether the students' recycling efforts (or lack thereof) were influenced by peers, family, and/or what they learned in school were all taken from Wilcox (2014).

The next series of questions asked how often they recycle on and off campus, how easy they believed it was to recycle at UNI, and the degree to which they perceived their peers cared about recycling. This was followed by a series of questions that tested the students' knowledge on what can and cannot be recycled. The goal of this section was to assess whether additional education or signage for appropriate recycling is needed.

Questions related to the UNI student green fee and allocation of weight on select UNI sustainability initiatives were included to benefit and inform the UNI Office of Sustainability. Respondents were given the opportunity to express if they would be in favor of an increase in the student green fee by \$0.50 increments ranging from \$1.50 to \$3.00. They also had the option to say they would not be in favor of an increase or provide their own suggestion with the selection of "Other." The allocation question provided students with seven initiatives that the Green Fund currently supports: educational incentives, energy efficiency efforts, protecting or restoring campus ecosystems, recycling/waste diversion initiatives, student focused speakers, student research projects, and sustainability themed events. Students were provided the opportunity to suggest initiatives as well.

The survey ended with standard socio-demographic questions and school-related questions including gender, age, grade classification, whether the respondent was a first year student, primary college, grade point average (GPA), and political affiliation.

## **Results and Discussion**

Out of the initial representative sample of 1000 undergraduate students, I received 250 responses. Of those 250 responses, 216 were complete enough to use for data analysis. This yields a response rate of 21.6%, which surpasses the 20% response rate we were hoping to receive and is significantly greater than the 2% response rate in Wilcox (2014).

As shown in Table 1, the demographic breakdown of my survey respondents aligns well (although not perfectly) with the demographics of UNI's fall 2020 undergraduate enrollment.

*(Table 1 about here)*

The survey began by asking respondents, "generally speaking, how concerned are you about environmental issues?" As shown in Table 2, the majority of respondents, around 43%, were moderately concerned about environmental issues followed by 30% responding that they were very concerned. This response was not surprising as I anticipated responses would be mostly in the middle skewing towards very and extremely concerned. Personally, I perceive UNI as a somewhat environmentally conscientious campus. Further, these responses indicate a growing awareness of environmental issues when compared to Wilcox (2014). In Wilcox's survey, 22.4% of survey respondents from UNI were either not at all concerned or minimally concerned with environmental issues whereas in my survey only 9.7% of survey respondents were either not at all concerned or slightly concerned with environmental issues.

*(Table 2 about here)*

Evaluating the data further, not a single individual who has been involved in an environmental group, activity, project or has taken an environmental class responded that they were not at all concerned. Also, less than 2% of individuals who have been involved in an environmental group, activity, project or have taken an environmental class responded that they were slightly concerned. This means that the rest were more than slightly concerned.

In Table 3, concern for the environment is evaluated by political affiliation, gender, and college. Starting with political affiliation, the concern for the environment if a republican appears normally distributed, whereas if a democrat, it appears skewed towards extremely concerned. This did not come as a surprise since the democratic party vocalizes protecting the environment. A similar story is noted in regards to gender. The male distribution curve was almost normally distributed with a slight skew towards the more concerned side. The female curve skewed heavily to the more concerned side. As for college, it is important to note that the totals reported do not take into account individuals who responded “other.” CHAS has the highest percentage of total respondents as well as the highest percentage between extremely concerned and very concerned for the environment. This made sense because CHAS includes all of the science majors.

*(Table 3 about here)*

In terms of students’ reactions to the nine (randomly ordered) recycling statements (Table 4), the statement that “recycling is a necessary activity” drew the largest agreement with an average score slightly above “agree.” Other factors with high respondent agreement were “Recycling makes me feel good” and “Recycling makes me feel like I am doing my part to protect the environment.” Conversely, “Recycling is a hassle and not really worth the effort” drew a sense of disagreement from respondents. This makes sense considering, on average, the respondents indicated that they feel good when they recycle. The statement “I will recycle only if required” also received disagreement which makes sense because a majority of respondents expressed later in the survey that they recycle often or as much as possible. Overall, students felt pretty neutral about “Whether I recycle depends on how easy it is,” “My recycling efforts, or lack thereof, are influenced by my peers,” “My recycling efforts, or lack thereof, are influenced

by my family,” and “My recycling efforts, or lack thereof, are influenced by what I’ve learned in school.” Outside of “My recycling efforts, or lack thereof, are influenced by my peers,” the other three were skewed towards agree rather than disagree.

*(Table 4 about here)*

The questions “My recycling efforts, or lack thereof, are influenced by my peers,” “My recycling efforts, or lack thereof, are influenced by my family,” and “My recycling efforts, or lack thereof, are influenced by what I’ve learned in school” were specifically asked for comparison to Wilcox (2014). When placed on the same one to five scale, the Wilcox survey also experienced somewhat neutral responses to the three questions. The statement “My recycling efforts, or lack thereof, are influenced by my family” was the most skewed out of the three in Wilcox’s data and it was skewed towards agree; this aligns with the results of my survey data. The other two questions, however, skewed towards disagree in Wilcox’s survey results; in my survey data, they skewed towards agree. This would suggest that in the time between the two surveys, school has become a bigger influence on students’ recycling efforts. This is likely due to the increase in environmental classes, organizations, and projects on campus.

However, as shown in Table 5, there was a higher frequency of recycling at home compared to recycling at UNI. This change from recycling at home versus at UNI appears across the board as shown in Table 6; it did not matter whether the individual was male, female, republican, or democrat. This came as a surprise because students had expressed earlier in the survey their concern for the environment, so I expected a growth in frequency of recycling at UNI compared to at home. Further, respondents said that it is easy to find recycling containers in residence halls and in non-housing buildings as shown in Table 7, so this decline should not be

due to lack of concern or accessibility of receptacles. It would be interesting to gather more data as to why exactly there is a decline at UNI versus at home.

*(Tables 5-7 about here)*

When asked the amount students believe their peers care about recycling, the largest grouping was the neutral response of “a moderate amount” as shown in Table 8. The distribution leaned towards “a little” compared to “a great deal” and “a lot.” As stated earlier, UNI respondents have concern about environmental issues and care less about what their peers think. This may suggest that UNI students do not take peers’ recycling efforts into deep consideration because they do not think that their peers care enough about environmental issues.

*(Table 8 about here)*

Getting into items that can and cannot be recycled on UNI’s campus, responses were normally distributed in regards to their confidence of what they can and cannot recycle with “a moderate amount” being the largest response as shown in Table 9. This response aligned with their responses to specific items as there were a few items on the list that a decent amount of respondents got wrong in their attempt to say what is recyclable versus not recyclable. For starters, 41% of respondents believe that a plastic bag is recyclable on UNI’s campus and 13% responded that they do not know whether or not it is. This is a typical area of misunderstanding that Eric O’Brien said causes issues. Plastic bags jam up the machines at the recycling center, and therefore, are not recyclable in UNI’s single-stream recycling. Another common mistake is thinking that glass can be recycled on campus. Around 86% of respondents believed that a clean glass bottle can be recycled on campus. Of those who believe glass is recyclable, more than 25% said they know either “A great deal” or “A lot” about what can and cannot be recycled on campus. The other item that tripped up quite a few people was disposable coffee cups. Around

45% responded that they are recyclable and 18% said that they didn't know; disposable coffee cups are not recyclable on campus. On a positive note, I anticipated that students would have a hard time deciding whether styrofoam was recyclable. However, 65% of students got this answer correct responding that it is not recyclable.

*(Table 9 about here)*

The question addressing the student Green Fund is one that I found most interesting. Around 85% replied that they were in favor of some sort of increase in the student green fee (Table 10). Another interesting finding was that 10% of respondents who were not in favor of an increase also responded that they were "extremely concerned" about environmental issues. Individuals were able to use the option "Other" to express if their belief wasn't given as an option. Of those that selected "other", almost three-fourths expressed a larger increase than those offered (e.g., \$5 and \$10); the highest value reported was \$100. Further, more than 26% of students replied that they would support the highest provided option amount of \$3.00 per year fee. Given students' desire to save money wherever and whenever possible, I was surprised to see that the responses were heavily in favor of an increase. However, given respondents' general care for the environment, willingness to financially support environmental initiatives is not surprising.

*(Table 10 about here)*

When presented with sustainability initiatives (Table 11), energy efficiency efforts had the highest average support with 71 points out of 100 followed closely by protecting or restoring campus ecosystems and recycling/waste diversion initiatives. Lowest support on average was for student focused speakers which averaged 38 points followed closely by sustainability themed events (e.g., Earth Day/Month activities). Educational incentives and student research projects

were in the middle. This particular question set along with the question regarding the student green fund were implemented to benefit the UNI Office of Sustainability. This will help them better gauge what efforts might benefit and have greatest interest by the student population.

*(Table 11 about here)*

To further aid the UNI Office of Sustainability, an open-ended question for suggestions was included asking: “Do you have any suggestions for other sustainability initiatives that you would like UNI to consider?” A suggestion one respondent provided was to make Introduction to Sustainability a required course or at least provide some educational medium to inform all students of sustainability practices and how to take care of the environment. This student expressed how their knowledge base regarding sustainability grew substantially by taking the course. Others further touched on the importance of educating how, what, and where to recycle. These responses echoed the idea that students should be accurately informed about sustainability initiatives specifically recycling.

There were a handful of responses expressing the idea that UNI’s recycling ends up in the trash, which is not true. Respondents saw a recycling bin get dumped into a garbage truck and assumed it was going to the dumpster. Although these opinions are not factual, they reveal a misconception that requires a need for additional awareness on campus about recycling practices. Eric O’Brien shared that the same garbage truck that picked up the trash returned another day to get the recycling. The fact that historically, a garbage truck picked up the recycling led students, specifically those in the residence halls, to believe it all went to the landfill which is not necessarily the case. However, there were times when the recycling was noticeably too contaminated, so it was taken to the landfill. If the contamination was clearly visible, it would not make economic or sustainable sense to send it to the recycling center. It would get turned

away and sent to the landfill anyway which would cost the university additional dollars and would use more gas to get to the new location. The contamination aspect falls on the users, students. Students must be educated and then remain conscientious of what they put into the recycling so that it does not end up in the landfill.

### **Conclusion**

If sustainability initiatives such as recycling are considered valuable to society, it is important to begin recycling education at a young, impressionable age to build habits. Schools, specifically universities, play a role in students attitudes, beliefs, and habits when it comes to recycling. However, they are not the sole influence as family, friends, and other experiences impact the recycling decision and attitudes. To better understand the attributes, beliefs, and priorities of UNI students regarding recycling, I conducted a survey of UNI undergraduate students in early 2021.

Surveys are always subject to bias. It is reasonable to assume that it is more likely that someone who is passionate about sustainability would fill out a survey regarding recycling than someone who is not interested in recycling. The survey showed a strong preference for recycling; it is possible that UNI as a whole may be less preferential to recycling. In an attempt to eliminate bias, I offered an incentive funded by the UNI Green Fund to complete the survey; ten randomly selected individuals received UNI Bookstore gift cards.

My survey results suggest that there has been an increase in concern for the environment over the past couple of years. It is important to capitalize on this increased concern and environmental awareness by educating students on the costs and benefits of sustainability initiatives such as recycling. If students are unaware of what can and cannot be recycled, then the

wrong items contaminate the recycling bins and end up in landfills which is neither economically or financially beneficial. While UNI provides signage surrounding on-campus, non-residential recycling bins, there appears to be a need to provide clearer or alternative communication and education surrounding items such as disposable coffee cups and glass throughout residence halls. One possibility is to use more digital awareness campaigns or in-person presentations, such as through residence hall senate meetings as well as communication from resident assistants.

Increased awareness and education efforts on campus would cost money, but the majority of UNI students responded in favor of an increase in the student green fee. Using Fall 2020 enrollment, an increase in the Student Green Fee from \$1.00 to \$1.50 per student would generate close to \$4,800. Another potential way to generate revenue would be to set up a project through the UNI Foundation for individuals such as alumni and other donors to donate to in support of sustainability on campus. This additional funding could be used to fund signage and educational material or projects for students. Respondents showed the most interest in energy efficiency efforts, protecting or restoring campus ecosystems, recycling/waste diversion initiatives. Additional funds could help support educational opportunities surrounding the initiatives students value most such as the earlier example of students switching out light bulbs in Latham Hall for energy efficiency. These projects provide students with a hands on learning experience. It is important to have students engaged in a process like this because they will gain a deeper understanding of the value behind it.

The initiatives with lower respondent interest, such as sustainability themed events and student focused speakers, are still valuable and might be overlooked because the others offer notable long-term benefits. This discrepancy could also be due to high priority initiatives having a “let’s do something about it” whereas the low priority have a “let’s learn about it” feel. People

prefer instant gratification, so can feel an urge to make the change but it is important to learn about how to make the change first. In the end, it was found what students are interested in and the Student Sustainability Engagement Committee can use this information to allocate the Green Fund appropriately to cater to those interests.

Today's students are tomorrow's leaders. It is important to send them off with a strong knowledge base surrounding sustainability. This research was conducted on a niche group, college students, who if well informed, will be able to make a small difference in the world. These small differences have potential to create a multiplier effect. What students learn on campus takes effect in their life after college. One person, one campus, one community cannot change the world, but collectively it will create a ripple effect.

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## **Tables**

**Table 1: Demographics**

	UNI Student Population (9522 total, 8304 undergraduate)	Survey Population (216 undergraduates)
Male	38.6%	21.3%
Female	61.4%	78.7%
Freshmen	18.6%	20.8%
Sophomores	18.5%	16.2%
Juniors	25.9%	33.8%
Seniors	35.9%	29.2%
On-Campus	35%	44%
Off-Campus	65%	56%
College of Business Administration	19.6%	14.8%
College of Education	21.9%	23.2%
College of Humanities Arts and Sciences	32.6%	33.8%
College of Social and Behavioral Sciences	18.1%	22.2%
Not Specified	7.8%	3.25%

**Table 2: Summary Statistics: Environmental Concern and Involvement in Environmental Activities**

CONCERN	Not at all concerned	Slightly concerned	Moderately concerned	Very concerned	Extremely concerned
Concern for environmental issues	2.3%	7.4%	42.6%	29.6%	18.1%
ACTIVITIES		Yes	No		
Involvement in environmental groups, volunteer activities, or environmental donation projects		30.6%	69.4%		
Taken Environmental course		43.1%	56.9%		

**Table 3: Concern for the Environment by Political Affiliation, Gender, and College**

	Political Affiliation		Gender		College			
	Republican (n=34)	Democrat (n=95)	Male (n=46)	Female (n=166)	CBA (n=30)	COE (n=47)	CHAS (n=67)	CSBS (n=44)
<b>Extremely concerned</b>	5.9%	26.3%	17.4%	17.5%	10.0%	21.3%	23.9%	11.4%
<b>Very concerned</b>	14.7%	40.0%	21.7%	31.9%	23.3%	27.7%	32.8%	36.4%
<b>Moderately concerned</b>	55.9%	30.5%	45.7%	42.2%	60.0%	40.4%	38.8%	34.1%
<b>Slightly concerned</b>	14.7%	3.2%	10.9%	6.6%	3.3%	6.4%	4.5%	13.6%
<b>Not at all concerned</b>	8.8%	0.0%	4.3%	1.2%	3.3%	4.3%	0.0%	4.5%

**Table 4: Summary Statistics: Influences on Decision to Recycle**

Whether I recycle depends on:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Ease	7.9%	26.9%	21.3%	38%	6%
To protect the Environment	1.9%	1.9%	11.1%	56%	29.2%
It's not worth the effort	46.3%	37%	11.1%	3.7%	1.9%
It makes me feel good	1.4%	0.5%	16.2%	49.1%	32.9%
Only if required	29.2%	50.5%	12.5%	6%	1.9%
It's necessary activity	1.9%	2.3%	11.1%	44%	40.7%
Influenced by peers	7.4%	34.3%	29.2%	27.8%	1.4%
Influenced by family	6.5%	21.8%	20.8%	39.8%	11.1%
Influenced by school	8.3%	17.1%	27.3%	42.1%	5.1%

**Table 5: Summary Statistics: Recycling Frequency**

How often did/do you recycle:	Never	Rarely	Sometimes	Often	As much as possible
Prior to attending UNI	5.6%	8.8%	19.9%	27.8%	38%
At your residence	5.1%	11.6%	19%	32.4%	31.9%
In UNI's non-housing buildings	8.8%	16.2%	25%	23.6%	26.4%

**Table 6: Recycling at home versus at UNI**

Recycling at Home Prior to Attending UNI:	As much as possible	Often	Sometimes	Rarely	Never
Republican (n=34)	35.3%	26.5%	29.4%	2.9%	5.9%
Democrat (n=95)	41.1%	29.5%	18.9%	6.3%	4.2%
Male (n=46)	37.0%	32.6%	21.7%	6.5%	2.2%
Female (n=166)	38.6%	25.3%	19.9%	9.6%	6.6%
Recycling in UNI non-housing buildings:	As much as possible	Often	Sometimes	Rarely	Never
Republican (n=34)	11.8%	11.8%	41.2%	17.6%	17.6%
Democrat (n=95)	33.7%	22.1%	18.9%	22.1%	3.2%
Male (n=46)	30.4%	21.7%	26.1%	6.5%	15.2%
Female (n=166)	24.7%	24.1%	25.3%	18.7%	7.2%

**Table 7: Summary Statistics: On-Campus Accessibility**

	Very difficult	Difficult	Neutral	Easy	Very Easy
How easy is it to find a container in university housing (n=95)	7.4%	11.6%	14.7%	32.6%	33.7%

**Table 8: Summary Statistics: Assessment of Peers Concern for Environment**

	Not at all	A little	A moderate amount	A lot	A great deal
How much do you believe your peers care about recycling	4.2%	29.6%	58.3%	6.5%	1.4%

**Table 9: Summary Statistics: Knowledge of What Can and Cannot be Recycled**

	Not at all	A little	A moderate amount	A lot	A great deal
How well do you know what can and cannot be recycled in UNI non-housing buildings	5.1%	20.4%	47.7%	20.8%	6%
Recyclable vs Not Recyclable	Recyclable	Not Recyclable	I don't know		Correct Response
Tin Can	84.7%	4.2%	11.1%		Recyclable
Cheeseburger	1.4%	94.9%	3.7%		Not
Plastic Bag	40.7%	45.8%	13.4%		Not
Newspaper	96.8%	1.9%	1.4%		Recyclable
Greasy Pizza Box	16.7%	73.6%	9.7%		Not
Coke Can	91.7%	4.2%	4.2%		Recyclable
Styrofoam	16.7%	64.8%	18.5%		Not
Glass	86.1%	6.9%	6.9%		Not
Food Container	6.5%	84.3%	9.3%		Not
Cardboard Box	96.3%	1.4%	2.3%		Recyclable
Disposable Coffee Cup	44.9%	37.5%	17.6%		Not
	Recycle	Do not Recycle	Don't know		
Is it better to recycle an item if uncertain about its recyclability	18.1%	53.2%	28.7%		Do Not Recycle

**Table 10: Summary Statistics: Green Fee Increase**

	\$3:00 increase	\$2.50 increase	\$2.00 increase	\$1.50 increase	I would not support an increase	Other
Green Fee	26.4%	3.7%	27.3%	25.5%	13.9%	3.2%

**Table 11: Sustainability Initiatives**

Educational incentives	52.57
Energy efficiency efforts	71.01
Protecting or restoring campus ecosystems	67.41
Recycling/waste diversion initiatives	66.67
Student focused speakers	37.83
Student research projects	49.14
Sustainability themed events	44.36

## **Appendix A:**

Welcome to the online survey for research at the University of Northern Iowa about students' knowledge, habits, and motivation in regards to recycling. Your participation in this survey is completely voluntary. If you do not wish to participate in this study, you can simply close your web browser. You can choose not to answer some or all of the questions. Your responses will remain strictly confidential and anonymous, and data from this research will only be reported in aggregated levels. To participate, you must be an undergraduate student at the University of Northern Iowa. The survey should take around **10 minutes**. In return for your time and effort, you will have the opportunity to enter a drawing to win one of ten \$25 UNI Bookstore gift cards. Please note that in order to participate in the drawing, we will need to collect your email address. However, we will detach the survey data from your personal information to ensure anonymity. There are no foreseeable risks to you as a participant in this project. Confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties. We may also use the data again later in other research studies and may share the de-identified datasets with other researchers interested in the topics. By clicking “I agree” below, you give your consent to participate in this survey. If you have any questions about the survey, please contact Taylor Shipley at [shipltab@uni.edu](mailto:shipltab@uni.edu). If you have questions about your rights as a participant in this research project, please contact the University of Northern Iowa Institutional Review Board (IRB) Human Protections Administrator at (319) 273-6148 or by e-mail at [osp@uni.edu](mailto:osp@uni.edu).

**I agree**

**Generally speaking, how concerned are you about environmental issues?**

- Not at all concerned
- Slightly concerned
- Moderately concerned
- Very concerned
- Extremely concerned

**Are you currently or have you ever been involved in any environmental groups, environmental volunteer activities, or environmental donation projects?**

- Yes
- No

**Are you currently taking or have you ever taken any environmental-related courses?**

- Yes
- No

**Please indicate your reaction to each of these statements about recycling.**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Whether I recycle depends on how easy it is	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recycling makes me feel like I am doing my part to protect the environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Recycling is a hassle and not really worth the effort	<input type="radio"/>				
Recycling makes me feel good	<input type="radio"/>				
I will recycle only if required	<input type="radio"/>				
Recycling is a necessary activity	<input type="radio"/>				
My recycling efforts, or lack thereof, are influenced by my peers	<input type="radio"/>				
My recycling efforts, or lack thereof, are influenced by my family	<input type="radio"/>				
My recycling efforts, or lack thereof, are influenced by what I've learned in school	<input type="radio"/>				

**In general, how often did you recycle at your home PRIOR to attending UNI?**

- Never
- Rarely
- Sometimes
- Often
- As much as possible

**In general, how often do you currently recycle at your residence when taking classes at UNI?**

- Never
- Rarely
- Sometimes
- Often
- As much as possible

**Do you live on or off campus?**

- On-campus
- Off-campus

Display This Question:

Do you live on or off campus? = On-campus

**How easy do you think it is to find a container to recycle in university housing?**

- Very difficult
- Difficult
- Neutral
- Easy

Very easy

**In general, how often do you recycle in UNI's non-housing buildings (i.e., academic buildings)?**

Never

Rarely

Sometimes

Often

As much as possible

**How easy do you think it is to find a container to recycle in UNI's non-housing buildings (i.e., academic buildings)?**

Very difficult

Difficult

Neutral

Easy

Very easy

**How much do you believe your peers at UNI care about recycling?**

Not at all

A little

- A moderate amount
- A lot
- A great deal

**How well do you believe you know what you can and cannot recycle in UNI's non-housing buildings (i.e., academic buildings)?**

- Not at all
- A little
- A moderate amount
- A lot
- A great deal

**For each item, indicate whether you believe the item can be recycled in UNI's non-housing buildings (i.e., academic buildings).**

	Recyclable	Not Recyclable	I Don't Know
Tin Can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cheeseburger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastic Bag	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Newspaper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Greasy Pizza Box	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coca-Cola Can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Styrofoam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clean Glass Bottle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unwashed Food Containers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Empty Cardboard Box	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disposable Coffee Cups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**If there is an item for which you are uncertain about its recyclability, is it better to recycle the item or not recycle the item?**

- Recycle
- Do not recycle
- I do not know

UNI currently allocates approximately \$1 per student per year from the Student Services fee towards a Student Green Fund. The fund supports sustainability projects that benefit students. Decisions for funding are made by a committee of students.

Consider the following hypothetical scenario. Suppose you were asked to vote whether you would support or not support an increase in the Student Services fee in order to increase the Student Green Fund. Using the option below, indicate the maximum allocation (after the



Student focused speakers	
Student research projects	
Sustainability themed events (e.g., Earth Day/Month activities)	

**Suggestions Do you have any suggestions for other sustainability initiatives that you would like UNI to consider?**

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**Q41 This last set of questions will ask you about your socio-demographic characteristics and college profile.**

**I identify myself as**

- Male
- Female
- Other

**What is your age?**

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**What is your current classification?**

- Freshman
- Sophomore

Junior

Senior

**Is this your first year at UNI?**

Yes

No

**Which college is your major in? (*Note: if you have multiple majors, choose the college your first major is in*)**

College of Business Administration (CBA)

College of Education (COE)

College of Humanities, Arts, and Sciences (CHAS)

College of Social and Behavioral Sciences (CSBS)

Interdisciplinary Studies

Undeclared or Undecided Major

Other/I don't know (Please type your first major below if you do not know the college)

---

**What is your overall grade point average (GPA)?**

Less than 1.5

1.5 to 1.99

2.0 to 2.49

2.5 to 2.99

3.0 to 3.49

3.5 to 3.749

3.75 to 4.0

**What political party do you feel closer to?**

Democratic party

Republican party

Independent

No affiliation

**Email Thank you for participating! Please enter your UNI email address (i.e. "uni.edu" email) to enter the drawing for one of ten UNI Bookstore \$25 gift cards.**

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