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CAMPUS RECYCLING - INFLUENCES AND DECISIONS

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CAMPUS RECYCLING – INFLUENCES AND DECISIONS

by

Brooke A. Lopeman

B.S., Southern Illinois University, 2009

A Thesis

Submitted in Partial Fulfillment of the Requirements for the
Master of Science Degree.

Department of Geography and Environmental Resources
in the Graduate School
Southern Illinois University Carbondale
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THESIS APPROVAL

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in the field of Geography and Environmental Resources

Approved by:

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July 6, 2011

AN ABSTRACT OF THE THESIS OF

BROOKE A LOPEMAN, for the Master of Science degree IN GEOGRAPHY AND ENVIRONMENTAL RESOURCES, presented on JULY 6, 2011, at Southern Illinois University Carbondale.

TITLE: CAMPUS RECYCLING – INFLUENCES AND DECISIONS

MAJOR PROFESSOR: Dr. Matthew Therrell

The purpose of this study is to assess the factors that most influence decision making in regards to environmental programming on a university campus. The results of this study serve as a guide for campus administration when implementing future environmental programs. At most universities there is a large population living on campus, this creates the opportunity to encourage pro-environmental attitudes and behaviors of a large population. College, for many students, is the first time away from their family home and a time they can develop new attitudes and behaviors. This allows campus administrators the opportunity to influence students at a time in which they are developing new habits. It is important for campus administration to understand the factors that influence students' participation in environmental programs and how to influence students' long term attitudes and behaviors toward environmental concerns.

This study determined which factors most strongly influence students to participate in the recycling program within their residence halls. The roles and attitudes of University Housing Staff toward current environmental programs were also assessed. Improved understanding of student participation and administrator roles can help support future environmental efforts on campus.

Interviews with administrators showed that while administration may have a reasonable understanding of the factors that influence students to participate in

recycling programs; this understanding does not extend to the actual programs that are being implemented. Of the students surveyed in this research, 100% responded that they thought there are improvements that should be made to increase recycling on campus. The factors that should most influence administrators in environmental decisions on campus were explored with student opinions of the current programs.

The recycling research completed shows that both convenience and pro-environmental education are important influences on students' decisions to participate in recycling programs within their residence halls. The research shows that recycling increased by 50% with the addition of both convenience and pro-environmental education. Based on the increase in the amount of recycling per person in this study, the addition of these two components throughout the residence halls at Southern Illinois University could result in approximately 3,750 pounds of waste reduction per semester. While convenience has been shown to have an influence on recycling, e.g. Jennings (2004), this study focuses on the influence of pro-environmental education as well. Education is an important component that many environmental programs on campus are lacking.

DEDICATION

For my amazing parents, Eric and Debra Lopeman, who have always provided more support than I could even hope for. I sincerely appreciate all your backing and help through my college career. I would not be who or where I am today without you. Thank you.

ACKNOWLEDGEMENTS

I would like to take this opportunity to acknowledge all those that were willing to help me throughout this process. I would like to first acknowledge all the Southern Illinois University Carbondale Housing Staff for allowing me to conduct this research, especially those that were willing to take time to provide me with information. I would also like to thank the University Housing Staff for all the opportunities they have provided me throughout my five years at SIUC. University Housing has shaped my college experience and career choice.

I would like to sincerely thank my advisor, Dr. Matthew Therrell for all the opportunities and encouragement he has provided. The opportunities have allowed me to gain real-world knowledge and experience in my career field, I could not have asked for better or more rewarding assistantships. I would also like to thank the rest of my committee, Dr. Justin Schoof and Dr. Julie Weinert, for their time, help, and participation.

I would also like to extend my gratitude to those that made the SIUC Green Fund possible and thank the current committee for approval and funding of my projects.

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CHAPTER 1

INTRODUCTION

BACKGROUND INFORMATION

College administrators are implementing environmental programs and incentives across the globe, but is there a real understanding of the connection between these programs and the actual actions and attitudes of the students (Association for the Advancement of Sustainability in Higher Education 2011)? Campus administrators and policy makers usually choose the programs on campus; however, their perception of the students' knowledge, attitude and behaviors may vary greatly from those that are actually held by students.

This lack of understanding between administrators and students became apparent during my experiences as an undergraduate student at Southern Illinois University Carbondale (SIUC). As a student I became involved in several clubs and student government organizations, most of which were SIUC University Housing sponsored groups. I was also given the opportunity to observe students as a resident assistant and attend several conferences. In all, I attended approximately 10 different conferences from the state to international level. My role at these conferences ranged from student, student government representative, to administrative guest. It became very apparent at all levels that there is a growing awareness of environmental concerns. Various programs, curricula, and incentives were being implemented across the globe; however there was a lack of understanding of the links between these programs and the actions of the students.

At the student conferences I attended, the topic of sustainability on campus was brought up many times. One obstacle that students discussed was how to communicate their ideas about which sustainability programs were important to the student community to the administration. Most students also lacked an understanding of feasible alterations to existing structures on campus. While the students were very excited to make changes on campus, many changes suggested by students were not considered feasible by campus administrators. It is important to explore how to bridge this gap between administration and the student population. Again, University administrators need to understand what influences students to participate in the programming and efforts on campus in order to create successful and worthwhile investments for the students and the university community.

The need for better understanding became most evident to me at the Association of College and University Housing Officers – International (ACUHO-I) Yearly Conference in 2008. I attended this conference as a guest of the SIUC University Housing Administration. The conference was for university housing professionals from around the world with very different populations and campuses. This variety created great diversity of the environmental programs being implemented. I was given the opportunity to attend the various programs for university administrators. Most of the programs I attended were those that focused on environmental concerns and sustainability on campus, the “green” programs. While there were a variety of different programs, most of them lacked quantitative assessment of the causes of the success or failure of the programs. There was often little explanation as to why a specific program

was implemented on a specific campus. The professionals lacked agreement and comprehension of the student's response to the programs.

JUSTIFICATION AND OBJECTIVES

This lack of understanding inspired me to look further into the topic. After examining the literature on the topic the need for a qualitative assessment was evident. Understanding the factors that most influence students to participate in environmental programming on campus is important to making these programs successful. Also, understanding these factors is important to campus administrators concerned with the return on investment of these programs.

Residence halls are home to thousands of students at SIUC and at other universities across the country. Implementing programs that can ultimately shape long-term decision making for participants should be a priority for University Housing administration.

This study took an in-depth look at the knowledge, attitudes, and behaviors of a small population of college students and compared this to perceptions of current campus administrators and decision makers at SIUC. The study also examined the roles current campus administrators have in environmental programs, concentrating on recycling. Recycling was chosen in order to draw concise conclusions about campus programs as a whole. University Housing will be the focus of the study because of the accessibility to the population and ability to monitor the recycling attitudes and behaviors.

Prior to the start of my assessment recycling programs were being implemented on the SIUC campus, making the decisions made about these programs easily explored. Recycling was also chosen for the study because associated behaviors were easier to measure than other environmental attitudes.

This study can help SIUC University Housing administration understand the impact of recycling programming within the residence halls. The study also shed light on the decision making process of residents and the sources from which they receive information. Also important, the study delineates between convenience and education as factors that influence student behavior. Few studies, e.g., Smith, et al., 1997, have compared the two factors.

The main research questions that were explored are:

1. How can the effectiveness of environmental programs be measured for students and administrators?
2. What factors most influence student's participation in on-campus recycling programs?
3. What factors should campus administrators use to guide implementation of recycling programs?

The hypothesis that current campus administrators and decision makers on the SIUC campus do not have an understanding of the students' knowledge, attitudes, and behaviors in relation to current campus recycling projects was also explored. A comparison of the student surveys and interviews with administration would test whether the student's behaviors were understood by administrators.

CHAPTER 2

REVIEW OF THE LITERATURE

In conducting the literature review two main topics were explored. First, the literature regarding student's knowledge, attitude, and behavior relevant to campus recycling was evaluated. This portion of the literature review was not focused specifically on college age students because of the lack of studies on the topic for the age group. Studies containing students of various age groups were considered. Recycling was the focus of this portion of the literature review. The next portion of the literature review focused on material available for university administrators and decision makers. The lack of literature on this topic lead to the literature review not focusing on one specific type of sustainability programming rather than specifically focusing on recycling programs. While there are some websites and newsletters dedicated to sharing sustainability programming, there is little information available to administrators to help guide them in choosing which programming will be best for their campus and students.

STUDENT KNOWLEDGE, ATTITUDE, AND BEHAVIORS

There have only been a handful of studies that focus on measuring what factors determine the effectiveness of environmental programs implemented on college campuses, e.g. Chaisamrej and Zimmerman (2007). Of these studies, many have approached the subject as purely a success or failure of the specific program, not looking at the overarching concern of whether the beliefs and long-term behavior of the

participants had changed. For example, Mikolay (2007) highlighted the success of a large recycling competition between Ohio University and Miami University called “Recyclemania”. The competition pitted the schools, which are also collegiate sports rivals, against each other for a recycling competition. The competition increased the amount of recycled material and reduced the amount of waste (Recyclemania n.d.). The program itself was a great success for both universities; however, no research was reported noting whether long-term attitudes or behaviors of the students had changed.

Many studies also fail to make the connection that education can change attitudes and this change in attitudes influences specific behaviors (Smith et al.1997). In order to ultimately change a person’s environmental behaviors, a change in attitude in relation to the behaviors must occur (Smith et al. 1997). This change in attitude often comes from education (Smith et al.1997). This is a critical aspect that most of the programming in the research lacked. For example, Recyclemania lacked formal or planned education of the students for why the program was being implemented and the reason they should recycle and reducing waste. Education of the students as to why the program was being implemented or the importance of the program was something that the administrators seemed to overlook.

A study by Smith et al. (1997) shows the influence of recycling education programs on the behaviors of grade school children. The students were exposed to different levels of environmental education. One group of students was exposed to classroom presentations while another group was taken to a landfill to educate them on waste. Education on the topic had an influence on the behaviors in the classroom; however, students that were exposed to education and were physically shown the

outcome were more likely to ultimately have a change in attitude, which influences behavior.

This is likely also true of college age students. Again, Mikolay (2007) "College Recycling Contest Bursting at the Seams" highlighted the importance of waste reduction programs on campuses. Awareness was a big obstacle throughout the Recyclemania contest (Mikolay 2007). In an attempt to combat this, 17-foot-high structures were constructed using only recycled material and a huge pile of food waste and displayed on campus. The shocking display and structures as reminders kept the program going and helped make it a huge success (Mikolay 2007). An understanding of the outcome of their actions is an important aspect in encouraging students to participate in sustainability programs.

The study by Smith et al. (1997) also suggests that environmental education is more effective on younger, preadolescent children. The authors felt that this was the case because students at this age do not have well established habits. One reason I have developed a passion for environmental efforts on campus is because administrators have the ability to influence a large population through programming. For most traditional freshman and many transfer students this will be the first time that they are not living with family. Their family habits will no longer be present. This gives housing administration a rare opportunity to influence these habits. This makes it crucial that students are educated about environmental programming and understand the outcome of their recycling and pro-environmental efforts.

A study by Gambro and Switzky (1996) analyzed the environmental knowledge of high school students. The study focused on 10th and 12th grade students. The

results revealed that students had low levels of environmental knowledge (Gambro and Switzky 1996). While students were able to recognize basic facts, most could not apply this to consequences or solutions related to the problems (Gambro and Switzky 1996). The authors also felt this was alarming because many of the students surveyed would not receive additional formal education. This study illustrates the importance of continuing and increasing environmental education for those students that do continue into higher education.

A study by Larsen (1995) showed a high correlation between attitudes and recycling behaviors. The study focused on undergraduate student attitudes toward recycling and its connection to positive environmental attitudes, personal responsibility, and broader social concern (Larsen 1995). This study did not focus on the efforts of the university, simply the personal efforts of the students.

A study conducted by Chaisamrej and Zimmerman (2007) found that attitudes were not the most significant determinant of recycling actions. The study focused on predicting recycling behavior. Students at two large universities in the United States were surveyed. This study showed that perceived behavioral control, a person's perceived ease of performing a specific behavior, was the strongest factor influencing paper recycling behavior among the students studied (Chaisamrej and Zimmerman, 2007). Positive environmental attitudes do not always result in positive recycling behavior. The individual's perceived ease of performing the action is important. With students living on-campus the behavior must be perceived as easy in order to encourage participation.

One study, that was of particular relevance, looked at recycling attitudes and beliefs on campus (Jennings 2004). This study highlighted the importance of social norms especially to the study population of college students. Those students that were found to participate more in recycling or were more aware of recycling on campus were those that perceived the task as a social norm (Jennings 2004). Convenience is thought to have a great effect on the decision of students to recycle; however, investigating if this convenience is simply influencing behavior or changing attitudes about recycling is an important topic that needs exploration.

INFLUENCES OF CAMPUS ADMINISTRATORS AND DECISION MAKERS

The studies that examined the factors that affect student participation in recycling programs, for example Jennings (2004), have left out the important role campus administration plays in the process. Campus administrators have the task of implementing sustainability programs and making investments that have the greatest impact and return on investment. However, there is little literature to guide administrators in the decision making process or help others understand why the decisions that were made, for example budget, need, student input, etc.

There is a very serious need for research into 1) the factors that affect student participation in sustainability programming on campus, for example convenience and education, and 2) the factors that most influence administrators in making their decisions about these programs.

Relevant literature for decision making of administrators included a book listed on the ACUHO-I book list, "Sustainability on Campus, Stories and Strategies for Change".

This book was an overview of various programs at different universities and the successes and failures of each. The book was told in story form and did not offer any methods or details about collection of any data. I bought this book at the ACUHO-I conference and it was listed as one of the only books that had anything to do with sustainability on campus. This was something that was concerning considering the number of “green” programs that were being held at the conference.

Of particular relevance was the portion that highlighted the challenges at universities of various sizes. This can help administrators compare their university to others of similar size, and help guide them in making policy decisions. Also, a portion of a chapter focused on infusing sustainability into the curriculum. This portion of the book stood out to me because a long-term attitude change is something that many programs that have been implemented on the SIUC Campus, specifically by University Housing, have not done.

A study by Akbasli and Meydan (2010) focused on the solid waste problems of elementary schools in Konya, Turkey. The solutions by administrations, troubles, defects, and recommendations were assessed. The study found that the recycling programs varied greatly at the schools studied. Some schools even had no process for recycling of waste. Many local administrations were working to improve the programs at their individual schools, but there was no significant and comprehensive educational program on the topic of solid waste recycling (Akbasli and Meydan 2010). The authors suggest both individuals and administrators seek education to support recycling programs. There is a need for a comprehensive study of recycling habits for school administrators at many different levels.

The Association for the Advancement of Sustainability in Higher Education (AASHE) is an organization devoted to sustainability in higher education. AASHE's mission is to empower higher education to lead the sustainability transformation. "We do this by providing resources, professional development, and a network of support to enable institutions of higher education to model and advance sustainability in everything they do, from governance and operations to education and research." (Association for the Advancement of Sustainability in Higher Education 2011) The website and associated publications are excellent sources for higher education administrators. The AASHE newsletter highlights different sustainability projects and programs that are taking place at universities. AASHE is an excellent resource for administration but, like other sources for administrators, it often lacks data or conclusions about the outcome of the programs.

The few sources of information about decision making on campus in relation to environmental programs for higher education administration and lack of data to support the outcome of programs create a need for a study tailored to campus administrator decision making.

CHAPTER 3

RESEARCH QUESTIONS AND HYPOTHESES

The aim of this study is to examine the perceptions of campus administrators regarding the knowledge, attitudes, and behaviors of college students and compare this to students' knowledge, attitudes, and self-reported and observed behaviors. The conclusion of the study should serve as a guide to current campus administrators in implementing environmental initiatives and programs.

This study utilizes a case study methodology to test conclusions of other research and delineate between the factors of convenience and education. Research suggests that student behaviors are a consequence of their attitudes, which is ultimately linked to education (Smith et al. 1997). Those with greater environmental awareness and education have more pro-recycling attitudes (Larsen 1995). Convenience is also reported to be one of the most important contributing factors for recycling (Jennings 2004). Also important to mention from this study are 'subjective norms'. It is suggested that, as with many other behaviors, individuals may choose to recycle if it is seen as a 'norm' of the group or society (Jennings 2004).

While many studies seem to highlight what influences student behavior it is also very important to recognize whether student attitudes and knowledge are being influenced. **The goal of a recycling program should be to not only influence the behavior at the time, but to also change long term attitudes toward waste and recycling.** There is a void for the administration on college campuses (and other decision makers) in creating programs to encourage positive environmental outlooks

and actions. This lack of programming also raises the concern of whether campus administrators understand the reasoning for specific program implementations and the influences they have on participants.

In an effort to shed light on campus environmental efforts, this concurrent mixed methods study aimed to gain a better understanding of the decision making process and factors that influence both students and administrators. In this study, qualitative interviews with SIUC administrators were conducted to explore current perceptions and programs, as well as, insight into the reasoning for these specific programs. I aimed to explore the SIUC housing administration roles in the campus recycling efforts. Another component of the study combined survey research with observational research of recycling behavior. A case study of recycling behaviors and influences of current University Housing Students was conducted. At the same time, surveys of current students were administered to measure the relationship between the factors that influence their behavior and recycling attitude.

RESEARCH QUESTIONS

1. How can the effectiveness of environmental programs be measured for students and administrators?

In this question I explored what makes a program successful for both administration and students. The case study of recycling behavior was crucial in answering this research question from the student perspective. With campus administration, would it be for example, student participation, a change in knowledge, a change in behavior, etc.? It is important when trying to come to a conclusion about

programming to take into consideration not only the students' but also the administration's perspective on the topic.

2. What factors most influence students to participate/not participate in on-campus recycling programs?

The recycling study explored accessibility, convenience, education and social norms relevant to recycling. The interviews shed light on the campus administration's understanding of the influence of each of the above factors.

3. What factors should most influence and guide campus administrators in implementing recycling programs?

In order to create future successful environmental programs on campus, administrators must first understand the factors that influence successful environmental programming. These factors should be considered when implementing future environmental policies or making future investments. The conclusion of the research in this study will provide an important look into the factors that influence student behavior.

HYPOTHESIS

It is hypothesized that current campus administrators and decision makers do not understand students' knowledge, attitudes, and behaviors in relation to current campus recycling projects and are in need of a comprehensive summary to aid in decision making on campus.

CHAPTER 4

METHODOLOGY

Concurrent mixed methods research was the chosen strategy of inquiry. As recommended by Creswell (2009), the interviews and surveys were conducted within a short time period, two weeks, in order to ensure a comparison of the same programs and implementations by students and administrators. The recycling data were collected from the time the residence halls opened after the SIUC winter break until SIUC final exam week, with the exception of spring break (March 12, 2011-March 20, 2011).

SITE SELECTION

The site chosen for the research was the Southern Illinois University Carbondale. The site was chosen for multiple reasons: 1) SIUC is a medium-size state university (the study would be applicable to many schools), 2) SIUC has a large on-campus housing population of over 3,000 resident (Lorentz 2011), 3) ease of data collection due to my enrollment at SIUC, 4) SIUC's University Housing environmental efforts are growing, and 5) personal connections with SIUC University Housing Administration.

PARTICIPANTS

Participants in the study include current University Housing professionals that were willing to participate in the study. All housing professionals listed in the University Housing organizational chart were asked to participate, see Figure 1. Of the 32 housing administrators solicited, seven agreed to participate. In-person interviews were

conducted when possible. When in-person interviews were not possible for the participant the questions and answers were emailed.

Participants in the survey and case study included current students on the 7th, 8th, and 9th floors of Neely Hall, a seventeen story residence hall on the east side of the Southern Illinois University Carbondale Campus (SIU Board of Trustees 2010). The floors were selected because the 9th floor is currently a floor that contains the “Going Green” Living Learning Community (LLC). The LLC consisted of students that were interested in being involved with environmental programs and organizations on campus. Working with the LLC gave me access to the building. The other two floors were selected with the help of the SIUC University Housing Custodial Supervisor because of ease of data collection. The floors had to have special instructions for custodial staff so that the recycled materials could be weighed. Also, these floors did not contain any special groups that could influence the data, such as athlete floors, single sex floors, age 21 and over floors, or international floors.

INTERVIEWS WITH HOUSING ADMINISTRATION

The goals of the interviews with housing administration were to 1) determine the roles that different levels of administration have in recycling programs, 2) gauge whether administrative staff felt that recycling was important to the campus community, 3) determine what types of information housing staff administration receives about recycling programs, and 4) identify what factors the housing administration thinks most influence student participation. The interviews were constructed with these goals, and

the goals of the research as a whole, in mind. Appendix A contains a full list of interview questions.

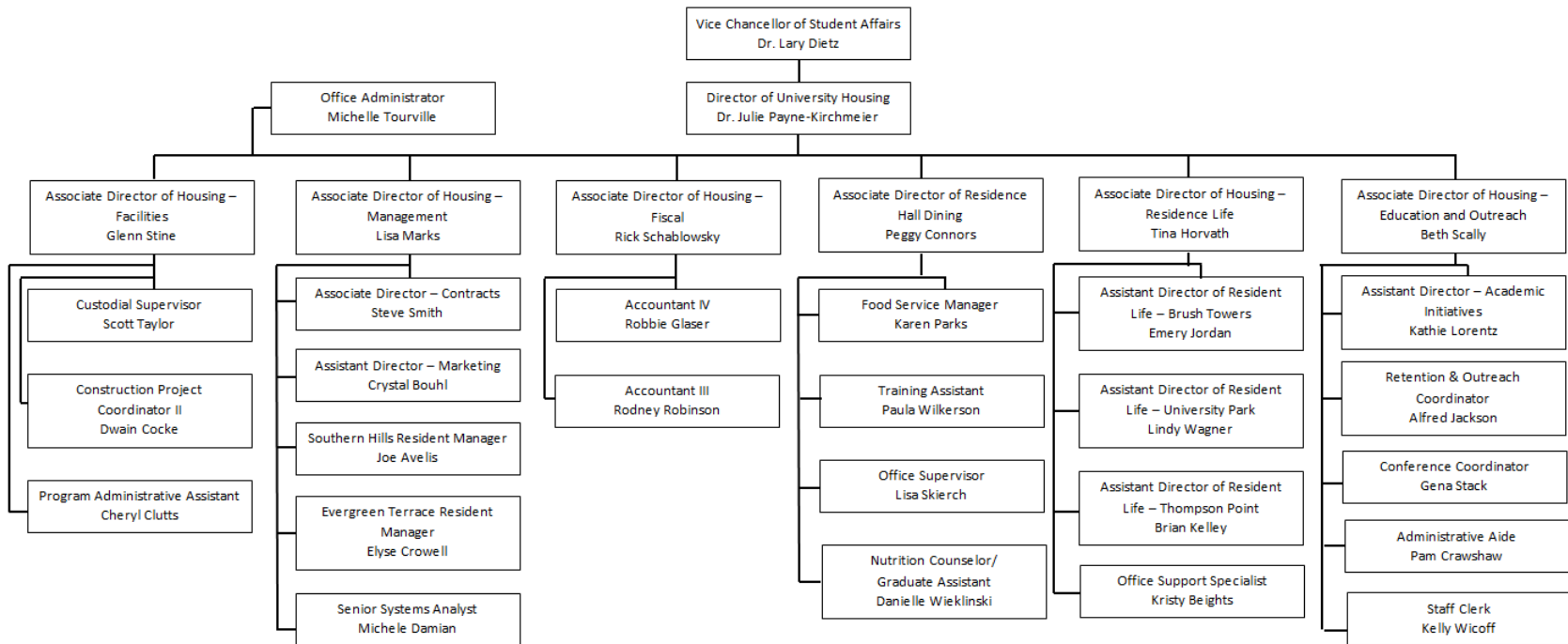


Figure 1: Fall 2010 University Housing Organizational Chart (Fall 2010 Housing Organizational Chart 2010)

After receiving clearance from the SIUC Human Subjects Committee to conduct the interview research, SIUC University Housing administrators were contacted through email and asked to participate. Interviews were conducted in person when possible. Methods and suggestions by Weisberg et al. (1996) were used to form the question script and administer interviews. Fowler and Mangione (1990) was also used as a guide to minimize error in the standardized interviews I would be completing. The interviews were voice recorded to ensure the entire answer was correctly recorded. Notes were also taken. The location of the interview was the choice of the interviewee; their offices were chosen in every instance. Questions were asked in the same order and with the same wording each time. Besides the pre-determined script, probing was also used (Weisberg et al. 1996). For the administrators that were unable to schedule a meeting, the questions were emailed to them and they were asked to respond. Because only three of the Housing Administrators contacted responded to the original request for interviews a second email was sent to the same list of administrators asking them if they would be willing to participate through email. Four more administrators agreed to respond without an in-person meeting.

After the interviews were all collected coding was used to gain insight into the group as a whole. Manifest coding focuses on the content of the answer and was chosen as the appropriate code for this research (Weisberg et al. 1996). Since the questions were open-ended, the contextual method for coding was used. Using this method the researcher reads a large number of answers and develops codes by grouping the answers together (Weisberg et al. 1996). While some of the codes could be pre-determined, the open-ended nature of the questions and the variety of the

respondents' answers made the contextual method appropriate. Table 1 in Chapter 5 contains a list of coding for the interviews.

RECYCLING STUDY

The goal of this portion of the study was to understand how important convenience and education were as factors in a student's decision to participate in recycling in their residence hall room. Through funding from the SIUC Green Fund the project "Recycling – One Room at a Time" was developed to determine the effect of the addition of recycling bins to individual residence hall rooms. The funding allowed for one recycling bin to be placed in each of the 23 occupied rooms per floor on the 8th and 9th floors of Neely Hall. An undergraduate student worker was employed to collect the data. The 7th floor was monitored as a control for the recycling study.

The 7th floor received no recycling bins and no additional educational material, the 8th floor received recycling bins and no additional educational material, and the 9th floor received recycling bins and additional educational material with pro-environmental education throughout the entire fall 2010 and spring 2011 semesters. This was done to explore the influence of not only convenience, but also the influence of education.

The 9th floor contained the "Going Green" LLC in which students chose to live if they were interested in being exposed to additional environmental programming and information. Of the 37 students on the 9th floor, two are SIUC Resident Assistants and approximately 15-17 of the students are "Going Green" LLC participants, leaving approximately 18-20 students that chose to live there without being interested in the Living Learning Community. Due to the system SIUC uses to let students choose

residence hall rooms, the exact students that entered the floor due to the LLC is unknown. Each floor was measured as a whole due for data collection purposes.

The aim of the recycling study was to 1) gauge the importance of convenience and 2) gauge the importance of pro-environmental education.

The recycling bins were placed into the residence hall rooms during the SIUC Winter Break between the fall 2010 and spring 2011 semesters. This time was chosen in coordination with the SIUC Facilities Staff (those that are in charge of waste and recycling in the residence halls). The custodial staff entered all rooms in Neely Hall during this time and placed the bins in every room on the 8th and 9th floors.

In coordination with the SIUC Custodial Supervisor, the undergraduate student worker was given access to the basement of Neely Hall where all the recycled materials are taken and custodial staff was instructed to leave (not empty) recycling on the 7th, 8th, and 9th floors. A scale was donated to the project by SIUC University Housing Dining. The scale weighs the material in pounds and every 4 ounces, up to 50 pounds. The undergraduate student worker used this scale on a flat surface in the laundry room of each of the floors, being sure to zero the scale each time and making sure that all material was being weighed. The undergraduate student worker weighed all four types of recycling: paper, plastic, glass, and aluminum on the three floors and recorded the results individually. The student worker then re-bagged the material and used the keys provided by SIUC University Housing Facilities to lock the elevator and take all the materials to the large holding bins for the recycling for the entire building in the basement. The data were then sent to me in the form of a Microsoft Excel spreadsheet.

The data collection began on January 24th. The weights collected on this date were not used due to the fact that students were still returning to the residence halls during the week of January 17th through January 24th. It was also unknown if the bins were completely empty as the students returned. Therefore, January 31st (recycling from January 24th data collection through January 31st data collection) was the starting point of the study. During the SIUC Spring Break (March 12, 2011-March 20, 2011) a large number of students leave and arrive back at SIUC at various times due to the residence hall closing. Data prior to break (March 7th) were collected. Data for the collection on March 21st were omitted due to the break closing and staff emptying the bins. The data collected on March 28th were used as the start point after break. The last data collection date was May 2, 2011, the week prior to final examinations. Due to students leaving the residence halls prior to and the week of final examinations and the availability of the student worker, this was the last data collected. In total, there were twelve dates in which data were collected for the previous seven days of recycled materials.

Table 1: Spring 2011 recycling study data collection dates used in analysis.

Spring 2011 Neely Recycling Study Collection Dates															
1/24	1/31	2/7	2/14	2/21	2/28	3/7	3/14	3/21	3/28	4/4	4/11	4/18	4/25	5/2	5/9
	X	X	X	X	X	X			X	X	X	X	X	X	

STUDENT SURVEYS

Student surveys were administered during the week before the hall closed for the spring break, March 7, 2011 – March 11, 2011. The aim of the surveys was to 1) gauge the importance of recycling on the three floors, 2) understand the convenience of

recycling in the residence halls, 3) understand student knowledge and how this influences their attitudes and behavior, 4) collect information for SIUC University Housing for future improvements.

The survey contained eight questions with responses on a 5-point Likert scale. A full list of survey questions is listed in Appendix B. Closed-ended questions were used. As in previous studies (Jennings 2004), the five point scale was chosen because several of the questions required a response along the lines of “about the same”. In deciding to use a rating scale, suggestions from Weisberg, et al. (1996) were considered. A five point scale was chosen because a middle value was desired. In all rating scale questions, three of the points were labeled with words. Also, two questions were used to evaluate where students were exposed to environmental information before and after attending SIUC. This question contained common ways in which students are exposed to environmental information and a space for “other” so that students could explain if there was another way they were exposed to the information.

The surveys were placed under the doors of each of the rooms on the 7th, 8th, and 9th floors. The surveys already contained the student’s first name and room number from a list provided by SIUC University Housing. This was to help ensure that each student would receive a survey since each one was addressed to an individual in the room. Extra surveys were placed in the halls of each floor. The cover sheet approved by SIUC Human Subjects asked the students to participate in the short survey. In order to encourage participation a pizza party was offered before the spring break closing for anyone that filled out a survey.

The residents were instructed to turn the surveys into their respective resident assistants (two are located on each floor) either in person or under the door, or turn them into the researcher personally at the pizza party. The resident assistants were each emailed prior to the survey distribution asking for their help in collection of the surveys. The resident assistants were each delivered a large envelope to keep the surveys in with the researcher's contact information and approved SIUC Human Subjects cover letter to direct any student questions. The survey answers were placed into spreadsheet form for analysis.

CHAPTER 5
ANALYSIS AND RESULTS

DATA

INTERVIEWS WITH HOUSING ADMINISTRATION

The contextual method was used to analyze at the responses of the SIUC University Housing Administration that participated in the interview. The coding system is shown below in Table 2. The answers were coded into general categories in order to gain insight and analyze the responses (Weisberg et al. 1996). As recommended by Weisberg et al. (1996), coding schemes depend on the researchers' objectives. The variety of possible answers and need for an understanding of the group made contextual coding the data analysis of choice.

The preliminary questions asked of the respondents were not coded and simply used to understand their specific roles on campus. The final question: "What improvements would you make in recycling programming?" was also not coded because of the variety of answers. A complete list of interview questions can be found in Appendix A.

Table 2: General category codes used for administrator interviews

Administrator Interview Codes	
1. What is your primary role in the recycling programs, investments, and/or policy on the SIUC campus?	
General Category Codes	
1	Within my office or department I personally recycle in my office I encourage my entire office or staff to recycle

- 2 Throughout Campus
Within residence halls
University Housing sponsored events
Campus wide

*everyone that answered within the 2 category also answered in the 1 category

2. Do you personally feel that recycling is important on campus?

General Category Codes

- 1 Yes
- 2 No

3. Where do you primarily get your information and education about recycling?

General Category Codes

- 1 I am personally aware
- 2 Media (internet, print, etc.)
- 3 University Housing Staff
- 4 Outside sources, I seek information

4. Where do the ideas for environmental policy and programming come from?

General Category Codes

- 1 The ideas are my personal ideas
- 2 University Housing
- 3 Students
- 4 Outside sources, I seek ideas

5. What factors most guide you in implementing recycling programs?

General Category Codes

- 1 I feel personally responsible
- 2 Students
- 3 Reduce Cost

6. What do you think influences students most to participate or not participate in recycling programs?

General Category Codes

- 1 The precedence housing sets
- 2 Knowledge
- 3 Ease

7. How do you currently instill knowledge about recycling to students?

General Category Codes	
1	Information provided by housing (bulletin boards, posters, website, etc.)
2	Class
3	Recycling programs are easily seen throughout campus

8. How do you think knowledge about recycling CAN BE instilled into students?

General Category Codes	
1	Information provided by housing (bulletin boards, posters, website, etc.)
2	Class
3	Make it a part of their everyday routine
4	Fun Programming

9. Where do you think SIUC most excels in recycling programs?

General Category Codes	
1	Waste reduction

10. Where do you think SIUC most lacks in recycling programs?

General Category Codes	
1	Large events lack recycling areas
2	Recycling is only available for the basic things (electronics, clothing, etc. are not included)
3	Education about environmental efforts
4	Recycling is only available in certain areas, more containers are needed

Table 3 contains the coded interview responses. In cases where the responses fell into more than one category, the response that the interviewee explained the most or felt was the most important is listed first. Those that have a zero are questions the interviewee did not answer.

Table 3: Coded Interview Responses

Coded Interview Responses							
Question	Respondent						
	A	B	C	D	E	F	G
#1	1	2	2	1	1	1	2
#2	1	1	1	1	1	1	1
#3	1	2	3	3	3	3	4
#4	1	0	2	2	2	3	4
#5	1	0	2	1	3	3	0
#6	1	2	2	2	0	2	2
		3					
#7	1	1	3	3	1	1	1
	2	2				2	
#8	1	1	3	3	0	4	1
	3	2					
#9	1	1	1	1	0	1	1
#10	0	1	2	3	0	4	4

RECYCLING STUDY

Table 4 indicates the differences between each floor used in the recycling study. All the floors were located in Neely Hall, a seventeen story residence hall on the east side of the SIUC campus (SIU Board of Trustees 2010). The 9th floor received a recycling bin within each individual residence hall room and pro-environmental education. The 8th floor received a recycling bin within each individual residence hall room, and the 7th floor had no changes. The number of students living on each floor is also included in the table.

Table 4: Information about floors used in recycling study

Floors Used in Recycling Study				
Floor	Recycling bins located in laundry room on floor	Recycling Bins added to each room	Pro-environmental educational material provided	Number of Residents
7	X			31
8	X	X		39
9	X	X	X	37

Table 5 shows the recycling weight totals per week and the total amount for the twelve weeks data were collected. Figure 2 contains the recycling weights collected per person.

Table 5: Recycling Data Collected in Neely Hall

Weekly Recycling Totals												
1/31/11	2/7/11	2/14/11	2/21/11	2/28/11	3/7/11	3/28/11	4/4/11	4/11/11	4/18/11	4/24/11	5/2/11	Total
7th Floor												
3.00	5.00	2.50	8.25	4.50	4.50	4.00	8.50	6.25	5.75	5.00	3.75	61.00
8th Floor												
9.00	3.50	6.00	3.50	8.50	13.50	9.00	5.50	8.50	6.00	6.50	8.50	88.00
9th Floor												
10.50	12.50	15.50	10.00	9.00	5.50	9.00	5.50	8.50	6.00	6.50	8.50	107.00

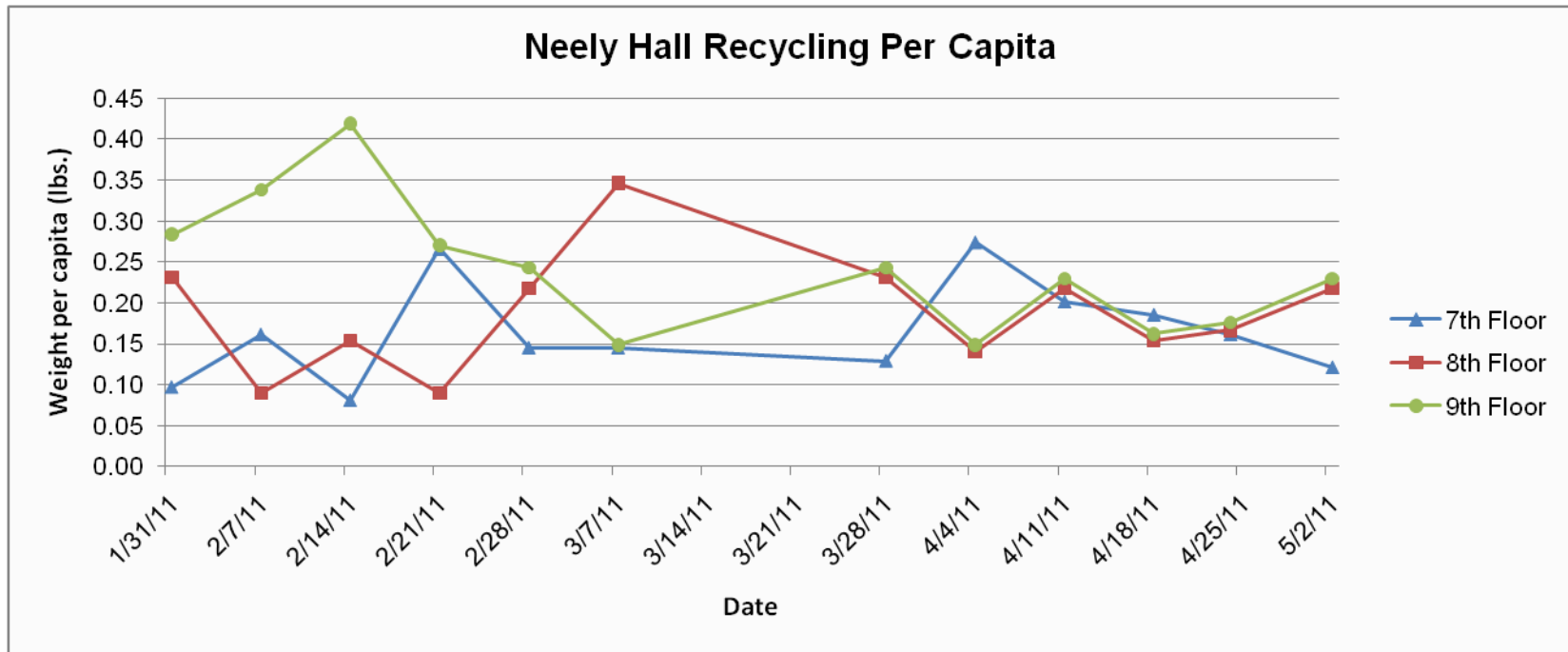


Figure 2: Chart of weekly recycling data collected per person

STUDENT SURVEYS

The survey questions are listed below. Appendix C contains the answers for source of knowledge questions, Q5 and Q7. Appendix E shows the survey responses to questions using a rating scale. Codes have been used instead of student's room numbers in order to protect the student's identity. Those in the 700s are responses from the 7th floor students, those in the 800s are responses from the 8th floor students, and those in the 900s are responses from the 9th floor students. The #1 indicates the resident circled the choice and a 0 indicates the resident did not circle the choice. There were zero "other" responses for question 5 and just two "other" responses for question 7.

Survey Questions:

Q1: Do you feel that recycling is important?

Q2: Do you think the recycling bins in Neely Hall in the laundry rooms are convenient?

Q3: Would you be/are you more likely to recycle with a bin in your residence hall room?

Q4: How much education/information about recycling were you exposed to before coming to SIUC?

Q5: Where/how were you exposed to this information?

Q6: How much education/information about recycling have you been exposed to since coming to SIUC?

Q7: Where/how were you exposed to this information?

Q8: Would you be more or less likely to recycle if you knew where the materials you recycled on campus went and what was done with them?

Q9: Do you think it is easy to recycle on campus?

Q10: Do you think there are improvements or changes that should be made to increase recycling on campus?

ANALYSIS

This study produced a large amount of useful data. The focus of the analysis will be in answering the initial research questions and hypothesis. The first research question to explore is: What factors influence students most to participate/not participate in on-campus recycling programs?

Table 6 shows the average survey responses to rating scale questions. First, the average for each floor for question one, “Do you feel that recycling is important,” all fall within the four range on the rating scale (between “somewhat important” and “very important”). All floors also had very similar results to the question “How much education/information about recycling were you exposed to before coming to SIUC,” Q4. On average on Q6, students on the 9th floor reported that they were exposed to more education/information about recycling since coming to SIUC than students on the 7th and 8th floors reported.

Responses for questions one and four, regarding the importance of recycling and prior education, were very similar for all three floors. This shows that students in the study all have pro-recycling attitudes. This indicates that the differences in recycling for the three floors had more to do with other factors, such as convenience and pro-environmental education.

Table 6: Average Survey Responses

Average Survey Responses								
Floor	Q1	Q2	Q3	Q4	Q6	Q8	Q9	Q10
7	4.25	3.75	4.50	3.50	2.50	3.75	3.50	2.50
8	4.00	3.89	3.78	3.44	2.67	3.56	3.56	2.89
9	4.64	4.00	4.43	3.36	3.14	3.93	3.86	3.07
Average	4.37	3.93	4.22	3.41	2.89	3.78	3.70	2.93

Figure 3 shows the average survey responses for each floor. Large differences in answers to question three were associated with the resident’s floor. The question asked students if they would be or are more likely to recycle if they have bins in their individual rooms. On the 7th floor, (floor with no individual bins of additional education) 75% responded at a five on the rating scale. This is even higher than the 64% that responded at a five on the 9th floor. These are both much higher than the 33% that responded at a five from the 8th floor. On the 8th floor, 56% responded with a three, “about the same”. This lends more support to the belief that education most strongly influences recycling behaviors. Those that did receive the convenience factor of having a recycling bin in their individual room scored similarly on the importance of recycling, but without additional education they responded that they would recycle “about the same” even with the addition of convenience. This indicates that convenience influences recycling behavior, but does not result in a change in attitude. Appendix D contains the percentage of students that responded with each value and total that responded to each value for all floors.

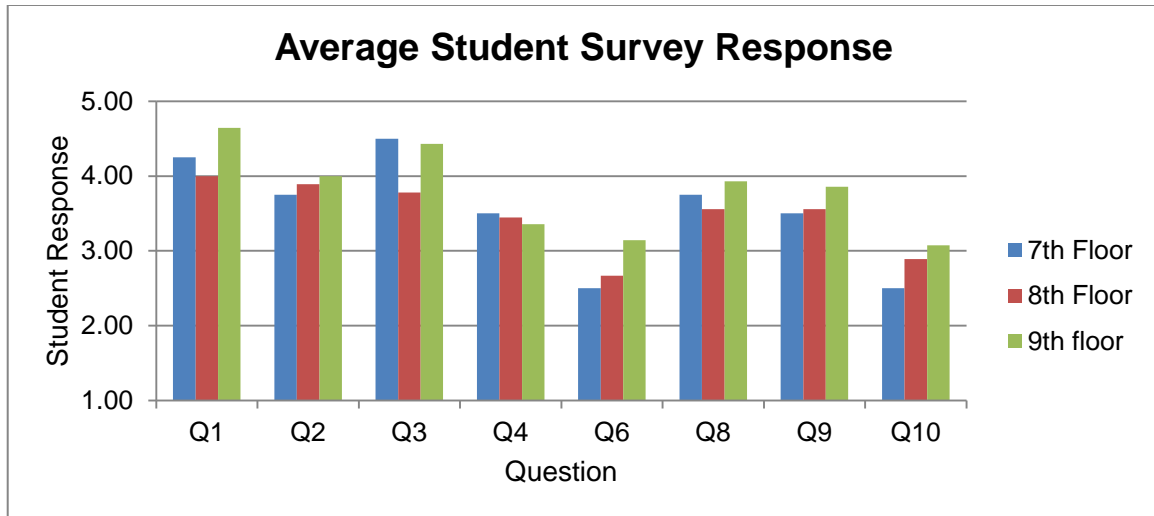


Figure 3: Average student survey response for each floor used in recycling study.

Recycling data was the next thing to look at when answering the research questions. Change was calculated using the weekly average weight of recycled material per person. Overall, there was 19% greater average amount of recycled material per person on the 8th floor compared to the 7th floor. So, the addition of a recycling bin in the individual room in this study increased recycling by 19%. There was also a 26% increase in the average amount of recycling per person on the 9th floor compared to the 8th floor. Both the 8th and 9th floors had recycling bins in the individual rooms; however, the 9th floor was exposed to pro-environmental education and programming. The addition of pro-environmental education increased recycling more than the convenience factor alone. A total of a 50% increase in the average amount of recycling per person was seen from the 7th to the 9th floor. Figure 4 shows the average recycling weights per week, normalized by the population on the floor.

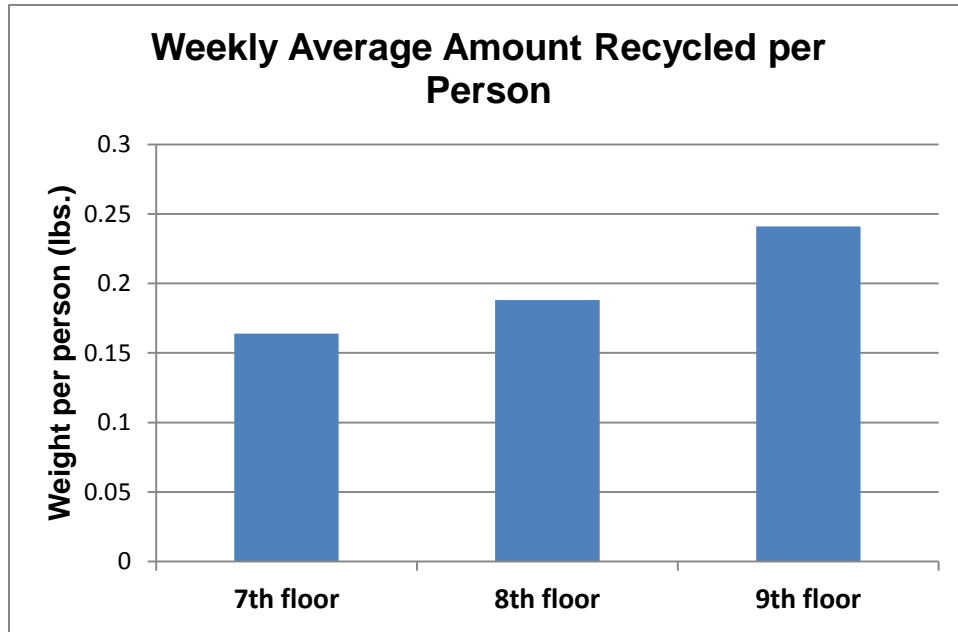


Figure 4: Average weekly amount recycled per person using totals for all four materials combined.

When looking at the change, analysis of variance (ANOVA) statistics were calculated to test the significance. The resulting ANOVA table is shown in Table 7. ANOVA was calculated using an alpha value of 0.05. The F value of 3.56 is higher than the F critical value of 3.28. The P-value of 0.04 is also higher than the alpha value tested of 0.05. The results suggest that the increase is the result of convenience and education.

Table 7: Single factor analysis of variance results

Anova: Single Factor

SUMMARY					
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>	
7th	12	1.98	0.17	0.00	
8th	12	2.26	0.19	0.01	
9th	12	2.89	0.24	0.01	

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	0.04	2	0.02	3.56	0.04	3.28
Within Groups	0.17	33	0.01			
Total	0.20	35				

It is hypothesized that current campus administrators and decision makers do not understand students' knowledge, attitudes, and behaviors in relation to current campus recycling projects. It is also hypothesized that administrators and policy makers are in need of a comprehensive summary of factors that influence students. When analyzing this hypothesis the interview data were compared to the survey response data to look for relationships between how administrators felt students received information about recycling.

Among those students surveyed 40% of respondents answered that they had been exposed to very little or no education/information about recycling since coming to SIUC. Another 33% ranked this answer at a three, 15% at a 4 and only 11% answered that they had received a large amount of education/information. It is important to note that this entire 11% of the total came from the 9th floor which was exposed to pro-

environmental education during the fall 2010 and spring 2011 semesters. At least 50% of the respondents on floors 7 and 8 said they were exposed to little or no education/information about recycling since coming to SIUC. Among those that responded the three most common ways they received information included, on-campus programs, from their peers, and in class. Table 8 shows the responses to the questions where students gained information since coming to SIUC. Of the respondents 52% chose on-campus programs as a way in which they received recycling education/information. Of this 52%, 30% were from the 9th floor which had been exposed to pro-environmental programming, bulletin boards, and newsletters throughout the academic year. The fact that most students received environmental education from on-campus programs emphasizes the need for campus administration to choose pro-environmental education and programming, especially in the residence halls. It is also important to recognize the influence of social norms. Since students receive a great deal of information from their peers about recycling, the idea of social norms can greatly influence recycling behavior. As the study by Jennings (2004) highlighted, perceived social norms have an influence on behaviors. Within the residence halls, students are constantly observing fellow students. Pro-recycling behavior can be seen as a social norm. Administration can play a key role in influencing this through programming and education that encourages recycling behavior.

Table 8: Survey Question 7 responses: Where students received their information since coming to SIUC.

Survey Response Totals							
Floor	Q7						
	Class	Family	Peers	Literature	Television	On-Campus Programs	Community Programs
7	0	0	0	1	0	3	0
8	3	0	2	4	1	4	1
9	4	2	9	1	1	7	2
Total	7	2	11	6	2	14	3

Of the University Housing Staff interviewed, when asked if they personally felt recycling was important, 100% responded “yes”. Of the participants, 71% responded that current students were gaining knowledge about recycling through information provided by University Housing. When asked what they felt most influenced students to participate or not participate in recycling programs on campus; knowledge, ease, and the example housing sets were among the answers. The staff that responded seems to have a reasonable understanding of 1) where students receive knowledge about recycling and 2) the importance of ease and convenience on recycling behavior. However, the staff was unaware of the major influence that education, as shown in this study, can have on recycling behavior.

CHAPTER 6

DISCUSSION

Focusing on the initial research questions and hypothesis, the first question to explore is: What factors most influence students to participate/not participate in on-campus recycling programs?

All students that responded to the survey felt that recycling was important. On average the students also reported similar exposure to education about recycling before coming to SIUC. So, students in the recycling study felt that recycling was important and were exposed, on average, to the same range of education prior to SIUC. Since the students, on average, had pro-environmental attitudes toward recycling, other factors (convenience and education) likely created the increase in recycling behavior observed on floors 8 and 9.

The addition of recycling bins to the individual rooms, the convenience factor being studied, increased recycling by 19%. However, over half of the students that only received a bin in their room reported that the addition of the bin did not increase their likelihood to recycle. This emphasizes the importance of the second factor studied, education. The addition of pro-environmental education increased recycling by 26% over convenience alone. This increase was higher than the influence of convenience alone. The most impressive increase in recycling was observed between the 7th and 9th floors. The weekly average amount of recycled materials per person increased by 50% with the addition of both factors: convenience and education. The difference in recycled materials between the floors was significant when tested with an alpha value of 0.05.

Next, when asked how much recycling education they were exposed to prior to attending SIUC the average responses for the 7th, 8th, and 9th floors were 3.50, 3.44, and 3.36. It is important to note that the students on the 9th floor ranked their knowledge before coming to SIUC within 0.14 points on the rating scale of the other floors surveyed. While a portion of the 9th floor was interested in sustainability before moving in, the other residents on the floor did not select the floor for this reason.

The students on the 9th floor were exposed to a great deal of pro-environmental programming, bulletin boards, and newsletters throughout the academic year. Since coming to SIUC the students on the 7th, 8th, and 9th floors answered, on average, that they were exposed to 2.50, 2.67, and 3.14 on the five-point scale. Only 11% answered of students that responded answered that they had received a large amount of education/information. This entire 11% of the total came from the 9th floor which was exposed to pro-environmental education during the fall 2010 and spring 2011 semesters. At least 50% of the respondents on floors 7 and 8 said they were exposed to little or no education/information about recycling since coming to SIUC. Even after being exposed on the floor to a great deal more pro-environmental information than any of the other floors, only 11% thought they had been exposed to a large amount of information. This is a very critical hole in the current University Housing recycling programming. The 9th floor had the greatest amount of recycling in the study. This is, again, evidence that education is among one of the most important components in increasing pro-environmental behavior, specifically recycling in this study.

It is also important to note that among the ways that students indicated that they received their sustainability information, on-campus programs and their peers were the

top two ways noted. The fact that peers were noted as a way in which information was gathered helps support research that social norms have a large influence on a student's decision to recycle (Jennings 2004). This was also brought up in the interviews with University Housing Admin. When asked how they felt knowledge about recycling can be instilled in students, 43% of responses fell into the category of "make it part of their everyday routine". Considering that students noted that on-campus programs were how they received most of their information and education is shown by this study to be a very important factor, campus administration should continue to increase pro-environmental programs. Convenience, education, and the perception of a social norm are factors that all play a role in what influences students most to recycle; education being the factor that stands out among the rest in this study.

Next, the hypothesis that current campus administrators and decision makers do not understand student's knowledge, attitudes, and behaviors in relation to current campus recycling projects is explored. The interviews with University Housing Administration were investigated for this hypothesis.

When asked what they thought most influenced students most to participate in recycling, the interviews all fell into the three general categories of 1) the example housing sets, 2) knowledge, and 3) ease. Of those that answered this question 83% responded with knowledge, which from the above explanation of the recycling and survey data stood out as the most influential factor. While it was hypothesized that housing did not have an understanding of what factors most influenced students, the conclusion from the interview data shows that the staff interviewed were able to identify the same important factors that the survey and recycling portion of the study identified.

However, the second portion of the hypothesis, that administration and policy makers are in need of a comprehensive summary of factors that influence students, still needs to be examined. Even though administrators were able to identify factors that they felt influenced students, it is still necessary for improvements to be made to current programs. Especially due to the percentage of students that said they had been exposed to little or no information since coming to SIUC. With the simple addition of more environmental education a huge impact might be made. The need for changes is especially evident in the student survey. Of those that responded, 100% answered that at least some changes need to be made to increase campus recycling programs.

Also, the return on investment of the addition of individual bins in each room could be enormous. The cost of recycling bins for the two floors in Neely Hall was \$210.56, which is just \$2.77 per person. Even without the addition of educational material the 19% decrease in waste would be extremely large throughout the entire campus. During the spring semester of 2011, the SIUC residence halls housed approximately 3,262 people (Lorentz). Within one semester alone (approximately 15 weeks the residence halls are open per semester) a 19% increase in the amount of waste recycled per person (the increase found in this study from the addition of convenient bins in each residence hall room) could result in almost 1,200 pounds of waste diverted from the landfill (SIU Board of Trustees 2011). The addition of pro-environmental education could result in over 2,500 pounds more waste recycled in just one semester. Taking into consideration the influence that educational material AND convenience had on the students in this study (50% increase in amount recycled per person), over 3,700 pounds of waste could be diverted in just one semester.

This study has shown that residence hall recycling would benefit from improving the convenience and/or education factor. The addition of either would likely increase recycling, but the influence of both factors overwhelmingly increased recycling in the sample population study and would likely have the same influence on the population as a whole.

How can the effectiveness of environmental programs be measured? While it is difficult and costly in some cases to actually measure the effectiveness of a program there are some factors that should be considered as most important to administrators. As the recycling study and survey of students has illustrated, education and information about recycling programs was the factor that showed the greatest influence on student behavior

LIMITATIONS

While this study encompassed many different aspects of the University Housing recycling programs, there were limitations. As with many interviews and surveys, a sample of the population was used because the entire population was unavailable. In the housing admin interview process 23% of the total population agreed to participate. However, those that were interviewed were from the dining, management, marketing, and education and outreach departments. These are departments that play a large role in the University Housing programming and have more interaction with the students than other departments, such as facilities. The surveys were distributed to 107 students, with 27 responses turned in.

In order to reduce interviewer bias, the interview questions were pre-determined and only simple probing questions were used to ask for expansion of answers (Weisberg et al. 1996). Codes were also used to group answers in order to gain insight from the interviews. While the researcher had some ideas for pre-determined codes, because of the nature of the questions, the transcripts were coded after all the interviews were complete.

Pro-environmental education and information began with students on the 9th floor in August of 2010; however, the data collection did not begin until January 2011. University Housing Facilities Staff placing recycling bins in the individual rooms was a limitation that decided the time in which the data collection could begin. The recycling data were collected for twelve weeks of one semester instead of an entire academic year.

CHAPTER 7

CONCLUSION

The final research question is what sparked the idea of this research and the question that, in my opinion, is the most important. What factors should most influence and guide campus administrators in implementing recycling programs?

The study has shown that the addition of an educational component to the recycling program on campus had a tremendous effect and confirmed previous research that convenience is a very influential factor in students recycling behavior. This research also supported past studies that social norms influence students' behaviors (Jennings 2004). It is important for administrators to take all these factors into consideration when implementing new programs.

I found in the great deal of time that I spent with students that, in many cases, they are unaware of the environmental actions or programs that are being implemented. Only a small proportion of students surveyed answered that they had been exposed to ample education on the topic. Many students are unaware of the pro-environmental investments that University Housing has made. As brought up in the interviews, it is important for pro-environmental attitudes to be a part of the student's everyday lives, again enforcing the idea that social norms are a factor that needs consideration in programming and investments. Addition of an educational component to these programs and investments is very important. This will help promote pro-environmental attitudes and ultimately achieve the goal of influencing behavior.

Also, when making decisions about the programs that should be implemented that require investment administrators should always consider a case study of the impacts on a small population. During the ACUHO-I conference there was a great deal of disagreement among administrators as to what programs worked and exactly why these programs were a success or failure. This makes the need for a case study extremely important before investments are made.

The change in attitude is the factor that stands out as most important because attitude and beliefs are what shape behavior. Education is necessary to change attitudes (Smith, et al. 1997). College campuses have a unique opportunity to influence a large number of people and ultimately change their habits. Capitalizing on this opportunity is becoming more important to colleges and careful consideration should be taken when implementing any environmental programming or investments.

REFERENCES

- Akbasli, Sait, and Ali Meydan. "An evaluation of the problems of solid wastes at elementary schools depending on the views of school administrators." *Education* 131, no. 2 (Winter 2010): 407-418.
- Association for the Advancement of Sustainability in Higher Education. *Association for the Advancement of Sustainability in Higher Education*. 2011. <http://www.aashe.org> (accessed June 2011).
- Barlett, Peggy, and Geoffrey Chase. *Sustainability on Campus*. Massachusetts Institute of Technology, 2004.
- Bell, Fisher, Baum, and Green. *Environmental Psychology*. 4th Edition. Fort Worth, TX: Harcourt Brace, 1996.
- Chaisamrej, Rungrat, and Rick Zimmerman. "Integrating the Theory of Planned Behavior, Altruism, and Self-construal to Predict Paper Recycling Behavior in Individualistic Collectivistic Societies: Implications for Communication Campaign Design." Research Paper, International Communication Association; 2007 Annual Meeting, 2007, 1-42.
- Creswell, John W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Edited by 2nd ed. Thousand Oaks, CA: Sage Publications, 2009.
- "Fall 2010 Housing Organizational Chart." *Housing Staff, University Housing*. 2010. http://www.housing.siu.edu/files/fall2010_housing_org_chart.pdf (accessed February 2, 2010).
- Fowler, Floyd, and Thomas Mangione. *Standardized Survey Interviewing - Minimizing interviewer-Related Error*. Vol. 18. Sage Publications, 1990.
- Gambro, John, and Harvey Switzky. "A national Survey of High School Students' Environmental Knowledge." *Journal of Environmental Education* 27, no. 3 (Spring 1996).
- Jennings, Miranda E. "An Instrument to Measure the Recycling Attitudes and Beliefs of Undergraduate Students at a Large Northeastern University." Document - Report, University of Connecticut, 2004, 1-22.
- Kahn, R., and C. F. Cannell. *Dynamics of Interviewing*. New York, NY: John Wiley, 1958.
- Larsen, Knud. "Environmental Waste: Recycling attitudes and correlates." *The Journal of Social Psychology*, no. 135(1) (1995): 83-88.
- Lorentz, Kathie A. *Assistant Director-Education and Outreach, SIUC University Housing* (February 2011).
- Mikolay, Lauren. "College recycling contest bursting at the seams." *Waste News* 13, no. 3 (June 2007).

Montello, Daniel, and Paul Sutton. *An Introduction to Scientific Research Methods in Geography*. Sage Publications, 2006.

Recyclemania. <http://www.recyclemania.org/> (accessed March 28, 2010).

SIU Board of Trustees . *Southern Registrar's Office*. March 2011.
<http://registrar.siu.edu/calendars/academic.html> (accessed March 2011).

SIU Board of Trustees. *Brush Towers*. May 2010. <http://www.housing.siu.edu/areas/brush-towers> (accessed March 2011).

Smith, Jeffrey, Christine Rechenberg, and Larry Cruvey. "The Impact of Recycling Education on the Knowledge, Attitudes, and Behaviors of Grade School Children." *Education* 118, no. 2 (1997): 262-266.

Weisberg, Herbert, Jon Krosnick, and Bruce Bowen. *An Introduction to Survey Research, Polling, and Data Analysis*. Thousand Oaks, California: Sage Publications, 1996.

Wolcott, Harry F. *Writing Up Qualitative Research*. 3rd ed. Thousand Oaks, CA: Sage Publications, 2009.

APPENDICES

APPENDIX A: HOUSING ADMINISTRATOR INTERVIEW QUESTIONS

1. Please state your name and position at SIUC
2. What is your role in environmental programs, investment, and/or policy on the SIUC campus?
3. I am primarily interested in recycling, what is your role in the recycling programs, investment, and/or policy on the SIUC campus?
4. Do you personally feel that recycling is important on campus?
5. Where do you primarily get your information and education about recycling?
6. Where do the ideas for environmental policy and programming come from?
7. What factors most guide you in implementing recycling programs?
8. What do you think influences students most to participate or not participate in recycling programs?
9. How do you currently instill knowledge about recycling to students?
10. How do you think knowledge about recycling can be instilled to students?
11. Where do you think SIUC most excels in recycling programs?
12. Where do you think SIUC most lacks in recycling programs?
13. What improvements would you make in recycling programming?

APPENDIX B: STUDENT SURVEY QUESTIONS

Q1: Do you feel that recycling is important?

not important		1	2	3	4	5	very important
				important			

Q2: Do you think the recycling bins in Neely Hall in the laundry rooms are convenient?

not convenient		1	2	3	4	5	very convenient
				somewhat convenient			

Q3: Would you be/are you more likely to recycle with a bin in your residence hall room?

less likely		1	2	3	4	5	more likely
				about the same			

Q4: How much education/information about recycling were you exposed to before coming to SIUC?

none		1	2	3	4	5	large amount
				very little			

Q5: Where/how were you exposed to this information? Please circle all that apply

School Family Peers Literature (magazines, newspapers, books, etc.)
 Television Community Programs Other (please explain) _____

Q6: How much education/information about recycling have you been exposed to since coming to SIUC?

none		1	2	3	4	5	large amount
				very little			

Q7: Where/how were you exposed to this information? Please circle all that apply

Class Family Peers Literature (magazines, newspapers, books, etc.)
 Television On-Campus programs Community Programs Other (please explain) _____

Q8: Would you be more or less likely to recycle if you knew where the materials you recycled on campus went and what was done with them?

less likely		1	2	3	4	5	more likely
				about the same			

Q9: Do you think it is easy to recycle on campus?

not easy		1	2	3	4	5	extremely easy
				somewhat easy			

Q10: Do you think there are improvements or changes that should be made to increase recycling on campus?

no improvements needed		1	2	3	4	5	many changes should be made
				some changes should be made			

APPENDIX C: STUDENT SURVEY QUESTIONS 5 & 7 RESPONSES

Neely Hall 7th, 8th, and 9th Floors Survey Responses														
Resident	Q5						Q7							
	School	Family	Peers	Literature	Television	Community Programs	Class	Family	Peers	Literature	Television	On-Campus Programs	Community Programs	Other
701	1	0	0	0	1	0	0	0	0	0	0	0	0	I'm aware
702	1	0	0	1	1	0	0	0	0	0	0	1	0	0
703	1	0	0	0	0	0	0	0	0	0	0	1	0	0
704	1	1	1	1	0	0	0	0	0	1	0	1	0	0
	4	1	1	2	2	0	0	0	0	1	0	3	0	
801	1	0	0	1	1	0	1	0	0	1	1	1	0	0
802	1	1	0	0	0	0	1	0	0	0	0	0	0	0
803	1	0	0	0	0	0	0	0	1	0	0	0	0	0
804	1	0	0	1	1	1	0	0	0	1	0	0	0	0
805	0	0	0	1	1	0	0	0	0	0	0	1	0	0
806	1	0	0	1	0	0	0	0	0	1	0	1	1	0
807	1	0	0	0	1	0	0	0	0	0	0	0	0	advertising
808	1	1	1	1	1	1	0	0	0	1	0	0	0	0
809	1	1	0	0	0	0	1	0	1	0	0	1	0	0
	8	3	1	5	5	2	3	0	2	4	1	4	1	
901	1	0	0	0	0	0	0	0	1	0	0	0	0	0
902	1	1	1	1	0	1	1	0	1	0	0	1	0	0
903	1	0	1	1	1	0	0	0	1	0	0	1	0	0
904	0	1	0	0	0	0	0	0	0	0	0	1	0	0
905	1	1	0	1	1	0	0	0	0	0	0	0	0	0
906	0	1	0	0	1	0	1	0	0	0	0	1	0	0
907	1	1	1	0	1	0	1	1	1	0	0	0	0	0
908	0	0	0	1	0	0	0	0	1	1	0	1	1	0
909	1	1	1	0	1	0	0	0	0	0	1	0	0	0
910	1	0	1	0	1	1	0	0	1	0	0	1	1	0
911	1	0	0	1	1	0	0	0	1	0	0	0	0	0
912	1	1	0	1	0	0	1	1	0	0	0	0	0	0
913	1	0	0	0	1	0	0	0	1	0	0	1	0	0
914	0	0	1	0	0	0	0	0	1	0	0	0	0	0

APPENDIX D: PERCENTAGE OF STUDENTS' SURVEYED RESPONDING TO EACH VALUE

Question 1				
Response	7th floor	8th floor	9th floor	All Floors
5	50%	22%	79%	56%
4	25%	56%	7%	26%
3	25%	22%	14%	19%
2	0%	0%	0%	0%
1	0%	0%	0%	0%
Question 2				
Response	7th floor	8th floor	9th floor	All Floors
5	25%	44%	43%	41%
4	25%	22%	36%	30%
3	50%	11%	0%	11%
2	0%	22%	21%	19%
1	0%	0%	0%	0%
Question 3				
Response	7th floor	8th floor	9th floor	All Floors
5	75%	33%	64%	56%
4	0%	11%	14%	11%
3	25%	56%	21%	33%
2	0%	0%	0%	0%
1	0%	0%	0%	0%
Question 4				
Response	7th floor	8th floor	9th floor	All Floors
5	0%	22%	14%	15%
4	50%	22%	43%	37%
3	50%	33%	7%	22%
2	0%	22%	36%	26%
1	0%	0%	0%	0%
Question 6				
Response	7th floor	8th floor	9th floor	All Floors
5	0%	0%	21%	11%
4	0%	33%	7%	15%
3	50%	11%	43%	33%
2	50%	44%	21%	33%
1	0%	11%	7%	7%
Question 8				
Response	7th floor	8th floor	9th floor	All Floors
5	25%	11%	43%	30%
4	25%	33%	14%	22%

3	50%	56%	36%	44%
2	0%	0%	7%	4%
1	0%	0%	0%	0%
Question 9				
Response	7th floor	8th floor	9th floor	All Floors
5	25%	56%	29%	37%
4	0%	44%	29%	30%
3	75%	0%	43%	33%
2	0%	0%	0%	0%
1	0%	0%	0%	0%
Question 10				
Response	7th floor	8th floor	9th floor	All Floors
5	0%	0%	14%	7%
4	25%	11%	14%	15%
3	0%	67%	36%	41%
2	75%	22%	36%	37%
1	0%	0%	0%	0%

APPENDIX E: STUDENT SURVEY RESPONSES TO LIKERT SCALE QUESTIONS

Neely Hall 7th, 8th, and 9th Floors Survey Responses								
Resident	Q1	Q2	Q3	Q4	Q6	Q8	Q9	Q10
701	5	4	5	3	2	3	3	4
702	4	3	5	4	2	5	3	2
703	3	3	3	3	3	3	3	2
704	5	5	5	4	3	4	5	2
801	4	5	3	3	4	4	4	3
802	4	3	5	4	2	4	3	3
803	4	4	3	3	2	3	3	2
804	4	5	3	3	3	5	3	3
805	4	4	3	2	2	3	4	3
806	5	5	4	5	4	3	4	3
807	3	2	5	4	1	4	3	4
808	3	2	3	5	2	3	4	2
809	5	5	5	2	4	3	4	3
901	3	2	3	2	2	3	3	3
902	5	5	5	5	3	5	5	2
903	5	5	5	2	2	5	5	2
904	5	2	5	2	3	5	3	5
905	5	5	3	4	1	5	5	3
906	5	5	5	4	4	4	4	3
907	5	5	4	5	5	3	5	2
908	5	4	5	3	5	5	3	5
909	4	5	5	4	3	5	4	2
910	5	2	5	4	5	3	3	4
911	5	4	5	4	2	3	4	3
912	5	4	5	4	3	4	4	2
913	5	4	4	2	3	3	3	3
914	3	4	3	2	3	2	3	4

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Thesis Title:

Campus Recycling – Influences and Decisions

Major Professor: Dr. Matthew Therrell