

Recycling Education
of
St. Jerome's University Residents

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Melanie Jajko

Stephanie Droeske

Desiree Ducharme

Laurie Chandler

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1.0 INTRODUCTION

Throughout our project we wanted to determine how effective existing education methods were regarding residents at St. Jerome's University in order to implement education and to determine if we could increase the amount of materials being recycled compared to the amount of solid waste.

Environmental education is an important task to take on. Our world is continuously being degraded and filled with pollution. As part of the WATgreen program we believe that we can take the University of Waterloo one step closer to a sustainable ecosystem that "is in harmony with the environment" (Cook, 2003). WATgreen is a program that is working towards a common goal with many other universities. Together, they generate a program referred to as "Greening the Campus." "Greening the Campus" is a great opportunity for students, staff, and faculty to improve the quality of their university environment while decreasing the overall waste and operating cost of the University (Cook, 2003). The "Greening the Campus" program enables the opportunity for the University of Waterloo to act as a model for other campuses and implement changes within their institutions. When students graduate they can take with them the knowledge and skills to go beyond the vision of "Greening the Campus" by working towards a sustainable environment wherever they may be headed.

We attempted to determine if the recycling knowledge of residents at St. Jerome's University were unsatisfactory. We attempted to educate them in order to provide students with take out the knowledge that will allow them to reduce waste, not only at their institution, but also elsewhere on campus. A campus that promotes recycling adheres to the WATgreen vision of a sustainable campus. The university can save

money, allocating the profit to promote other ways to improve the quality of the campus. Educating students on recycling enables them to share that knowledge with others in their lives, passing on the benefits to the greater community. Our hope is that recycling will become the norm of all students' daily actions in order to promote sustainability on campus.

Our objective was to educate and promote recycling at St. Jerome's University. In order to do this we first looked at past WATgreen projects to become familiar with what has already been done, and to take the positive and negative effects of those projects into consideration. We then administered a questionnaire, conducted a waste audit, and implemented education upon the residents. After the implementation of education we performed a second waste audit to conclude if the education the residents received had any effects.

The questionnaire allowed us to determine the current knowledge of recycling that the residents at St. Jerome's University already possessed. The questionnaire also allowed us to determine their views on recycling and how they view recycling within St. Jerome's University. We were able to determine their recycling practices and what forms of education would be the most effective in implementing. From performing the first waste audit we were able to determine if what the student's claimed on their questionnaires, and what they actually practice correlated. We measured how much solid waste there was compared to the amount of recycled materials. From this, we were able to decide on education methods that could be implemented which are discussed in a future section. It was our hope that the residents would learn how and what to recycle. Our second audit was conducted to determine if there had actually been a change in the

recycling habits of the residents at St. Jerome's University, allowing us to determine if our education had any effect.

Since time was limited, a complete follow up was impossible, however suggestions were made for anyone who does a future study on recycling at St. Jerome's University. Although we were unable to complete a follow up on the effects that our education had, we believe that what we did accomplish was a success. If we had an influence on just one individual at St. Jerome's University we would be even closer to a more sustainable world.

2.0 LITERATURE REVIEW

A literature review was completed to assess past WATgreen projects, allowing us to determine what has already been studied with regards to recycling and education at the University of Waterloo.

The past WATgreen project titled "Waste Reduction Education," completed in 1994, included a waste reduction awareness questionnaire that evaluated residents' awareness of waste reduction and their attitudes towards waste reduction. This questionnaire concluded that recycling was the third most important issue on campus compared to air pollution, water pollution, toxic waste pollution, energy conservation, water conservation and composting. The study found that thirty percent of students questioned were unaware of the location of recycling bins in their own faculty. It is important to note that fifty-four percent of the students thought that the location of recycling bins were inconvenient. It was concluded that students thought the university should make more information available to distinguishing what items are recyclable. In general, the attitudes of first year students showed that waste reduction information was

very ineffective. Some final recommendations of this WATgreen project were a mandatory lecture about recycling practices at UW during the first week of classes, the possibility of increasing the amounts of posters and advertisements about recycling around campus, and to increase accessibility and the quantity of recycling locations (Hughes et al., 1994).

The past WATgreen project titled “On Campus Recycling Knowledge of Environmental Studies Students” completed in 2001, determined if there was a lack of knowledge of the students in Environmental Studies and if so why. Questionnaire results showed that all the Environmental Studies students knew what the three R’s were (Bator et al., 2001). This project was very limited since it only examined Environmental students. Nevertheless, some recommendations were given such as, posting materials on pop machines and newspaper racks to remind students to recycle. It was also suggested that large visible signs be put on garbage cans to serve as a constant reminder. They also recommended that since Environmental Studies students take environmental classes and they are knowledgeable about recycling, it would be beneficial if every student were exposed to a short environmental session at the beginning of each term. This would allow students to be aware of any changes made to the recycling system, for example being able to recycle a new material (Bator et al., 2001).

WATgreen projects that have been done in the past have used methods to educate students, such as; questionnaires to find out how much they already knew; talking to key informants to determine how much they contributed to passing on information about environmental issues; using previous WATgreen projects for ideas and to compare results; and distributing posters to students. (Bocking and Casciato, 1998)

One project that we learned from was where one group wanted to distribute posters to the first year students however, they found some limitations with their approach. They wanted funding in order to produce posters in large quantities for distribution. Unfortunately this funding was unavailable. Another barrier was the fact that they wanted to educate first year students when they first arrived in September. Early education would cause the students to develop good habits instead of trying to change them later on in the year once they have developed their own habits. In order to have the information in place for the students it would require the group members to be present before the first year students arrived. This was not possible in their case, so they would have had to rely on administration and dons to distribute the posters. (Bocking, 1998)

It was decided that the best approach for us to take for our purpose was to administer questionnaires, distribute and hang up posters and to perform waste audits.

3.0 METHODS

Through triangulation we used three main methods throughout our project. The three methods that we used were: literatures reviews including past WATgreen projects, questionnaires, and waste audits.

The literature reviews were completed to see what was done in past WATgreen projects and to take their ideas into consideration when creating our own educational program. The projects that were used were, “Waste Reduction Education,” “On Campus Recycling Knowledge of Environmental Studies Students,” “Environmental Education Assessment at the Ron Eydt Village,” and “Recycling Education at the University of

Waterloo.” The literature reviews provided us with some good ideas that worked in the past as well as ideas that were unsuccessful which we took into consideration when doing our own project.

After reviewing the literature we continued to obtain information, but now through interaction with St. Jerome’s residents. Through self-administration we handed out questionnaires to one hundred residents at St. Jerome’s University using a simple random sampling method. Self-administered questionnaires were used to achieve high response rates and allow us to answer any questions the residents may have had (Palys, 2003, 153). A simple random sampling method was used in order to obtain a representative sample with minimal sampling error (Palys, 2003, 130).

The questionnaire consisted of eight questions, which helped us to determine how educated residents at St. Jerome’s University were with regards to recycling. The questionnaire consisted of both open and close-ended questions. Each question had a specific purpose to assist us in developing a form of education catered to the residents at St. Jerome’s University.

The first question asked, “How do you learn about social events that you attend?”

peers _____ posters _____ media _____
pamphlets _____ word of mouth _____

The purpose of this question was by discovering how students found out about social events. We thought we could use the same type of method of communication to educate them on recycling.

The second question asked, “How committed are you to recycling?”

I never recycle _____ I will recycle if it is convenient _____
I sometimes recycle _____ I always recycle _____

The reason we asked this question was to determine if residents at St. Jerome's University had any previous desire to recycle. By asking this question we would know the attitudes of the residents with regards to recycling before we implemented our education.

The third question that was asked was, "Where do you remember learning about recycling?"

Parents ____ Friends ____ School ____ Media ____ Other ____

The purpose for asking this question was to gain a general idea where students received their education on recycling.

The fourth question on the questionnaire was, "From the following list, what do you consider to be recyclable? (check all that apply)"

drinking straws ____ grocery bags ____ milk/juice cartons ____
juice boxes ____ toilet paper/paper towel rolls ____ milk bags ____
egg cartons ____ cereal boxes ____ phone books ____
shampoo/conditioner bottles ____ Tim Horton's coffee cups ____

The reason this question was included on the questionnaire was to test the student's knowledge on recyclable materials. The items that they could have chosen from consisted of both recyclable and non-recyclable objects. From their answers we were able to determine how knowledgeable the residents were with regards to what can and cannot be recycled. The question also gave us an indication to what we needed to educate them on.

The fifth question asked, "What is the main factor that prevents you from recycling?"

inconvenience ____ time consuming ____ no personal gain ____
unaware of what is recyclable ____ none, I do recycle ____ other _____

The purpose for asking this question was to learn the reasons why St. Jerome's residents would not recycle. From learning the answers to this question we took their responses into consideration when designing a recycling education program especially for them.

The sixth question that was asked of the residents was, "Rank in order of importance which action you feel is most effective (1 being most important, 3 being least important)."

Recycle ____ Reduce ____ Reuse ____

We asked this question because we wanted to know how concerned the residents were when considering their options before throwing products away.

The seventh question of the questionnaire was, "If you were walking down the street while drinking a pop, when finished would you....."

throw it in the nearest garbage can? ____ throw it on the ground? ____
hold on to the empty can until you came upon a recycling bin? ____

The reason that we asked this question was to understand the behaviour of the residents in a real life situation. We wanted to know the answer to this question so we could determine how in depth our education had to be.

The eighth and final question of our questionnaire was, "Finally, please provide any comments on the recycling at St. Jerome's. This could include things you like, dislike or any suggestions for improvement." This question was open-ended giving the respondents an opportunity to provide any comments or suggestions. The question allowed the residents to include anything that could have been missing from the questionnaire that we could take into consideration for our recycling education initiative.

Once the questionnaires were analyzed and the responses were tallied we conducted our first waste audit. The purpose of the waste audit was to see how much

solid waste there was compared to that of recyclables. We also wanted to see if the respondents' answers on the questionnaires correlated with what the actual recycling habits of the residents at St. Jerome's University were. The waste audit was conducted by using large garbage bags, gloves and a scale that weighed in kilograms. We conducted our waste audit on eight floors in both the girls and boy's residences. Each gender's residence had a total of four floors. On every floor there were recycling bins available for the use of the residents living on the floor. On each of the floors, using gloves, we divided the recyclable material up into cans and bottles, newspaper and paper, and cardboard. For each of the categories we weighed the material by putting it into garbage bags and hanging it on the scale to determine the weight. Once the recyclables were weighed we conducted the same method for the common garbage bins that get used by residents living on the floor. We tallied all of the results, which will be discussed in a later section.

After the questionnaires and first waste audit were completed we implemented recycling education at St. Jerome's University. Throughout a week's period of time, from Tuesday November 11, 2003 –Tuesday November 18, 2003, we provided St. Jerome's residents with different methods of recycling education. The education methods that were chosen were based on the results of the questionnaires and the first waste audit. Further analysis on the methods of education that we implemented is discussed in a later section.

After we had implemented education at St. Jerome's University we conducted a second waste audit. The purpose of the second waste audit was to determine whether the education that we implemented had a positive effect on the residents of St. Jerome's

University. We wanted to see if there was more recycling and less garbage than there had been previous to the education. The second waste audit was conducted in the same fashion as the first. On each of the floors at St. Jerome's University we weighed the recyclable material and the garbage. We compared the two just as we did for the first waste audit. In another section of this report the results of the waste audit will be discussed.

4.0 EDUCATION

Our first step in educating the residents of St. Jerome's was to slip a pamphlet under the door of their rooms. The pamphlets were obtained from the Region of Waterloo's Waste Management Services. The pamphlet had correct recycling sorting methods, and little reminders of what is recyclable. The pamphlet also contained new provisions regarding recycling in Waterloo Region, such as removing lids from all rigid plastic containers.

Posters were designed and put up on each floor where the recycling bins and garbage were located. The posters included information about recycling from different sources. One source was the University of Waterloo's Waste Management website. Information on the poster from this website included phone numbers where recycling bins could be obtained at no cost. We also used information from this website that stated how recycling directly helps the University of Waterloo save money. Decorative pictures were also placed on each poster. The pictures used included images of landfills, garbage in a lake, recycling bins, recycling signs, an arm buried in garbage holding up a sign that said, "help", as well as facts and pictures obtained from The Region of Waterloo's

“Environews” mini paper. Environews papers are delivered to all homes in the Waterloo Region. Facts used in our posters from this newspaper included a pie chart titled “Recycling Power,” which showed the percentages of different materials that the region recycled in 2002. The insert stated that in 2002 Waterloo Region recycled almost 30,000 tonnes of material. We also used a picture from Environews of huge bales of grocery bags, which seemed overwhelming when comparing it to the Waste Management Coordinator who stood in front of the bales. The article informed readers that since adding grocery and retail bags to the blue box program, residents in Waterloo Region have recycled eight million bags. We added our own reminder beside this story encouraging students to reduce the need of grocery bags by using cloth bags or plastic bins while grocery shopping. Even though our education focused on recycling, at times we wished to stress the need to reduce and reuse first, before recycling. This leads us to our next step in educating. A letter size paper was displayed beside all our posters suggesting creative ways to save money by reusing everyday items. Ideas that were listed included the reusing of paper, cardboard, plastic, glass, metals, and chipped coffee mugs. Useful websites were also listed on the posters to provide more information about reusing items.

Although we were limited in our choice of education methods due to time and financial restraints, it is our hope that our education reached some students. WATgreen believes that learning what people know, how they learn, what the best educational tools are, and providing these tools are important steps to improve and monitor WATgreen’s goal to establish a sustainable campus. We feel we did our part as ERS 250 students to uphold WATgreen’s visions.

5.0 SYSTEM

The system that was studied was St. Jerome's University. The actors involved in the project were: Darren Becks, Patti Cook, St. Jerome's University Dons, Environmental Floor Reps and the students living at St. Jerome's University. Darren Becks is the Director of Residences and Facility Operations at St. Jerome's University (St. Jerome's University, 2000). He was important in our study because he allowed us to make use of the facilities at St. Jerome's University for our project. Patti Cook is a member of the Committee Chair for WATgreen (WATgreen, 2002) and provided us with guidance and past WATgreen projects to make reference to. Although we had no direct contact with St. Jerome's Dons and Environmental Floor Reps, they were important for our study. They were who look after the recycling activity on the floors. Our main actors in the study were the actual residents. It was the residents that completed the questionnaires, produced the waste and recyclables for the waste audit, and who was our focus for implementing recycling education.

Through education the students had choices to use recycling bins or garbage bins when discarding material. When recycling bins were used the material would be transferred to recycling manufactures. If however the students chose to use garbage bins the material would be transferred to the Waterloo Region Landfill. Refer to Appendix 1 for a physical flow chart of the system being studied.

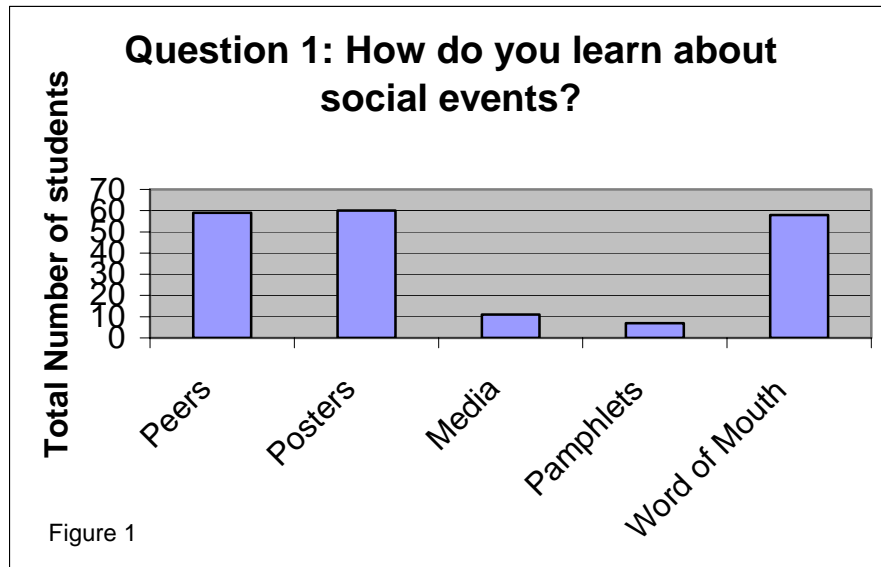
6.0 RESULTS

6.1 Questionnaires

We received one hundred questionnaire responses at St. Jerome's Cafeteria on Monday, November 3, 2003 between 5:00 and 6:00pm. The questionnaires were used in order to understand the current level of knowledge of the residents of St. Jerome's University regarding recycling.

6.11 Learning about Recycling

The first question of the questionnaire asked the residents how they hear about social events and this was to indicate what form of education for recycling towards them would be best to perform. If we understand how the students learn about certain events then we can best educate them in that form so that it may come to their attention. In this question there were five possible answers: peers, posters, media, pamphlets, or word of mouth. Respondents could check off more than one answer because they may learn about social events from more than one source. We wanted to know what the most effective medium to educate the residents would be. Out of one hundred respondents, sixty of them indicated that they hear about social events mostly by posters. Fifty-nine answered that they hear about social events through peers, fifty-eight answered that they hear about them from word of month, eleven through the media, and seven from pamphlets (see Figure 1).

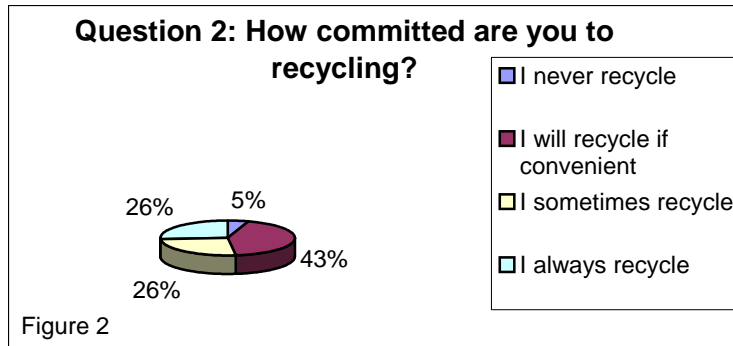


Question number three focussed on where the residents learned about recycling, their choices were: parents, friends, school, media, and other. Again, in this question the residents were able to choose more than one answer. Seventy-two residents said that they had been informed about recycling at school, but yet only three percent said they learn about it from their friends. The remainder of the results displayed forty-one respondents learned about recycling from their parents, twenty-four though the media and seven answered other.

6.12 Convenience as a Factor

The results of the questionnaires indicated that the factor of convenience determines greatly whether a student will recycle or not. There were a couple of questions directed towards this factor. Question number two asked the residents how committed they were to recycling. Figure 2 indicates that the majority, or forty-three percent of the respondents stated that they will only recycle if it is convenient. Twenty-six percent of the respondents indicated that they sometimes recycle, twenty-six percent answered that they always recycle, and five percent answered that they never recycle.

Although there are a small percentage of respondents that never recycle at all, there is still a great proportion that said they only recycle when convenient, thus they too may not recycle at times. This should be changed so that the greatest majority of people recycle all the time and if convenience is what is preventing them from doing so, than greater measures should be implemented to accommodate them.



Question number five asked the residents what is the main factor that prevents them from recycling. Figure 3 displays those results. The majority of the respondents, forty-eight of them, said that it was inconvenient to recycle, but yet just under thirty respondents indicated that nothing prevents them from recycling. Twenty-one respondents answered that they were unaware of what was recyclable at all, thirteen answered that it was time consuming, four answered other and one answered that he/she had no personal gain from recycling. This question indicated to us that most residents just do not recycle if they feel that it is an inconvenience. Although, we were impressed with the thirty respondents who indicated that they did recycle, that figure is small for the one hundred responses we received.

Question 5: What is the main factor that prevents you from recycling?

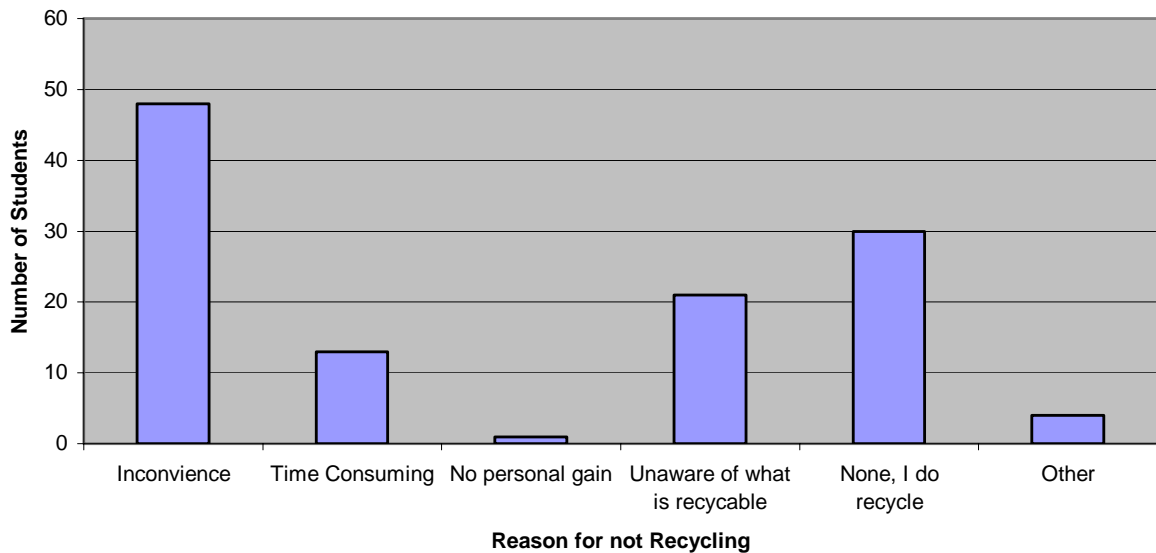


Figure 3

The factor of convenience was also displayed in question seven where the residents were asked, “If you were walking down the street while drinking a pop, when finished would you...”. Fifty-eight percent admitted that they would throw the pop can into the nearest garbage, forty-one of the respondents said that they would wait to throw the pop can in a recycling bin, and one percent said that they would throw it on the ground.

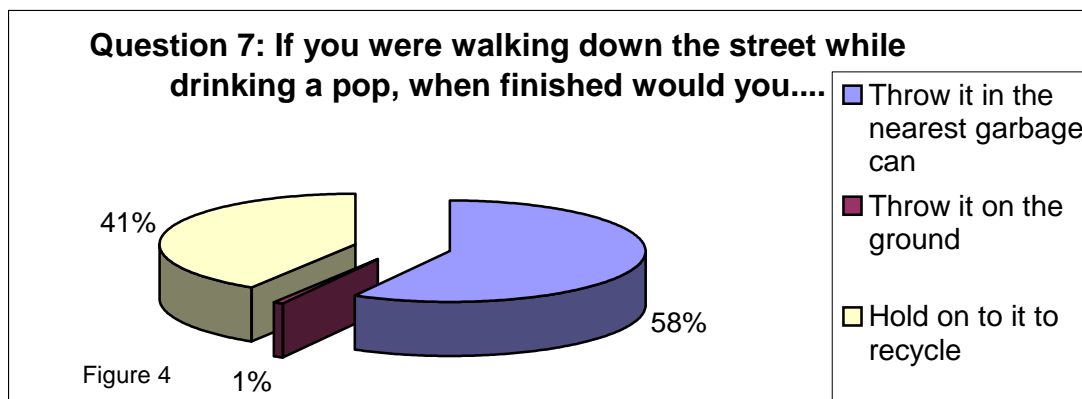


Figure 4

6.13 Education of Recycling

In the questionnaire, question four was directed towards understanding how much St. Jerome’s residents knew about what they can and cannot recycle. We compiled a list of eleven items for the respondents to check off what they thought was recyclable. Two of the choices were milk/juice cartons and juice boxes. Although these items are not recyclable, seventy-five of the respondents answered that milk or juice cartons were recyclable and fifty-six thought that juice boxes were recyclable. There were eighty-one respondents that did know that drinking straws were not recyclable (see Figure 5).

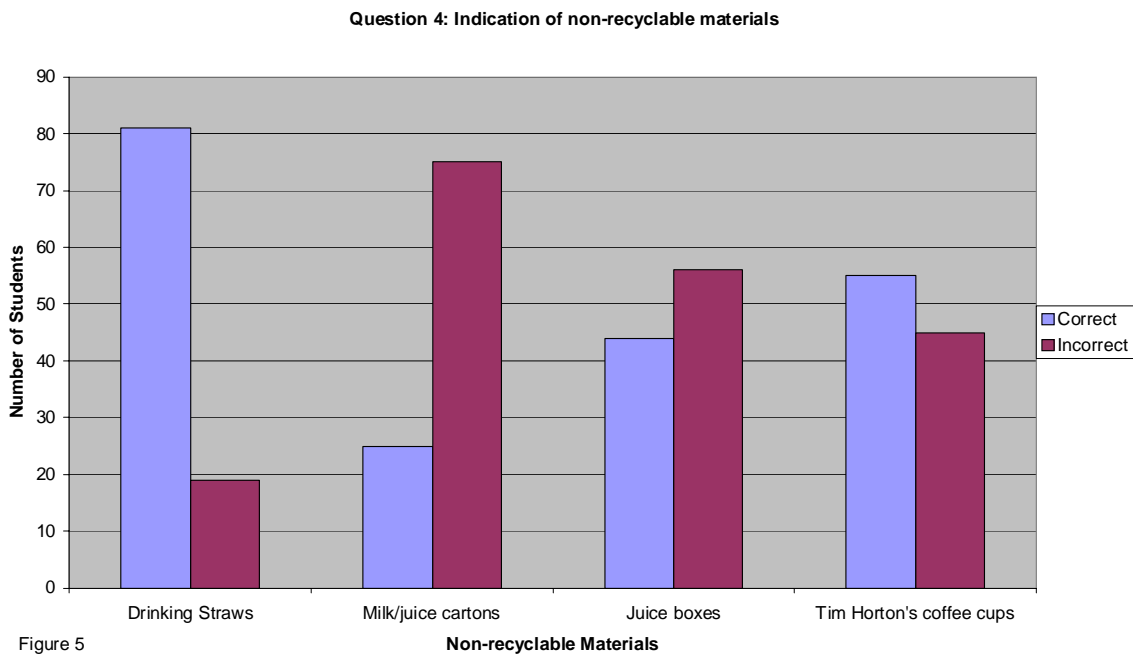


Figure 5

A commonly used recyclable product, shampoo/conditioner bottle, was only thought to be recyclable by half of the residents who completed the questionnaire. Some people were not certain about which items were recyclable and which items were not recyclable. The uncertain products included Tim Horton cups (fifty-five correct), grocery bags (fifty-seven correct), toilet paper/paper towel rolls (sixty-seven correct), which were all recyclable. The recyclable products that the majority of people were certain about were

items such as egg cartons (eighty-four correct), cereal boxes (ninety-five correct) phone books (eighty-five correct). The responses for the recyclable materials are displayed in Figure 6.

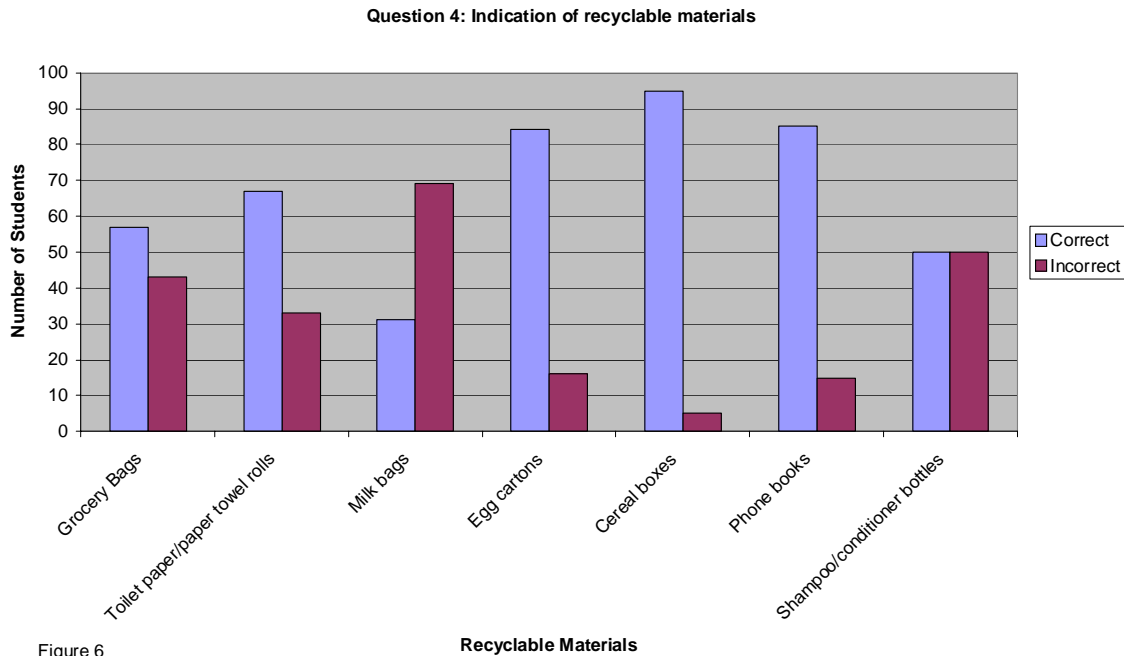


Figure 6

Another question directed towards the knowledge of the respondents is number six, where they were asked to rank in order of importance which action they felt was most effective; reduce, reuse or recycle. Forty percent of respondents thought that reducing was the most important action, thirty-four percent of respondents questioned believed that reusing was the second most important action, and thirty-seven percent of respondents thought that recycling was the least important action.

6.14 Comments

The last section of the questionnaire was a place to provide any comments that the residents might have towards recycling at St. Jerome's. Only fifty-three of the one hundred respondents provided a comment. About half of the comments indicated that

there were not enough recycling bins in the residence or they were not large enough because they kept overflowing. Many also said that there was no recycling for plastics and metal cans which is something we also observed while doing our waste audits.

6.2 Waste Audit

The two waste audits that were conducted at St. Jerome’s University were to compare the weight of recyclables to that of solid waste. We conducted one before and after we had implemented recycling education. There were waste audits done on each of the eight floors. They were also divided between the girls and boy’s residence. The first waste audit was conducted on the girl’s side, displayed in Figure 7. It indicated that there was a relatively equal amount of weight between the garbage and the bottles and cans. The total amount of garbage that was weighed from each floor was 34.1kg, bottles and cans weighed in at 33.2kg, and the total weight of paper and cardboard was 26.1kg.

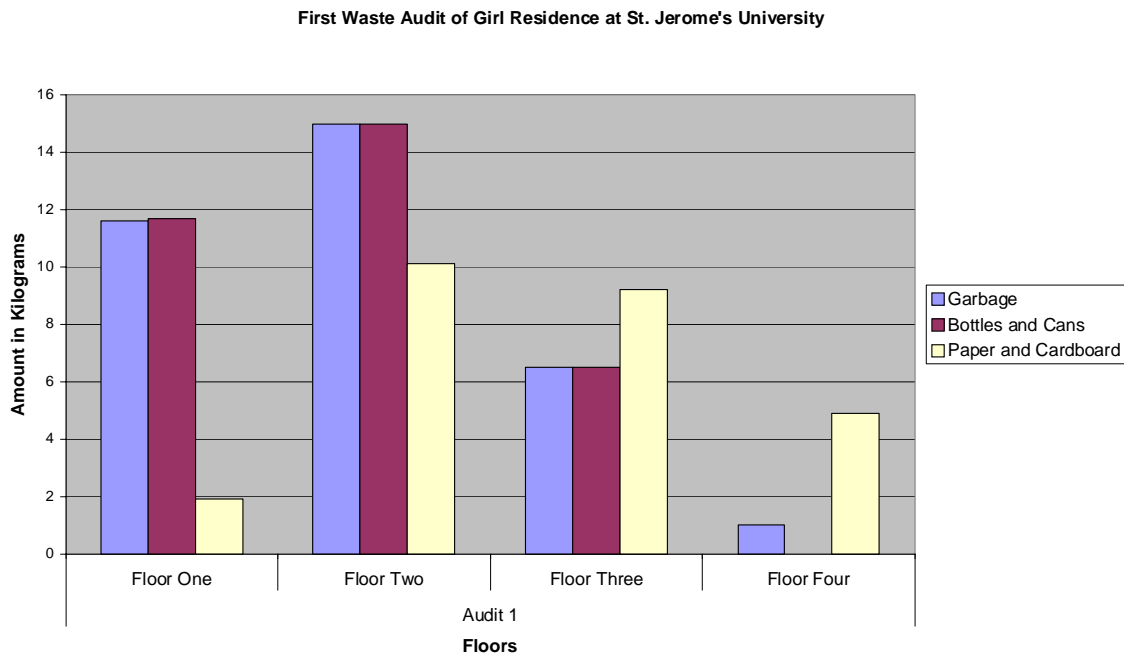
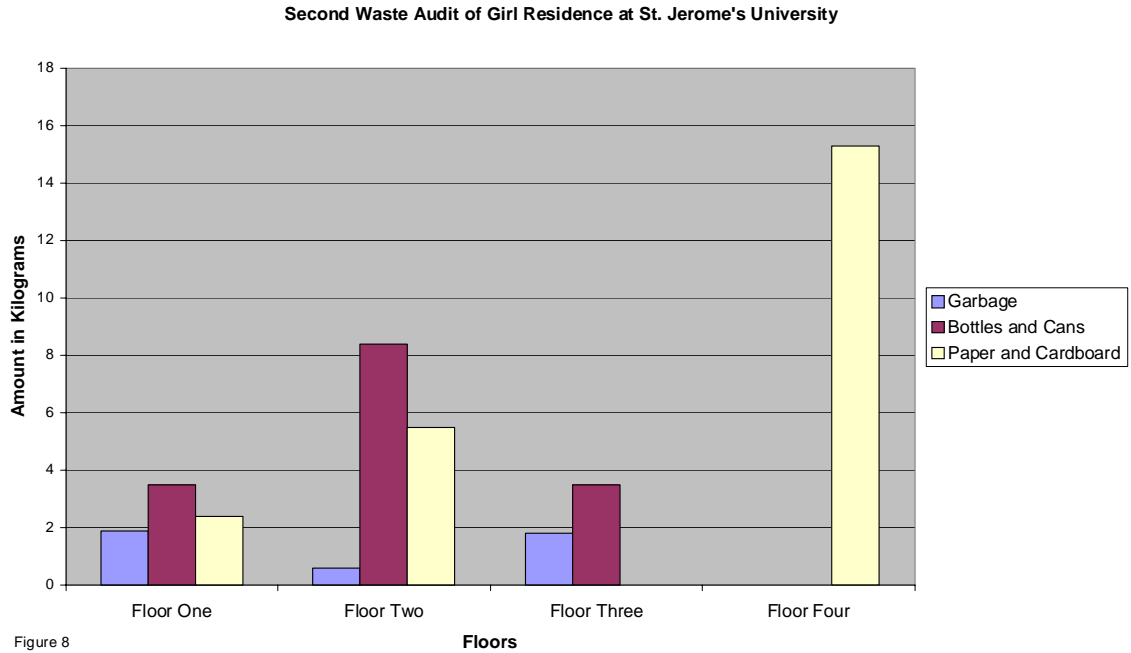


Figure 7

The second audit of the girl's residence indicated that the total weight of the garbage went down, but yet so did the weight of bottles and cans (see Figure 8).



At the boy's residence we noticed in the first waste audit we conducted that floor one had the most garbage with a weight of 14.5kg (see Figure 9) however there was no recycling bins present. The floor with the most recycling was floor two with 3.2 kg of bottles and cans and 6.2kg of paper and cardboard.

First Waste Audit at Boys Residence St. Jerome's University

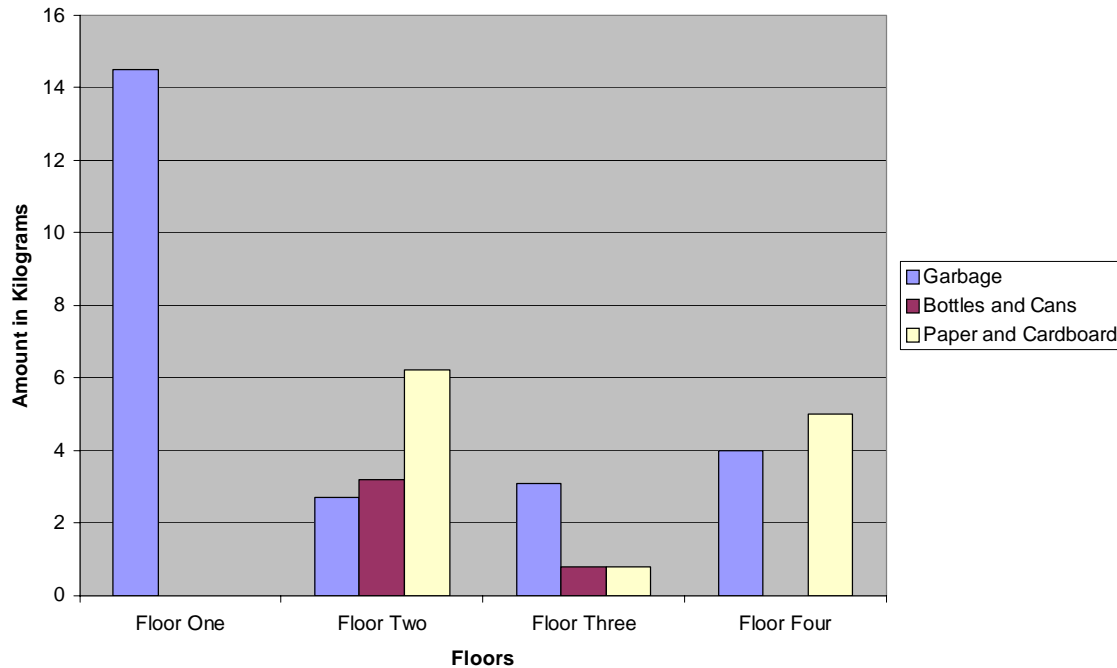
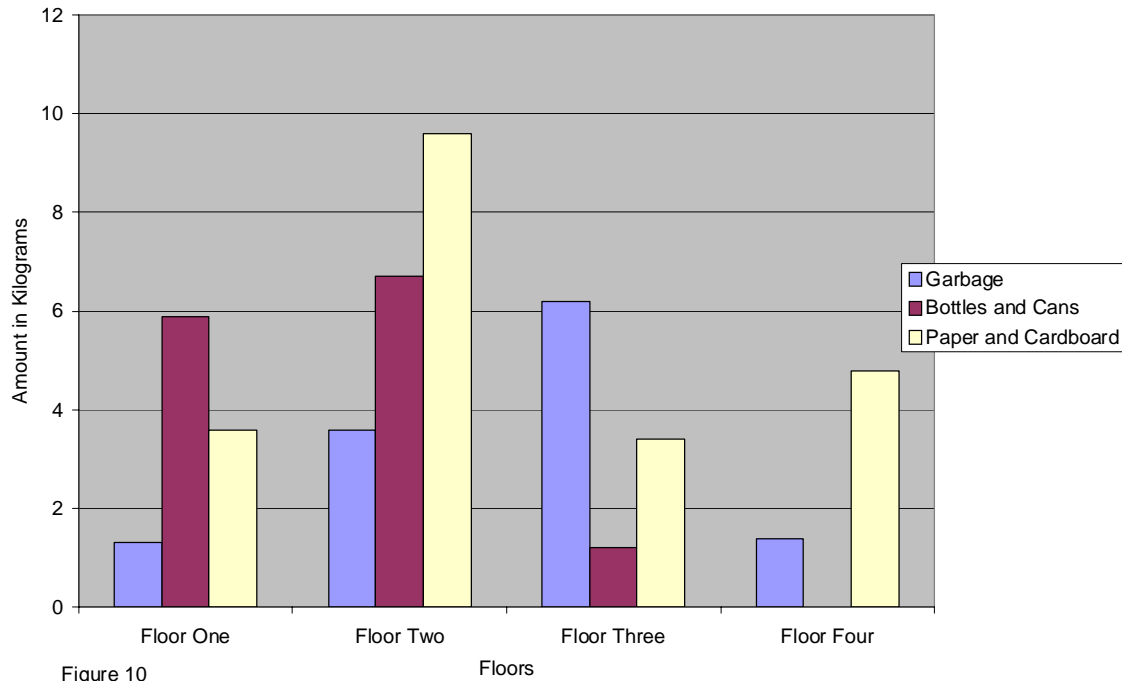


Figure 9

In the second audit of the boy's residence we decided to weigh the recyclable materials on the first floor that were not being recycled (see Figure 10). It was indicated that 5.9kg of bottles and cans were present as were 3.6kg of paper and cardboard. This large amount of materials could be prevented from going in the waste if only there were blue boxes placed at this location. In this second audit we also concluded that the total amount of waste from the floors had gone down from 24.3kg to 12.5kg and the amount of recycling materials had gone up. The weight of the bottles and cans increased from 4kg to 13.8kg and paper and cardboard from 12kg to 21.4kg.

Second Waste Audit of Boys Residence at St. Jerome's University



7.0 ASSUMPTIONS AND BIASES

Some assumptions that we made for our project were:

- The residents at St. Jerome's needed education about recycling.
- That the garbage and recycling were taken out on the same day.
- That each student only recycled on his or her floor.
- That each student answered each questionnaire truthfully.
- There are some biases that may have arisen due to our presence as Environment and Resource Studies Students. Residents could have answered the questionnaires falsely because of our presence.
- All the residents would read the pamphlets and the posters we provided for them.

- One of the group members knew some of the students at St. Jerome's. This could have inadvertently influenced answers on the questionnaire, or an increase in recycling for the time that our presence was known.
- Residents recycled on their own floor.
- The education methods worked.

8.0 LIMITS OF OUR RESEARCH

The limits on our research are the following listed below:

- A major limit to our project was the time constraints. There was only a three month time period.
 - Once our project was defined and our proposal was complete with ethics clearance we did not have very much time to perform multiple waste audits to get the most accurate results.
 - We only had a week to administer education, which made it difficult to ensure that the education would have an effect.
- Another limit was how to educate all the residents. It was not feasible to try and speak to every student.
- Sample size may not have been representative, however, we got a sample size of one hundred residents, which represents more than 1/3 of the St. Jerome's population.
- Audits may not be representative. We performed the audits on the same day of that week at the same time in order to be as consistent as possible, yet there are many contributing factors that could have caused the results to have been altered

such as the time of day the garbage was taken out being different from the time that the recycling was taken out.

- Garbage was emptied everyday, whereas the recycling was emptied when the student representative had time.

9.0 SUGGESTIONS FOR FUTURE IMPLEMENTATIONS

Throughout our study at the residences at St. Jerome's University we found that the overall recycling program was acceptable. While some of the floors at the residence displayed a more conscience approach than others, the general recycling at St. Jerome's was sufficient. However, the recycling program could still use some improvements to bring St. Jerome's even closer to sustainability. One of the most important aspects of contributing to any recycling system is the ability to know what is and what is not recyclable. While we have attempted to educate the residents of St. Jerome's University, our time was limited. To improve recycling behaviour among the residents, further education is required.

The approach that we took to educate about recycling was by teaching how and what to recycle. Another approach that could be used to help influence students is to make them aware why recycling is important. From the questionnaires conducted forty-four percent of the residents recycled only if it was convenient. If perhaps residents were knowledgeable of the consequences of not recycling they may be more apt to recycle. Providing students with the reality and importance of recycling may give them a reason to recycle that could have been missing before.

To educate the residents on the importance of recycling, perhaps a session at the beginning of term should be dedicated to it. A possible idea for future WATgreen projects could include designing an educational program on recycling that could be presented to the residents. Providing residents with an information package on recycling could help students become more knowledgeable on the importance of recycling. As well as providing residents with recycling education at the beginning of term, the promotion of recycling should continue throughout the term. Recycling advertisements such as posters can be a source of education as well as a reminder for the need to recycle. For students to become committed to recycling they must be aware of why they are doing it in the first place.

While it is important to influence student's attitudes about recycling, it is also important to provide them with an opportunity to recycle. One of the major weaknesses of the recycling in St. Jerome's residences was the overflow of recycling bins. This is a flaw because it makes recycling less welcoming. If there is no space for residents to recycle, and if there is an unpleasant odour coming from the recycling bins, students may decide against making the effort to recycle. Something that can be implemented at St. Jerome's University is providing larger recycling bins, or having the current bins taken out more often. Each room could be assigned a week in which they are in charge of taking the recycle bins to the designated area. Instead of just having one person in charge like the current system does, everyone should take the responsibility to ensure that the recycling bins are maintained.

To provide a recycling program that works for St. Jerome's residents, recycling must be portrayed as important. While still providing residents with information on how

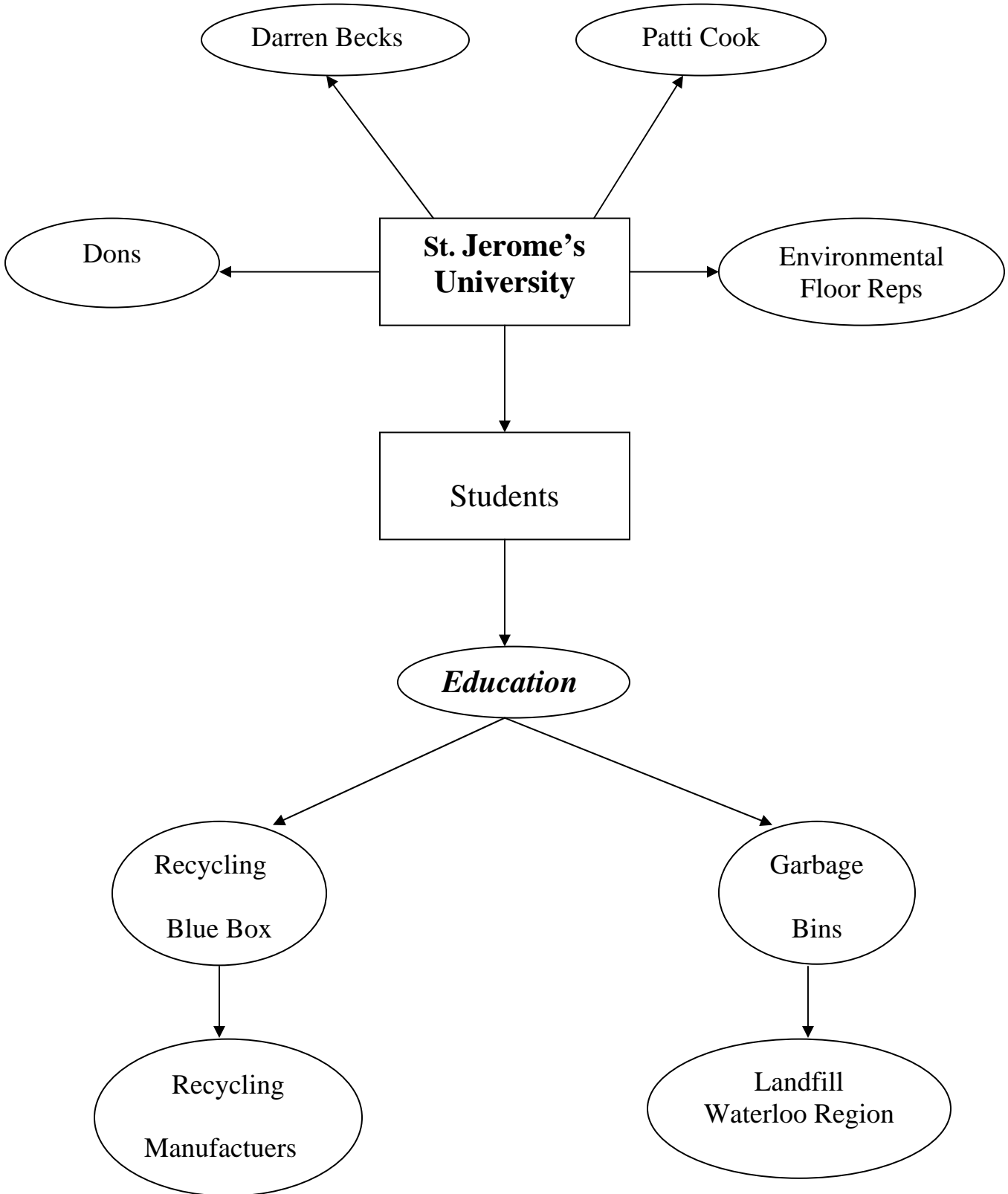
and what to recycle, St. Jerome's University must present the residents with reasons to recycle. It is also important that St. Jerome's University improves the current recycling programs on each floor. The recycling bins must be maintained in such a way that would not deter residents from recycling. With a few adjustments to the recycling at St. Jerome's University the appeal to recycle would be more pleasing to the residents.

10.0 CONCLUSION

Through our study we determined how effective existing education methods were regarding residents of St. Jerome's University and implemented education resulting in an increase in the amount of materials being recycled compared to the amount of solid waste. After completing a literature review on past WATgreen projects we were able to come up with some strategies to guide us through our project. The past WATgreen projects were useful in determining some of the positive and negative aspects that we should shadow or avoid. Through questionnaires we were able to learn the behaviours and attitudes with respect to recycling of St. Jerome's University residents. To ensure that the questionnaires were consistent with what was actually taking place we conducted a waste audit of the eight floors at the residence. From their cooperation in completing the questionnaires we were able to develop an educational program designed especially for the residents living at St. Jerome's University. The educational program consisted of distributing recycling pamphlets from the region of Waterloo, and displaying posters created by us. After a week's worth of education we conducted a second waste audit to determine if we had a positive influence on the residents in regards to their recycling habits.

Based on the questionnaires many of the respondents did not recycle because it was inconvenient. We conducted studies on the residents of St. Jeromes University's recycling behaviours in the form of waste audits to determine their recycling habits. After implementing education the second waste audit showed that there was an improvement in recycling compared to garbage usage with respect to weight. Although these results may not be completely contributed to by our efforts we were pleased with the changes. Education is an important aspect of recycling because of the implications that are involved. If more people become aware of the importance of recycling, together we can become closer to sustainability.

Appendix 1: Systems Flow Chart



11.0 REFERENCES

- Bator, Colleen et al. On Campus Recycling Knowledge of Environmental Studies Students. April 2001. WATgreen.
- Bocking, Jen et al. Environmental Education Assessment at the Ron Eydt Village. April 23 1998. Available <http://adm.uwaterloo.ca/infowast/watgreen/projects/library/w98reved/final.html>.
- Casciato, P. et al. Recycling Education at the University of Waterloo. 1996. Online. Available http://www.adm.uwaterloo.ca/infowast/watgreen/projects/projects_records/940.html.
- Cook, Patti. Greening the Campus. WATgreen. Aug 20, 2003. Online. Available <http://www.adm.uwaterloo.ca/infowast/watgreen>
- Hughes, Chris et al. Waste Reduction Education. April 1994. WATgreen.
- Palys, T. 2003. Research Decision: Quantitative and Qualitative Perspectives. Nelson. Scarborough, Ontario.
- St. Jerome's University. Faculty & Staff Directory. St. Jerome's University. 2000. Online. Available <http://www.sju.ca/>