Oscar Peterson Hall Waste Audit and Experimental Signage Study

Fall 2010

Course Code: ENV232H5F
Course Instructor: Dr. Amrita Daniere
Project Coordinator: Ms. Aubrey Iwaniw

Project Staff:
Vladimir Marenich
Smeet Panchal
Kyle Brannen
Nan Xiao

Table of Contents

Abstract:

This report covers a waste audit, conducted by the ENV232 class students with collaboration from University of Toronto Mississauga Green Team and volunteers for Oscar Peterson Hall Cafeteria (OPH). The paper talks about identifying wasteful behaviour among customers of OPH through analysis of its garbage. It goes into how small infrastructure upgrades such as signage in conjunction with student surveys can lead to big improvements in recycling and reduction of the waste outputs. Furthermore, based on the results of the project, a number of limitations are drawn to emphasize the possibilities of more refined research in the future. Likewise, the report has a list of recommendations to outline the current problems that Oscar Peterson Hall is faced with.

Introduction:

In the modern industrialized societies, garbage is slowly, yet unavoidably, becoming a major problem. With global population growing rapidly, it is only a matter of time before the wasteful behaviour of humans causes irreparable environmental damage.

A telling example of this is landfills. They represent the single most powerful environmental hazard caused by waste; accumulating various materials they can be compared to time bombs set to explode at an unknown time. A few of the possible damages they can cause include: groundwater contamination, green house gas production and, the spread of disease. Ground water contamination comes from the seepage of garbage, usually catalyzed by the rain, which allows water to mix with garbage, and eventually reach the groundwater if it does not evaporated. This brings up the second impact, green house gas production. Organic waste that comes to the landfill is exposed to the elements, such as wind, water, and sun (shown in Figure 1). These cause decomposition to any organic material, which in turn produces gases such as methane. Methane is a very potent greenhouse gas, 20 times more potent at warming the planet than carbon dioxide. Likewise, all of the organic waste that comes to the landfill not only produces gas, but attracts land animals and birds. The situation becomes particularly bad, as animals develop diseases, which may spread throughout the ecosystem, and possibly affect humans somewhere along the food chain.

Figure 1 (www.greenecoservices.com)

As a preventive and economically sound measure, recycling is becoming the method of choice among the industrialized countries. Items such as aluminum cans are no longer considered garbage, but are termed recyclables, and for a good reason. Most metals take a considerable amount of energy to

produce from the raw ores, making it economical to recycle them instead. Similarly, organic waste that largely ends up at the landfills can be turned into compost, and thus also falls into category of recyclable or reusable material, reducing the wasteful behaviour of humans.

On that note, reducing wasteful behaviour is becoming the trend of the future, where groups, organizations, and businesses strive to reduce their waste, and that is where the waste audit comes in. Representing something familiar to an inventory check in a store, waste audits checks the garbage that comes out from the store, or a cafeteria. It focuses on identifying the trends that lead up to the wasteful behaviours in hopes of eliminating them, or at least reducing their output. Moreover, waste audits' main purpose is to educate the people, and make them conscious of their actions regarding wasteful behaviour.

Background:

Before conducting the audit, preliminary research was done on the topic of waste auditing to gain an understanding of how it should be done properly and what we should look for. The literature reviewed came from various sources including, academic journals, websites, and past student projects. Waste audits have taken place in many settings other than post-secondary institutions, so in order to remain accurate in our research, we concentrated on scholarly papers and studies done at other universities, specifically targeting audits concerning campus cafeterias.

One important aspect of waste auditing that was revealed during the preliminary research stage is the concept of spatial effects and temporal variation (Felder et. al, 2001). What this means is that it is important to take into consideration human activities happening in an area of study, as well as their time periods, because certain times are associated with particular activities. For example, the study conducted in 2001 at the University of British Columbia consisted of auditing waste from various

buildings, ranging from residence to the student centre, where both buildings had unique functions depending on the time of day or the week. It is crucial to differentiate the waste types based on the building they are coming from, and understanding the activities occurring during the time period which the audit analyzes. This concept of 'spatial and temporal variation' was applied in the planning of the fall 2010 waste audit by focusing on a single purpose building or activity area, the Oscar Peterson Dining Hall.

Another important aspect highlighted in the literature was validity. Since our audit was conducted in two stages, it was crucial to establish a procedure which can be repeated for both stages and produce consistently valid results (Felder et. al, 2001). The second audit was conducted exactly one week after the first one, and its results compared to those of the first week. It was crucial to follow the same procedures and analyze waste from the same time period for each week (Felder et. al, 2001). The information gathered from the literature concerning proper methodology for a successful waste audit was valuable in planning and organizing the logistics of both waste audits.

After additional reviewing of reports on waste audits and various scholarly studies, organic food waste was identified as a dominant contributor to the overall waste output by weight. In addition to the contribution of organic food waste to the overall waste stream, organic waste diversion systems and the feasibility of on-site composting were all themes that reoccur in the literature concerning modern waste patterns. Upon analyzing the data from past audits conducted in cafeterias, it is not surprising to recognize that the food and organic waste category contributes the greatest weight to the waste stream. As the heaviest category, it is the most expensive to dispose of and also is most likely to produce green house gases after being buried in a landfill (Smyth et. al, 2010). This trend was also identified in the professional audit conducted at Oscar Peterson in 2009 (Green Squad, 2009). We were able to predict that organic food waste would be the predominant category found in the waste audit based on the previous research and the fact that the audit was planned for a cafeteria.

Alternative program that has warranted some success with reducing waste at the St. George campus of The University of Toronto is the implementation of a 'reusable mug' system (UeaT, 2010). The "lug-a-mug" program requires that students be provided with affordable, insulated, reusable mugs in order to replace the disposable, single use plastic or paper cups. Not only does this plan work to decrease the amount of paper and plastic being disposed of, it also helps to prevent the entry of liquids into the waste stream, which can be detrimental to the landfill processes.

Previous research done on the topic of waste reduction at post-secondary institutions has illustrated compelling ideas. Some have indicated the importance of improving the education of students in regard to proper recycling and disposal methods. Chow & Tsun (2005) suggest that waste management education could be implemented into an orientation week program, or other various public education campaigns. Thus, informing and educating the target population has been identified as a crucial aspect to improving waste management.

Likewise, educating people about proper recycling behaviour can also take place at a basic level through the use of instructional signage, which could simply be a list of 'Do's and Don'ts' for a particular recycling category. However, despite numerous attempts among the post secondary institutions to update their signage techniques, there are still cases of confusion among the students, and ongoing improvements in signage appear to be necessary for improving sorting behaviours (Mason, 2004). In many of the previous studies analyzed, it was found that in spite of instructional signage being present, there was still a large number of confused students that with help from ongoing education eventually improved sorting behaviours (Mason, 2004). The literature has provided evidence that improving the ways students are educated about recycling, whether through instructional signage, presentations or programs, will ultimately result in improved behaviour.

Methods:

Preliminary Findings

Prior to conducting the two waste audits, the group visited Oscar Peterson Hall dining area to gain a better understanding of the conditions for scheduled waste audits. This was done by visually analyzing the facility, including the recycling area as well as the market place area. The group was able to take note of an existing disposal system being used in the dining hall. From a visual inspection, there were four recycling bins (paper, plastic, and two for glass/cans), as well as one waste bin located between the recycling bins at the waste disposal area. Additionally, there were two large multi-purposed waste bins located on the ends of the recycling alcove, also used for non-recyclable waste (Figure 2).

Figure 2: Disposal area OPH

Photographs were taken around both the disposal area and the market place area. During photo analysis of the insides of the bins, general understanding of how the wastes are disposed at the dining hall was developed. A brief analysis of the market place area was done by documenting the possible contributors to unnecessary waste; this included the non-recyclable wax-lined coke cups, plastic cutlery, as well as paper napkins (Figure 3).


Figure 3: Discarded napkins

Planning Logistics

Our next step was to meet with those who would be assisting in planning and performing the two waste audits. In early October, 2010, we met with the University of Toronto Mississauga's Green Team. They have conducted waste audits before and have taken numerous other initiatives regarding environmental sustainability on campus. The Green Team offered their assistance in carrying out the audits this fall. During the meeting with them, details of the project were discussed and dates were set for the two audits. The first audit was conducted on November 5, 2010 and the second one on November 12, 2010. During the waste audit, garbage and recyclables were analyzed from the previous day for each week respectively.

Figure 4: Oscar Peterson Hall (www.utm.utoronto.ca)

Understanding the temporal variation is an important aspect for planning the logistics of this audit. First, we recognized that there was a good possibility that the dining patterns over the weekend would differ from the patterns throughout the week, based on the fact that there may be fewer students staying in residence over the weekends. The plan was to analyze the waste from a full 24 hour period on an average week day. However, due to limitations that will be outlined in greater detail in a later section, the scope of the audit was reduced to approximately eight hours. This measure was taken to comply with the shift times of the care-taking staff. Due to change in the scope to a more limited time period, there was less temporal variation to consider since the audit only covered waste generated from about two meal periods on an average week day.

Procedure

The procedure for the audits was the same for both weeks to ensure validity in the results. The waste that was set aside by the care-taking staff at Oscar Peterson consisted of six bags, three of which were determined have come from the waste bins and the other three from the recycling. The weights of the waste section and recycling section were taken separately to record a total weight for each. The weighing was done using a Salter mechanical personal scale, and consisted of an auditor standing with the full bags on the scale, determining a total weight and then subtracting their weight from the total (Figure 5).

Figure 5: Auditor weighing sorted bag

After recording total weights for the waste and recycling sections, the team of auditors was split into two groups; one worked with waste and the other with recycling to avoid calculation errors. Both groups had to tear open the full bags and sort the content into five different categories: organics, real garbage, plastic, paper and cans/glass. The waste was stored, weighed, and sorted in the garbage room located at the back Oscar Peterson Hall kitchen, using a 30X30 foot plastic tarp to cover the floor from possible contamination by material being sorted. Once all the waste was sorted, the weights of each category were taken and recorded as percentages of the total weights from both the waste section and recycling section. After the data was recorded, all of the sorted material was properly bagged and disposed of in the dumpster; likewise the recycling was dumped into its own dumpster. The garbage room was cleansed with water, tidied and left the way it was found.

Figure 6: Waste bag

Signage and Survey

On the day of first audit, 5th November, 2010, improved instructional signage was added in the recycling area above each of the recycling bins and the waste bins. The signs were a 3D design and meant to instruct students more efficiently about which items belong in which category (Figure 7). An additional sign was positioned above the large all-purpose waste bin and reminded students to sort their recyclables. These new signs were left above the recycling and waste bins for the entire week between the two audits. We hypothesized that improved instructional signage will catch the attention of the customers about proper recycling habits. As mentioned previously, the procedure for the first audit was duplicated a week later for the second audit on November 12, 2010. During the day of second audit, the research group also issued surveys to students in the dining hall for additional quantitative data. The survey was conducted using the online survey program at "surveymonkey.com". The survey asked questions about themes such as personal recycling behaviours as well as the influence of the new signage. The data from the surveys were downloaded from the above mentioned website, and used to produce the graphs discussed in the results section.

Figure 7: 3D signage

Figure 8: Surveymonkey,com (www.surveymonkey.com)

Results:

Findings for both of the audits were analyzed separately from the recycling bins and the waste bins. Thus the data were recorded in two different sections for each audit, one coming from recycling the other coming from waste. For the first audit from the waste section, we have found that 61.1% of the content by weight was organic food waste, the heaviest category. The second heaviest category was paper, comprising of 19.4% of the total weight, followed by plastic at 11.1% and real garbage at 8.3%. The number of glass and cans were negligible in both audits and thus contributed 0% towards the total waste by weight. The results from the first audit waste section are displayed as a bar graph in Figure 9 and Table 1 in the appendix.

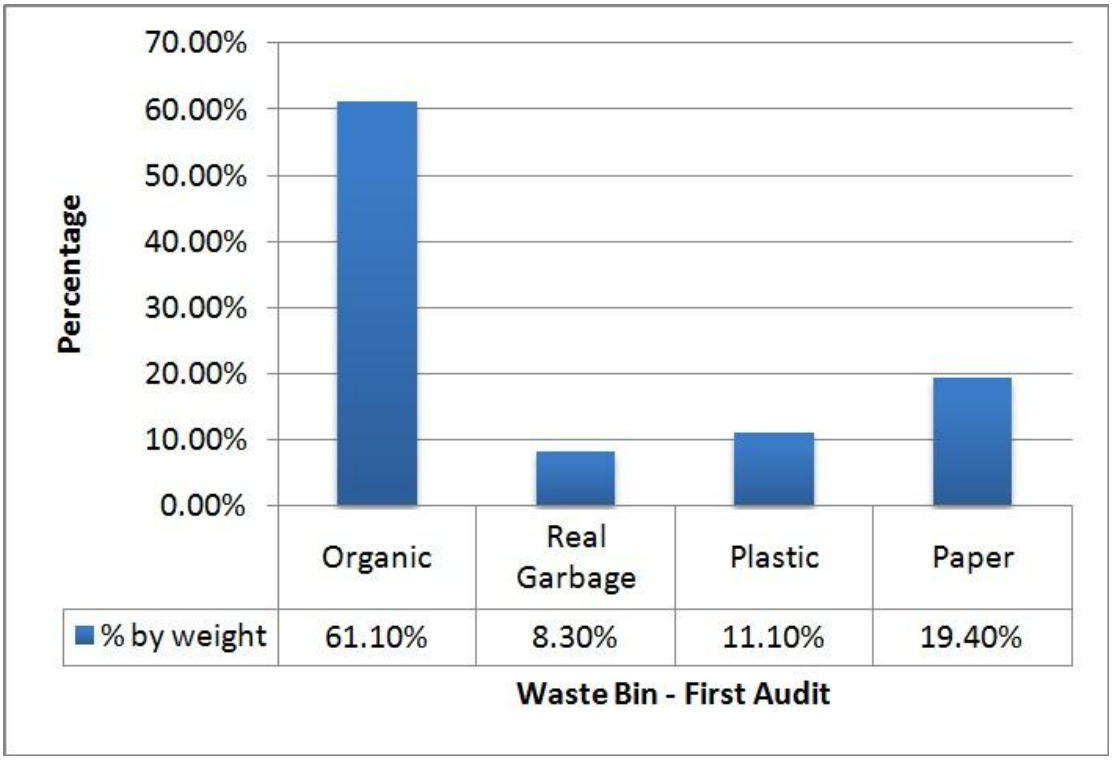


Figure 7: Percentage by weight of garbage collected from the waste bins Nov. 5, 2010

For the first waste audit from the recyclables section, we found the organic food waste was the heaviest category, weighing at 63.9% of total weight. The second was plastic at 17.6%, followed by real garbage at 11.8% and paper at 6.7%. The results from the first audit recycle section are displayed as a bar graph in Figure 10 and Table 2 in the appendix.

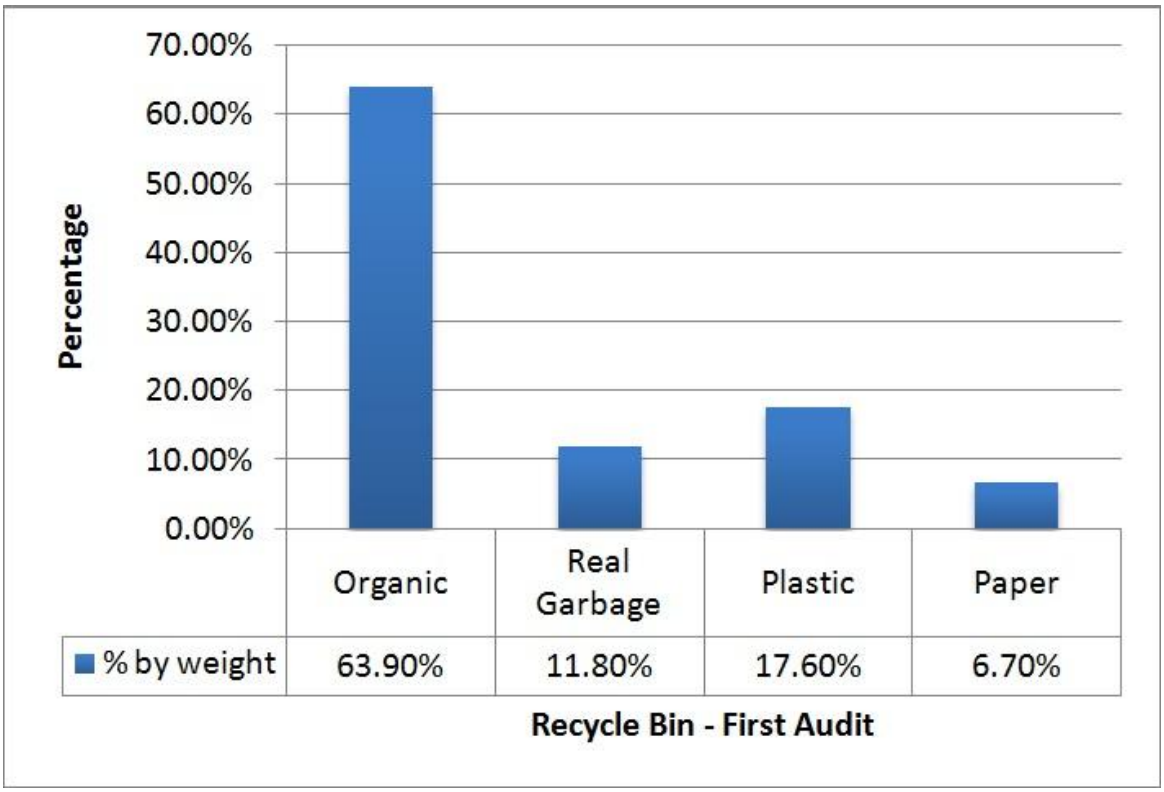


Figure 8: Percentage by weight of garbage collected from recycle bins on Nov. 5, 2010

After introducing the new 3D signage we hypothesised that the findings from the second audit would be that there was a decrease in bin contamination and that there would be a greater percentage of weight found in the paper and plastic categories.

The second audit was performed on the 12th of November, a week after the first audit. For the second audit waste section, we found that organics was the heaviest category, weighing at 69.7% of total weight. The second was plastic at 15.7%, followed by paper at 9% and the real garbage at 5.6% by weight. Three cans were found in the second audit but did not weigh enough to distinguish the weight of it. Thus glass/cans were considered to be 0% by weight. The results from the second audit waste section are displayed as a bar graph in Figure 11 and Table 3 in the appendix.

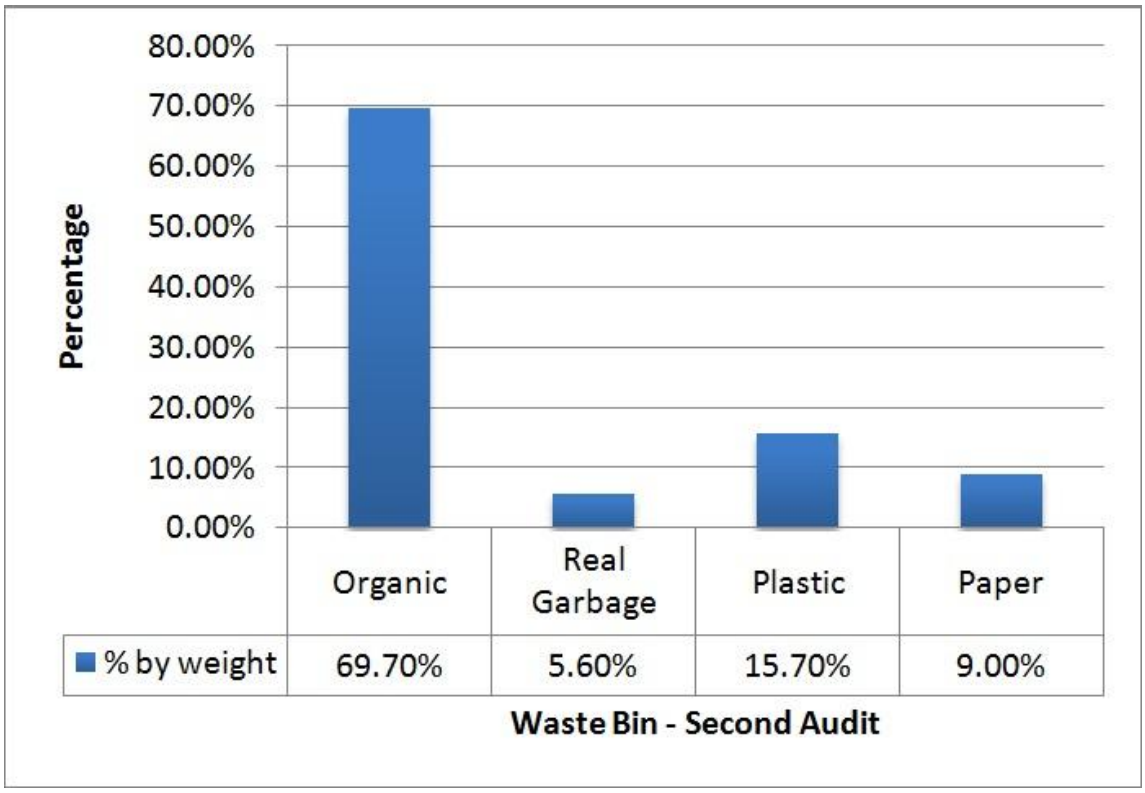


Figure 9: Percentage by weight of garbage collected from the waste bins on Nov. 12, 2010

For the second audit recycle section, we have found that plastic is weighing 30% of total weight, and paper is equally weighing 30%. Organic weighted at 25%, followed by real garbage at 15%. The results from the second audit recycle section are displayed as a bar graph in Figure 12 and Table 4 in the appendix.

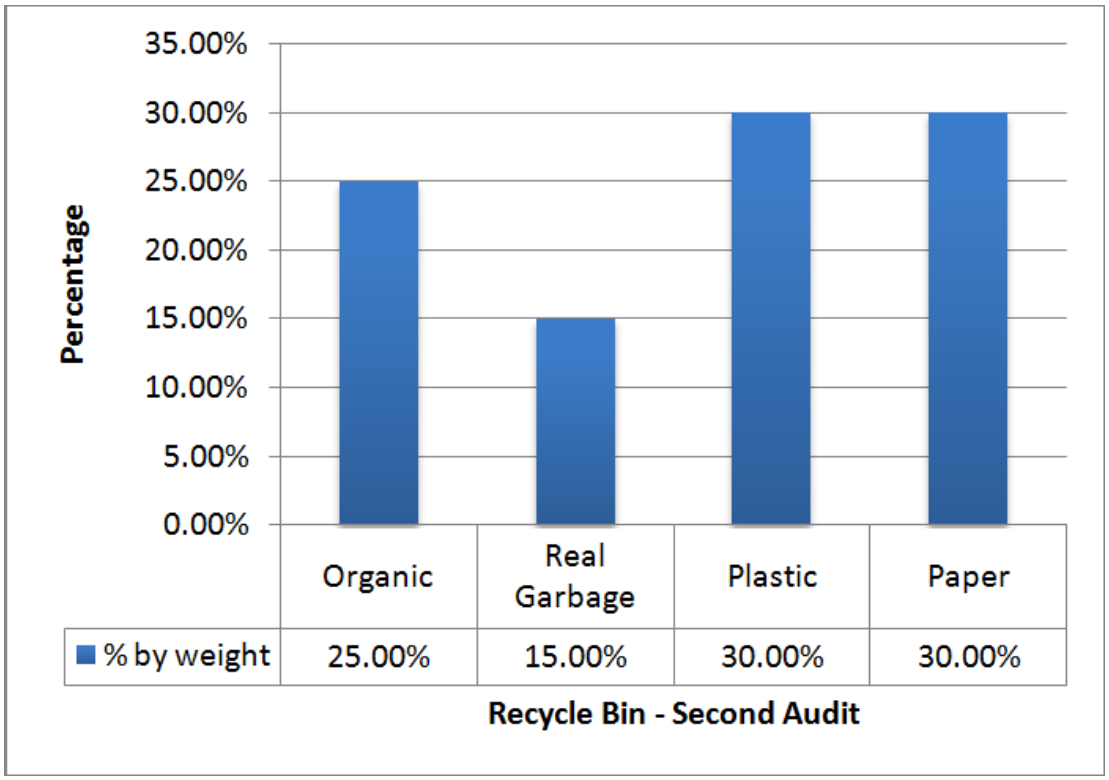


Figure 10: Percentage by weight of garbage collected from the recycling bins Nov. 12, 2010

The survey conducted on the day of the second audit gathered information from 100 students who dine at the Oscar Peterson Dining Hall. The survey had 51 males, 47 females and two preferred not to disclose their gender. Fifty four students, which is more than half of who took the survey are people who eat at OPH dining hall more than five days a week. 57 students reported that recycling was very important to them, showing that there is an environmental awareness amongst the majority of student population. The question pertaining to the use of organic bins found that 54 people would be inclined to use an organic bin if it were implemented. We also found from the survey that 75 people considered the new 3D signage helpful and informative to sort their recyclables. The full list of questions and results are presented in the appendix section.

Discussion:

Many wasteful trends were identified at the Oscar Peterson Dining Hall over the course of this audit project. During the preliminary analysis of the dining hall we were able to recognize some potential problems that would have an impact on the audit results. The presence of two large all-purpose waste bins in the recycling area indicated that the waste being produced would most likely be greater than the recycling content (Figure 13). Another trend that was noticed during this stage of analysis was the unrestricted availability of paper napkins, even before looking at the waste we predicted that this trend may be reflected by an abundance of napkins found in the waste stream. A third aspect we noticed during the early observations was that the signage located over each of the recycling bins was simple, lacking information and blended with the colour of the wall. Many of the recycling bin stations around the campus have some sort of description about what items belong in which bin, because often people may not know what bin they should be using, but the instruction were very tiny and it did not seem to be helping. By recognizing the lack in the instruction of the signage, it was predicted that there would be cross contamination of items when conducting the audit.

Figure 13: All-purpose waste bins

Figure 14: Existing signage at recycling station

The results from the first audit identified noticeable trends and were held as a benchmark by which the results from the second audit could compare to. The intended outcome was that the

presence of attractive, informative signage above each recycling bin that would alter the behaviours of students and produce better recycling practices. It was recognized that the total weights of the waste and recycling sections were different between week one and week two, to accurately compare the change in bin contamination, the categories of recycling and waste were represented as percentages by weight of the total weight from the section they came from. The results from the first waste audit outlined that the waste section produced a much greater amount of waste by weight, and this predominately due to organic waste. Organic waste comprised of over 60% of the weight in the waste section, followed by paper which took about 20% of the weight. The amount of organic material is expected to make up the most weight in the waste section because there is no organic diversion system set up in the Oscar Peterson Hall. However, the amount of paper at almost 20% of the weight was not expected, nor is it acceptable considering the availability of a separate paper recycling bin. The fact that the 'real garbage' category, which is material that is neither organic nor recyclable, contributed the least amount of weight is troubling considering that real garbage is the only material that actually belongs in the waste. The results from the second audit showed some improvement. The paper content dropped to 9% and the organic category comprised a greater percentage of the weight at to almost 70%, though a slight increase was noticed in the plastic weight. Overall an improvement was made in keeping recyclables out of the waste stream. Based on these findings it may be hypothesized that the sign located above the waste bins reminding students to recycle, helping produce a better sorted waste sample for the second audit.

Figure 15: Unsorted waste bags

The trends identified in the recycling stream for the first audit showed that most of the weight was contributed to organic waste, which was over 60% of the total weight coming from the recycling. Organic waste by nature is the heaviest category, but well over half of the weight coming from the recycling section should not be organic waste. This contaminates the recycling stream and hinders the recycling process, because contamination that must be removed during the treatment process may "reduce the yield of the reclaimed product, extending processing times" to allow for removal (Hester, 1995). The second audit showed a large improvement in reducing the contamination of organics in the recycling stream. The weight of organic material in the recycling was reduced to 25%, less than half of the percentage that was found in the first audit. Additionally, improvement was shown by an increase of plastic and paper in the recycling stream. Although, the waste stream still received a sizable amount of plastics, the paper content and most of the plastics made their way into the recycling stream. Plastics increased from 17.6% of the total weight of recyclables to 30%. Paper made a huge improvement from 6.7% of the weight to 30% as well. This trend shows that paper was being recycled much more in week two than in week one. Additionally, this can be a result of reduced cross contamination between the waste bins. It is difficult to determine that the signage added over the week between audits was completely responsible for the improvement noticed in the waste and recycling, however the results do show the desired out come from the implementation of the signage.

Figure 16: 3D garbage sign

The survey conducted on the day of the second audit helped the group gain insight into the self-reported behaviours and opinions of students at Oscar Peterson Hall. In regards to the effects of the

new signage, 75% of the students surveyed reported that the signage did help them use the proper bins and recycle properly. This statistic is very valuable to our project because it means that not only did students notice the new signage, the majority of them felt that it helped them recycle more efficiently. Over half of surveyed students stated that they would be inclined to use organic bins if they were implemented in the dining hall. A report done by an independent Green Squad in 2009 also found that the level of organics found in the waste was abundant, but no program was put in place for the diversion of organic waste as a result of that report.

Limitations:

This project faced a number of predicted and unforeseen limitations. The biggest obstacle turned out to be lack of available time to conduct research. This included strict schedule of deadlines imposed by the course and students' other classes. In addition, due to the differences in between students' schedules, ability to meet more than couple times a week as a whole group was severely hampered. In return, this resulted in conducting only one waste audit per week, where as other similar projects mentioned in the background section spent up to two full weeks gathering data.

Other than time, there were independent factors such as degree of care-taker's compliance and reliability. When Oscar Peterson Hall cafeteria staff agreed to help with the audit, they promised that garbage bags would be properly labelled, but in reality, only a few bags had comprehensible markings. This was the result of overestimating reliability of the care-taker, and underestimating difficulty of producing effective labels, which were crucial to the project.

Furthermore, since Oscar Peterson Hall is above all a business, group had to take into consideration minimal disruption of the staff. This means that help from one of the employees

responsible for helping out in labelling and storing the garbage bags over the period of eight hours was limited, and possibly not available for entire weeks as desired by the research group.

The survey listed in the appendix covered one hundred people, representing only a small number of total population that uses Oscar Peterson Hall cafeteria. In addition, human subjects performing polls or surveys can produce biased results, as they may favour one answer over another discarding the truth, despite all of the confidentiality in place.

Recommendations:

Figure 17: Recycling sign

Assessing the results and finding of the audits, significant number of things were identified that needed to be considered if Oscar Peterson Hall is to reduce their waste output, and wasteful behaviour overall. One of these things was the implementation of the new 3D signage. Comparing the results from the first and second audit, it was concluded that our hypothesis of new signage reducing the bin contamination was confirmed. In addition, the majority of students who took our survey stated that the new signage helped them sort their recyclables easier. Based on our positive audit results and the survey answers, we recommend introducing an improved signage design for the disposal area.

Figure 18: 3D plastic sign

From an economical stand point, Oscar Peterson Hall experiences a loss of plates and silverware. The loss of silverware might be due to consumers throwing them in the waste as we found out during

the audit. An improvement in signage could address this issue by warning students about the costs of lost utensils.

Another recommendation is to remove the multi-purpose bin located in the recycling area. It represents an all-in-one dumpster, where people could just conveniently dump everything they have in one bin without sorting. As a recommendation, the multi-purpose bin should be stationed at the back of the room, reducing the current convenience attached to it, and thus reducing bin contamination and wasteful behaviour. Another approach to tackling the problem of the multi-purpose bin is to put a lid on it, reducing the convenience and making sorting garbage a more sound choice.

Figure 19: All-purpose waste bin

Figure 20: Current napkin dispenser

We also suggest replacing stacks of the convenient "grab and go" napkins to a "take one napkin at the time" style. The current napkin dispensers allow consumers to grab as many napkins as they want to (Figure). Sometimes they grab too many and leave the unused napkins behind. Once they are out of the dispensers, consumers avoid utilizing them even though they are unused. Therefore we suggest replacing the current dispensers with "take one at a time" style containers or napkin boxes, displayed in Figure.

Figure 21: Proposed napkin dispenser

A number of paper cups were found stacked next to the soft drink machines and many were located in the trash unused. These paper cups can be replaced with glass ones, which the cafeteria already has, but are under-used by the consumers. An improvement in the re-usable cup program would help decrease the use of the paper cups, through an improvement in signage students can be made more aware of the availability of re-usable cups.

Figure 22: Re-usable cups

Another problem was the inefficient use of available bins. In the recycling area, there are two glass/cans bins present, where one of them remains empty throughout most of the time. As final recommendation, we feel that one of those bins can be used for collecting organic food waste. Currently, there is no organic food waste diversion system at the dining hall even though past studies have indicated a need for it. Both of the waste audits we conducted showed that the organic food waste category contributed the greatest weight of all categories. We recommend that organic food waste be diverted from the regular waste stream at Oscar Peterson Hall using a green bin system. This recommendation can be achieved by requesting organic waste pick-up from the Region of Peel. The waste is then taken to Peel's Integrated Waste Management Facility, where it is prepared before being taken to the Peel Curing Facility in Caledon to finish producing the composted product.

Figure 23: Organic green bin

Conclusion:

The waste audit portrayed in this report was a success. It has commenced in three part operation: first was analyzing the garbage and establishing the nominal output of the facility, second was conducting an experiment of implementing new signage techniques, and third was re-analyzing the garbage to see if the experiment had made any difference. In addition, the audit was supplemented by a voluntary student survey, which also showed support for the new signage from the public. Moreover, the report covered various aspects of the audit, producing appropriate recommendations to tackle particularly alarming areas such as multipurpose bins, unused napkins, coke-cola wax cups, and last but not least the overwhelming amount of organic waste.

References

Hester, R. E., Harrison, R. M., (1995) Waste Treatment and Disposal. *Royal Society of Chemistry.* 158 pp.

T.C. Kelly, I.G. Masonb, M.W. Leiss, S. Ganesh, 2006 University community responses to on-campus resource recycling; Resources, Conservation and Recycling 47 42–55

Waste to Resource Assessment Report, by Green Squad 2009, For University of Toronto at Mississauga

Felder, Melissa A. J., Petrell, Royann J., Duff, Sheldon J.B. A solid waste audit reduction at the University of British Columbia, Canada. Waste Management & Research, 2001. Vol. 19. 354-365.

Mason, I. G., Oberender, A., Brooking, A.K. Source Separation and potential re-use of resource residuals at a university campus. Resources, Conservation and Recycling, 2004. Vol. 40. 155-172.

Danielle P. Smyth, Arthur L. Fredeen, Annie L. Booth, 2010, Reducing solid waste in higher education: The first step towards 'greening' a university campus; Resources, Conservation and Recycling

Terry L. Tudor, 2007, Strategies for improving recycling behaviour within the Cornwall National Health Service (NHS) in the UK, Waste Management & Research

Robert W. Christopherson, Mary-Louise Byrne, "Canadian Geosystems" second edition 2009

Sweeten, J. M. (2008) Composting Manure and Sludge. http://hdl.handle.net/1969.1/87650. 7 pp. Accessed November 15, 2010.

University of Toronto Student Life.(2010)UeaT. http://blogs.studentlife.utoronto.ca/Ueat/category/ueat/

Appendix:

Table 1: Garbage collected from the waste bins for the first audit performed on the Nov. 5 , 2010

Category	Weight	% by Weight
Organic	22 lb	61.11%
Real Garbage	3 lb	8.33%
Plastic	4 lb	11.11%
Paper	7 lb	19.44%
Glass/Cans	0 lb	0%
Total	36 lb	100.00%

Table 2: Garbage collected from the recycle bins for the first audit performed on Nov. 5, 2010

Category	Weight	% by Weigh
Organic	16.3 lb	63.92%
Real Garbage	3 lb	11.76%
Plastic	4.5 lb	17.65%
Paper	1.7 lb	6.67%
Glass/Can	0 lb	0%
Total	25.5 lb	100.00%

Table 3: Garbage collected from the waste bins for the second audit performed on Nov. 12, 2010

Category	**Weight**	**% by Weight**
Organic	31 lb	69.66%
Real Garbage	2.5 lb	5.62%
Plastic	7 lb	15.73%
Paper	4 lb	8.99%
Glass/Cans	0 lb	0%
Total	44.5 lb	100.00%

Table 4: Garbage collected from the recycle bins for the second audit performed on Nov. 12, 2010

Category	**Weight**	**% by Weight**
Organic	5 lb	25.00%
Real Garbage	3 lb	15.00%
Plastic	6 lb	30.00%
Papers	6 lb	30.00%
Glass/Cans	0 lb	0%
Total	20 lb	100.00%

Survey Questions

1) Please indicate your gender

○ Male ○ Female ○ Prefer not to be disclosed

2) How often do you dine at the Oscar Peterson Hall?

○ 0 - 2 day(s) a week ○ 3 - 5 days a week ○ 5+ days a week

3) Rate your perspective on the importance of recycling?

Not important ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 Very important

4) How likely are you to use an organic waste bin at Oscar Peterson Hall if provided?

Not likely ◉ 1 ○ 2 ○ 3 ○ 4 ○ 5 Very likely

5) Has the implementations of the new signage made it easier to sort your recyclables?

○ Yes ○ No ○ Don't Know

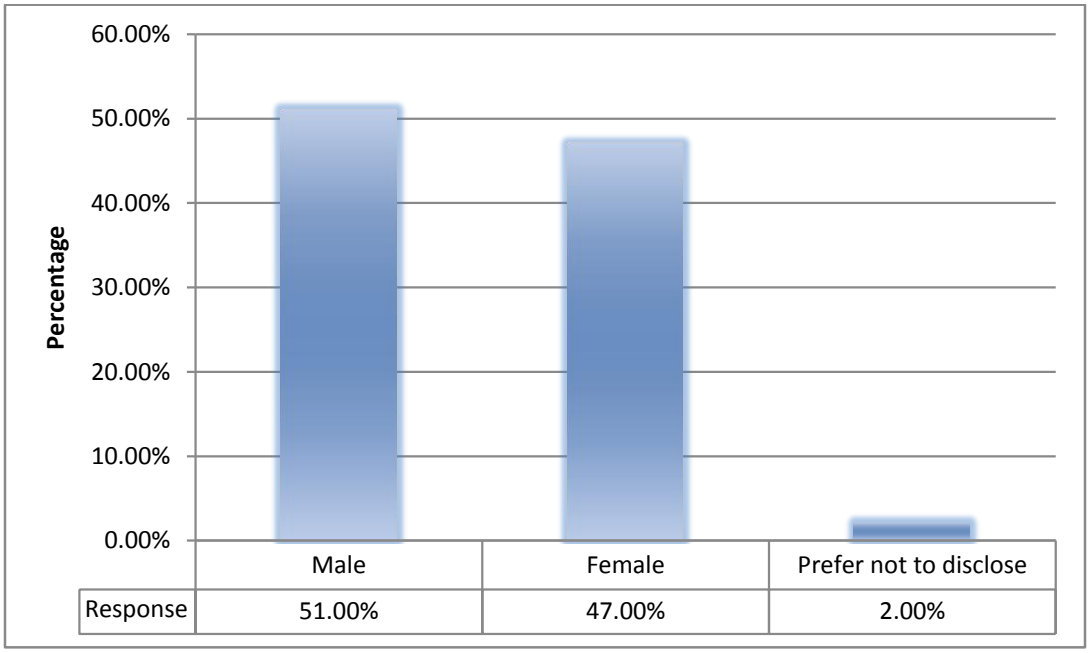
6) Do you think OPH is doing a good job at sorting and cleaning the garbage?

○ Yes ○ No ○ Don't Know

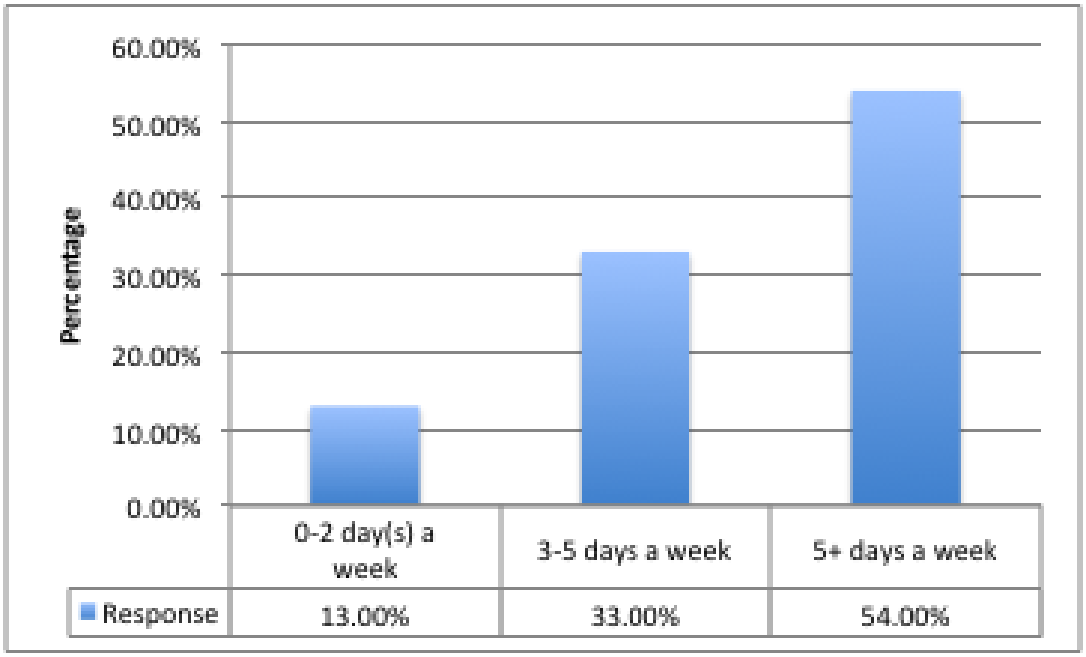
Thank You for your participation.

Survey Results

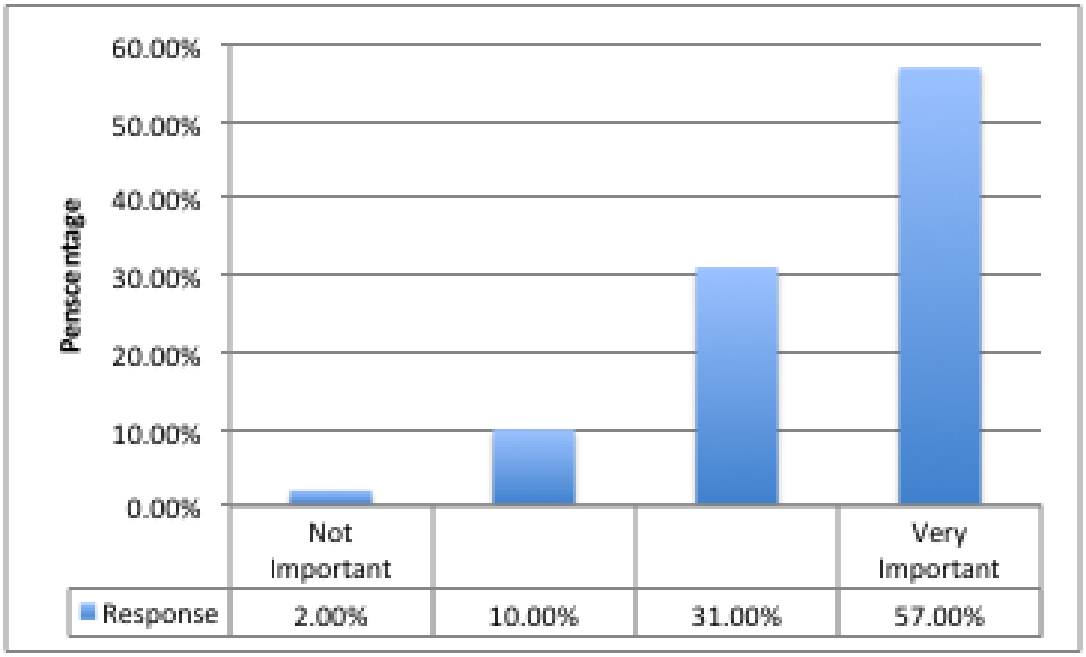
1) Please indicate your gender.



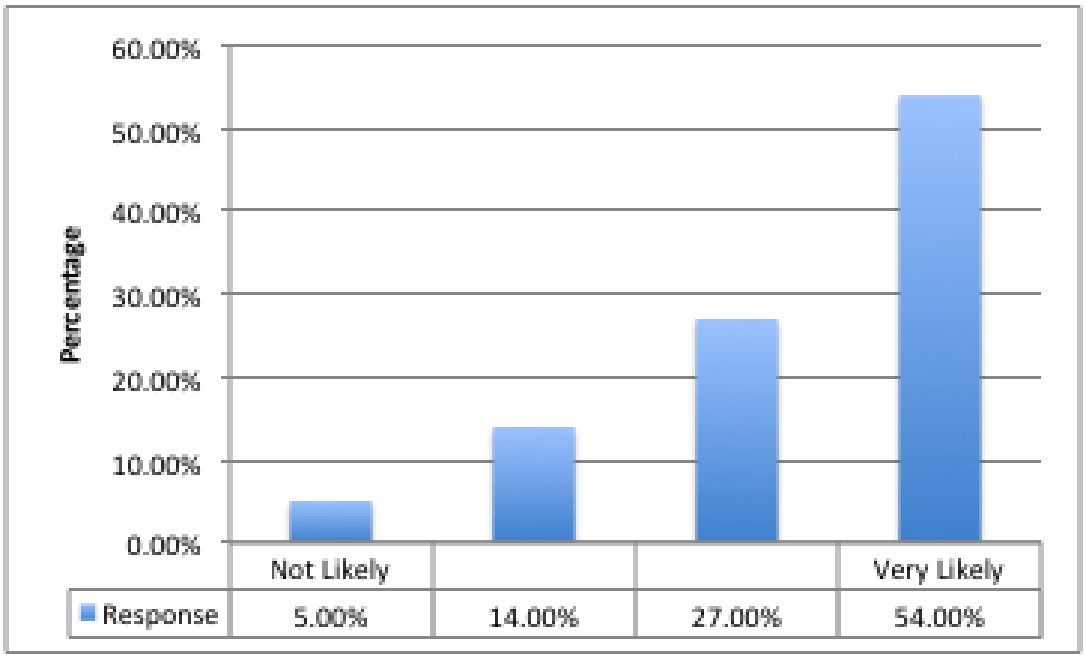
2) How often do you dine at the Oscar Peterson Hall?



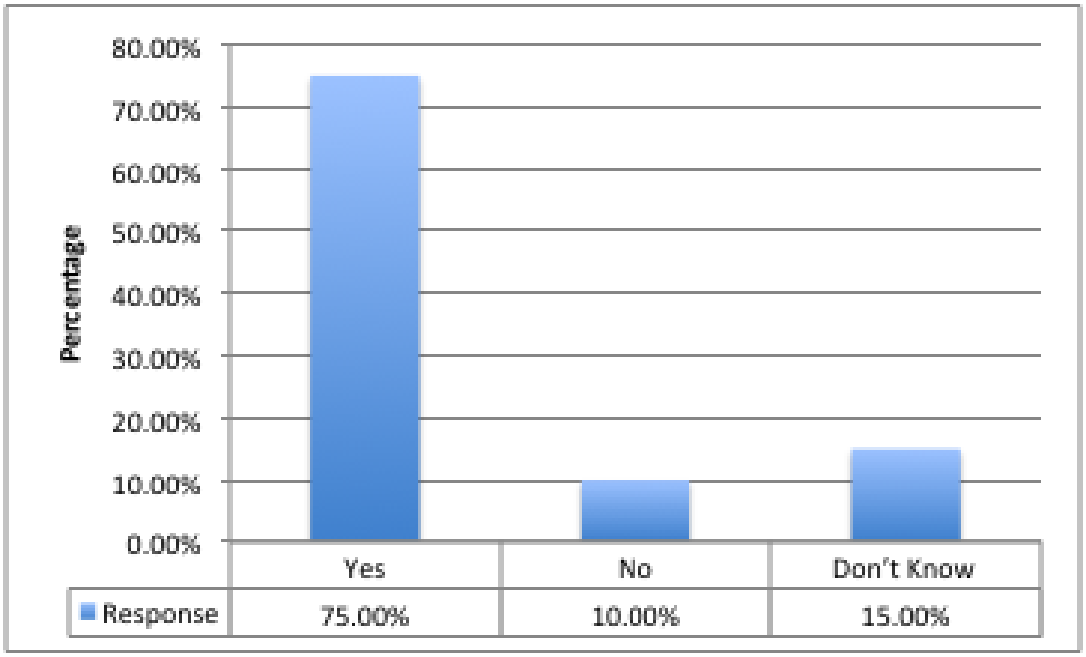
3) Rate your perspective on the importance of recycling?



4) How likely are you to use an organic waste bin at Oscar Peterson Hall if provided?



5) Has the implementations of the new signage made it easier to sort your recyclables?



6) Do you think OPH is doing a good job at sorting and cleaning the garbage?