

**Increasing UBC Campus Stewardship within Public Space:
Recycling, Composting and Reducing Waste**

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Summary Points with Suggested Solutions

These summary points were determined from the following study and include suggestions to reduce waste and increase UBC campus stewardship and sustainability. These same summary points are also found at the end of this report in a more extended form (pg 30-34) but are provided at the beginning for easy reference.

Small Number Creates Disorderly Feel:

The problem of people not cleaning up after themselves within public space in the SUB is created by a minimal amount of users compared to the total amount who use the area throughout the day which results in the un-kept feeling within the area indicative of the lack of stewardship.

No Distinct Group to Blame:

Demographics of people more prone to recycle than not recycle did not have any large applicable significance which indicates that there is no particular group that should be targeted more than another to reduce waste and increase recycling/composting.

Increasing Awareness:

The use of signs and campaigns to promote awareness, education and action in the areas of recycling, composting and waste management would most likely be an effective method supportive of producing the desired results.

Addition of Recycling and Compost Facilities:

Within the Southside lounge and other parts of the UBC campus the addition of outlets to recycle and compost would greatly support more people using these facilities decreasing waste and increasing convenience.

Improving Emptying System for Facilities:

A regular emptying schedule or a sufficient system for emptying all of the waste, recycling and composting facilities at UBC would help to reduce the appearance of messy areas and reduce waste by having recycling facilities more available all of the time.

Permanent Integration of the Composting System:

In order to have a really effective composting system it needs to be better structured and act as a more integrated part of campus operations. Having the same administration in charge of it in all areas of the UBC campus system would help to accomplish this.

Reinstating AMS Cleaning Position with Addition of Duties:

Adding the responsibility of care for the single compost station in the SUB to the existing AMS position, which involves cleaning of the public space within the SUB during the day, could help to bring the two components of waste management in the SUB together and create more of a structured monitoring system for this space.

Bringing Food from Home and Using Reusable/Recyclable Containers:

Encouraging individuals to bring their own food and lunches from home and use reusable containers will likely have a positive effect in reducing waste by not only reducing materials used but also by increasing the amount of conscious individuals who care for their waste.

Follow by Example:

Social pressure or peer pressure may have some effect within the public areas in the SUB and therefore the promotion of behaviour demonstrating stewardship for an area could have positive results.

Introduction

A lack of stewardship can be observed within public use areas through disregard of users to clean up after themselves in the Student Union Building (SUB) located on the University of British Columbia's (UBC) campus. This study was conducted in order to try and determine possible causes for this behaviour and find any potential solutions to create a cleaner, more inviting environment in these areas.

Public interactions greatly vary based on the setting including many variables such as area use, major people demographics and building structure. Within the UBC campus the SUB is an area of major person's traffic. It serves as a place for many uses such as a resource and club space, advent venue, and includes a movie theater, post office, pub, art gallery, and food fair. Along with these, the building has public use areas for anyone to relax, study or hang out at throughout the day. Due to the great diversity of people that use and occupy the SUB, the conduct in which individuals carry themselves in can greatly vary. One such way in which people's actions can be observed is through their display of stewardship within this public area.

Purpose

In meetings between the Alma Mater Society (AMS) facilities director, Jane Barry, along with Brenda Sawada, manager of UBC SEEDS program within the sustainability office at UBC, and other students on the AMS council, ways to make the SUB more sustainable were discussed while additionally identifying any major problem areas. Barry, whose office is located within the SUB, expressed concern for lack of stewardship and personal accountability of users in the SUB's public areas finding that often people leave litter and other waste in the space used without attempting to dispose of it or clean up after themselves. Overall she finds that this is more of a major problem

than getting people to recycle or compost even though there is need for improvement within this area as well.

In order to address Barry's and others' first primary concern I conducted this study, through the UBC SEEDS program, observing people's habits and their behavior displayed when using a public space within the SUB. The purpose was to try and identify any patterns that may contribute towards people's behaviors compelling them to not clean up after themselves in order to try and potentially implement methods to encourage and improve user's stewardship. Although recycling and composting was not the focus of the study, this issue will also be looked at and discussed in hopes to connect and improve all of these programs and facilities.

Background Theories

Some other previous studies allude to possible trends for this type of behaviour. In a study done by Joanne Vining and Angela Ebreo at the University of Illinois, surveys were randomly distributed into a small community in Illinois asking about people's recycling practices and motivations in order to compare recyclers' and non-recyclers' behaviour patterns (1990). What they found is that overall people who recycled at least once in the past year or 'recyclers' were more informed about the different recycling programs available and what materials could be recycled. This is indicative of the importance of education as a key component in promoting recycling in general. In fact promoting education about recycling facilities was one of their concluding suggestions to increase the percentage of people who do recycle. This promotion of education should include information not only about recycling but also link how recycling affects the environment. With this Vining and Ebreo also suggest increasing convenience in the

process of recycling, because they found that for non-recyclers both convenience and monetary factors were of large importance for reasons why they did not recycle.

Interestingly they also found demographics to not be much of a significant factor, and no differences in altruistic environmental reasons to recycle explains the difference between the two groups.

Other studies have also linked the importance of information and convenience to the amount of people who recycle. Geller et al. (1976), Geller et al. (1977), and Schnelle et al. (1980) all found some form of positive feedback, whether it be the reduction of litter or the increase of recycling, when some form of public media was introduced into the area of study advocating reduction of waste, increase of recycling, or simply giving facts about the amount of waste created within the area. Using more than one advocating technique to promote recycling, whether it be multiple media resources (Arbuthnot et al. 1977) or providing more convenient containers or some form of personal contact in addition to information (Reid et al, 1976; Luyben and Bailey, 1979), all resulted in a higher percentage of positive results than if only one information method was used. An increase in the convenience of containers for recycling has also been found to increase the percentage of those who recycle (Reid et al, 1976; Luyben and Bailey, 1979). Monetary incentives through contests, raffles, or lotteries have been found to promote recycling but some of these are only short term solutions (Luyben and Bailey, 1979; Jacobs and Bailey, 1982; Wilmer and Geller, 1976). Lastly, social pressure was found to be an important factor in why some people recycle, where social pressure is defined as behaviour promoted or induced by the actions of peers (Vining and Ebreo, 1988).

All of these studies provide good insight into possible methods to get people to reduce waste or increase recycling and composting on the UBC campus. The main points and reoccurring conclusions I have found in all of them is the increase of facilities and convenience of location in addition to the increase of awareness about the impacts of the facilities, how to use them, and where they are located will all have great positive results. In addition, if able to create these acts as more habits than chores in a select population, social pressure in itself may be able to take hold and further promote these behaviours. In my own study, I looked at as many relevant variables to try to confirm or discard any of these theories when understanding the behaviours of users in the SUB public space observed.

Methods

Observations were conducted over a five week period in the SUB's Southside lounge for three hours every Thursday. This three hour period was broken into a pre-lunch/lunch time period from 11am -1pm and an afternoon period from 3-4pm. Observations were made from the same viewpoint each week and orientation of the furniture within the space was recorded in hand drawn maps of the area as this varied from week to week. All people using this designated area during these periods of time were observed and recorded using a range of variables. The specific space monitored, the Southside lounge, was determined through suggestions from Barry as being an area of public use while also serving as an environment fostering multiple purposes acting as a social, study and eating area.

Recorded Variables

Variables observed included gender, group size, activity type, food origin and food type as well as whether or not each individual cleaned up the personal area they occupied while in the vicinity. Only individuals that did leave some form of waste behind were analyzed in order to try and find any trends or patterns that results in this kind of behaviour. From this group of information collected, statistical analyses were conducted using SPSS statistics software. For this report, descriptive statistics were the primary interest.

In the analyses gender and group type are categorized together as individual male, individual female, couple or group where couple constitutes as two people of a undefined gender and group is three or more people again with gender undefined. Undefined gender in larger groups is used in order to simplify the analysis. Food origin is noted as either brought from home, store bought or a mixture of the two. Brought from home items are determined in observations as any food item in Tupperware or bag/foil containers including personal coffee cups, water bottles, as well as loose food items such as fruit or single snack items not widely distributed within the food outlets in the SUB. Food type is split into drink, snack or meal. Snacks are any food item that does not seem to constitute as a meal because of volume difference and specific food type. An example of a snack vs. meal would be a yogurt cup vs. a slice of pizza. If a person had both a drink and a snack or drink and a meal it was grouped into the snack and meal variables respectively.

Activity while using space in the monitored area was also recorded and grouped into the following four categories: eating, relaxing/sleeping, studying and socializing. Studying is defined as any person or group of persons involved in a form of reading, writing, tutoring, or computer activity. Relaxing is any person or group of person's just

simply sitting without engaging in any of the other listed activities. Sleeping and eating are self defined and socializing is when more than one person is engaging in some form of interaction with another person or persons usually involving a conversation. Although some of the observed subjects were involved in more than one of these categories of activities, the activity which seemed to dominate most of the subject's time while in the space monitored is the one recorded. For example if a subject was eating and studying, the activity was recorded as studying.

The last major variable looked at, besides which week each observation occurred, was time in which the subject(s) occupied the monitored area. This is broken into four categories, pre-lunch (11am-12pm), lunch hour (12-1pm), lunch duration (extended periods of time between 11am-1pm), and afternoon (3-4pm). This information was determined by recording the specific time each group entered and exited the area and finding the difference between the two which equaled the total amount of time spent within the observed space.

In the observations gender was recorded for each individual person including those in couples and groups. For food type any combination of a meal, snack and drink were recorded including each individual item. Specific trash and paper recycling bins used by subjects were recorded as well but do not seem to provided very significant in the analysis of this report. None of the subjects were directly interacted with in relation to the study within the duration of the observations.

Introduced Variables

In the first three weeks observations were carried out without any additional variables added to change the dynamics of the monitored space. During the remaining fourth and fifth week a separate variable during each week was added to see if it would

affect the pattern of observations. In the fourth week the first introduced variable was the addition of small table signs that were distributed throughout the area on every table.

Each sign was the same with the words:

‘Please Dispose of Your Waste in the proper Receptacles Thank You.’

These signs were left on the tables for the duration of the observations as well as for the period in between observations from 1-3pm. In the fifth week the addition of three recycling bins for cans and bottles were added to the space, where previously there were none. Two paper recycling stations already existed within the space and compost bins were not available to be used as an introduced variable though they were sought after.

Results

All variables included in the results are only for the groups that left behind some form of waste in the area they occupied within the observation periods. Number of group type and group frequencies refers to both individual and group parties.

Gender and Group Type

Over all five weeks, in all time periods, individual females occur as the most frequent group type with a frequency of 13 out of 31 total groups recorded. Groups are the least frequent group type with a frequency of 3/31 and individual males and couples are in the middle with frequencies of 8/31 and 7/31 respectively. Total number of all groups is 32 but during the first period on the first day of observations gender was not recorded so one individual is an undefined group left of out the comparative bar graphs. For actual group type frequencies in each week, week one has the most group types with a total of ten. Week 2 and 5 both have seven group types while week 3 has five. Week 4 has the least amount with a total of three.

Time period

For frequencies of time periods over the five weeks the most people who left some form of waste behind did so in the pre-lunch period occurring at a frequency a little less than half, 14 out of 32. The afternoon period has the next highest frequency of 9/32 followed by lunch hour with a frequency of 6/32 and lunch duration with a frequency of only 3/32.

Food Type and Food Origin

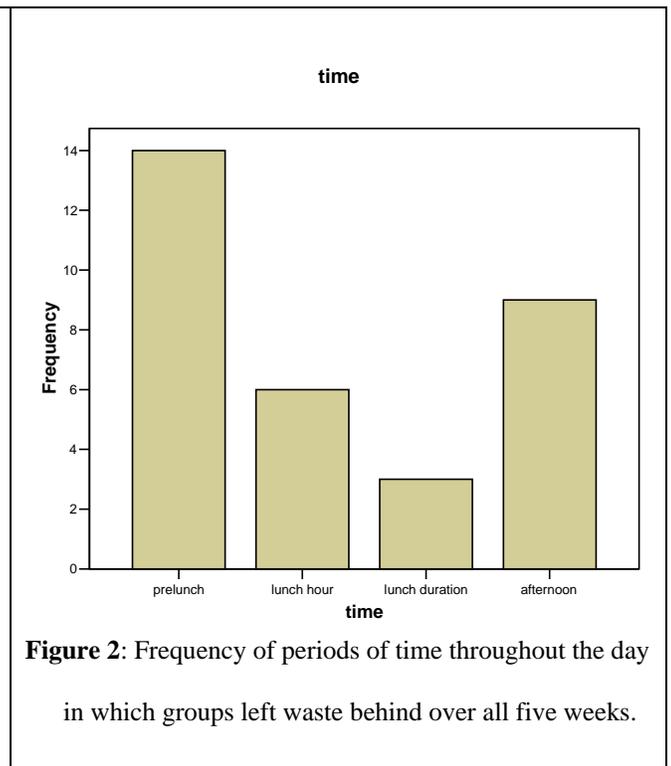
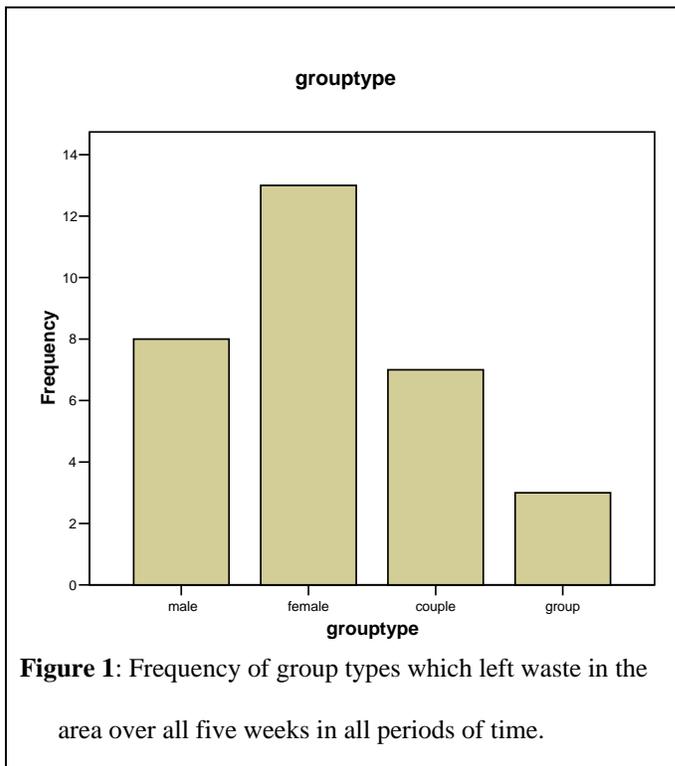
In food type and food origin two out of the total 32 groups did not have any recorded food with them while using the observed space but still left some other form of waste behind. For those groups with food, the most had meals constituting 14 out of the total 30 followed by 9 with only drinks and 7 with only snacks. The food origin for all these three food type categories is mostly store brought with 22 out of the total 30 groups having some form of store bought food. In the remaining eight, six have a mix of store bought food and food brought from home and only two have food observed as exclusively brought from home.

Activities

For the activities that groups primarily participated in while using the observed space in the specific time periods, the highest frequency activity that occurs is studying with 13 out of the total 24 groups recorded participating in this. Only 24 out of total 32 groups have a recorded activity because this variable was not constantly recorded until week 2 so 8 out of the 10 groups in week 1 are missing an activity. For the remaining activities 5 groups participated in primarily eating while another 5 groups mainly socialized. Only one group that left waste behind was relaxing or sleeping.

Introduced Variable #2

For the second introduced variable, recycling bins, moderate use resulted. The two can/bottles recycling bins were placed each by different trash cans and I designated them the names CA and CB. During the 11-1pm time period CA was used a total of six times where CB was only used once. At the beginning of the 3-4pm period there was a total of four recyclable items in each bin. Differing from the amount of use observed between 11-1pm this indicates that they were used between 1 and 3pm, resulting in the increase of items in CB. Also at some point a person collecting cans probably emptied or took out some items in CA accounting for the decrease of items found in this bin. Between the observed 3-4pm period both CA and CB were used twice.



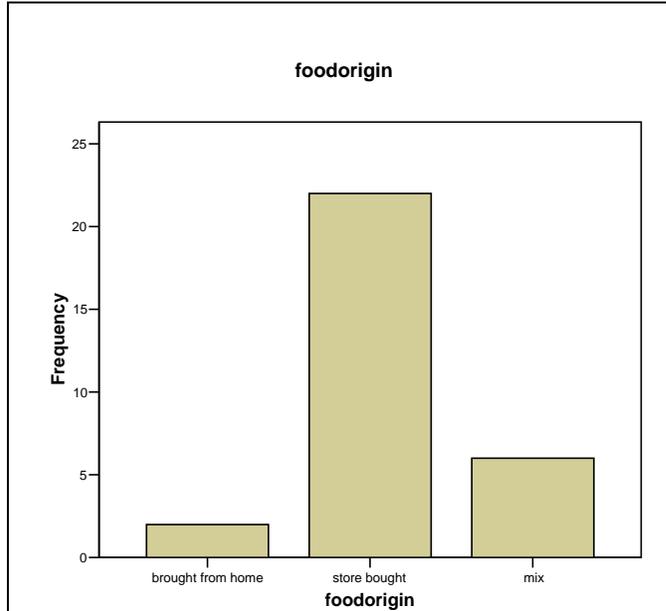


Figure 3: Frequency of the origin of food groups had over the five weeks. Two out of the total 32 groups did not have any food with them.

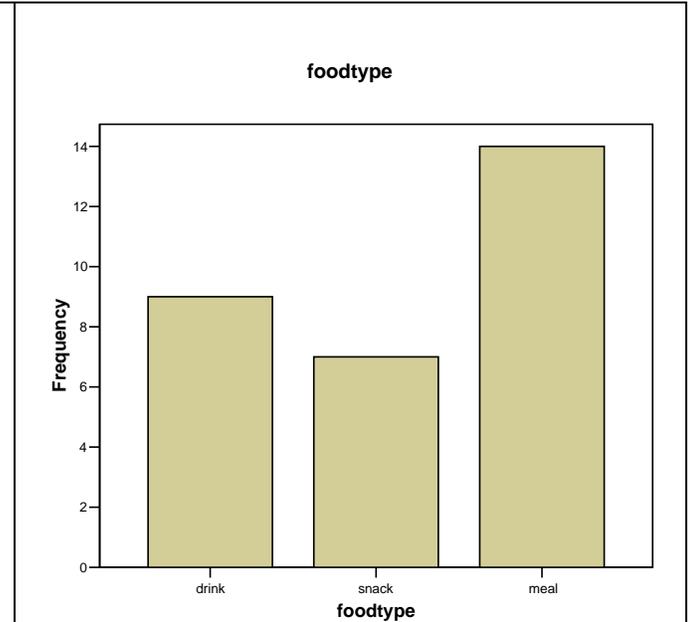


Figure 4: Frequency of type of food each group had over the five weeks. Two out of the total 32 groups did not have any food with them.

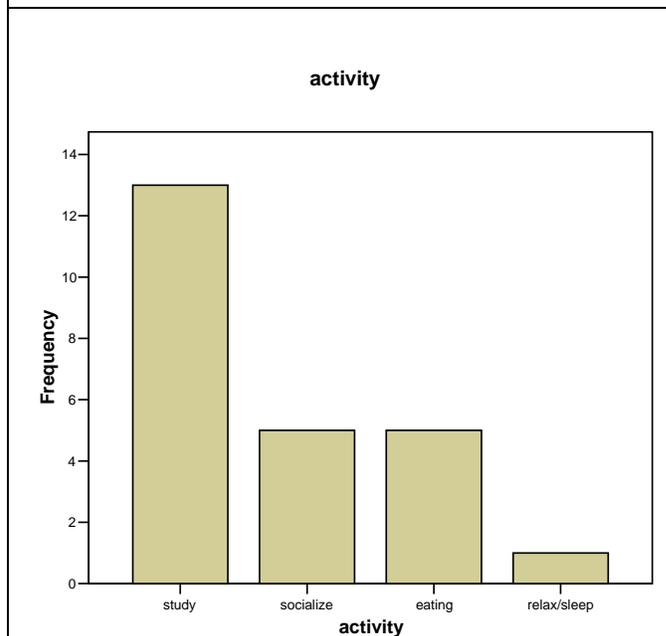


Figure 5: Dominant activity type each group engaged in within the observed periods over the five weeks.

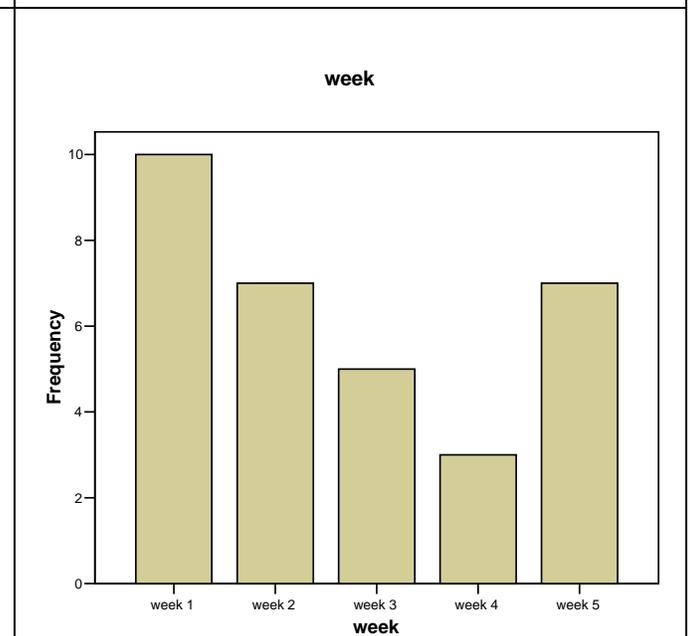


Figure 6: Frequency of groups which left waste behind in all time periods during each week.

Discussion

Analysis of results

When trying to identify any specific patterns among individuals who are more inclined to leave some form of waste behind in public areas no specific or definitive causes could be determined, although there are apparent trends that can be linked with this type of behaviour. An evident trend that can be seen when examining group type is the very high frequency of individual females who left behind some form of waste (figure 1). Although this may incline one to see this as evidence of individual females having a low frequency of cleaning up public space after use, another notable observation is that when looking at overall frequency of users of this space females by far outnumber males.

The average number of females using the space per week is 199.2 where the average amount of males is comparatively 72.4. This creates a ratio of males to females of about 0.6 males per every female occupying the space. These numbers are a count of all the users of the space including females and males within couples or groups. In addition to these numbers there were also a total of 17 individuals who had no gender recorded within 14 groups because gender was not designated as a variable until part way into week one's observations. Interestingly, when calculating the ratio of individual male groups to individual female groups who left waste behind, the ratio is about 0.6 as well (8/13) (figure 1). This calculation is only from the number of individual males and females and does not include numbers of females and males within the groups or couples who left trash behind. When comparing both ratios of total male to female users of the space and individual male to individual female users who left waste behind indicates that, although it appears that females in figure one seem as a more dominant gender in leaving

trash behind, when comparing the total demographic of users about the same ratio of male to females leave behind waste suggesting gender insignificant as a characteristic of people who tend to leave waste behind in a public space.

For the times of day in which users occurred the most people who left waste behind did so during the pre-lunch period, although the heaviest user traffic was experienced during the lunch hour (figure 2). This may be taken as an indication of more regard for personal stewardship due to peer social pressure. Heaviest user traffic during the lunch hour meant a more densely populated space, and perhaps sharing a space so close to other individuals created great pressure to take responsibility to clean up the used space, especially when another user was waiting to use the space directly afterwards. This was often the case during this period of time because of a large demand for space to consume lunch.

Another potential cause for this trend is the activity type engaged in by users who left waste behind in the public area. Figure 5 shows that people who studied had the highest frequency of leaving a form of waste behind. Although the space included AMS tutoring during the afternoon hour of observation, the space was still largely used for studying in general. The most people who did leave behind waste were those with some form of food resulting in only two out of the total 32 groups not having any form of obvious food or drink when using the observed space. Since such a large percentage of users had some form of food with them it would suggest the most frequent activity that occurred would be eating. The fact that instead of eating, studying was the most frequent activity (figure 4) implies that a high percentage of those studying were also eating. Due to this trend of dual activity it most likely prevented users from focusing exclusively on

the act of eating, perhaps leading to a less mindful state of food consumption. This could result in a reduced awareness of the space around them and a lower likelihood of cleaning up this area after usage. This reduced state of mindfulness due to dual activity relates back to the time period in which users left waste behind. Users would have less of a chance to study during lunch hour, leading to perhaps a more mindful consciousness about personal area, resulting in less group types leaving waste behind during this high usage period.

For the food origin, a very low number of people with items brought from home left waste behind (figure 3). Even those with a mix of food from home and store-bought occurred at a substantially lower number than those with only store bought food. People bringing food from home have to be conscious enough to plan and make the effort to prepare and pack their food which probably extends to a greater consciousness about food consumption and their food waste as well. This is probably why there is such a low number of individuals who leave behind waste when bringing food from home. As a way to not only reduce waste but also increase the sustainability on campus, campaigning for students to bring food in reusable containers to school could be put in place or enhanced depending on whether there already is some form of this program existing. I personally have seen some advertisements to use reusable mugs but putting a greater focus on having students bring their own food from home could potentially have positive effects in the reduction of waste. This could be done by incentives such as contests or some form of a reward system such as the reduced cost of a drink when you bring your own mug. I know this sort of promotion does exist within at least some of the food outlets in the SUB but is very poorly advertised, and many patrons of the SUB are unaware of this

opportunity. In addition, education campaigns in the form of verbal personal contact and/or the use of signs and flyers could also help to increase the amount of people who bring their own food and use reusable containers. Encouraging outlets which sell food in the SUB to use recyclable containers will also help to reduce waste if enough people will recycle and adequate facilities are there to do so.

When looking at the overall number of groups who left waste behind in the area in the six weeks of the study, week four has a noticeably lower amount than all other weeks (figure 6). What additionally makes week four interesting is this is the only week when the first introduced variable, signs requesting patrons to clean up after themselves, was used. This suggests that these signs may have had a positive impact by making the users more aware of the space and in fact cleaning up more. This could especially have an impact on those not as aware of their surrounding such as the users engaging in dual activities by providing them with a reminder or awareness check. These positive results lead me to suggest that posting more permanent signs could help to increase stewardship and reduce waste as well as increase awareness through education. One great aspect of this promotion method is it is very low maintenance and does not require a lot of attention after the signs are put up as long as they are put in a place where they would not be taken down or greatly tampered with.

For the use of the second introduced variable, bottle and can recycling bins in week five, evidence of use by subjects was quite apparent. The *Results* describe the specific amounts each outlet was used. Although the amount of usage needed to make adding bins to an area as a permanent component by administration is unknown to me, from the observations the fact that people were using them suggests that this is an

effective place to locate these bins increasing the overall campus's sustainability thereby supporting overall stewardship of the campus as well. This area is more elaborated on in the *Recycling and Composting: In the Southside Lounge and the UBC Campus* section within this discussion.

An aspect of the study to note was there was a margin of error in the observations. At times, especially during hours of heaviest user traffic, keeping track of all users' activities within the space was difficult to accomplish and obtain complete, accurate information for all variables. As a result some subjects were not completely accounted for in all variable areas but in general those analyzed had fairly complete recorded information with components missing, previously noted within the results. If a similar set of observations were to be repeated, ideally a higher percentage of information would have more complete accounts of all variables, but there will probably still be a small margin of error even if improving the overall proportion of complete observations just from the nature of the study. More accuracy may be obtained with more than one person making the observations.

SUB Waste Management

Through conversations with Tamas Weidner, a custodial supervisor within the SUB, I was able to become more informed about the specific program set up for waste management within the observed area and the rest of the building. Weidner explained the schedule for trash and recycle emptying, cleaning of the building and past waste management history within the SUB. What I found most interesting and relevant was the cleaning of the public space and recycling management. First of all, recycling within the SUB under the responsibility of the custodial staff only pertains to paper and bottle/can bins with the organics/compost bins dealt with separately through the AMS. The bins that

are under the responsibility of the SUB's custodial staff are taken out only when full or when it appears as though attendance is needed. Each bin within the SUB has a specific area in which it is placed and the current layout of this placement was determined some time in the past. If specific bins are demanding consistent emptying then the possibility of adding additional bins into the surrounding areas may be taken into consideration but the specific process for this to happen is unknown to me. Trashcans also have designated places and are in fact chained in place to prevent theft and have a regular emptying schedule which may vary due to time of year. During the period of observations the trashcans within the Southside lounge were scheduled to be emptied twice a day. For cleaning of the SUB this is all done at night on graveyard shifts. Weidner explained to me that it is unrealistic to have this done at any other time of day considering the very high usage within the building during the daytime. This means that public spaces such as the observed Southside lounge has no one cleaning it up during anytime of day except for having trash emptied.

Through this conversation many additional factors that possibly contribute towards the observed user activity within this study became apparent. First is the cleaning system. Although having the building cleaned during the night makes sense due to the pattern of building usage, I was a bit surprised to find that no one is designated to even generally clean up any of the public space throughout the day. This supports the findings observed that although few people leave trash behind relative to the total amount of people using the public space, the resulting appearance of the area indicates otherwise as garbage left out throughout the day accumulates. This is probably why Barry found it such an apparent issue although in reality a small percentage of the users are taking part

in such actions. It is also important to note that not only students appeared to leave behind waste, but people who seemed to be both faculty members and building staff also took part in leaving waste within the public space as well.

Allowing public space to appear as though disregarded by some users may have the effect of encouraging or even creating a supportive justification for other users to also mistreat the area who may act otherwise in a different environment with the appearance of being respected in the context of upkeep. The question is how to prevent the disregard and misuse of the space from occurring. While talking to Weidner he also mentioned a previous program through the AMS that had occurred in the past, prior to his employment at the SUB. Although he did not know the detailed specifics of the program, he explained to me that at one time AMS had hired students to go around and clean up public spaces by throwing away trash and other waste left out in the areas and wiping down tables throughout the day. Why this program ended and how successful it was is unknown to Weidner, but he did mention that through conversations with co-workers when the program ended more extensive cleaning needed in the area after hours created additional pressure felt by the custodial staff. When discussing this same program with Barry, she told me that in fact AMS still hires someone, though not necessarily a student, to go around during the day and clean up the public spaces, but that they had not had someone doing this since September because they could not find anyone to take the job. When asking if there was as visible difference or feel when having a person hired to do these duties, she said there was no huge difference that seemed to be overtly noticeable and that the hired person's main focus was the eating area in the downstairs of the SUB; places such as the Southside lounge was not monitored as much. This may have been

why both Weidner and Barry felt that the area was not being adequately cared for and cleaned even with the hired cleaner.

From the conversations with both Weidner and Barry it seems that it would defiantly be worth while trying again to hire someone, and if there is trouble finding someone maybe a more aggressive role in advertising this position can be taken. Especially during the main school year many students are looking for employment and this could be a great way for students to be supportive of other students to have stewardship for the area as long as people using the space do not take this service for granted and in fact leave more waste behind instead of reducing this number. Either way it would be interesting and worthwhile to do these observations again while there was some sort of cleaning person to clean up the space throughout the day and create a more respected feeling in these public areas. These new set of observations could perhaps give insight into the realistic effect, if any, of increasing people's stewardship for the public areas. It would be important for the person hired to make sure to monitor all public spaces effectively instead of only investing time in the food area in the downstairs of the SUB. It seems that this was not being done as well as it could have been in the past and may account for Weidner's assumption that there was no one designated to do this.

Recycling and Composting: In the Southside Lounge and the UBC Campus

In the Southside lounge when monitored, one noticeable aspect of the area was there were only two paper recycling bins and no can/bottle or organics bins within the space. The two paper bins that were there were overly full on more than one occasion with paper cascading out, the bins too full to contain everything. Another observation that was made during the five week observation period was only once were the trash cans emptied. On a couple of occasions some of the trash cans were also overly filled and

people began placing some items such as recyclable bottles and cans on the floor beside the trash while others tried to shove more waste into the can resulting in some cases it going on the floor adding additional loose waste to the area. During weeks when the garbage was fully functional and not overly full, there were people who had recyclable items who notably looked around making an effort to try and find recycling and when seeing none threw these items away. Others made more of an extensive effort and went as far as leaving the space in search of recycling and returning empty handed, assumedly having gone to recycle the items. The main point here is that there is an observable population of people using this area who are interested in recycling and do not necessarily have the immediate resources to do so. The results of week five, with the recycling bins acting as the introduced variable, supports these observations as well (see *Results* section for specific recorded numbers).

What can be taken from this is that the addition of recycling bins, such as the ones used in week five, could very well have a positive effect in the area and make the space more sustainable overall. There was a total of 13 items recycled during the observed hours with evidence of additional use during the time in between observations from 1-3pm. For a point of comparison this is more than the number of groups who left waste behind in any one week (figure 6). In addition, these cans were only placed in the observed area for a time period of one day during the fifth week meaning that frequent users of the SUB were not used to or familiarized with the location of these bins. If permanent bins were to be placed in this area the amount of usage would undoubtedly go up from the familiarity of placement, allowing those who use the SUB to come to depend upon these areas as outlets for recycling. I know for myself and personal friends that we

will go the extra distance to recycle items in places we know there are bins, and I am sure other like-minded people would contribute towards a higher frequency of usage once the bins were more established. Overall I find that there is sufficient potential of use for additional recycling bins to be placed within the Southside lounge and this would result in the reduction of waste. I believe that this addition of bins would be a positive step towards increasing stewardship within the space.

For organics within the SUB there is only one official station for post consumer composting, which is located downstairs in a tripod type recycling station including bottle/can recycling, organic composting and waste. When talking with Nancy Toogood, AMS Food and Beverage Manager, she explained the organics program to me. This single tripod recycling station is a result of a contribution one year from the AMS impacts and cost a total of \$1100 to install. Right now, because the composting/organics is not part of the custodial staff's job description, the organic container gets emptied by various AMS staff, including Toogood, when they get the chance to check on it. Other than that, there is no official system or schedule for managing this outlet because it is not specifically in anyone's job description. There is only one of these stations within the SUB because there is no extra budget within the Food and Beverage department to install another and no additional exterior funding has been either sought out or offered at this time. When asking Toogood if additional organic outlets would have a positive impact within the SUB she said most definitely and is something she would undoubtedly be an advocate for if there were the funds for it.

Another complication that comes with adding additional composting outlets is, according to Toogood, the proctor of the SUB is not in support of loose bins for organics

such as the blue bins for bottle/cans and paper recycling because there is no one to monitor them to insure correct usage, and they have the potential to rot and stink if there is no official person to remove them. He would only allow more permanent stations such as the existing composting facility in the SUB. This is why, if the addition of organics were to be implemented, they would have to be in a set station type of structure, similar to the one existing, for more of a permanent control of the area costing quite a bit more money. Organic waste that is involved in pre-consumer production, all the waste from the SUB's food outlets before the food is packaged to be sold, is mostly all being composted already and taken care of separately.

Other suggestions Toogood had for the organic system within the SUB, besides the addition of more locations, was the need for signs not only supporting composting but also directing users to the compost location and giving directions for specific disposal practices in order to create correct composting behaviour. This would also be a part of a general overall emphasis placed on education about the recycling and composting facilities at UBC and help to spread awareness about what facilities are available and the impacts they have. In addition to all of Toogood suggestions, I would also advocate allocating the responsibility of the emptying and cleaning the composting stations within the SUB to either the custodial staff or perhaps add these duties to the AMS position, the person who would be in charge of cleaning up public space throughout the day, when someone is hired again. This would not only create a more permanent system but also help to integrate two parts of waste management together within the SUB.

For composting around the rest of campus, there are various buildings and locations which do have bins in them but they often do not have a specific designated

place they belong. This results in the problem of people trying to compost some days and being unable to do so because the bin that was there yesterday no longer exists in that location either because it is being emptied and not immediately replaced or has been moved to another location. The select buildings that do have such facilities have usually been set up by some group or individual initiative to get the resources there. There is no set program to my knowledge that allocates or requires composting outlets in any of the buildings except the two first-year residences, Vanier and Totem Place, which both have the tripod recycling/composting stations like the one in the SUB within their cafeterias. This is due to an initiative by UBC Food Services and seems to be quite successful so far. Since these are the only residences which serve food, besides the graduate residences, it is hard to have the same structured setup with equally successful effects, but just adding outlets to other residences as well as other buildings will help to increase the percentage and frequency of people composting.

Recycling and Composting: UBC's Student Environment Centre Survey

To support these general findings of the effectiveness of recycling and composting, a survey distributed by the Student Environment Centre (SEC), a resource group on campus, about recycling and composting provides good insight into people's habitats which can be used for the implementation of new or varied management for both the recycling and composting programs.

In the survey done by the SEC, 144 people consisting of mostly students, along with staff, UBC faculty and five people in the "other" category were given a series of multiple choice questions as well as a chance to elaborate on two of the more general questions in order to gain UBC user insight into people's attitude and awareness of

composting and recycling. The results presented some striking patterns especially in the areas of improvements and suggestions for both systems.

Out of the people surveyed, 26.6% of them either never composted or were unaware that composting facilities existed on the UBC campus. The rest of the surveyed population composted from one to more than five times during the previous month resulting in the majority of the respondents participating in some frequency of composting. Those who had composted more than five times consisted of a 37.1 percentage which is more than one third of the surveyed population. Assuming that the surveyed population consisted of random participants, this demonstrates that a large percentage, almost three quarters of the population, do indeed compost, and more than one third do so regularly. Comparing these numbers to the amount of outlets available for composting in the SUB, supporting infrastructure is greatly lacking. The minimal opportunity to compost within the SUB, consisting of only one outlet, is hardly representative of the needed amount in order to properly service 75% of UBC's population. It should be noted that these numbers might not be representative of the entire UBC population as the participants in the study perhaps were more on the environmental side already by giving their time to take part in such a survey distributed by SEC. Even so, this survey still shows significant use and potential demand for more composting outlets on the UBC campus and within the SUB.

The participants were asked what would make them more likely to compost their waste in a multiple choice question and 74.1% said they would do so if compost bins were more obvious. 29.4% said they would compost more if they knew what to put in compost bins, 65.7% would do so if compost bins were more convenient and only 3.5%

said nothing and they were not interested in participating in any form of composting (Note: Participants were able to choose more than one answer which accounts for the high percentages). In addition to the multiple choice part of this question, participants were able to elaborate on their thoughts and out of the 42 extended responses 21 of them mentioned some aspect of making compost bins more available by the addition of them around campus and/or by making them more obvious and accessible. Five responses included something about increasing awareness or knowledge through some form of education.

For recycling, the user percentages were a bit higher with only 3.5% of participants not having recycled once in the month prior to the survey. In an extended response question asking what could be improved about either or both of the recycling and composting facilities at UBC, 79 participants responded and a total of 47 responses mentioned something about making facilities of one or both areas more available by the addition of them around campus and/or making them more obvious and accessible. For the area of increased education and awareness of the facilities and how to use them, 34 responses expressed this need in some form.

The main feedback points I find pertinent from the results of this survey is that in order to increase both composting and recycling on and around the UBC campus, more bins and locations for these activities need to be set up as well as making these and preexisting locations easily noticeable and identifiable. In addition to this, there needs to be promotion in some form to help make people aware that these facilities do exist, where to find them, and how to use them correctly. Having composting outlets in the two first year residences, Place Vanier and Totem Place, I believe has really helped to spread this

awareness and education for a good portion of campus users by incorporating it into their everyday meal process. Concerns and requests for (improved) composting programs within other residences such as Fairview, Thunderbird and Gage were mentioned within the responses as well and there was positive feedback for the existing composting programs at both Place Vanier and Totem Place.

Another large request/suggestion for these facilities and programs is the call for recycling and composting receptacles to be located in a tripod type fashion with trash where ever there are trashcans to allow recycling and composting become as normal as throwing away waste. Although this probably will not be realistic or feasibly possible at this point, the increase of the amount of outlets would undoubtedly create positive improvements within the programs.

Summary and Solutions

Combining the feedback from my observations, the SEC survey and the supporting studies there are a few main points and suggestions that I have found may help to decrease waste and increase the sustainability and stewardship in both the SUB and within the UBC campus.

Small Number Creates Disorderly Feel

The problem of people not cleaning up after themselves within public space in the SUB is created by a minimal amount of users compared to the total amount who use the area throughout the day. The build up of trash left by the small population of those users creates a dirty, un-kept feeling within the area indicative of the lack of stewardship.

Although there is undoubtedly a problem of people not cleaning up after themselves, the actual size of the problem is not as big as I had assumed going into this study. Having a

person or persons cleaning up and keeping this area tidy throughout the day would take away a large majority of this feeling, though it may or may not help to actually reduce the amount of people leaving their waste behind.

No Distinct Group to Blame

From both the observations and supporting studies, demographics of people more prone to recycle than not recycle did not have any large applicable significance. This indicates that there is no particular group that should be targeted more than another to reduce waste and increase recycling/composting.

Increasing Awareness

The use of signs advocating cleaning up after oneself, recycling and composting would most likely be an effective method supportive of producing the desired results. Signs can also be used as a tool for spreading awareness about the availability of such facilities and indicate the proper way to use them. It could be productive to also incorporate what type of environmental impacts recycling more or creating more waste has in order to give people a bigger perspective on what effect their individual actions have on a larger scale. Other forms of promotion for encouraging stewardship could be done by campaigning involving personal interaction to help get these ideas across. One benefit of the use of signs is the low maintenance required for the distribution of information over a long period of time. If some form of promotion for the increase of recycling or composting is implemented easily assessable facilities for users must also be included for this promotion to produce effective results.

Addition of Recycling and Compost Facilities

Within the Southside lounge and other parts of campus the addition of outlets to recycle and compost would greatly support more people using these facilities. More facilities placed in appropriate areas could greatly decrease the inconvenience factor resulting in much higher usage of such outlets. It could help to persuade people who do not tend to recycle or compost because of the inconvenience to change their habits. Additional composting stations especially in the SUB would greatly benefit this area and reduce waste since currently there is only one. For the Southside lounge the addition of bottle and can containers at the very least should be put in place as there is proof of a population which would use such facilities, again reducing the amount of waste that gets disposed.

Better Emptying System for Facilities

For both the trash and the recycling containers in the Southside lounge as well as the recycling, composting and waste facilities the SUB and the UBC campus in general, a regular emptying schedule or at least a sufficient system for emptying all of the facilities would help to reduce the appearance of messy areas and reduce waste by having recycling facilities more available all of the time.

Permanent Integration of the Composting System

In order to have a really effective composting system it needs to be better structured and act as a more integrated part of campus operations. In the SUB there would need to be a specific person whose duty is to take care of the facilities located there. In the current system this could be done either by the SUB custodial staff as an addition to their duties or by another person hired to specifically deal with this (see

Reinstating AMS Cleaning Position with the Addition of Duties in this section). If the composting program could be incorporated as a structured program with the same administration in charge of it in all areas of the UBC campus system it would be much more effective. This governing body would have the duty of introducing and maintaining facilities in all areas of campus. Right now the current programs are lacking central administrative organization and distribution as well as education and awareness campaigns for the facilities that do exist.

Reinstating AMS Cleaning Position with Addition of Duties

Adding the responsibility of care for the single compost station in the SUB to the existing AMS position which involves cleaning of the public space within the SUB during the day, could help to bring the two components of waste management in the SUB together and create more of a structured monitoring system for this space. The one factor that would need to be insured is that the person hired does in fact do a good job at cleaning up public space such as the Southside lounge in order to have the desired affect of changing the projected feeling in the area to one that is more representative of the individuals who do participate in campus stewardship.

Bringing Food from Home and Using Reusable/Recyclable Containers

Encouraging individuals to bring their own food and lunches from home as well as use reusable containers might also have a positive effect in reducing waste by not only reducing materials used but also by reducing waste left uncared for since those observed who did bring their own containers had a much lower percentage of population who left waste behind. Also, increasing the amount of recyclable packaging for items sold from

the food outlets within the SUB will also help to greatly reduce waste as long as people have the facilities to recycle.

Follow by Example

Social pressure or peer pressure may have some effect within the public areas in the SUB in terms of people cleaning up after themselves. Therefore the promotion of behaviour demonstrating stewardship for the area could have positive results. This could be done by the previous proposed campaigns or perhaps by some form of reward system, either temporary or more long-term to encourage those not already demonstrating positive behaviour to have an incentive to change their actions and habits.

Future Study Improvements

If another study is done to build upon this one, it would be interesting to see what kind of effects some of these proposed methods have on people's actions after being put into action for an extended period of time. Seeing if the addition of a person looking after the public areas during the day has any effect on people's behaviours could provide positive feedback for long term program improvements. Additional observers may help to gain more complete observations in all areas recorded.

Concluding Thoughts

There is great potential to reduce waste in many different ways within the SUB and on the UBC campus. This is becoming an ever more vital aspect in the present and future conditions of the environment and is becoming much more of a glaring reality in this day and age. Reduced waste means less money required for disposal and promotes a sustainable environment while at the same time demonstrates stewardship for not only the UBC campus but the earth as a whole. People who are more aware of their surroundings

and their consumption will be less likely to have a disregard for public space so through promoting waste reduction it will also be promoting stewardship. There are many methods that can be used to encourage this, previously mentioned, but first the commitment, dedication and support to stick with such initiatives is greatly needed from administration in order for these different programs to really become a part of the UBC campus's foundation and not simply remain as an initiative. There is a willing population to participate within these programs if the components fostering such an environment are provided. All demographics of this UBC community need to take part but first a strong leading is needed to get it off the ground. I have done my best in order to provide sound and relevant information in how to improve these areas and I hope they can be of value to continue promoting the sustainability and stewardship within this community.

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