

Social Barriers to Litterless Lunches

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Advisor: Dr. Heather Nicol

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ABSTRACT

This research project is one of the first studies of litterless lunch programs in Ontario schools. Our research project was done in conjunction with Peterborough Green-Up, an environmentally friendly community organization, who enlisted our assistance for this research. The primary focus is on qualitative data collected through interviews and discussions, focus groups, and literature reviews. The literature was specialized on writings surrounding social-based marketing and litterless lunch programs. Most of the data regarding pre-existing litterless lunch programs was found on non-academic independent websites, whereas information about waste management and social based marketing had more academic sources. Our data collection was centered on collecting the impressions and attitudes of students, teachers, and parents surrounding the effectiveness, successes, and barriers of the litterless lunch program implemented in the school. The chosen school as a case study within Peterborough Ontario was R. F. Downey Elementary School in the Kawartha Pine Ridge District School Board.

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SECTION 1: INTRODUCTION

1.1 Purpose of the Project

Peterborough Green-Up is an organization which has been involved in waste reduction education programs in Peterborough County area schools for almost eight years. Through their experience in the schools, one of the main sources of excessive waste is students' lunches. As a result, Peterborough Green-Up started a "litterless lunch" program within interested schools. To date, however the impact of this particular program, although successful in raising awareness, has been minimal in terms of actually reducing the waste generated. Similar results can be seen with litterless lunch programs across the province, for example the Norway Toronto District School Board (Andrews, 2009).

Therefore, the purpose of this project is to identify what the issues for the litterless lunch program are, as well as focus on barrier research. The proposed project will focus on the social barriers to the litterless lunch program within the Peterborough City and County. The research within this project included community consultation methods such as interviews, focus groups, and literature review. In addition we also did qualitative research through literature reviews of social marketing techniques, barriers, environmentally friendly practices, litterless lunches, methodical approaches, and geographical studies. We conducted focus groups to more clearly identify what the issues and obstacles are in making the positive change to litterless lunches. The objective is then to use this information to highlight the key barriers to the program and make recommendations to help design a more effective litterless lunch program for the Peterborough area schools.

Initially as part of our research project, we had planned to conduct a thorough literature review on social marketing strategy techniques and barriers. However, as our project continued, we began to redirect our focus to our alternative objectives by creating a sound methodological approach to data collection and conducting focus groups within the school.

1.2 Key Research Questions

Our key research question is centered around investigating the social barriers that hinder the success of the litterless lunch programs within Peterborough school. Along with our host we outlined four key areas to help with the research of our project question.

- 1) To conducting general research into community based social marketing techniques and barrier research.
- 2) To design a methodology and to conduct barrier research with identified stakeholder groups (i.e. teachers, parents, students, and school administration) along with the staff at Peterborough Green-Up.
- 3) To conduct the focus group research and document results
- 4) Based upon the social marketing strategies research and the results of our focus groups we hope to create a list of recommendations for a more successful litterless lunch program.

1.3 Study Area

The study area for this project was the City of Peterborough and the outlining Peterborough County. Peterborough is located North East of Toronto and along the Trent-Severn Waterway. Peterborough was chosen as the focus of the project because the research was conducted in conjunction with the Trent University Geography department, the TCCBE and Peterborough Green-Up all stationed within Peterborough. R.F. Downey Public School was chosen as the case study school for this preliminary research. R.F. Downey was selected because they currently have a litterless lunch program that could be studied. Furthermore, the staff and students have close connections with Peterborough Green-up as a result of past Peterborough Green-Up led programs, and volunteered themselves for focus groups. R.F. Downey is a public elementary school within the city of Peterborough, and is host to grades junior kindergarten through grade six. The school is part of the Kawartha Pine Ridge District School Board.

Figure 1: R.F. Downey Public School

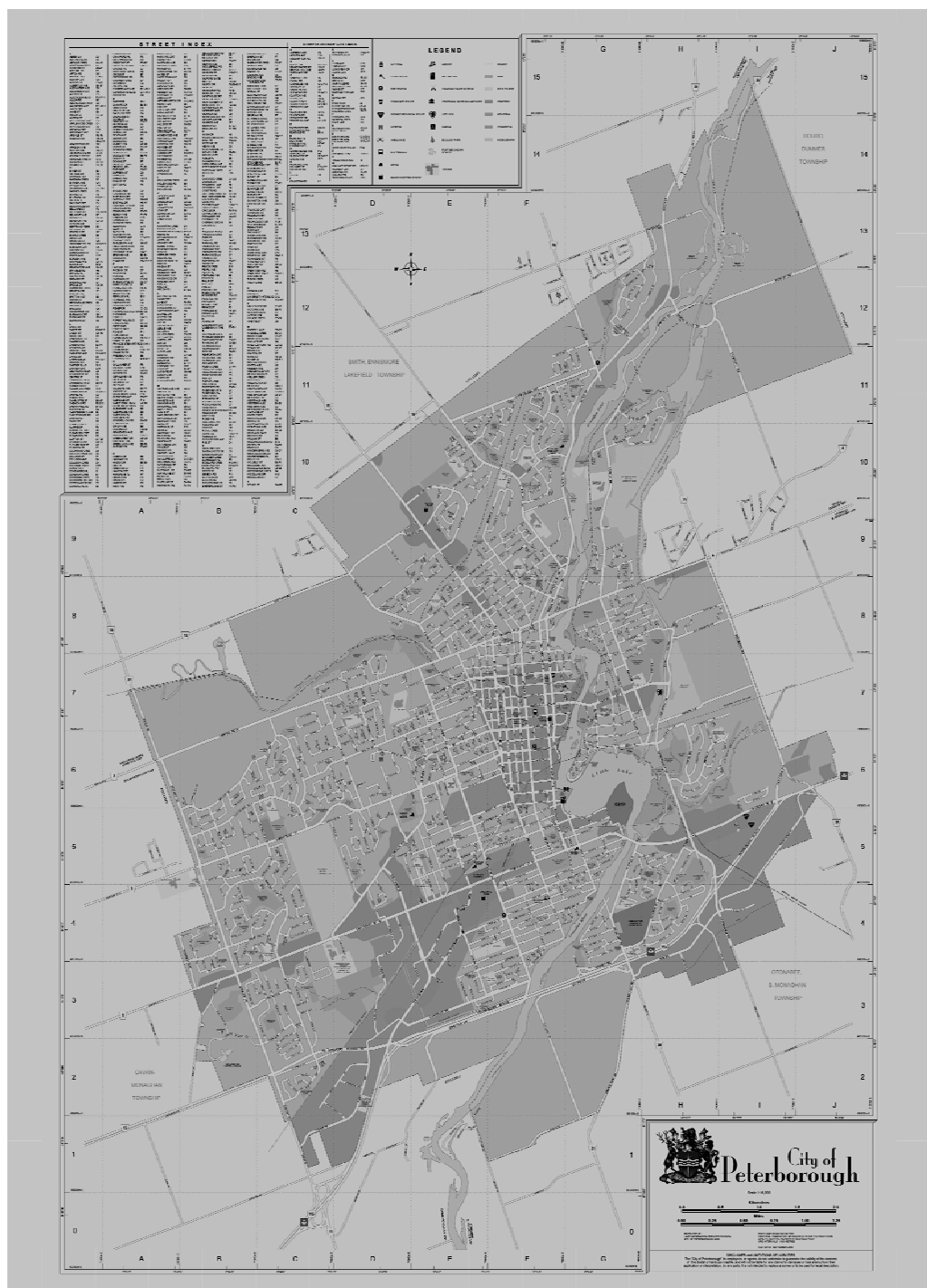


Figure 2: Peterborough County



http://www.county.peterborough.on.ca/files/2/ontario_southerncounties.pdf

Figure 3: Peterborough City Map



<http://www.peterborough.ca/Assets/City+Assets/LIS/Documents/Large+City+Map.pdf>

1.4 Key Research Terms

Litterless: According to Peterborough Green-Up, the term “litterless” within the parameters of the school program refers to “no waste going into the garbage”. This would include minimal recycling with a shift towards requiring no recycling.

Social-based Marketing: The application of marketing techniques within an environment and community to alter the behaviour of the public in order to achieve an outcome for overall change in behaviour.

Barrier: An obstacle that hinders progress.

Boomerang Lunches: When the waste of school lunches is sent back home with the child, diverting it from school disposal. Thus, reducing school waste at the same time increasing waste at home. This creates a misconception of waste reduction and success of waste reduction programs like the litterless lunch program.

Focus Group: Is a selection of people that are gathered and asked about their beliefs and perceptions regarding a specific topic. This method of research is deemed qualitative. The feedback received from the focus group can be recorded as well as scribed for the purpose of data collection.

Waste: A series of unwanted or unusable materials; referring to garbage and recycle. This can include, food, paper, plastic, aluminum, etc.

Waste Reduction: The attempt at limiting the quantity of waste being produced.

Eco-School: An environmentally sustainable school, that has emphasis on the elimination of all waste as well as curriculum based environmental education.

1.5 Relevant Geographic Issues and Debates

The geographical aspects of the research focuses on cultural and environmental geography. We studied the cultural and social barriers affecting the litterless lunch program. Since we worked with Peterborough Green-Up on an environmentally friendly and waste-reduction program, we chose to also situate our work within an environmental geographical standpoint. In addition, all of our research collected is qualitative. We aimed to analyze our research from the geographic perspective of social and historical geography, studying the social implications and barriers to the program, as well as using historical geography as a way to base research using literature reviews of social barrier marketing as well as studying previous litterless lunch programs at other schools. Since litterless lunch programs are a fairly new concept, there is not a lot of historical data. However historical geographically is more relevant in researching overall waste reduction.

‘Green’, or environmentally friendly, actions are becoming more prevalent within current popular society. Peterborough Green-Up is invested in enhancing the environmental health of the Peterborough area by interpreting environmental concerns, facilitating positive action, and providing services recognized as valuable by the community. Recent discussion surrounding environmentally friendly practices has focused on debates regarding waste reduction. However, like many other schools attempting waste reductions schemes, as we saw in school and board websites or comments voiced by individuals such as the staff of Peterborough Green-Up, the programs have not been very successful. The objective of this project was to research the successes and barriers to litterless lunches.

SECTION 2: LITERATURE REVIEW

2.1 Introduction

This literature review focuses on how the outlined methodologies relate to work already completed with regards to social barriers and litterless lunches. It highlights academic and non-academic works that focus on social barriers and those affecting progression and success of litterless lunch programs. Literature is often a supporting factor in research, especially when grounding research within academia. During the completion of this project, literature also played a similar role. Literature was important in centering the project from a geographical standpoint, and giving knowledge about social marketing and was incredibly beneficial for compiling and designing questions used in data collection. However there is limited literature resources on current litterless lunch programs and thus literature was not the foundation of the project. Before designing focus group questions, one must first gain a grasp for current practices, thus our research into methodological practices, as well as writings on social marketing and environmentally friendly practices is necessary. Not only is this research relevant to Peterborough Green-Up, but in the literature we found of litterless lunches, there was limited, to none previously completed and many articles requested further research. For our research we found that non-academic sources were as valuable to our search as academic research or journals, this was due to the fact that much of the current writings on waste reduction programs or litterless lunches is very new, and no actual qualitative or quantitative data has been gathered yet. Thus we relied on school websites and personal anecdotal waste reduction options. Understanding the concepts of barrier and social marketing and influencing behaviour as well as gaining insight into current litterless lunch

programs run elsewhere (successes and struggles of those programs) furthermore, literature is important in focusing our research from a geographical perspective and thus its relevance to the field of geography. Our literature review discusses the various facets of geography and how they correspond to our selected subject matter. Highlighted are the major topics directly related to answering our research questions. In conducting our research, we wanted to answer questions about the barriers to litterless lunches through detailed focus groups of teachers, students, and parents. We will conduct general research into community based social marketing techniques and barrier research. We planned to support our research with literature about social marketing techniques and waste reduction. Finally we had planned to create of list recommendations and future research guidelines.

2.2 Historical Geography

The past is often a link to the present. As time progresses we, as a collective society, learn from the past, and make adjustments to our present, in order to avoid repeating mistakes. The study of Historical Geography is a sub-discipline of geography that is concerned with geographies of the past and how they have the innate ability to shape and influence the present and the future (Gregory et al., 2009). The study of historical geography came to light in the mid to late 20th century. It was most prominent in period of time between the 1930s and the 1960s (Gregory et al., 2009). It is a study that remained prominent throughout the 1970s and 1980s (Gregory et al., 2009). During this period of time it began to increase its focus towards social and humanistic techniques (Gregory, 2000).

Within the field of historical geography there is an ever-present interest in the environment. With the growing awareness of the environment, and environmental change, there has been a new demand on historical geography to help analyze and examine environmental studies. Thus in recent decades environmentalism and historical geography have had a particularly close-knit relationship. As environmental geography and historical geography have intertwined, one must be aware of the growing political influence on the disciplines, and a more politically-charged historical geography (Gregory et al., 2009). The focus in this area has been shifted to reflect somewhat of a Marxist historical perspective that emphasizes the interactions of class, race and the physical environment in industrialized countries (Gregory et al., 2009). This study of the interaction and effect of race and class on physical environments is a fundamental stepping-stone to understanding waste reduction and litterless lunch programs. The interactions of class and race will play a fundamental role in the development and understanding of the social barriers that hinder the progression of the litterless lunch program. Though we were only able to conduct research in one school, we would recommend for future research data comparison of inner city schools versus schools in wealthier neighbourhoods. Our preliminary case study research of R. F. Downey Elementary School gave suggestions of a possible element of social economic status as a factor in the barriers to the program.

With regard to historical geography, there is an abundance of evidence, which would suggest that there is a revival of the environmentalist perspective in historical geography (Butlin, 1993). This revival of the historical environmentalist perspective is crucial due to its ability to examine reactions and responses of previous pioneer and frontier societies to new

and unknown environments. The studies of pioneer and frontier societies provides us with initial reactions to new way of developing ideas and concepts. Studying this will be important in order for us to predict the reaction of people to reducing waste on behalf of the environment.

2.3 Cultural Geography

Cultural geography is seen as a growing field within geography and as a result, cultural geography has evolved rapidly over the past twenty years (Gregory et al, 2009). However, it has a venerable history. Cultural geography was studied in European countries such as Germany and Russia since the 1800s (Billinge, 2000), but it did not emerge in North American until much later. Presently however, it is one of them most vibrant fields of study (Billinge, 2000). Many suggest that a 'cultural turn' has occurred in human geography, as well as the social sciences, in the 20th century (Gregory et al., 2009). It is often debated whether or not there has been a culturalization of various fields of geography or the implementation of an entire field of cultural geography. Either way, it is considered to be somewhat ambiguous (Gregory et al, 2009). Essentially, the study of cultural geography is the field of study that supports the cultural behaviors and beliefs of groups of individuals and analyses the way in which they are portrayed to the community as a whole (Billinge, 2000). Studies in the field of cultural geography have established that cultural values are formed based on intangible things such as associations, feelings or memories regarding a certain place or activity not their physical locations (Earl, 2008). This is incredibly important to our study as we are attempting

to uncover the cultural rationale behind the inability of the litterless lunch program to catch on successfully.

Cultural geography understands that there are inequalities and injustices in the world. These kinds of injustices are such that divide the arrangement of power asymmetrically. Categories such as race, class and gender are a few examples of those arrangements of power (Cresswell, 2010). It is important to take account of them. To describe, explain and hopefully transform them. This study highlights the idea that social barriers are the cause of the failure of the litterless lunch program. Social barriers are often caused by the three preceding categories of inequality (Cresswell, 2010).

Cultural geography has a significant role to play in this study. The centre focus of cultural geography often is: place, landscape, territoriality, and mobility (Cresswell, 2010). Finding social barriers requires the research into the areas of focus. Barriers are derived from ones place and mobility. "For much of our history the favoured concepts of geographers have been seen as the end points of a social process – as patterns, reflections, products of these mysterious things, culture and society" (Cresswell, 2010). Since the 1980s, geography has been more certain in emphasizing that our objects of study are not passive – that they are fundamentals in the foundation of culture and society (Cresswell, 2010).

Overall, it is clear that the study of behaviors and culture is incredibly significant to our study. Understanding these behaviors will help to bring clarity to the realism of the barriers that the school community is facing with regards to the implementation of litterless lunches. It is only when we understand the culture and thus the barriers that we can fully and truly begin to alter their perspectives.

2.4 Social Geography

Social Geography is a sub-discipline of geography, with a wide variety of subject matter. It 'examines the social contexts, social processes and group relations that shape space, place, nature and landscape' (Gregory et al, 2009). Focus on landscape was the center of early social geography in the 1950s. Yet, much like many more physical geography sub-disciplines, social geography also began to move its focus from form to process in the 1970s with leading scholars such as David Harvey, with Harvey's Marxist theory. Social geography came to popularity in the late 1960s and 1970s, with the wave of new social movements and social awareness. Social geography as a sub discipline covers such a vast area of subjects, that with the rise in popularity and study of social geography, many areas of social geography research are now becoming sub disciplines themselves. Some other areas of social geography include, activism, social exclusion, education, housing, leisure, tourism, race and ethnicity, and migration. Social geography became focused on the critical analysis surrounding equality, and thus inequality, while now social geography today is commonly associated with social justice studies (Gregory et al., 2009). Social geography then grew as a field of study again in the 1990s, as a result of the resurgence of cultural geography. Both social and cultural geography are intertwined within humanistic geography. Although social geography is a sub-discipline of human geography, it is still vast subject, especially in the context of a community.

Social geography is important to critically evaluating the social barriers that may affect individual households' success with the litterless lunch program. Within our focus group we hope to identify if there are economic, and soci-economic hindrances to creating litterless lunches (For example: Do families with one single working parent, or two working parents

feel they have enough time to create greener alternatives for snacks such as baking their own snacks instead of buying prepackaged ones? Do parents feel it is more expensive to buy greener, waste reduced products at the grocery store, and can they afford these changes in their financial budget?). Understanding social geography as an academic sub-discipline can help situate our research within a critical geography perspective.

2.5 Feminist geography

Feminist geography appeared as a result of the feminism movements of the 1960s. Though originally deemed by some a radical, feminist geography now has become very mainstream connects and affects almost all streams of geography studies. There are six themes within the broader feminist geography:

- It is critical of gender oppression and heteronormativity within other sub-disciplines of geography. It studies the masculinism of society.
- Feminist geographies focuses on sexism within the academic institutions.
- It is an 'innately inter-disciplinary sub-field', moving horizontally across and within such sub-disciplines as economic, social, political, cultural geography.
- Feminist geography is mostly subjective and qualitative, recognizing that one's interpretations are context bound.
- There is a focus on emphasizing processes within a particular place.
- Feminist geography studies is typically aligned with a 'political commitment to social transformation.' (Gregory et. al., 248).

Though there are these connective themes within feminist geography, the discipline itself is very diverse and works hard to recognize that there is not just one feminist view point. Feminist geography had a series of breaks throughout its history, including the late 1970s and 1980s. As well the sub discipline was different across continents, as Britain first lead the study, while over time the United States was seen as the new leader in furthering the study. Feminist geography and studies in feminist interlink with many forms of geography specifically politics during the 1970s with Marxism. Feminist geography studies 'how gender identities are shaped and assumed' (Gregory et. al., 247). Yet, Feminist geography now not only studies gender, feminism and masculinism, but also gender within classes, race, age and ethnicity.

The new focus on gender issues is important to the research into litterless lunches. We hypothesize that there is a gender differentiation among the families of students participating in the litterless lunches with the majority of parents engaged in helping make school lunches and buy snacks for school are the mothers. Thus we hope to analyze within our focus groups how this gender dimension may affect the social barriers associated with the litterless lunch programs.

2.6 Barriers

The primary focus of the literature review surrounds barriers to environmental change, in this case, litterless lunch programs. Essentially barriers are factors that discourage people from taking actions that otherwise would have been a simple decision. When adopting policies and ideas that must be implemented by the public, common barriers must first be

removed in order for success. The removal of these barriers is especially common with the implementation of health and environmental policies (Kassirer, 2009). Some of the barriers outlined to be a factor in environmental issues and shifting practices include: cynicism over environmental claims (the validity of the issue), the unwillingness to put in effort into buying greener and participating and finally, the costs that are associated with green practices (Kassirer, 2009). These barriers are such that are anticipated when dealing with a project that has environmental connections, such as this one.

2.7 Litterless Lunches and Waste Reduction Practices

Due to the fact that litterless lunches are relatively new, there are very few academic resources to rely upon. There is little to no academic literature regarding studies on the subject. In fact our case study would be one of the first articles written in relation to researching litterless lunch programs. However, there are a small number of websites referencing waste reducing lunch programs and specifically litterless lunches. These websites include some informational websites from individual schools or statements about school and school boards taking part in similar programs. Some have very minimal relevant information to our research. However others give examples of the success and struggles to the programs.

Other related websites are personal sites with discussions on waste reduction and litterless lunches, limiting waste in lunches, as well as waste free alternatives and reusable containers. For the purpose of our study, it is incredibly important to highlight the vast amount of fluctuation in the definition of litterless lunch. In meeting with Paula Anderson from Peterborough Green-Up, for example the definition of litterless lunch was such that

included no waste whatsoever, including no recyclables (Anderson, 2010). However, other studies have determined that litterless is such that includes no garbage, but can include recyclables (Township of Langley, 2008).

Essentially the litterless lunch program is an initiative taken by the school to help reduce the amount of waste being exported by the school. It recognizes that there is a significant amount of waste being produced by the lunches that children and teachers alike are bringing into the schools. It focuses on teaching the repercussions of such a practice and helping to eliminate through education. However, recent waste audits completed by the Green-Up in co-operation with the city of Peterborough have established that there is still relatively the same amount of waste being produced (Anderson, 2010). Thus, this study is focusing on the barriers that are hindering the program's success.

There are litterless lunch programs that have been implemented in various other communities in Ontario. For example, the Norway Public School System in Toronto Ontario has been a leading advocate for the program for more than fifteen years (Andrews, 2009). The Norway public School program was inaugurated in 1993 and revised in 1996. It offered containers at subsidized costs, daily reminders, leading by example from school staff, and it also attempted to educate the whole family on waste reduction, not just students (Andrews, 2009). In this specific program, prizes were given to students who participated in the programs (Andrews, 2009). This specific case study can be used as a model for which future litterless lunch programs can be created.

SECTION 3: METHODOLOGY AND AREA OF RESEARCH

3.1 Description of Research Area

For this project we are using Peterborough and Peterborough County as a case study. Peterborough has been selected by the request of our host Peterborough Green-Up, who wish to study the barriers to social marketing within the litterless lunch programs. Waste reduction and more environmentally friendly practices are becoming more persistent within society with waste reduction projects such as litterless lunch programs have begun to spring up in many schools through North America.

Though literature research is focused on the current litterless lunch programs elsewhere, we have chosen to use Peterborough as a case study to find what is successful and what is hindering the accomplishment of such programs. Thus our study area for our research will be the litterless lunch programs in Peterborough County and City schools. The current population is 121 400 (Statistics Canada, 2009) and there are multiple public and private, elementary and secondary schools in the area. However, due to time restrictions we have chosen to select one school, R. F. Downey Public Elementary School, as a case study, for the preliminary research into Peterborough litterless lunch programs.

We chose to shadow the Peterborough Green-Up educators when they enter the schools in order to more easily gain access to the schools and follow ethical protocols. R. F Downey was selected based upon pre-existing partnerships with Peterborough Green-Up. Within the school we focused on different classrooms based on trying to select a variety of grades to collect data from. Peterborough County encompasses the Kawartha Pine Ridge District School Board with 97 schools in the county area, as well as Peterborough Victoria

Northumberland and Clarington Catholic District School Board, which includes 38 schools (KPR website and PVNC website). Both boards cover a wide expanse of communities, however for our study we chose to conduct a specified case study of one school. We chose an elementary school because that is where the foundational litterless lunch programs are initiated and habits (such as waste reduction) began. As for conducting focus groups with adults, we chose to collect information from the parent council at their monthly meeting at R.F. Downey.

3.2 Textual Analysis

The primary concentration of our research is the data collected from the focus groups. However, supporting literature is crucial to our qualitative research. Textual data include articles from geography journals, to help focus our studies within the field of geography, as well as writing focused on social-based marketing strategies. In addition, literature on present litterless lunch programs in other schools has been very helpful in our research. Furthermore, the literature surrounding social marketing barriers and strategies, as well as current school waste reduction programs, reinforced our research and helped in the creation of our focus group questions.

3.3 Qualitative Research: Focus Groups

All of our research is qualitative, and includes literature reviews and focus groups. The majority of our research and data was a result of the information relayed in the student, teacher, and parent focus groups. Our host, Peterborough Green-Up, requested that we

conduct a series of group interviews and focus groups, which we decided upon as the best research method to collect information; “for researchers who are interested in the socially constructed nature of knowledge this aspect of focus groups makes them an ideal research methods” (Hay, 117). Since we conducted research into the social barriers to the success of the litterless lunch program, as well as the social implications of the current program focus groups are the ideal research tool for our project. We were able to draw out the different views and options and understanding of our topic.

Focus groups are usually small, consisting of six to ten people and have a suggested time limit of one to two hours (Hay, 116). The host teacher and Peterborough Green-Up facilitated the in-school focus groups, while we conducted the adult focus groups.

“Participants are chosen on the basis of their experience related to the research topic” (Hay, 121), which is why our participants were selected based on those involved with litterless lunch programs at different levels of involvement, such as students, parents, teachers, and environmental educators. Though the age of the students is dependent on the classrooms, and grades we were able to shadow, we had a wide variety of ages and both genders present in both our student and adult focus groups. As well, the gender aspect of the focus groups is extremely important. We believe there may be a gender difference in the social and cultural implications behind parents participating in the litterless lunch programs, based which parents are at home in the morning, who does the grocery shopping and who is responsible for preparing the school lunches. The perception is that often women are responsible for grocery shopping and cooking within family units, and thus creating a gender aspect to our research (Schwanen, 2008).

There are some comments and recommendations that we should not include friends in the same focus groups. We do recommend the problems that friends together may pose to our data collection, however we concluded that we would rather run preliminary focus groups than not run them at all. For the children specifically, but also for parents and teachers in the classroom, we were unable to eliminate this possibility. In addition we, as outside researchers, did not know the voluntary candidates well enough to identify their 'friends'. In implementing focus groups is it important that the researcher not create leading or loaded questions, and that they limit their involvement in the discussions. To guarantee that our intervention is minimal, we made sure that our questions were detailed and clearly defined. Furthermore, the focus group questions were mostly open ended to allow for open discussion among the participants as to not limit the possible information that could be obtained.

Recruiting participants is a large portion of the task of creating informative, dynamic focus group. For the students, we followed Peterborough Green-Up into the schools. Thus, for the students we recruited based solely on what classes we had access to, through pre-existing Peterborough Green-Up connections and programming. As for the additional focus groups with adults, we recruited members of the faculty through a Peterborough Green-Up liaison, who was the litterless lunch program administrator in the school. We were able to conduct all of our data collection in late February. We had planned to rent out a library room at the Trent University library to conduct our focus groups, since it is an informal, accessible, and neutral setting. Due to logistics, however, it was easier to have everyone attend at the elementary school. Needless to say, the focus groups involving children all occurred at the

schools. We, the researchers, facilitated and monitored the meetings for the adults, while the students groups were lead by the Peterborough Green-Up educators as we observed, we had no direct contact with the students. The meetings were audio recorded, at the suggestion of Hay (130) and important comments and quotes were transcribed afterward.

We created three sets of questions for the focus groups, one for the students, one for the parents, and one for the school teaching staff. Our questions were focused around the current litterless lunch programs, and their successes and struggles, as well as the barriers to success. Much of the existing literature recommends that the focus group questions for each of the three sub-sections have a standardized set of questions, and we did follow these methodological guidelines. Nonetheless, some questions had to be altered in the student groups, according to the age and cognitive ability of the children interviewed.

3.4 Data Organization and Analysis

After completing our focus groups, we took audio recordings and notes of the seminars and transcribed the communications. We also reviewed the transcripts and looked for trends in words or comments, and made documentation. All of these steps are important. Finally, since the focus group research constituted the majority of our research, a critical reading and evaluation of our results, and a comparison of these with the literature, has been the major source of data for our project, and thus invaluable to our project.

3.5 Ethical Concerns

Ethics is an important part of research practices. Our research involves both adults as children, the latter considered as a vulnerable sector of the population, thus the Trent University Ethical Guideline Committee must first approve our ethics forms. In addition, all persons participating in our research must agree and give verbal consent for our project. Further precautions for the demographic of children is that we will have no direct contact with the students but shadowed Peterborough Green-Up, whom with the host teacher facilitated the focus groups and only those who gave verbal consent participated. Another ethical concern is anonymity. We disclosed to all participants that we do not guarantee full anonymity, however, no names or identities will be divulged in any discussion or published data, and all transcripts as well as audio recordings of focus groups will kept in a locked location following the requirements under the Trent University Ethical Guidelines.

The attached ethics forms, including the introduction statement and consent form as well as focus group questions, are located in the appendices of this report.

SECTION 4: RESULTS AND DISCUSSION

4.1 Changes in Methodology

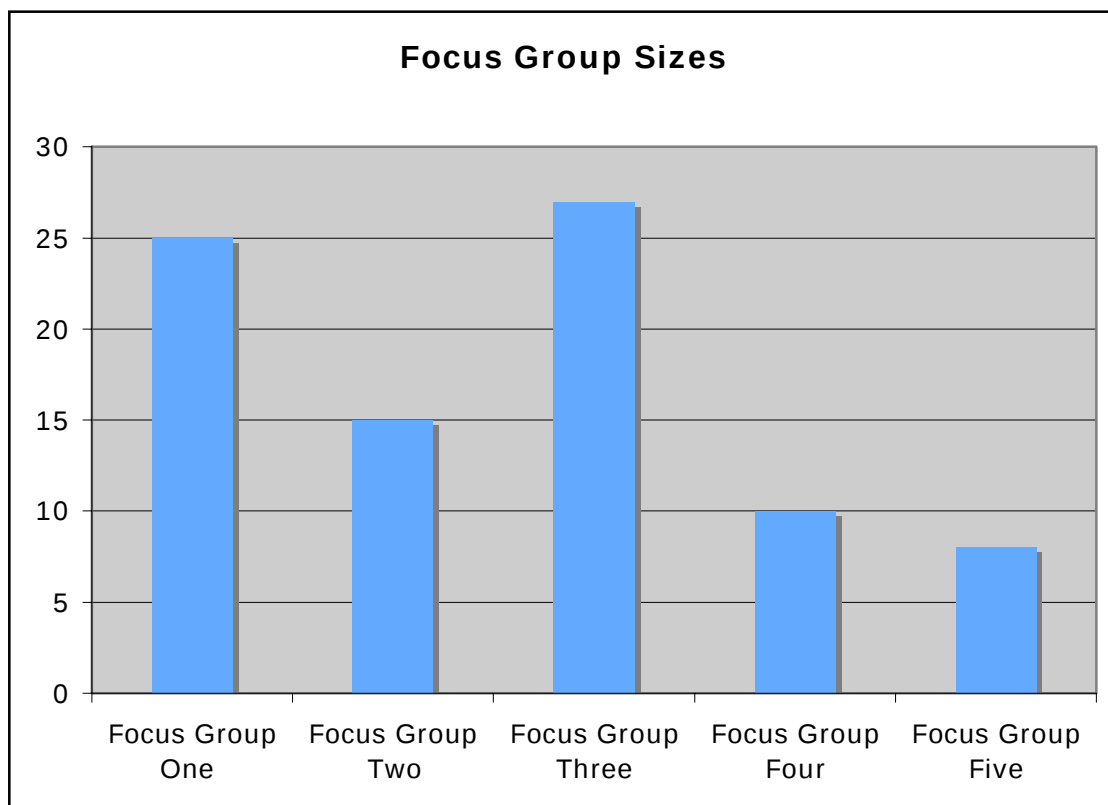
Originally we had planned to conduct our research following the recommended methodological approaches of data collection, outlined in Hay (2008). We had outlined a set of focus group questionnaires specific for students, teachers, and parents and planned to facilitate a series of focus groups for each demographic subsection. We had also hoped to

follow methodological practices and work to create consistency within our different focus groups by providing the same set of questions. As well, we tried to eliminate leading, loaded, or bias questions. However, in order to maintain the children's attention, and have them correctly understand our questions, some questions had to be re-phrased, reworked, and the order changed at the time of the interview. Upon conducting our research, instead of taking 7-10 people (ideal for a focus group) we interviewed the entire classroom (roughly 20-25 children) as a group. This no longer conformed to the prescribed methodological practices of focus groups, but did give us a variety of options. For the purpose of our research paper, we will still refer to these question periods as focus groups. For parents and teacher groups the number of volunteers was similar in size to a focus group.

We were able to conduct interviews with three different classrooms within R.F. Downey Public Elementary School. We selected R.F. Downey Public Elementary School as a singular case study into litterless lunches. For each focus group, we were allotted between 30-50 minutes with the children. The teacher was still present in the classroom, and Paula Anderson, from Peterborough Green-Up facilitated the discussion. We conducted research in a Grade 1 class, a Grade 4/5 split class, and a Grade 5/6 class. Look to Figure 4, below, to see the class sizes, as well as the number of participants for the teacher and parent focus groups. Thus we were able to have a variety of age groups. For the parent and teacher focus groups we were able to conduct the interviews ourselves, following the same format and guidelines and the student interviews. However, we had modified our questions according to which target audience we were researching. Teachers for example, were asked to volunteer one hour of time after school to attend our focus group, while parents were interviewed at the

Parent Council meeting after school. We, as researchers, audio recorded the sessions and took notes, with abridged transcription. From these focus groups we were able to gain insight into the student's perspectives about waste reduction, litterless lunch programs, and the teachers and parents responsibilities in association with litterless lunch programs.

Figure 4: Focus Group Sizes



For clarification within the results analysis, it should be stated that Focus Groups 1, 2, 3 are the students, 4 are the parents, and 5 are the teachers. As well the chart below helps summaries the different levels of waste reduction in relation to litterless lunches. Many schools, including R.F. Downey are at the First Phases (boomerange lunches), however Peterborough Green-Up's goals are to have all participants and schools at Phase Three, with no waste at all.

Table 1: Varying Degrees of Litterless Lunches

The varying degrees of litterless lunches: <i>Given the literature, the following are varying</i>
<i>First Degree - Boomerang</i> - All of the garbage is taken off at home - The child's lunch appears litterless at school, but the waste is still diverted home. <i>Second Degree</i> - Attempts are made to reduce the litter - Parents make snacks and use containers - Recycle still present <i>Third Degree</i> - There is no litter in the lunches (recycle, garbage) - All food scraps are composted

4.2 Opinions and Attitudes of Students

The questions for the focus group started with more general questions about recycle and compost. We wanted to be able to find if students were taking the time to recycle and compost at home and at school, since if these basic actions were not occurring then the success of a more complex program such as litterless lunches would not be feasible. However, overall, the students in all three focus groups did state that they recycle, and about one third compost at home. Look to the corresponding figures below, which list the number of students per focus group who recycled or composted at home. Furthermore, the students seemed fully aware of what is allowed to be recycled at school, though we do wonder if there may be some confusion between school and home recycle and waste regulations, that may impact the amount of waste (ie. if recyclables products are incorrectly placed in the garbage resulting in excess waste). We would recommend further research into this for the future.

Included is a collection of graphs reflecting the number of students who put their hand up when asked if they recycled and/or composted at home. Paula Anderson commented on

how if the children do not even take basic steps at home to compost and recycle, how can it be expected to take part in litterless initiatives? Though the results in each classroom are different, there is still evidence that the majority of households do recycle. However, there was lack of consistency due to different questions posed in each individual session. For example, the third classroom, was given the option of 'sometimes', which had nine students raise their hand to. The second set of pie charts illustrates the number of students who composted at home. Here we see much larger numbers of students in the 'no' category. From these results, it is clear that though recycle is overall a successful waste reduction campaign, compost is not, and in both there are still households not actively participating. Thus if families are unwilling to reduce the amount of waste at home by diverting waste to compost and recycle, it is hard to expect students, along with the parents, to completely eliminate garbage in lunches at school.

Figure 5: Recycle for Focus Group One

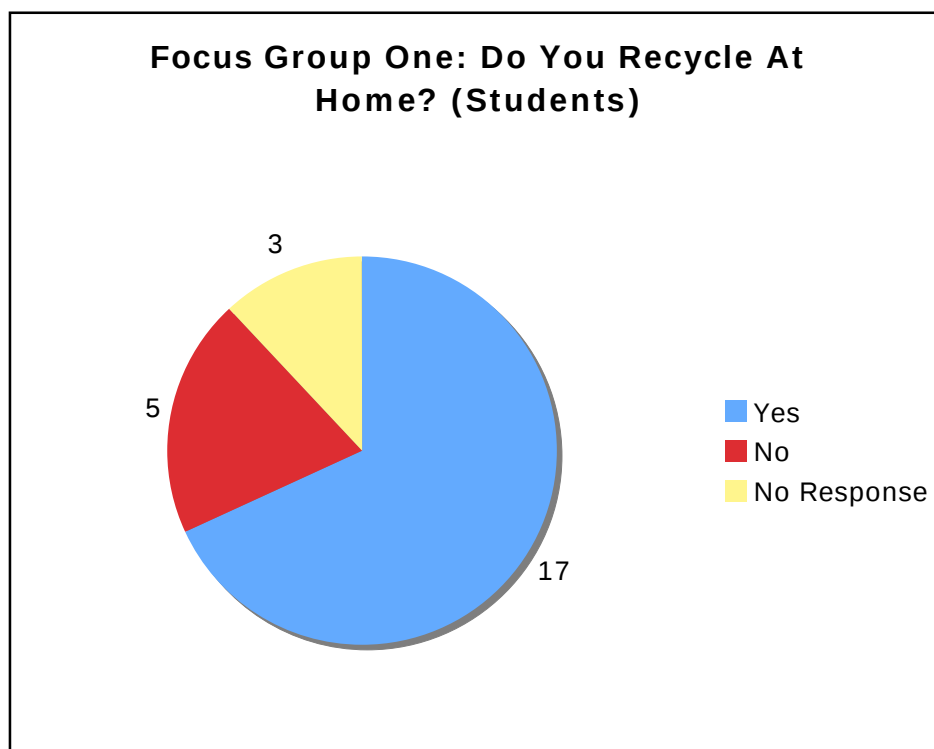


Figure 6: Recycle for Focus Group Two

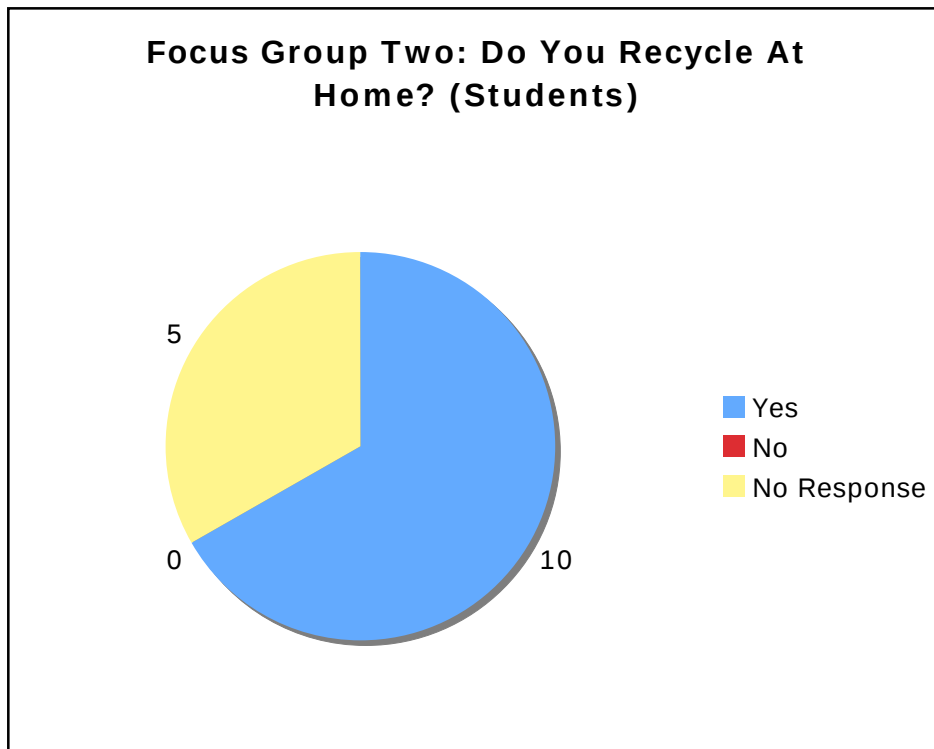


Figure 7: Recycle for Focus Group Three

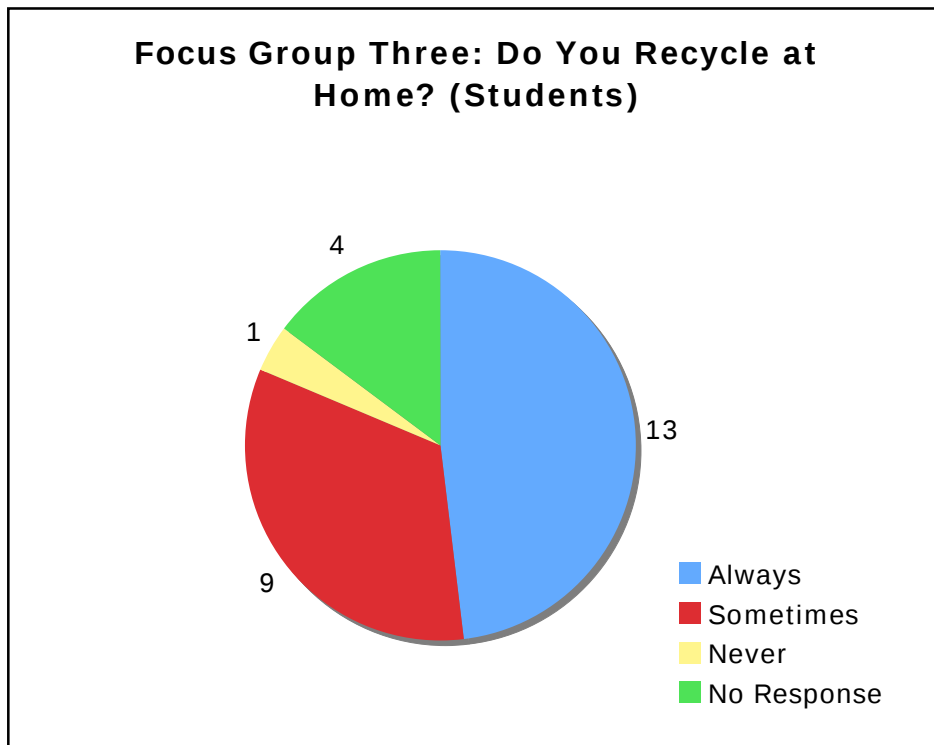


Figure 8: Compost Focus Group One

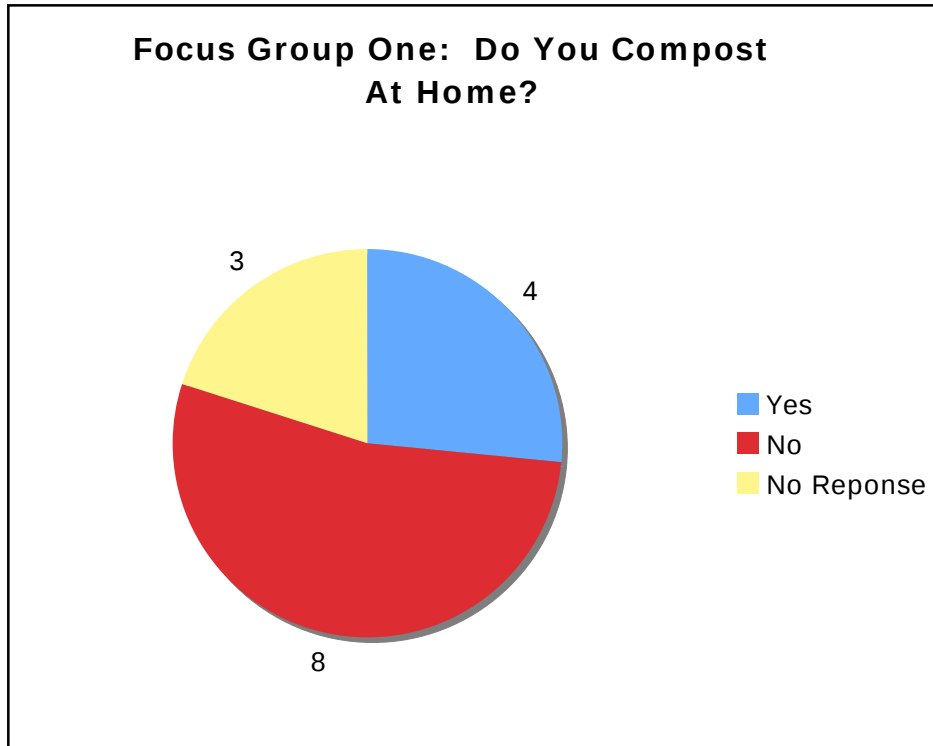


Figure 9: Compost Focus Group Two

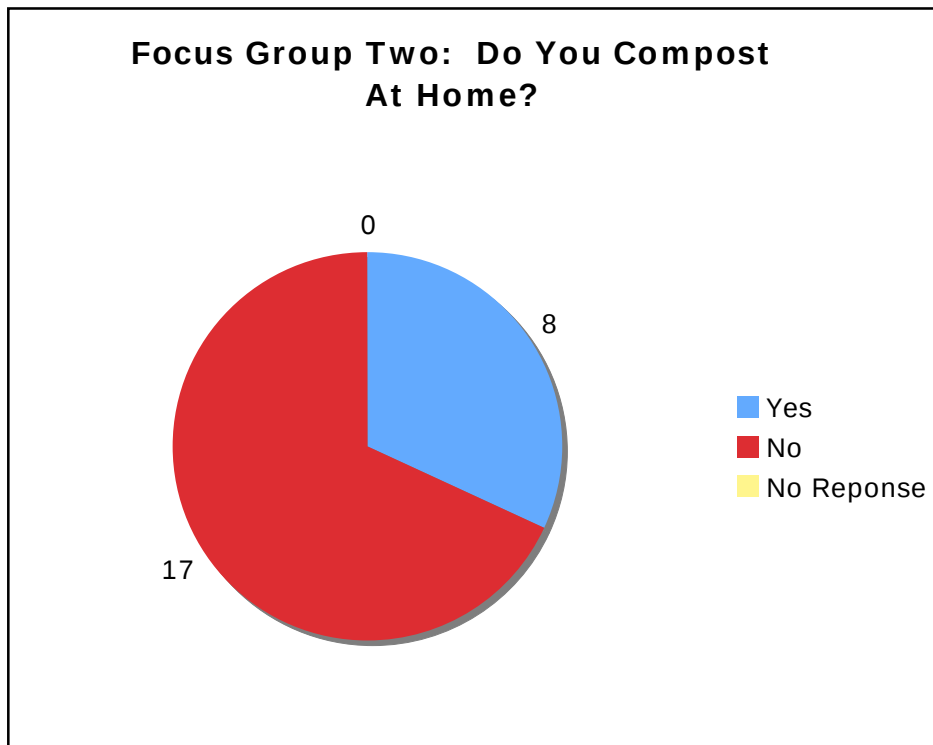
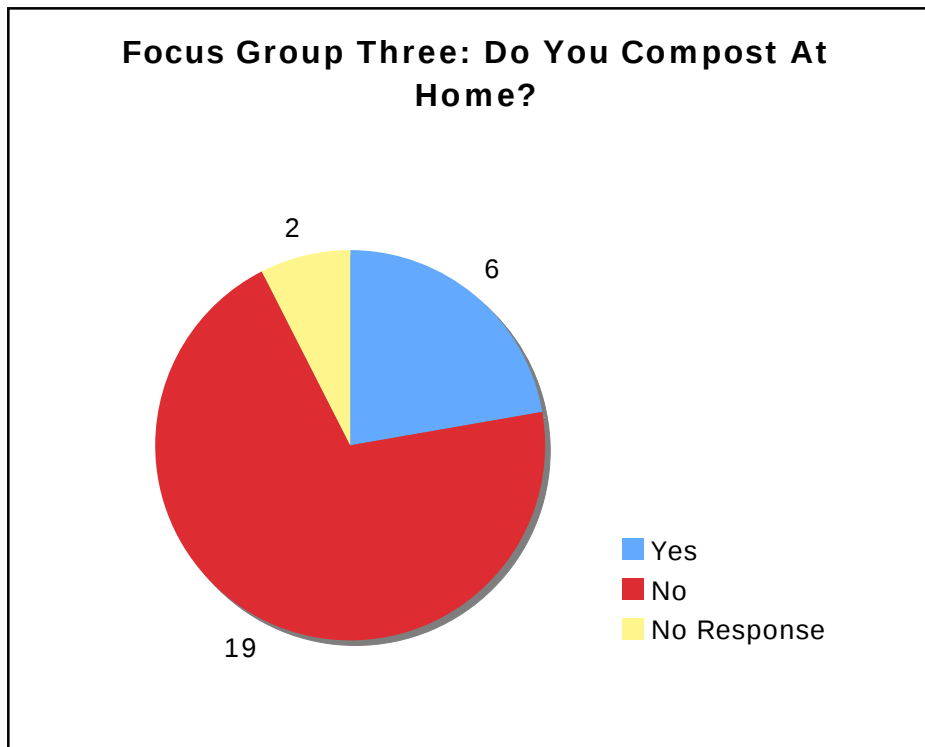


Figure 10: Compost Focus Group Three



The students in each grade were aware of the litterless lunches and could accurately describe the term and the objectives of the program. They were also aware of the environmental reasons for reducing waste, citing global warming, landfills, pollution, and keeping the earth healthy. Even the younger grades were aware of the benefits of the program and were able to articulate some of the consequences to increasing amounts of garbage.

Interestingly many of the students listed their parents as one of the biggest reasons for not having fully litter free lunches. Below is a list of the key barriers to the litterless lunch program that the students listed in the classroom focus groups themselves. We are not able to thoroughly analyze and discuss each statement in the chart, but the chart easily

summarizes the major concerns voiced by children. Roughly one third of the grade 4/5 class felt that their parents did not listen to them when they requested to actively take part in the litterless lunch program, or when they asked for less packaging and waste options for snacks. Furthermore, the students said that they believed that their parents needed further education on waste reduction options, as well as more awareness about pollution on the planet. As mentioned by a particular student, “they need to learn more about how the earth is going to die and then they would care”. This also tied in with who was responsible for grocery shopping in their household and for packing lunches. Overall, there was a variety of answers from the students packing the lunches themselves, or receiving help from guardians, while on average the highest numbers went to mothers grocery shopping, though some fathers took part, and the children mentioned they often came along as well. We still believe that even if the children are packing the lunches themselves they are influenced in choices or options according to what the parent buys. Thus, even if the child does actively seek waste reducing options, they many have minimal selection at home.

Table 2: List of Student Barriers to Litterless Lunches

Reasoning provided for not packing litterless lunches: <i>The following is a list of rationale students provided as to why they did take litterless lunches to school:</i>
- Parents don't pack them. - They only pack what their parents buy. - Still wanted to eat snacks that come in wrappers. - Snacks they want to eat cannot be homemade. - Liked the foods that came in packaging. - No containers. - Parents don't listen/understand why it's necessary. - Their parents both work, so they can't make healthy meals for them, they eat out. - Foods that have more litter are often more varied.

As a follow-up question, the students were asked if they requested specific foods at the grocery store and to list them. Many students listed such snacks as granola bars, fruit roll ups, and gushers, individually wrapped and prepackaged. This connects with some of the thoughts mentioned by teachers who felt that much of the waste was in direct correlation to the healthiness of the snacks. For example, the snack options listed above are unhealthy, low nutritional value and high in sugar, also high in waste. Yet, many students also said they often requested fruit such as watermelon, strawberries, oranges for snacks. We hypothesized that those from lower economic brackets may not be able to afford fruit and thus these snacks were attractive to the students. As well, many of the sugary snacks, such as the “Gushers”, we hypothesized may be popular due to advertisements on television. The students did not fully connect their snack choices to the amount of waste until Paula Anderson, the Peterborough Green-Up host mentioned how many of the snack options, such as “Gushers”, “Twinkies”, “Cool-Aid Jammers” had a lot of packaging that would have to go into the garbage. The students seem much more aware, and even offered their own suggestion that they could write letters to companies and ask them to reduce the amount of packaging in products and opt for more environmentally friendly options. This shows initiative to reduce waste and creative thinking on behalf of the students.

4.3 Opinions and Attitudes of Teachers

The teaching staff support the litterless lunch program and the majority of them took part in a fully litterless lunch themselves. Others mentioned that sometimes they were not able to be fully litterless, but tried to reduce as much waste as possible. Furthermore when

asked why they take part in this initiative many stated that they believe it is important to reduce waste and help the environment, but they also mentioned pressure from the litterless lunch programmer to take part as their biggest reason. They said that her influence made them often feel guilty if they didn't reduce waste. This coincides with much of the articles on social marketing techniques and how public pressure can influence one's behaviour. We included a simple chart summarizing the key concerns to the success of the litterless lunches mentioned by teachers for themselves and that they observed at school.

Table 3: List of Teacher Barriers to Litterless Lunches

Reasoning provided for not packing litterless lunches: <i>The following is a list of rationale for why teachers think litterless lunch programs do not work:</i>
- The students do not have the dexterity to open the containers; the young children are dependant on others for the litterless lunch program to be successful. - The parents pack the lunches and buy the groceries, so it's generally out of their hands. - Some families are dependant on the food bank. - The location of the bins around the school. - Even if children are given containers, they often lose them. - Parents need to be educated on proper practices. - The program was more successful when there was a distinct goal (eco school) - The teachers attempt to be role models for the students but a few openly admitted to slacking off sometimes - Despite the pressure from the co-coordinator, there still was resistance.

The teachers also voiced how there is more waste and packing in products now than in previous decades and that "the amount of garbage is getting worse", link this as one of the growing causes of waste and pollution. They also mentioned how they feel that many people do not follow the themes of reusing product containers anymore. Teachers gave examples

of milk bags instead of buying Ziploc bags, and reusing yogurt containers instead of buying reusable plastic containers.

As for boomerange lunches, the idea where the waste from school lunches is sent back home with the child, thus limiting the waste in the school, but limiting overall waste was not very effective. Many did not feel this style of litterless lunch program was good, but did accept that it may be the 'first step' towards fully reducing waste and garbage. This concern was also mentioned by Peterborough Green-Up staff and educators, who said they didn't support boomerange lunches and would prefer waste free lunches. However they did acknowledge some possible benefits of taking the waste home and having parents see all the waste and have more awareness to the garbage produced daily in a lunch.

As mentioned earlier, the teachers also discussed how they felt that much of the waste was associated with eating practices; prepackaged meals and snacks produce a large amount of garbage and are less healthy than waste free alternatives such as fruit. Teachers felt that more education and awareness (not specifically in schools, but in general society) needed to be focused on healthy eating habits and meal preparation. As well they also felt education wise, that when Peterborough Green-Up staff leaves, the waste increases again, and thus continuous education is necessary for the success of the litterless lunch program. They also noticed how after the school stopped trying for Eco-school status the levels of waste again increased.

When asked about the idea of incentives, prizes, or competitions as a means of reducing waste, the teachers all agreed that though there may be short term benefits, they do not support this method. They felt that the students would stop trying once the prizes

were taking away, and most importantly they felt that the students would be participating for the wrong reasons. The teachers felt that instead the students needed to be properly informed about reasons for the program and take ownership.

The final note mentioned by teachers was that the children in the youngest grades (Kindergarten) were too young and have not developed the fine motor skills needed to open and close many of the reusable containers that their lunch was packed in. Thus the children needed assistance opening the containers to access their food, and many times were unable to close it leaving to a mess in their lunch bags, a deterrent for parents to continue with reusable containers as a waste limiting option.

4.4 Opinions and Attitudes of Parents

The majority of the parents in the parent focus group, when asked about the litterless lunch program, openly admitted that they did not fully take part. And if or when they did take part in litterless lunches and reducing waste they mentioned it was a result of being nagged by their children. When they did take part we discovered that many of the parents said that they would just give the same snacks to their child as usual, but take off all the wrapping and packaging at home. Thus this creates the illusion of a waste free lunch at school, however the garbage is just relocated to home instead of school, and the Peterborough Green-Up goal of eliminating or at least reducing overall waste is not achieved. Compiled in this chart is a list of the key barriers listed by parents in the meeting to why they do not participate in litterless lunch initiatives.

Table 4: List of Parent Barriers to Litterless Lunches

Reasoning provided for not packing litterless lunches: <i>The following is a list of rationale parents provided as to why they did not pack litterless lunches for their children.</i>
- Not enough time to pack meals from scratch. Parents are fully aware of the benefits, yet still area adamant that their time is more valuable. - Children do not want certain things, they want specific items, and those have bulky packaging. - Parents feel as though the school is trying “pawn off” the garbage on them. - Many children are fussy eaters, thus parents give them something they will surely eat, as it is important that they eat something. - Young children struggle to open the containers (not enough classroom help) - Many are on a fixed income and “junk” is cheaper and easier to buy.

However many parents were aware and did recycle at home, spending time to clean out containers to recycle (in Figure 11 we see 100% of parents stating that they recycle at home) However the numbers of parents composting was very minimal, citing raccoons, the smell, and the inability to compost outside in the winter as deterrents for composting at home (Look to Figure 12). When asked about the 5 Rs, Rethink, Refuse, Reduce, Reuse, Recycle, the parents were able to accurately list the final three but were unaware of the first two. Similar to teachers they were happily surprised by this shift in public attitude and supported the ideas of rethinking and refusing waste options, stating them as common sense. However, though Peterborough Green-Up has the 5Rs, we believe many people are not fully aware of the first two and thus more public promotion is need to enhance awareness of the first steps in waste reduction.

Figure 11: Recycle Parent Group

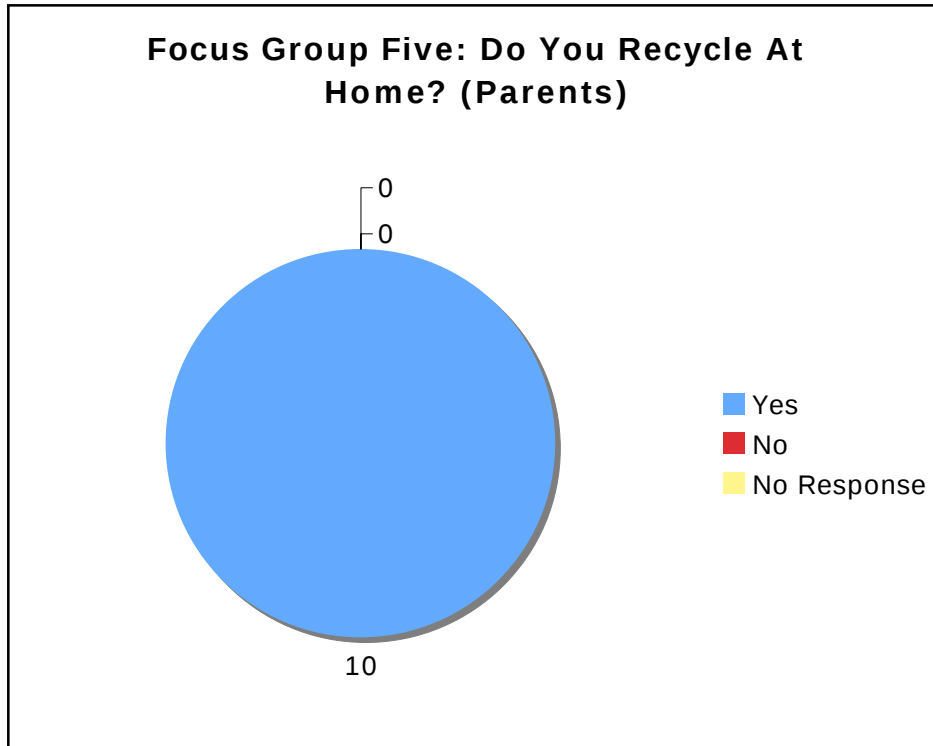
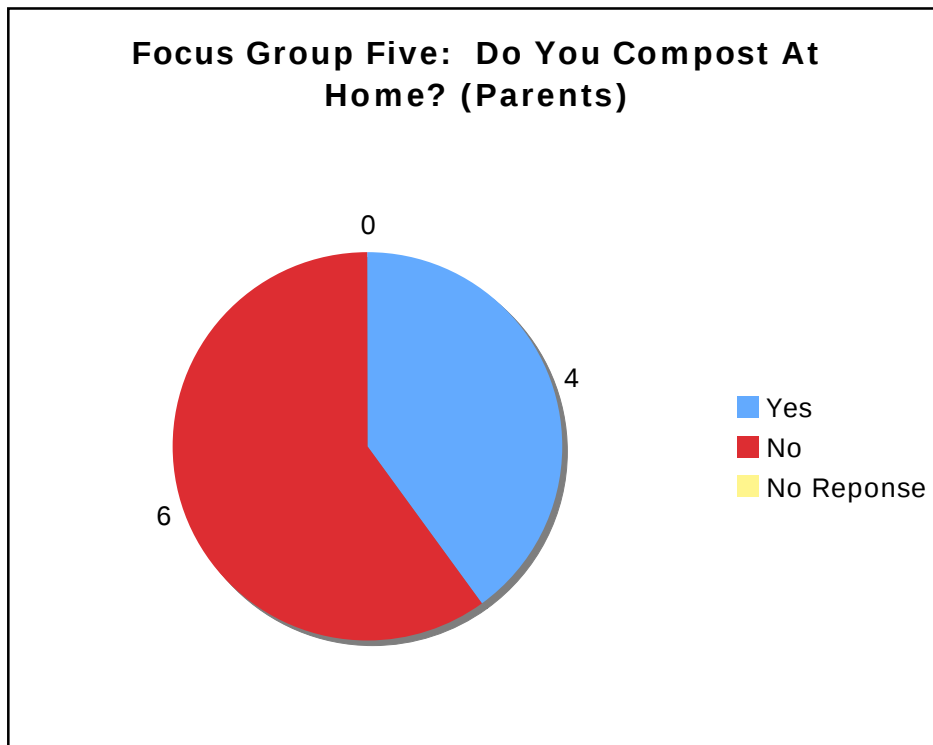


Figure 12: Compost Parent Group



Originally we believed that there may be some socio-economic correlation between parents who participate in the litterless lunch program and in waste reduction at home however, at the parent council meeting there were a variety of parents with a variety of different answers. This would need to be studied further, however in our small focus group it seemed that some from higher tax brackets were just as likely to participate or choose not to participate as those from lower incomes. Finally, when asked about if a financial incentive would influence their choice for waste-free or limited waste options for litterless lunches some answered yes and some no. One parent who openly discussed living in government housing said that, yes, they would be influenced by a financial incentive, however they already recycled and composted at home, reused containers, and packed reusable containers for school lunches, chose healthy, waste reducing options, and sent their child with litterless lunches. However, other parents said that a financial incentive would not change anything for them, some of these parents did send litterless lunches and others did not. Overall though the most common comment stated by parents was the lack of time to pack litterless lunches. That many prepackaged options were faster and more efficient for them and their children when packing lunches in the morning.

SECTION 5: CONCLUSION

5.1 Summary of Key Findings

Though we were not able to execute the original plan to interview multiple stakeholders and schools, the case study of RF Downey reinforced the suspicions of barriers

presented to us by Peterborough Green-Up. This case study school has the ability represent the overall feelings of Peterborough County, though arguably more research should be completed to support this claim. Also the results and comments from the teachers, parents and students, answers the questions presented to us by Peterborough Green-Up at the beginning of the year. Many reinforced our predetermined notions. Overall, this research qualitatively reinforces many of the assumptions already surrounding the barriers and struggles to litterless lunches.

There were originally two goals at the onset of this project one being to complete our objectives and the other, to answer our research questions. Throughout the duration of this research project we were successfully able to complete all of the outlined objectives. The focus group data along with literature, assisted in answering our research questions.

Our objectives and questions were:

- 1) To conducting general research into community based social marketing techniques and barrier research.
- 2) To design a methodology and to conduct barrier research with identified stakeholder groups (i.e. teachers, parents, students, and school administration) along with the staff at Peterborough Green-Up.
- 3) To conduct the focus group research and document results.
- 4) Based upon the social marketing strategies research and the results of our focus groups we hope to create a list of recommendations for a more successful litterless lunch program.

Initially as part of our research project, we had planned to conduct a thorough literature review on social marketing strategy techniques and barriers. However, as our

project continued, we began to redirect our focus to our alternative objectives by creating a sound methodological approach to data collection and conducting focus groups within the school. We found that there was limited research on litterless lunch programs, yet, we were able to find a variety of school board websites discussing their litterless initiatives through a variety of different programming. Through this, we were able to determine what the term barrier refers to, and to identify some common barriers encountered in environmental shifts. One of the behaviour modification techniques mentioned in these articles, was public societal pressures (peer-pressure as mentioned in the focus group as a reason for personal change).

With Peterborough Green-Up, we were able to complete a series of questionnaires specific our target audience of students, parents and teachers. Examples of such can be found in the appendices of this project. In addition, we also created a series of questionnaires for administrators as well as take home surveys for parents as a final product to give to Peterborough Green-Up to assist in further research in the future.

We were able to implement these questionnaires via informal focus groups. We were able to conduct focus groups at R.F. Downey Public School in three separate classrooms, as well as one teach focus group and one parent focus group with member of the parent council. At this stage in the project we are still finalizing the product handout of recommendations for the future of litterless lunch programs in Peterborough that will be given to the hot organization.

Overall, the findings were that parents claimed that they did not have enough time in their days to comply with the project specifications. They were aware of the attributes of the

program, but simply chose not to comply. Parents stated that they often selected what was easiest and required less preparation time. This was a recurring trend.

Parents who did participate to various degree, claimed to have felt pressure from their children. This is interesting because societal pressures was mentioned in the articles surrounding social marketing research and also by teachers, who said they took part because their felt pressured by their litterless lunch coordinator.

However, the children felt as though their parents did not listen to them when the requested stronger participation in the litterless lunch program and sought after less packaging in their snack options. It was evident that children were advocates for the program and very much aware of litterless lunch techniques. It is believed that this is due some level of environmental education and best practices.

Overall, teachers believed that there was a strong correlation between healthy eating and waste reduction. For example, many pre-packaged snacks are high in sugar and saturated fat, such as gushers, as mentioned by the students multiple times while fruit on the other hand, such as an apple is a healthy alternative with no resulting waste.

5.2 Limitations of the Research

Like many research projects, we encountered limitations. First, there was extremely limited access to local schools due to the strict ethical concerns of dealing with vulnerable persons and the misalignment of the projects timeframe by the host organization. In order for data to be collected from the schools, the researchers had to be accompanied by a member of the Peterborough Green-Up staff. Therefore without the accompaniment of the Green-Up

staff, interviews with multiple schools were unattainable. Initially, the project had been designed to hold focus groups with more than three schools, in the end; there was only one school that was able to participate in the project's timeframe. The school was, Kawartha Pine Ridge District School Board's, R.F. Downey Elementary in Peterborough, Ontario. We chose to use R.F. Downey as a case study for the Peterborough area. However, the data interpretations of the parents, teachers and students may not be a true representation of all schools. They are solely the opinions and attitudes of member of the RF Downey community.

Another limitation was finding parents who would be willing to discuss the outlined questions. Ideally this would have occurred in a traditional focus group setting whereby participants were contacted in advance and asked to participate. However, when the timeframe of the project was reduced, the only feasible option was to attend in a parent council meeting. Therefore the data collected from the parents at the meeting has the potential of being skewed, given that these particular parents are heavily involved in the school community. The parents involved in Parent Council have more contact and involvement than the other parents and thus the assumption is that these parents have taken a keen interest in school events and programming (such as litterless lunches) .

A third limitation was the lack of published, scholarly works surrounding the barriers to litterless lunches. Therefore the background research was difficult to complete to a scholarly degree. There was the inclusion of several non-scholarly websites, which were useful but very opinion oriented. This lack of foundational information therefore caused some difficulty in designing focus group questions since any previous information was personal and no academic research involved. Instead we mostly relied on comments mentioned in articles

as well as the specific questions Peterborough Green-Up had requested. Both the researchers and the host organization made a series of revisions, ensuring that all topics of interest would be highlighted.

Fourthly, the subjective nature of the focus groups leaves plenty of room for data error. Not only were there more than the allotted number of participants for a regular focus group (consisting of 7-10), but also in the student groups many answers of individual began to be influenced by the group mentality. When in a large group, people seem to be more self-conscious and feel they should answer according to other group answers, and not necessarily what they believe themselves. For example when asked about snacks, students began talking about a lot of prepackaged snacks, and then when one student mentioned fruit, all the students began to change their answers, or expand on that idea instead.

Also when interpreting the data, the researchers could possibly misconstrue what was meant by the participant if they are not clear or ambiguous with their answers. With regards to the focus groups geared towards the children, the limitations here were due to the delivery of the questioning. The questioning of the children, performed by Peterborough Green-Up, often consisted of leading questions. As well, this questioning was not consistent from classroom to classroom, therefore leaving making it incredibly difficult to compare the different age brackets, as different questions were asked. With regards to the focus group of parents, there was a clear gendered bias. Out of twelve participants, only one was male. This illustrates how the research, however unintentional, was not inclusive.

5.3 Reflection and Considerations for the Future

When this research was initiated it was focuses on social based marketing techniques and barriers to environmental change. However, overall this research focused on data collection techniques and design regarding litterless lunches and implementation. Given the lack of information surrounding the specific barriers, this project was rudimentary. However, it highlighted various aspects that would require attention if research is continued, many of which are noted below in the recommendations for the future. This project may require more support from stakeholders and organizations that have established interest in its results. Overall, we felt that using only one school, as a case study was effective for establishing primary research and data collection techniques in this field. However, initially, we had planned to evaluate and compare data from multiple schools and if the timeframe had permitted such would have been completed.

Essentially this project will be a foundation for further research in this field. In addition to the initial work performed, there could be a series of steps taken to advance this particular area of research. The first may be conducting interviews with people in the community who have a first-hand knowledge of the volume of waste in the school system, for example, an interview with a waste management for Peterborough City and County would further the basic knowledge of current practices.

Another beneficial avenue for future research would be to the expand of the area of study. Expansion to multiple schools and counties would provide a broader scope of information. This would provide researchers the ability to contrast, city schools with inner city schools and subsequently wealthier neighborhoods and neighborhoods in a lower economic

tax bracket. Peterborough Green-Up recommended five schools, following the same grades in each school (for example grades 2, 4, 6) and then comparing the outcomes. With regards to parent participation in the focus groups, expanding beyond the parent council is a recommended starting point. Seeing how many parents have busy schedules, the distribution of a take home survey could be a more successful option to reach a more diverse population of parents.

Such a survey has been designed, and can be found in the appendices of this report. In addition to expanding the previously explored groups of informants, future research should include the thoughts and opinions of school administration. This administration could include, but not be exclusive, to principals, superintendents, janitors, secretaries and support staff. These different viewpoints would provide insights from a different perspective. Included in the appendices, is a focus group outline for school administration.

Secondly, the studies used in this report should act as examples for future research guidelines regarding the style and format. Future data collection should strive for more raw data collection. This data collection would require precise time allotments and undeviating question direction. Essentially, the preceding case studies should be used as a trial for future research.

Third, future studies should also focus on analyzing if students and teachers are properly recycling and composting at school, as well as at home, to properly reduce the amount of waste in the garbage. The deviation in rules between home and school possess the possibility to cause confusion. For example, at home parents may not be recycling to the same capacity as the school. People seem to often forget about minor things such as the

straw (which is recyclable) and straw packaging for juice boxes, that must be put into waste. Deviation in practices is a pivotal concept for future research as practices differ from school to school and board to board. This includes waste diversion practices.

The fourth limit of this research project was the ability to get into the schools. This was integral to overall success. Schools have busy timelines and required advance notice if one plans to come interrupt regular lessons. As well, when interviewing and observing sectors of the vulnerable population, student researchers must comply with ethical regulations and abstain from direct contact. Therefore both research student and community host must find compatible times to research together. Additionally, more reliable school contacts would be necessary. The more contacts, the more access to classrooms, teachers and parents.

Finally, due to unforeseen circumstances, the data was not coded, nor were the focus groups fully transcribed, only key parts were extracted and used. This method of focus group data collection is known as abridged transcription. Any additional research collected should be coded for key words and reasons as to why current litterless lunch programs are successful or unsuccessful. Ideally, all future focus groups should be transcribed and kept on file. This will provide a more definitive and concise collection of data.

5.4 Final Summation

Overall we felt that the research was very successful in creating effective questionnaire and research data collection methods. As well, we felt that the focus groups did provide a great deal of insight into the struggles and barriers to the success of litterless lunch programs. It is recommend that this research is viewed as a preliminary case study, and in

order to more fully grasp all the barriers and the reasoning behind them one must conduct further research on a larger scale. The research also allowed us to see the limitations and gave invaluable information resulting in a list of future recommendations for similar research projects. Overall with some alterations were able to complete all for our objectives. We hope that future students can use our information to assists in continuing research on this very interesting and innovative project. We enjoyed our time researching the barriers to litterless lunch programs in Peterborough schools through the case study of R.F. Downey and hope that continued efforts for waste reduction persist.

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APPENDICES