Understanding what would make children want to attend a bicycle safety training program

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Graduate Program in Kinesiology
A thesis submitted in partial fulfillment of the requirements for the degree in Master of Arts
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UNDERSTANDING WHAT WOULD MAKE CHILDREN WANT TO ATTEND A BICYCLE SAFETY TRAINING PROGRAM

(Thesis format: Monograph)

by

Cassandra Ellis

Graduate Program in Kinesiology

A thesis submitted in partial fulfillment of the requirements for the degree of Masters of Arts in Kinesiology

The School of Graduate and Postdoctoral Studies
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Abstract and Keywords

This qualitative study targeted a heterogeneous sample of 9 to 12 year olds in the London, Ontario, Canada area. The purpose of this study was to understand children’s perspectives in regards to bicycle safety and risk perception. Gender differences of these perceptions were compared. Five semi-structured focus groups (n=14, 10 boys and 4 girls) and six interviews (n=6, 3 boys and 3 girls) were conducted (n=23; 16 boys and 7 girls). Ongoing thematic analysis was used during data collection to review and interpret the collected discussions. As a result, this study determined that girls take fewer unnecessary risks and are more affected by fear appeal and safety-related messages being delivered by a role model. Alternatively, boys are much more inclined to ignore the warnings and take a risk if there is potential to have fun. Boys seem more affected by an entertaining message delivered by a credible source, emphasizing the possibility to learn how to better ride a bicycle, without mention of safety. In conclusion, a social marketing campaign for children’s bicycle safety training that differs for boys and girls is suggested.

Keywords
Children, bicycle safety, risk perception, gender differences, physical activity, childhood obesity, approach/ avoidance theory, fun, independence, social marketing.
Acknowledgments

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Without your continued words of optimism and support, I would have had a much harder time pushing through all of the rough patches. For all of this and all of you, I am eternally grateful.

Sincerely,
Cassie
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1. Introduction and Literature Review

In recent years, the number of individuals who are overweight or obese in Canada has grown to epidemic proportions and has become overwhelmingly apparent as it now affects not only adults, but adolescents as well (Canadian Society for Exercise Physiology (CSEP), 2009). In both adults and children, physical inactivity is associated with a greater likelihood of being overweight or obese, independent of sex, age, and ethnicity (CSEP, 2009). Reports from a recent Canadian Health Measures Survey (CHMS) reported that fewer than 10% of children and youth meet the current physical activity recommendations of 60 minutes of moderate-to-vigorous physical activity (MVPA) a day (Garriguet & Colley, 2012). In regards to active transportation, rates of walking and bicycling to school have decreased alongside the increase in physical inactivity and overweight children suggesting these trends are linked (Davidson, Werder & Lawson, 2008). More specifically, children who actively commute to school accumulate approximately 20 additional minutes of MVPA per day on weekdays suggesting active transportation may encourage more regular physical activity (Davidson et al., 2008).

Through the use of both a qualitative method approach and techniques adapted from social marketing, this thesis presents an attempt at understanding how to market bicycle safety training towards children. Throughout this paper, the term children is used to define males and females, 9 to 12 years of age. This research will explore the perspectives and experiences of children in the London, Ontario area, regarding their behaviour, knowledge and beliefs surrounding bicycle safety and any perceived benefits and barriers they have in regards to cycling. As a result of this research, an effective social marketing campaign could
be developed that could encourage children to participate in a bicycle safety training program, ultimately leading to a greater appreciation of biking as a safe and enjoyable mode of transportation and physical activity. Social marketing has been defined as, “a process that applies marketing principles and techniques to create, communicate, and deliver value in order to influence target audience behaviours that benefit society (public health, safety, the environment, the communities) as well as the target audience” (Kotler & Lee, 2008). Most social marketing efforts are applied to: preventing injuries, improving public health, protecting the environment or contributing to communities (Kotler & Lee, 2008). Although this research uses theories designed for creating a social marketing campaign to prevent injuries and improve health, as previously mentioned, marketing can be used for reasons other than health as well. For example, social marketing efforts have been applied to advertisements for various detergents to specific target audiences; a university student wanting more quantity for less money, or a mother of four wanting a higher efficiency detergent.

This thesis examines a social marketing approach with a qualitative analysis of children’s risk perception and physical activity, specifically towards bicycle safety. As an outline for this research, an adaptation of five of Kotler and Lee’s (2008) 10 steps of social marketing has been used: (1) purpose and background, (2) situational analysis, (3) target market profile, (4) marketing objectives, and (5) target market barriers, benefits and competition. These are the first five of the ten steps suggested by Kotler and Lee (2008); the sixth is the brand positioning statement and seventh is the marketing mix which have both been briefly addressed in Results. The remaining three steps have not been used as they relate to the application of this research and the implementation of a social marketing campaign.
which has been suggested for further research: determine an evaluation plan, establish a campaign budget and outline an implementation campaign (Kotler & Lee, 2008). Firstly, the purpose of the research including relevant information pertaining to this study has been explained. Secondly, a brief overview of the current trends and statistics regarding children and physical activity in North America, specifically Canada, as well as injury prevention in Ontario have been presented. Thirdly, a description of the participants who were recruited and used as subjects for this study is provided. Also included is a review of gender differences in regards to risk perception, value of safety training and physical activity. Fourthly, an outline of the methodology including the interview protocol, research design, data collection and data analysis, and quality criteria is presented. Within this section, the target market barriers, benefits and competition have been addressed. Lastly, results and discussion have been provided, as well as study limitations and future research. Within the results and discussion, the segments have been compared and contrasted and therefore presented in this manner.

1.1 Research Purpose

Obesity is a major contributor to cardiovascular disease and its risk factors and corresponding diseases, such as diabetes and metabolic syndrome (CSEP, 2009). According to recent data, 90% of Canadian children between 5 and 19 years of age are not meeting current physical activity guidelines, expressed as participating in at least 60 minutes of moderate-to-vigorous physical activity (MVPA) every day (CSEP, 2009). Children are often restricted to recreation opportunities as a result of what is available to them within the distance they can walk or bike (Tucker, Irwin, Gilliland & He, 2008). Specifically, less than 16% of students aged 5 to 15 years walked or biked to and from school in 2001 compared
with 48% of students in that same age group who used active transportation in 1969 (Davidson et al., 2008). Thus, rates of children actively transporting to and from school has decreased alongside a declining level of physical activity and increasing amount of time spent being sedentary (Davidson et al., 2008).

Conversely, when children do participate in physical activity, they are at risk for being injured (Ontario Injury Prevention Resource Centre (OIPRCa), 2012). The Child Health Supplement to the 1988 American National Health Interview Survey estimated that approximately 4.4 million children and youth aged 5 to 17 years experienced an injury annually because of their participation in sports (Thompson & Rivara, 2001). Of these cases, 10 to 40 percent were as a result of bicycle-related injuries (Thompson & Rivara, 2001).

Similarly in Canada, children and youth represent a particularly vulnerable segment of the population with the highest rate of injury resulting from bicycling. Approximately 1800 children under 14 years of age are hospitalized annually as a result from injuring themselves while bicycling (Morton, 2008). As a result of statistics such as the aforementioned, parents have been cited as expressing concerns for their child’s safety due to traffic and distance to school as a reason to drive their child to and from school (Lorenc, Brunton, Oliver, & Oakley, 2008). Children have described this reason for using inactive transportation to get from place to place as limiting to their independence (Lorenc et al., 2008). This lack of independent and active form of transportation is unfortunate as children and youth can achieve freedom and mobility with just a bicycle and a helmet (Safe Kids Canada, 2007) thereby commuting independently to school, friends’ houses and home (Morton, 2008).

Therefore, the purpose of this study was to develop an understanding of the safety related attitudes of children in regards to bicycle safety training. The research proposed here
will contribute to an increased understanding of the structural context of children's perspectives regarding bicycle safety and physical activity. For instance, does risk perception and safety concerns stop children from engaging in physical activity such as cycling? Specifically, this research examines children's perceptions of barriers, motives and risks associated with cycling, and the behaviour, knowledge and beliefs held by the children towards practicing safe cycling. The information collected and analyzed in this research could be used to create and implement a social marketing campaign designed to promote bicycle safety training among children. Many social marketing campaigns use their message as the product, in this case the product is bicycle safety training, and it is crucial that particular attention is paid to the messages that will be designed to bring about the attitude and behaviour change in the target market (Donovan & Henley, 1997). The purpose of a social marketing campaign would be to create the desire for children to want to be safe and want to participate in bicycle safety training. As a result of gaining insight into the children's perceptions of barriers, motives and risks involved with cycling, an effective campaign could specifically target this age group. The formative research behind a social marketing campaign requires and uses the information collected from the target market concerning their needs and beliefs which translates into the development of a creative and effective message (Cheng, Woon, & Lynes, 2011). Marketing this safety program to children will be invaluable to their parents and would allow them to be more comfortable letting their children ride their bicycles more frequently and independently.

### 1.2 Background

Over the last few decades, our society has been made aware of a problem regarding the overall health of the global population. Although it has been suggested that a healthful
lifestyle may be effective in preventing or at least combatting obesity, many young Canadians do not meet the recommendations of national nutrition and physical activity guidelines (Protudjer, Marchessault, Kozyrskyj, & Becker, 2010). In 2011, the Canadian Society for Exercise Physiology revised their guidelines, recommending regular physical activity, which has been defined as 60 minutes of MVPA a day, for children and youth (ages 5-11 and 12-17, respectively; CSEP, 2011). However, only 9% of boys and 4% of girls meet these new guidelines and obesity has consequently tripled in Canadian children in recent decades (Active Healthy Kids Canada (AHK), 2011; Protudjer et al., 2010). In fact, youth 11 to 14 years of age are less physically active than children 6 to 10 years of age, determined by a recent Canadian Health Measures Survey (CHMS) reported by Statistics Canada (Garriguet & Colley, 2012). In addition, adolescent sedentary behaviour is positively associated with adult physical inactivity (Casey et al., 2009). In the same CHMS study, physical activity levels were found to also be low in adults, with fewer than 15% of the population accumulating the recommended 150 minutes of MVPA per week (Garriguet & Colley, 2012). Furthermore, the Canadian Community Health Survey from 2009 suggested that 17.4% of adults (18 years of age and older) living in Ontario are obese, and more specifically, 21.1% of adults in South Western Ontario are obese (Local Health Integration Network, 2012). Within this report, only 50% of Ontario adults reported being physically or moderately active (Local Health Integration Network, 2012). It seems apparent and overwhelming from the literature that, regardless of age, fewer Canadians are meeting physical activity requirements and are instead preferring a more sedentary lifestyle.

According to a recent report, 42% of children are driven to and from school; parents are cited to do so out of concern for their child’s safety (AHK, 2011). New data was released
from the CHMS from Statistics Canada and indicates that kids are sedentary 59% of the time between 3:00 and 6:00 p.m., and get only an average of 14 minutes of MVPA during this after-school time period (AHK, 2011). Regardless of age, children participate in more physical activity between the hours of 11 a.m. and 5 p.m which is half of all the MVPA minutes accounted for in the CHMS report (Garriguet & Colley, 2012). Specifically, children 6 to 10 years of age are the most active during their noon hours on weekdays (Garriguet & Colley, 2012). Children are engaging in an average of six hours of screen time per day outside of school during the week, and over seven hours per day on the weekends (AHK, 2011). One way to approach this inactivity is by encouraging children to use bicycles as an active form of transportation and socialization. The encouragement of bicycle riding could be enhanced through bicycle safety training which may in turn enable children to independently ride their bicycle (Lorenc et al., 2008).

Establishing a routine of regular physical activity at a young age is of crucial importance in encouraging an active lifestyle in adulthood; children who are physically active tend to continue to be active in adulthood (The World Health Organization (WHO), 2002; Katzmarzyk & Ardern, 2004; Staten, Birnbaum, Jobe, & Elder, 2006). The World Health Organization (2002) has warned that obesity rates among children are rising at an alarming rate. This warning may partly be related to findings from a 2007 survey conducted by the Children’s Society; 43% of parents in Britain agreed that children should not be outside alone or with peers until they turn 14 years old (McLean, 2012). “There’s much more focus on the danger of being outside of the home,” said Mark Hoelterhoof, a senior lecturer of applied psychology at the University of Cumbria in northern England (McLean, 2012).

That being said, outdoor play declines as children get older: 80% of children 5 to 12 years of
age play outdoors as compared to only 43% of children ages 12-17 years (AHK, 2011). As a consequence of their perceptions of risk, parents are an important influence on the safety of their children and the activities in which their children are involved (Davidson et al., 2008). Some issues raised by parents in regards to children safety involve perceived neighbourhood safety, traffic safety, distance to school, and weather (Davidson et al., 2008). Furthermore, parents influence children's participation in sport and exercise by providing model behaviour, social support and access (monetary and transportation; Fraser-Thomas et al., 2005). In fact, children who received greater parental support for physical activity and had parents who held physical activity in high regard and personally enjoyed being active, were more likely to participate in one or more hours of physical activity per day than children whose parents did not consider physical activity to be as important (AHK, 2011). Similarly, literature suggests that, in regards to safety and aggressiveness of sport, parents treat their children differently depending on the sex of their child (Bailey et al., 2005). Therefore, the family’s perception of health, safety and physical activity seem to affect the amount and type of activity a child participates in. Furthermore, if a child is encouraged to participate in physical activity, their safety and risk of injury becomes a concern (OIPRCa, 2012). A social marketing campaign could be an effective means of convincing children and their parents alike that safety training could allow both parties to feel more confident in the children’s abilities to remain safe while cycling.

Importantly, the peak incidence of bicycle-related injuries and fatalities occurs within children 9 to 15 years of age (Thompson & Rivara, 2001). When children are actively participating in physical activity, their safety becomes an issue. Cycling is a typical pastime for children and adults alike and is beneficial as a means of physical activity and
transportation. Not surprisingly then, a recent survey determined that 93% of children and youth aged 5 to 14 years in Canada ride a bicycle (Morton, 2008). However, as with any activity, bicycling carries a risk of injury (Thompson & Rivara, 2001). This age group in particular is at five times greater risk for a bicycle-related injury than adolescent and adult riders (Morton, 2008). Specifically, boys of the ages 7 to 14 experience more serious bicycling accidents than girls at a ratio of approximately 2:1 (Morton, 2008). Children may refrain from biking to and from school or from leisurely biking due to their (or their parents’) perception of the risk. Literature suggests that children want to walk or cycle more often and become more independently mobile, but are restricted by their own fears and because of their parents’ concerns for their well being (Lorenc et al., 2008). Bicycle safety training could lend some assurance to parents and children alike in regards to bicycle skills and safety knowledge.

According to a recent survey, only 24% of Canadian parents say their children exclusively use active modes of transportation to and from school; the parents who drive their children indicate that they would only allow their child(ren) to walk or cycle to school if the kids were supervised or travelled in a group (AHK, 2011). In a systematic review regarding the attitudes of children towards active transportation, 10 studies reported that children did not walk or cycle to and from school, or parents did not allow them to, primarily because of fear-related concerns for their safety (Lorenc et al., 2008). Furthermore, parents cited risks from traffic and strangers as reasons for driving their children to and from school (Lorenc et al., 2008). It appears evident that parents are a contributing factor in the overwhelming number of children who use inactive modes of transportation to get to and from school.
As previously stated, when children engage in physical activity, specifically cycling, they are at risk of injury (Thompson & Rivara, 2001). According to the most recently released injury report, ‘pedal cyclists’ ages 10 to 14 years, experienced a rate of 789 emergency room visits per 100,000 in 2007-2009 in Middlesex-London, Ontario (OIPRCa, 2012). Furthermore, 23 per 100,000 of these children were hospitalized each year (OIPRCa, 2012). These rates are higher than any other city in the province (OIPRCb, 2012) and suggests a need for bicycle safety training. Interestingly, the annual rates for children 10-14 years old who visit the emergency room as the result of a ‘road motor vehicle’ accident is 256.4/100,000 which is less than that for cycling accidents (OIPRCa, 2012). Most bicycle-related injuries occur to the upper and lower extremities, followed by the head, face, abdomen and neck of which most are superficial but some are traumatic (Thompson & Rivara, 2001). When a bicyclist hurts their head, a traumatic injury could be a skull fracture, a concussion, a brain contusion, or an intracranial hemorrhage (Thompson & Rivara, 2001). Such head injuries occur in 22-47% of injured bicyclists usually as a result of a collision with a motor vehicle and result in 60% of bicycle-related deaths (Thompson & Rivara, 2001). Important risk factors for bicycle-related injuries include not wearing a helmet, colliding or being hit by a motor vehicle and an unsafe riding environment (Thompson & Rivara, 2001). It seems clear from this report that cycling safety is an issue for Ontario in general and London, Ontario in particular. More effective training and education seems warranted.

Evidenced-based studies have identified that bicycle safety training and safe practice reduce injuries among bicyclists (OIPRC, 2008). Specifically, cycling related head injuries were reduced by 45% in provinces with mandated helmet regulations for children (OIPRC, 2008). Overall, bicycle helmets offer a protective effect by reducing the risk for bicycle-
related injuries to the head by 74-85% (Thompson & Rivara, 2001). Another preventative measure is the correct adjustment of the bicycle’s seat height and angle to the rider (Thompson & Rivara, 2001). Riding a bicycle that is fitted properly to the rider who also wears a properly fitted helmet provides a much safer riding experience; however children and parents alike need to understand this in order for preventative measures to be taken. Once their risk perception and perception of bicycle safety training is understood, promotional actions could be implemented.

Based on the literature, a social marketing campaign would encourage both children and parents to understand the importance of learning how to ride a bicycle safely. Social marketing conceptualizes the desired behaviour change as a product to be marketed to the appropriate target audience (Staten et al., 2006). This approach recognizes the appeal of possible competing products and leads to research that will address the needs and concerns of the target market in order to increase the likelihood of their compliance to the desired behaviour change (Staten et al., 2006). As demonstrated, the promotion of active transportation has been used and is an effective way of increasing physical activity, especially among children (Lorenc et al., 2008). Social marketing has been used in similar efforts to create behaviour change (Staten et al., 2006). Wechsler and Wernick (1992) administered a social marketing campaign to children in a Latino community in New York in 1991 called the Lowfat Milk Campaign. This campaign aimed at encouraging these children to switch from consuming whole- to low-fat milk. The campaign was successful and proved that social marketing efforts could be used to promote long-term behavioural changes that result in improved nutrition habits in children. Successful campaigns to bicyclists that have promoted the use of helmets have led to a 40-50% increase in the number of children who
regularly wear a helmet while riding a bicycle. These campaigns were initiated by groups of individuals from schools, health care facilities and clubs (Thompson & Rivara, 2001). In the elementary school age group, educational efforts targeted parents, whereas the older children were taught about the risks associated with riding a bicycle directly. Both were effective in decreasing risk of injury (Thompson & Rivara, 2001). Although nearly 50% of children consequently wear a helmet while riding a bicycle as a result of a safety campaign, only 15-25% nationwide wore them correctly or consistently (Thompson & Rivara, 2001). Therefore, a bicycle safety training program may be helpful and a campaign may be an effective means for encouraging children participation in such a program.

Hoelscher et al. (2004) conducted a similar study on a larger scale citing that, “schools clearly provide a promising setting for interventions to promote physical activity among children [and] have shown considerable success in doing so.” Similar social marketing efforts also include the Play60 NFL initiative (NFL, 2007) and the VERB™ campaign (Wong et al., 2004) which both market physical activity for adolescents on a national scale, encouraging regular participation in physical activity. Both have successfully demonstrated that marketing efforts can increase participation in physical activity. Specifically, the Play60 NFL initiative focuses on educating children with skills, rules, team play and etiquette as well as health outcomes from being involved in sport and physical activity (NFL, 2007). If developed and properly administered, a social marketing campaign could be an effective means for promoting bicycle safety training and thereby, participation in more regular cycling.

As drawn from evidence, the school would be an effective place for advertising and implementing such safety programs since children have been found to be most active during
lunch time on week days (Garriguet & Colley, 2012). Kotler and Lee (2008) suggest that, “school district policies and offerings can contribute significantly in all social arenas providing channels of distribution for social marketing efforts: health, safety, environmental protection, and community involvement...” Social marketing approaches that have been evaluated have applied similar health behaviour change interventions: reducing unintended teenage pregnancies through school-based sex education programs, healthy eating and increasing physical activity, promoting condom use, as well as reducing the misuse and abuse of substances such as alcohol, tobacco and illicit drugs (Staten et al., 2006; Wakhisi, Allotey, Dhillon & Reidpath, 2011). Using this knowledge of social marketing and the information from this thesis, an effective social marketing campaign could be developed to promote bicycle safety and regular physical activity. An exploration of the appropriate message and channel it will be delivered through and by whom it will be delivered by has been investigated (presented in *Discussion*). Therefore the purpose of the present research was to gain an understanding of the safety related attitudes from children in regards to physical activity, risk perception and bicycle safety training.
2. Methodology

2.1 Target Market Profile

In order to effectively research this area of children and risk perception and bicycle safety, Andreasen’s benchmark criteria for social marketing interventions has been applied (Wakhisi et al., 2011). These criteria are defined as six basic characteristics that must be featured in a social marketing intervention, such as bicycle safety training: specific behaviour change goal, consumer research, segmentation and targeting, marketing mix, exchange, and competition (Wakhisi et al., 2011). As well as these criteria, five of Kotler and Lee’s (2008) 10 steps (purpose, situational analysis, target market profile, marketing objectives and target market barriers, benefits and competition) and Social Marketing Quarterly’s (2013) Principles (value exchange, competition, marketing mix, sustainability) have been reviewed and used as a guide for conducting this research.

The identified target market selected for this research was boys and girls 9 to 12 years of age. This research explored potential motives and barriers behind participating in or avoiding bicycle safety training. This age group represents an opportunity for health promoters and educators to intervene and promote healthy lifestyle habits or changes, prior to the development of certain health-compromising behaviours (Tucker et al., 2008). Specifically, students in grade seven and eight (ages 11 to 13 years) are at the age when they are beginning to make their own lifestyle decisions and are vulnerable to social pressures (Wong et al., 2004). That being said, children will contribute to these decisions of whether or not to participate in bicycle safety training, for example, in conjunction with their parents. In
order to appropriately identify and complete the target market’s profile, the explicit and implicit barriers as perceived by the participants have been explored. These perceptions have been mentioned throughout the Background and will be discussed more specifically in Results; a sample list is available in the following Table. These perceptions can be used along with the literature to assist in the formation of a social marketing campaign directed at encouraging children to participate in bicycle safety training.

Table 1.
Andreasen’s Benchmark Criteria for Social Marketing Interventions (Columns 1 & 2; Wakhis et al., 2011) and its Application to Understanding Children and Bicycle Safety Training (Column 3)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Explanation</th>
<th>Bicycle Safety Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific behaviour change goal</td>
<td>Employ intervention to change behaviour; has specific measurable behavioural objectives.</td>
<td>Purpose of this marketing research was to determine the most effective method of attracting children to participate in bicycle safety.</td>
</tr>
<tr>
<td>Consumer research</td>
<td>Formative research conducted to identify target audience characteristics and needs.</td>
<td>Pilot focus group, qualitative interviews and focus group discussions carried out to determine children perspective.</td>
</tr>
<tr>
<td>Segmentation and targeting</td>
<td>Different segmentation variables considered when selecting the appropriate intervention for target group. Intervention strategy tailored for segment(s).</td>
<td>Literature determined “age” for target, and “gender” for segments. Focus group results support gender segmentation.</td>
</tr>
<tr>
<td>Benchmark</td>
<td>Explanation</td>
<td>Bicycle Safety Context</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Marketing mix    | Consists of the 4 Ps: product, price, place and promotion. Can also include: policy change or people. Intervention applies best strategy, using the 4 Ps. | *Product* - Bike safety training.  
*Price* - Considers time, transportation, cost of equipment associated with attending future bike training.  
*Place* - School, camp, swim practice determined most accessible and convenient locations for interviews.  
*Promotion* - Research determined best use of advertisements for target group (presented in Results). |
| Exchange         | Intervention considers what will motivate target audience to voluntarily engage with intervention; what they will gain. | Tangible rewards deemed not necessary for this research.  
Intangible incentives include: improved awareness and knowledge through discussion regarding bicycle safety. |
| Competition      | Intervention considers the appeal of competing behaviours; uses strategies to minimize/remove competition (costs of attending). | Research determined barriers and competition to bike safety training, and include: social influence, parental support, unaware of/ignore risk, low involvement in physical activity, not cool... (more barriers presented in Background and Results). |

2.2 Participants

The participants for this study were boys and girls ages 9 to 12 years. This age group was selected to coincide with the Canadian Cycling Association’s Kids Can-Bike safety training program, which has been designed for children in this age group (). Inclusion criteria were limited to age and ability to independently answer the questions during the interview. The latter criterion was deemed important to avoid the children perceptions being altered by
the presence of a significant other. Ethics approval for this study was obtained through the Research Ethics Board at the University of Western Ontario (see Appendix A). Participants and their parent(s) or guardians(s) were informed of the details of this research by a letter of information that accompanied the parent/guardian consent form and participant assent form (see Appendices B, C and D, respectively). Written informed consent forms for parents and assent forms for the children were distributed by a teacher at a school in London, a camp coordinator of a summer camp in Ingersoll, as well as a swimming coach in London.

Participants who met the inclusion criteria and who returned signed consent and assent forms were then recruited as subjects for focus group discussions or single participant interviews. Overall, three groups of boys and two groups of girls (ten boys and four girls) were included in the focus group discussions. Subsequent to the focus groups, three boys and three girls were recruited for interviews. In total 23 children participated in this study: 16 boys and 7 girls. See Table 2 for specific details of focus group and interview sessions.

Table 2.
Summary of Participants and Respective Focus Group and Interview Sessions.

<table>
<thead>
<tr>
<th>#</th>
<th>Meeting Type</th>
<th>Participant Gender</th>
<th># of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Focus Group</td>
<td>Female</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Focus Group</td>
<td>Male</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Focus Group</td>
<td>Male</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Focus Group</td>
<td>Female</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Focus Group</td>
<td>Male</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Interview</td>
<td>Female</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Interview</td>
<td>Male</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Interview</td>
<td>Female</td>
<td>1</td>
</tr>
<tr>
<td>#</td>
<td>Meeting Type</td>
<td>Participant Gender</td>
<td># of Participants</td>
</tr>
<tr>
<td>----</td>
<td>--------------</td>
<td>---------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>9</td>
<td>Interview</td>
<td>Female</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Interview</td>
<td>Male</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Interview</td>
<td>Male</td>
<td>1</td>
</tr>
</tbody>
</table>

### 2.3 Interview Protocol and Procedure

A qualitative method of research was employed in order to understand the children’s perspectives on bicycle safety training (Tucker et al., 2006). Qualitative formative research is a necessary tool used to identify which motives are relevant to which target groups (Donovan & Henley, 1997). In order to facilitate focus group attendance, it was arranged that the Interviewer met with the children during noon hour at their school or during their lunch break at day camp. Holding the meetings in a familiar and comfortable environment contributed to making the children feel more at ease during the focus group and interview sessions. All focus groups and interviews were facilitated by the primary researcher. In order to maintain participant attention and cooperation, focus group discussions were planned to run for approximately 20 to 30 minutes. However, if and when some groups had a lot to discuss and the conversation was not yet deemed finished, the Interviewer allowed the meetings to continue. Focus groups and interviews were ended when the group or individual showed signs of boredom, discomfort, and/or agitation. These meetings were all audio recorded and transcribed verbatim to be used for the discovery of emerging themes within the data. Strategies were also used to ensure trustworthiness of the data and were employed throughout the research, in its entirety (see Quality Criteria below).

Children were continually recruited as thematic analysis determined more subjects or revised questions were required for a deeper understanding of the children’s perceptions of
bicycle safety and safety training. These discussions and answers received from these focus groups were used to determine whether saturation was effectively reached as indicated by the ongoing thematic analysis. After the second data analyst reviewed and coded the transcripts, the data were determined to be lacking depth in regards to marketing. Therefore, subsequent interviews were conducted and will be explained in further detail.

Using focus groups was an important first step in determining which variables were important for further analysis (Davidson et al., 2008) and to help properly identify and examine possible predictors of active participation in bicycle safety training. After the discussion with the Advisory Committee, the decision was made to operationally define focus groups in this research as interview sessions of two-four children. This was discussed in great lengths and was decided as the more effective method of gathering data as compared to the more traditional focus group size of six to ten participants. The committee addressed the possibility of minimizing interactions amongst speakers during the focus group discussions but favoured the resulting offset of the Interviewer having more control of the group.

Before the focus group sessions were able to commence, a pilot test was conducted in order to ensure the focus group discussion guide was of appropriate design and would be administered effectively. Two female students at a school in London, Ontario participated in the focus group meeting. Semi-structured focus group discussions were created and implemented in order to address this health and safety concern of unsafe cycling and an evident lack of physical activity among Canadian children. Five semi-structured focus groups were conducted. In accordance with social marketing methodology, segmentation is usually done by grouping individuals by demographics for focus group purposes (Staten, 2006). Each
group thereby consisted of two to four grade six to eight students (9-12 years old).

Homogeneous selection is an approach that was determined most appropriate for this study as it reduces variation and thereby simplifies characteristics, experiences and concepts that are represented among study participants (DePoy & Gitlin, 2005).

The questions used during the interviews were semi-structured and open-ended allowing the discussion to happen naturally and without judgement or expectations. The questions were narrative and allowed the children to portray their experiences, perceptions and perspectives through stories, lists and drawings (Banks, 2007). A narrative approach (with the use of prompts) remained quite effective and informative among each focus group as it encouraged the children to tell stories by asking about biking and safety, friends and parents, as well as risk and appealing advertisements. The prompts were used to keep the children on track and assisted the Interviewer to gain the information required to reach saturation. Furthermore, a narrative approach was used to ensure that social desirability bias was not an issue. During the focus group meetings, the participants may have attempted to respond to questions in a way that they thought they were expected to answer, thereby providing the most desirable answers (Fisher, 1993). By asking the children to explain situations or describe a person or friend that behaves in a certain way, the need to conform to social desirability was essentially removed. This indirect method of questioning allowed the Interviewer to draw more realistic conclusions (Fisher, 1993). The specific focus group discussion guide that was used can be found in Appendix E.

Once the focus groups’ discussions had been transcribed and coded by the Interviewer and a second analyst, the data was deemed saturated and no further focus groups were required. Coding was all done by hand, highlighting through each transcript as soon as the
Interviewer was finished transcribing an interview in adherence with ongoing analysis. As themes started to emerge, the Interviewer took notes and used different colours to code the themes throughout the transcripts. Once the Interviewer deemed the data as saturated, the second analyst coded the transcripts and the two researchers compared their notes. Any discrepancies between codes were discussed between the two researchers and the overall themes were decided upon and have been presented. Although data was considered saturated, the Interviewer and members of the Advisory Committee agreed that more information pertaining to what an attractive message and channel would look like according to the children, should be collected. Therefore, a second stage, consisting of individual interviews, was conducted in the Winter of 2013. Participants were recruited from the Ingersoll community centre, a London school and a London swim team. These locations were used because the Primary Researcher had access to each of them through the gatekeepers: the Camp Coordinator, the Teacher and the Coach. Recruiting children from different locations in which various levels of physical activity and bicycle riding exist was also important because more transferability of this research would be possible.

During the interviews, individuals were asked more interactive questions for a deeper understanding of what an effective social marketing campaign would look like to children. The purpose of asking the children about messages and images and channels was to assist in the development of the Target Market Profile and supported suggestions for a future social marketing campaign that would appeal to a wide range of girls and boys ages 9 through 12 years. Pictures of people cycling were used as a tool to derive more meaningful information from the children during the interviews. Five pictures were selected based on the data from the focus groups that pertained to the children’s feelings and attitudes toward bicycle safety
and bicycling. These feelings were coded in the data, and as a result, themes emerged creating a list of five general attitudes about bicycle safety: educational, safety, fear appeal/injury avoidance, freedom/independence/adventure with friends, and parental approval. The primary researcher selected each of the five pictures from Flickr in accordance with how the children explained their feelings in regards to the five predominant themes (Appendix G). The pictures as shown in the Appendix represent these themes: picture 1 represented education with an instructor showing a bicycle to children, picture 2 demonstrated safety focusing on a young child bicycling in a course, picture 3 showed a bicycle accident representing injury and fear appeal, picture 4 demonstrated freedom and independence, and picture 5 had a child and an adult on their bicycles representing parental approval. Each picture was presented one at a time and then the child was asked to rate the picture and explain why they either liked or did not like the picture. This rating was based on a scale of 1 to 5, 1 being the least interesting and 5 being the most interesting. This information was used to develop the suggestions given at the end of the Discussion. Data saturation was reached after five focus groups and six interviews after which data collection was deemed complete. The interview guide and pictures used can be found in the Appendices (F and G, respectively).

The information collected from the focus groups and interviews could be used for the purpose of effectively creating a campaign that the children will positively respond to as their perspectives, barriers, motives, competition and fears have been addressed and will be identified within the campaign itself. To reiterate, health promotion is one of the four major areas for social marketing efforts (Kotler & Lee, 2008, pp. 16). Questions were designed and administered that focused particularly on children’s anticipated participation or lack thereof.
in bicycle safety training. The focus group discussion guide and interview discussion guide were used to facilitate the Interviewer with gathering information pertaining to barriers and competitive factors that could deter children from participating in the training. The data collected was derived entirely from the focus group and interview meetings. Member checking was also employed to ensure that the discussion accurately portrayed each participant’s intent during conversation; the Interviewer checked with each member throughout the discussion as assurance.

2.4 Design

Boys and girls were separated during the focus groups. Important sex difference research findings supporting this strategy include risk-taking behaviour and participation in physical activity which suggests that males take more risks (Byrnes et al., 1999) and are more physically active than females (Bailey et al., 2005; Trost et al., 2002; Katamarzyk & Ardern, 2004). The purpose of conducting homogenous groups was to ensure girls and boys alike felt comfortable discussing audience segments and that true representations of children in their age and sex group were being presented (Staten et al., 2006). For instance, Active Healthy Kids Canada (2011) recently reported that boys are more likely to engage in physical activity during after-school hours. In addition, girls’ participation in moderate-vigorous physical activity, as compared to boys, starts to decline from early elementary school years all the way through high school, where it remains low (Staten et al, 2006). Therefore, in order to attain the most accurate responses through group discussion, homogenous groups were of the upmost importance. Two distinct segments were created and addressed in the Target Market Profile.
The use of message framing, specifically threat appeals, is most effective when both the level of risk involved with the behaviour is known and the gender of the target audience is properly segmented (Cheng et al., 2011). Message framing specifically refers to developing a message that will effectively manipulate the receiver’s (the children’s) perceptions of the outcomes of either behaviour maintenance or change in terms of the benefits (gains) or the costs (losses) associated with their decision (Cheng et al., 2011). To develop the market profiles appropriately, focus group and interview participants were asked questions that would lend perceptive information regarding differences between segments with respect to their attitude towards bicycle safety, messages children find appealing, barriers and competing products, as well as attractive message channels and distributors.

Moreover, of the bicycle related injuries that occur in the 9-15 year age group, incidence rates occur with a male to female ratio of 2-3:1 (Thompson & Rivara, 2001). This statistic suggests that boys not only take more risks than girls, but perhaps may also ride their bicycle less safely as compared to girls. Similarly, boys are often encouraged by their parents to take risks when participating in competitive sports, whereas girls are usually persuaded to act with caution (Booth & Nolen, 2012). Thus, the likelihood of males taking more risks and females’ disinclination to take risks may be a result of nurturing received from parents (Booth & Nolen, 2012).

A recent study was conducted to investigate whether an individual’s risk preference was affected by the gender composition of the group they were assigned to in a focus group meeting (Booth & Nolen, 2012). In a coeducational environment, girls appear to conform to the social expectations of their male peers (Booth & Nolen, 2012). Thus, if risk avoidance is viewed as a social norm among females by their male counterparts, this mixed gender group
may cause females to appear less risky than normal, and conversely, males may make comments that exaggerate their risk taking behaviours in a coed group (Booth & Nolen, 2012). Whereas, when girls are assigned to a single-sex focus group, they are more likely to respond to a risky situation without societal pressure and will thereby answer more accurately (Booth & Nolen, 2012). As a result, the Results and Discussion sections have been formulated in accordance with these assumed differences.

2.5 Quality Criteria

In order to control for rigour, trustworthiness of the data was of upmost importance and was ensured using various strategies, adopted from Guba and Lincoln (1989). All of the criteria used throughout this research is summarized in Table 3. Credibility, dependability and member checking were continually evaluated throughout the data collection and analysis process in order to confirm that the data was adhering closely to reality (Richardson, 2006). Credibility was validated by checking with participants during and at the end of each focus group meeting and interview sessions to ensure that the interview facilitator correctly understood each of the participant’s responses (Guba & Lincoln, 1989; Tucker et al., 2006). Having an accurate understanding provided a more realistic report of how children perceive bicycle safety. Dependability ensured that any biases that arose during the data collection were recorded and noted and considered in order to prevent it from affecting the data analysis (Guba & Lincoln, 1989; Tucker et al., 2006). Such biases were discussed among Interviewer and Advisory Committee members before the interview process commenced, and included preconceptions such as: children recruited from a sports camp or team will provide data more suited for active children whereas children recruited from schools will provide a need for more education, due to the surroundings and atmosphere at the time of the interview. These
biases were reflected back on during data collection and analysis. Finally, member checking was ongoing and a record was kept of the participant’s agreement with the Interviewer’s interpretation of what the children discussed during the meetings.
### Table 3.
*Quality Criteria defined and adapted (Guba and Lincoln, 1989).*

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>Confidence in the ‘truth’ of the findings; internal validity.</td>
</tr>
<tr>
<td>Dependability</td>
<td>Showing that the findings are consistent and could be repeated.</td>
</tr>
<tr>
<td>Rigour</td>
<td>Evaluation of the accuracy or authenticity of the interpretations and conclusions developed from the data.</td>
</tr>
<tr>
<td>Confirmability</td>
<td>The degree to which the results could be confirmed or corroborated by others. A measure of how well the finding’s are supported by the data collected.</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>A means of viewing and checking issues around quality and rigour within qualitative research by establishing: credibility, transferability, dependability and confirmability.</td>
</tr>
</tbody>
</table>

In regards to data analysis, any interpretations made about the data will coincide with direct quotes from the participants in this study. These results are presented as compare and contrast tables whereby males and females have been separated. As suggested by the literature and mentioned above, males and females represent two different segments and have thereby been analyzed homogeneously. Focus groups were used as a means to inductively conclude what the key issues, ideas, and concerns about bicycle safety and risk perception were from a sample of children. As described previously, the data is qualitative in nature and thus descriptive and process oriented, providing the exploratory data with more depth and breadth (Nagy Hesse-Biber & Levy, 2006). Furthermore, transferability was used to ensure trustworthiness as a result of documenting the research process in detail thus enabling potentially interested parties to determine whether the results are transferable to a different
setting (Guba & Lincoln, 1989; Tucker et al., 2006). Transferability has been ensured as a result of the primary researcher providing as much information as possible about the participants in this study so that others will be able to determine if the results are transferable to the participants and settings in their study. To conclude, these steps taken to control for rigour demonstrates how themes emerge and how they are grounded within the context of this study, which in turn will validate the emerging themes (Richardson, 2006). Through ongoing thematic analysis, several themes emerged and were used to create the final themes relating to the social marketing campaign, specifically the message, the channel and the promoter.
3. Results

The Interviewer coded all transcripts and once completed, a content analysis was performed by a second analyst to identify segment similarities and compare differences between codes (Staten et al., 2006). The two segments’ (girls and boys) responses were tabulated according to interview questions and which message and which channel they perceived as appealing. As a result of this research, a list of barriers and facilitators to bicycling as suggested by the participants has been described below (Table 4). Following this list is a summary of girls and then boys perceptions of risk-taking behaviour (Table 5 and 6). Lastly, the Marketing Mix has been developed into a table which outlines and demonstrates the five predominant themes relating to bicycle safety training as perceived by the participants (Table 7). These five themes have been explored and described in detail in the Discussion.

3.1 Barriers and Facilitators

Both explicit and implicit barriers the children perceived in regards to taking bicycle safety training were questioned. The data collected during the focus group meetings that specifically pertained to these barriers and facilitators has been analyzed and coded thematically. Participants reported four sub-themes related to perceived barriers and facilitators relating to bicycling, as illustrated in Table 4. Parental influence, safety, accessibility and freedom, and enjoyment were commonly mentioned throughout the focus group interviews. Concerns with injury avoidance and education arose later in Discussion.
Table 4.
**Barriers and facilitators to bicycling, as perceived by children** (table template adapted from Wiley, Irwin & Morrow, 2012).

<table>
<thead>
<tr>
<th>Themes</th>
<th>Codes</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Barriers to Bicycling as Suggested by Girls and Boys</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Parental Concerns**        | Responsibility | “[Parents] need to see you’re responsible for it.”  
“Privileges.”  
“...If [my friend] gets hurt, [his parents] will get angry at him for not being responsible.”  
“My friend’s parents, definitely [are worried about safety] because they live on a very busy street and she loves to ride her bike.”  
“His mom doesn’t think he’s safe yet.”  
“They want their kids to be safe a lot... So if we ever go out to play, they want us to hold hands.”  
“Like say someone is being dangerous then their mom and dad would really want them to be more careful and learn how to ride better.”  
“My mom. She’s always worried about our safety.”  
“My friend can’t go really far ‘cause his mom doesn’t think he’s really good on his bike yet.” |
| Accessibility                | Travel Distance | “My friends are all at least 10 or well, [my friend] is a half an hour way [from my house] by car. So the fact of anyone biking... No one can bike to my house.”  
“No one can bike to my house.”  
“Nobody bikes to my house ... Because I’m in the country.”  
“My friend sometimes does, sometimes bikes in the summer. But usually, he comes if his mom drives him.” |
<table>
<thead>
<tr>
<th>Themes</th>
<th>Codes</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Dangerous</td>
<td>“My friend’s sister was riding her bike across the street and then this car came flying by and hit her tire... She was with her parents, also.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Our neighbourhood, it has so much construction. We do it (biking) but we know there’s a risk of hurting ourselves.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“My aunt, she was riding her bike and she wasn’t wearing a helmet or anything and she wasn’t paying attention and she hit a car and was in a coma for two months... They thought she was going to die.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“[Our camp] councilor always gets scared when the cars pull out now because of the accident [she witnessed with a cyclist and car].”</td>
</tr>
<tr>
<td></td>
<td>Avoid Injury</td>
<td>“My friend, me and her were riding our bikes downtown, and um, she looks across the road like five times to see. She’s very safe, and yah.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I don’t like to get hurt.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I don’t like to get hurt so I’d take more care.”</td>
</tr>
</tbody>
</table>

**Facilitators for Bicycling as Suggested by Girls and Boys**

| Parental Approval | Trust          | “When my friend comes over, she like comes by herself.”                                                                                                                                          |
|                  |                | “…More mature to be on their own so their parents trust them.”                                                                                                                                 |
|                  |                | “I’m allowed to bike alone.”                                                                                                                                                                        |
|                  |                | “My dad already lets me bike alone.”                                                                                                                                                               |
|                  |                | “I ride by myself.”                                                                                                                                                                                |
| Enjoyment        | Social         | “I just prefer to bike with other people.”                                                                                                                                                         |
|                  |                | “We’re like a giant gang of people that’s riding around the block a lot. So we just keep doing that... All of us love biking!”                                                                     |
|                  | Fun            | “[Biking] is awesome! I love when you feel the breeze on you... Just enjoy yourself.”                                                                                                               |
|                  |                | “I like biking in the park!”                                                                                                                                                                        |
|                  |                | “I like riding my bike.”                                                                                                                                                                            |
|                  |                | “My cousin, she love biking. When she visits us, she rides all over town with me.”                                                                                                                 |
|                  |                | “I love biking. I trick bike almost every day!”                                                                                                                                                     |
3.2 Risk-taking Behaviour

The discussions in the focus group meetings has provided insight into whether risk-taking behaviour affects the girls and boys reasons for participating or not participating in bicycle safety training (Table 5 and 6 respectively).

Table 5.
Risk-taking behaviour and whether children perceive it to affect girls’ participation in bicycling and bicycle safety training.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Codes</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls’ Perceptions of Risk-taking Behaviour</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Cautious | Safe | “My friend, she was, me and her were riding our bikes downtown and um, I think she would get less hurt and me too, because like, well she looks across the road like five times to see... she’s very safe...”
| More conservative | | “The most likely one to not wipe out ever at my house is my cousin... She’s very safe. Like if there’s a car coming, she’ll just stop.”
| | | “She’s protective and stuff.”
| Show-off | Crazy | “Girls, they don’t even bother to [do tricks]”
| | Tricks | “[Girls won’t try a trick] unless they actually know that they can do it.”
| | | (Girl) “I guess I would try something, maybe, depending on what it is.”
| | | “Because she is crazy! She’s like out of her mind a lot and she just tries to be weird and like she’s trying to be weird on her bike on the road... She’s a show-off.”
| | | “She does stuff like boys.”
<p>| Girls’ Perceptions of Reasons for Learning Bicycle Safety | | |</p>
<table>
<thead>
<tr>
<th>Themes</th>
<th>Codes</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Influence</td>
<td>Will be safe for rewards and praise</td>
<td>“She’s trying to impress her father and, ‘I want to go to bike safety. I’m a perfect daughter. I want a pony.’”</td>
</tr>
<tr>
<td>Parental concern</td>
<td></td>
<td>“My friend’s parents, definitely... Because they live on a very busy street and she loves to ride her bike.”</td>
</tr>
<tr>
<td>Skill</td>
<td>Good at sports</td>
<td>“My cousin, she’s really good at sports, and she loves biking.”</td>
</tr>
<tr>
<td></td>
<td>Improve skill</td>
<td>“She’s really lazy ... But most of the time she’s willing to go. She really likes riding bikes. She’s not really good at biking yet... She really needs the practice.” \ “She likes to be good at things.” \ “I haven’t seen her like outside doing activity... Like all I see her for recess is... She usually just stays in or something and draws. Like I have never seen her on a bike before.”</td>
</tr>
<tr>
<td></td>
<td>Injury Avoidance</td>
<td>“She likes attending stuff. She’s also kind of protective too though so I guess safety too would be good.”</td>
</tr>
</tbody>
</table>

Table 6.  
Risk-taking behaviour and whether children perceive it to affect boys’ participation in bicycling and bicycle safety training.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Codes</th>
<th>Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys’ Perceptions of Risk-taking Behaviours</td>
<td>Fast</td>
<td>“Well boys because like, well like my brother, when he’s on his bicycle, he likes to stand up and like go really fast.” \ “... Unless boys are having races, they’ll probably be more likely to get hurt.” \ “…he was the one who nearly caused the injury with my friends because he was going too fast.”</td>
</tr>
<tr>
<td></td>
<td>Risky</td>
<td>“Boys are daredevils.” \ “I’ve been riding at my house like every day and I never wipe out and there’s cars there so I have to like dodge cars and stuff.”</td>
</tr>
</tbody>
</table>
### Themes

<table>
<thead>
<tr>
<th>Show-off</th>
<th>Cool</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;[My friend] tries to do more extreme things because that’s the cool thing.”</td>
<td></td>
</tr>
<tr>
<td>“Sometimes [being a daredevil] is just to impress a girl.”</td>
<td></td>
</tr>
<tr>
<td>“At school [my friend] has this huge group and you know, he’s the leader, and he does what he wants to do.”</td>
<td></td>
</tr>
<tr>
<td>“I have a neighbour that um, he’s got an older brother and he’s over confident. Like he thinks that he’s in the lead of everyone... So he’s over confident and he thinks he’s better... He doesn’t think he’ll get hurt.”</td>
<td></td>
</tr>
<tr>
<td>“My brother, he is very over confident. He’s crazy. He always tries to be in the lead and he tries to overtake me all the time. And then a bunch of times he falls...”</td>
<td></td>
</tr>
</tbody>
</table>

### Tricks

| "They want to do all these gangster tricks.” |
| “My friend and his friends do all these like tricks; they flip and stuff and they hurt their selves a lot.” |
| “Boys do all these tricks.” |
| “Boys with bikes, with BMX trick bikes ... Or mountain bikes ... Or trick bikes ... Or X Games bikes... Just say they’re biking off a ramp or something, boys are most likely to wipe out than girls.” |
| “[My friend], he does all these insane stunts.” |
| “[Boys] are silly and they do weird things and whatever... Wheelies!” |
| “[Boys] do flips and fall off the curb!” |

### Boys’ Perceptions of Reasons for Learning Bicycle Safety

<table>
<thead>
<tr>
<th>Tricks</th>
<th>Learn how to do tricks safely</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I think that a gangster would go to learn how to be safe because they want to do safe tricks and they don’t want to do it and then make someone else do it and then they get hurt. So they’d want to make sure it’s safe.”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unsafe behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I really want him to go ‘cause like he does really crazy stunts and rides in front of cars.”</td>
</tr>
<tr>
<td>“If it’s like a dangerous kid that always does flips and stuff, their parents would probably want them to go.”</td>
</tr>
<tr>
<td>“Say someone is being dangerous, then their mom and dad would really want them to be more careful and learn how to ride better.”</td>
</tr>
<tr>
<td>Themes</td>
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<tr>
<td>----------------</td>
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</tbody>
</table>
| Avoidance      | Punishment by Law | “I was half way to camp and I recognized that I had my hat on and no helmet, so I walked my bike all the way and grabbed it.”  
“[If you don’t wear a helmet] you could have got pulled over by the police.”  
“... [Not wearing a helmet is] a $50 fine.” |
|                | Punishment by Guardians | “I just don’t like getting in the lead because then I know [my friends] are going to follow... But that, I don’t want to see them get hurt. And another reason that I don’t want to cause trouble. So that’s why I don’t like leading.”  
“Your head is where you can get the most damage. You can get brain damage, you can cut your head open... Concussion and yah, coma.”  
“...saw someone going into an accident...”  
“I kind of like thought [the accident] was kind of scary that [the bicyclist] wasn’t wearing a helmet and the guy was waving to us with one hand, not paying attention, with headphones, and no helmet... And then he hit the car and went flying over the car and he cracked his head open... And now [we] always get scared when the cars pull out now because of the accident. So now that’s why we should be a lot more like, watch the road and stuff.” |
|                | Fear of Injury |                                                                                                                                                                                                 |
| Experience     | Needs practice | “My brother, 'cause he’s only five. He’s on training wheels still. He’s still trying to ride a lot and he hasn’t rode it a lot. So he needs to learn and all that.”  
“My cousin, he’s like always in doors so he doesn’t know a lot about safety. And he lives up like in the country. But the road’s wide open where he could ride his bike but he doesn’t.”  
“I’m not allowed to bike with just my friend because I only learned how to ride a bike this summer. So I’m not like good yet.” |

As shown in Tables 5 and 6, girls appear to behave more cautiously as compared to their male counterparts. Boys seem to worry less about injurious consequences and more
about testing their abilities and experimenting with tricks to do with their friends. Similarly, the perceived reasons for choosing to participate in said safety training also differs between females and males. Girls seek their parents’ praise and trust and consider bicycle safety as a means of acquiring confidence and permission from their parents for riding their bikes. One girl explained that parental approval could be granted with more ease if such a marketing campaign as the one being suggested in this research paper existed,

“...the parents can like see how you’re doing about bike safety and say like, ‘Wow. I need to put her in more programs ‘cause like she really likes this program about bike safety’.”

Alternatively, boys voiced much less concern for safety and were more concerned with participating in a program enabling fun and education with regards to learning how to do ‘cool’ tricks, how to avoid punishment by law, as well as giving their parents peace of mind about their bicycling abilities.

3.3 Marketing Mix

Also employed for this research were interviews which made up the second stage of data collection. These sessions focused specifically on marketing and led to the discovery and determination of effective messages, channels and distributors (as described in Discussion). Therefore, by combining the data collected from both the focus group meetings and the interview sessions, a greater understanding of an appropriate marketing mix has been established. Concluded from the data analysis are the target market’s brand positioning statements (Kotler & Lee, 2008). The brand positioning statements recommended for a social marketing campaign for bicycle safety training are:
“We want boys 9 to 12 years of age to see the importance of bicycle safety as a means of gaining independence and as more important and beneficial than inactive transportation thereby providing freedom and access to more physical activity.”

“We want girls 9 to 12 years of age to see the importance of bicycle safety as a means of behaving safely thereby avoiding injury and gaining parents’ trust to participate in more regular bicycle riding rather than using inactive modes of transportation.”

A general consensus was demonstrated among the children who participated in the focus group meetings regarding a sense of independence invoked as result of riding a bicycle as a means of transportation. The perceived gain, as seen with both males and females, indicated that children bought into the product offered (bicycle safety training) and would gain independence and confidence if they participated in such a bicycle safety training program. Commonly suggested throughout the focus group process was the need for the children to have their parents give them their permission to ride their bicycle either alone or with a friend. As a result of being given permission, the children spoke of gaining a sense of pride and independence:

One girl said that her friends feel, 
“Independent. They get to go by there selves. When my friend comes over, she likes to come by herself.”

Another girl spoke about her peers saying, 
“I think that they’re independent too because they’re doing all by their selves and they don’t have their mom to come with them. And they’re just more mature to be on their own.”

As well as gaining parental permission and a resultant sense of pride, the children also spoke of being privileged as a result of their parents trusting them with the responsibility of bicycling independently. Each participant spoke to some degree throughout the interview process about having to earn the right and trust from their parents in order to gain such freedom. Therefore, the children gain freedom as a result of gaining permission and trust
from their parents thereby gaining more independence. If the children participate in learning about bicycle safety, they could possibly gain more confidence with their bicycling abilities thereby avoiding injuries resulting from behaving unsafely.

In regards to the campaign, the marketing mix is described below in the following table (Table 7) and focuses on the four P’s: product, promotion, place, price. As a result of this research, the exchange (gain and cost) was also determined providing information pertaining to the best use of advertisements for this particular target market. This information was collected during the focus groups and analyzed in accordance with Andreasen’s (Wakhisi et al., 2011) suggested marketing mix as described in Table 1.
Table 7.
Marketing Mix: Promotion, Product, Place, and Price.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Marketing Mix</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Girls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td>Product</td>
<td>“Say that every time they go, at the end they’d have time, like say 15-20 minutes they would go for a bike ride and tell each other something they learned.”</td>
</tr>
<tr>
<td>Fun</td>
<td>Product</td>
<td>“Make it fun. Make it entertaining.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Something that will bring smiles and, like, these, it’s something that adults will go, teens will go... Something that everybody can enjoy.”</td>
</tr>
<tr>
<td>Fun/ Safety</td>
<td>Place</td>
<td>“...like show a day of the camp and all of the fun activities that they did and the [leader can be] talking about bike safety.”</td>
</tr>
<tr>
<td>Injury Avoidance</td>
<td>Product/ Price Exchange</td>
<td>“Well, she never likes to be hurt or something and she’s really sensitive.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I like riding my bike and I want to be more safe on it.”</td>
</tr>
<tr>
<td>Incentives</td>
<td>Price Exchange</td>
<td>“…and like, prizes if you win, get correct answers.”</td>
</tr>
<tr>
<td><strong>Boys</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td>Product</td>
<td>“Well, how to ride your bike better... Probably almost all of [my friends].”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I would want to learn about things that I don’t know.”</td>
</tr>
<tr>
<td>Fun, ie. Not about Safety</td>
<td>Product Exchange</td>
<td>“I would never go... I just don’t like safety.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“…not to be safe. To be safe? None of [my friends].”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Well, I mean I guess [my guy friends] would if they had to but... Not if they just wanted to.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“If [the training] is about bikes and maybe like sports.”</td>
</tr>
<tr>
<td>Parents</td>
<td>Promotion</td>
<td>“I think my dad would want to go and come and um even though he’s really safe he would want to come. He really like safe, learning about safety and all that. And he really likes safety too.”</td>
</tr>
</tbody>
</table>

Therefore, from the data collected and analyzed, the marketing mix demonstrates that five predominant themes exist in which children perceive bicycle training appealing as a means of Promotion: educational, safety, fear/ injury avoidance, fun, and parental influence/
approval. As a result of this finding, these five themes were used as the basis for the second round of interviews.

3.4 Bicycle Safety as Perceived by Children

During the focus groups, the participants were asked to make a list of words or items they associated with bicycles and safety precautions. Generally, both girls and boys expressed the importance of wearing a helmet, knowing your environment and traffic laws, using a properly fitted and equipped bicycle. In addition to appropriate equipment and knowing the rules, many of the children suggested that knowledge and education were important when it came to children riding bicycles. For example, a couple of the suggestions provided that were both repeated throughout the interviews, suggested that children should bike with an adult and know their bicycle signals. However, after separating the information derived from females as compared with their male counterparts, suggestions were more safety oriented, whereas males’ perceived and discussed their ‘gear’ more frequently. Quotes that summarize the children’s perspective on bicycle safety included:

One girl said, “Ride where there’s no one around, as like around no cars. Watch where you’re going.”

Another girl made a list that included, “Adult nearby, know where you’re going, know bike signals, look both ways.”

One of the boys interested in trick biking suggested, “Do not put propellers on your bike.”

Another boy made a list that said, “Wearing a reflector vest, wear a helmet, reflectors on bike, sturdy seat, brakes.”

These perceptions are congruent with literature in which females are less likely to take unnecessary risks whereas males are less concerned with injurious consequences.
(Byrnes et al., 1999; Thompson & Rivara, 2001). Furthermore, this suggests that if a bicycle safety training program is to be designed with interest in appealing to and maintaining boys attention, the training cannot specifically advertise and focus on safety education and injury avoidance. Michael Ellis (1978) said it best when he described the gender difference in relation to play and physical activity: “boys are either less compliant to the task demands of a setting or exhaust the attractiveness of an object or setting sooner than do girls and are thereby forced into extraneous activity sooner.” Therefore, when boys lose interest in a single activity and no other activity or modification is available, they will inevitably lose focus, become noncompliant and disengaged. In support of this statement, two quotes that generalize the male participants’ suggestions for an appealing marketing message to entice them to attend bicycle safety were:

“The cop would say, ‘Kids, this is why you should really wear a helmet when you ride your bike because, as you can see here, these two kids that wiped out on their bikes and they cracked their heads open and they broke their arms and legs... And that’s why you should wear a helmet!’”

“I would put a video of people crashing without a helmet on and show how dangerous it is without safe stuff.”

In conclusion, although male participants were not attracted to safety, they were interested in accidents when fear was instilled and appear to be affected by visually witnessing the consequences of practicing unsafe riding habits. Alternatively, the girls in the present study seemed generally to comply with warnings of safe practice and went as far as suggesting to advertise bicycle safety training with safety statements and education as important content. More specifically, female participants agreed that the marketing campaign should focus on education regarding injury avoidance and be serious but still fun.
One girl suggested an advertisement that read, “Stay safe and come to bike safety training”.

Another girl suggested, “I think that it should be fun learning about being safe and having more fun because you won’t get hurt.”

Additionally, male participants unanimously confirmed their interest in “scary”
advertisements. However, serious messages would be less effective with this group suggesting that a scare tactic would only be effective if the advertisement portrayed that the boys would be able to actually ride their bicycle with their friends when they attended said training demonstrating that the program would be fun.

One boy said that if he saw a commercial with a kid on a bicycle being hit by a car, “I’d be kind of scared and I’d tell my mom about so she’d know.”

Another boy said, “It’s also going to be a little bit funny at like, the end, so like ‘cause we’ll be dancing...”

Therefore, advertisements directed at a young male audience should be kept light and entertaining with an emphasis on a product that offers a fun experience, rather than a threat of obtaining an injury and a safety lesson. For females, advertisements should focus on presenting a serious message relaying the importance of bicycle safety and avoiding injury.
4. Discussion

The purpose of this study was to develop an understanding of the safety related attitudes of children in regards to bicycle safety training and any preconceived perceptions regarding risk, bicycle safety and whether these perceptions would have an effect on level of participation in physical activity, particularly bicycling. The basis for this research was derived from social marketing guidelines as described throughout this research paper (Kotler & Lee, 2008; Social Marketing Quarterly, 2013; Wakhisi et al., 2013).

In most cases, social marketing campaigns are aimed at decreasing or reducing the likelihood or frequency of undesirable behaviours. For instance, the research presented in this thesis suggested that an increase in proper and consistent helmet use leads to a corresponding decrease in the prevalence of head injuries to bicyclists. One of the principles of social marketing as indicated by Social Marketing Quarterly Journal (2013) is Value Exchange. This principle allocates that social marketing is unique with respect to other behaviour change tools because the product offered is based on an understanding of the target audience's perceived self-interest in the benefits gained (or costs reduced) as a result of complying to the suggested behaviour change. The concept of value exchange states that the target audience will choose a behaviour in exchange for receiving benefits they consider valuable or rather that will reduce barriers deemed important to them (Social Marketing Quarterly, 2013). Ultimately, an exchange will likely occur when the marketer has implemented a program that is perceived by the target audience to offer a valued product. Therefore, the social marketing campaign possibly ensuing as result of this research should market an avoidance of injurious behaviour to girls for complying and adopting safety precautions while biking. For boys, the approach should focus on their gaining the
opportunity to bike by complying to more permissible behaviours, thereby gaining access to
freedom and having fun with friends.

As an aside and as demonstrated in the social marketing literature (Wakhisi et al., 2011), non-financial incentives appear to enhance an individual’s motivation, confidence and
skills more effectively when a program is offered over a long term. Therefore, it is
recommended that if a social marketing campaign was designed from this research, the
intervention should be administered over the long term (at least two years) with high
exposure (frequent contact with the participants) in order to have a more sustainable effect
with the target audience (Wakhisi et al., 2011).

The perceived costs and benefits have been explained in greater detail in regards to
the prescribed message, promoter of the message and the channel whereby the message will
be delivered most effectively, as determined by the girls and boys who participated in this
research study.

**4.1 Message**

Messages in social marketing campaigns are designed not only to inform, but to
persuade; a commonly used tactic in such campaigns is the fear appeal, for example
(Donovan & Henley, 1997). As demonstrated in the literature, emotional arousal in response
to fear leads to avoidance of behaviours such as those with aversive consequences like injury
as result of practicing unsafe bicycling (Cheng et al., 2011). Social marketing communicators
have frequently utilized scare tactics or fear appeals to limit undesired behaviours and
promote the adoption desired alternatives (Donovan & Henley, 1997). The outcomes of the
decision to maintain or change a behaviour, therefore, can be framed as either perceived
gains (benefits/ safety/ independence gained from changing) or perceived losses (changing in order to avoid costs/ injury) (Cheng et al., 2011).

A threat or fear appeal is defined in social marketing as a message that includes three major components: (1) a negative outcome; (2) a contingent behaviour; and (3) a source (Donovan & Henley, 1997). Specifically, a negative outcome is an event that is perceived by the target audience as something to cause harm or an undesirable effect, and is something to avoid under normal circumstances (Donovan & Henley, 1997). A threat therefore, becomes a threat appeal, when the source states that the negative outcome is contingent upon the recipient’s behaviour and the audience should thereby consider adopting the proposed behaviour change (Donovan & Henley, 1997). Threat appeals generally focus on undesirable consequences of non-compliance (not wearing a bicycle helmet) such as a head injury resulting from a bicycle crash. A recommended behaviour change would be presented and consequently, the campaign would focus specifically on arousing fear in the target audience to motivate compliance (Donovan & Henley, 1997).

**Girls**

Injury avoidance is common among females and generally suggests that girls will take fewer risks than boys because of the possibility of becoming injured (Booth & Nolen, 2012). Risk factors for bicycle-related injuries most commonly cited by the literature include: not wearing a helmet, colliding or being hit by a motor vehicle, and cycling in an unsafe riding environment (Thompson & Rivara, 2001). In order to avoid a head injury on a bicycle, for example, the girls interviewed for this study unanimously suggested that wearing a helmet would reduce the likelihood of said physical injury if they did happen to experience a
collision or fall. All of the girls interviewed (n=7) reported the primary researcher that they always wear a helmet when cycling.

Throughout the second stage of interviews, the female participants all rated the third picture (Appendix G) which demonstrated a bicycle accident, as the most intriguing picture (5, 4, 5 respectively, out of 5). The reason the girls all rated this photograph so highly was their interest in the bicyclist’s safety (was the man okay). This finding demonstrated that females are attracted to serious content and are aware of the potential for serious injury that coincides with taking unnecessary risks (Booth & Nolen, 2012). The girls also reiterated the importance in safety and wanting to see commercials with people their own age participating in them.

**Boys**

Throughout this study, the male participants were much more focused on what they gain from bicycling and the potential benefits that would be awarded to them if they were to become more educated with regards to bicycle safety. As suggested by the literature and this study’s results, boys in particular perceived risk as less important than girls and perceived less risk of injury as well (Byrnes et al., 1999; Thompson & Rivera, 2001). That is, although boys are aware of the possibility of a negative outcome occurring (such as a bicycle related head injury), it seems that the actuality of experiencing a physical injury is so unlikely or abnormal that the impact of the negative outcome in a threat appeal may become nullified resulting in non-compliance (Donovan & Henley, 1997). Therefore, a threat message will likely be less effective with boys than with girls.

The present research derived similar findings to the research literature. When shown the five photographs, the boys rated the third picture as quite low (1, 4, 2, respectively out of
5). The boys who rated the picture as a 1 and 2 expressed their disinterest in seeing someone injured because it was depressing, whereas the boy who rated the photo as a 4 explained his higher rating by his curiosity in why the bicyclist was not wearing a helmet. In general, the male participants were much more attracted to photographs 2, 4 and 5 (Appendix G) because they showed people actually bicycling with other people, enjoying themselves, or trying to accomplish something such as a race or learning a trick. Perhaps, a fear appeal message that demonstrates freedom such as an Approach Goal towards learning how to do tricks more safely thereby gaining parental permission to bicycle with friends would be a more effective means of marketing to male children.

Overall, loss-framed messages (costs) seem to be more persuasive with girls and gain-framed messages are more effective with boys, particularly when the children are taking precautions once they have been informed of the negative consequence (Booth & Nolen, 2012; Cheng et al., 2011; Donovan & Henley, 1997; Wakhis et al., 2011). This knowledge seems to promote the intensions to adopt the behaviour change within the target audience (Cheng et al., 2011). An explanation for further reasoning relates to the tendency to perceive negative information as more crucial, especially when the message is self-referencing and therefore instills fear in the audience which arouses caution and ultimately the desired behaviour change (Cheng et al., 2011). Adolescents, in particular, are susceptible to social pressures which allows a fear appeal to be even more effective on this age group, particularly girls, if the social threat is framed so that if the new behaviour is not adopted and injury is not avoided then social disapproval will occur (Cheng et al., 2011).

Alternatively, males are attracted to perceived benefits and as suggested by this research, are disinterested in serious content. When asked about attractive commercials
during the second stage of interviews, the boys all described funny commercials with unusual characters or appealing products. Examples of these commercials were: Koodo advertisements with a miniature Mexican wrestler, Beef Jerky advertisements with a Sasquatch, the BMO ad in which bankers wish to be magically transported to Jamaica as well as the Boston Pizza commercial that has a man ‘finger cooking’, otherwise known as ordering take-out. All of these commercials are lighthearted and amusing and have an unusual component that appealed to the boys. This description of gaining amusement and desiring the offered product (seeing a funny character, wanting pizza or beef jerky, for example) are concepts which concur with the literature pertaining to Approach Goals and disinterest in seriousness (Cheng et al., 2011; Booth & Nolen, 2012).

4.2 Promoter

Girls

The message for girls has now been determined and will consist of serious content pertaining to safety messages and an educational but fun experience with kids their own age. Injury avoidance is attractive to most young girls suggesting an advertisement of this type would be effective at attracting this group to attend bicycle safety training. However, the advertisement must be delivered through an effective medium and from someone that the children can relate to and recognize. As suggested by the female children who participated in this study, the following people are candidates in which the girls have deemed fit for advertising bicycle safety: Justin Bieber (singer/songwriter), Jeff Dunham (comedian), a famous Olympian such as Clara Hughes (cyclist/speed skater), or a doctor or police officer. Justin Bieber is very well known and the girls seem to trust him and relate to what he has to say. An Olympic Cyclist was suggested because the safety message would be believable.
coming from someone who rides their bicycle every day and who is very good at bicycling.

A doctor or police officer was suggested because the children believed that these professionals are trustworthy and are concerned with everyone’s safety. To conclude from this, female children would be most attentive to this message if someone they recognized and trusted delivered the content suggesting that girls need to believe the person relaying the importance of bicycle safety is speaking from experience.

Boys

As a result of this research, the promoter deemed most attractive to a male children audience was a famous person or a police officer. One boy in this study expressed people of his age group’s interest in listening to a “famous person ‘cause a lot of people are going to Justin Bieber’s concerts to see him and meet him... Like a lot of people take his advice”. A police officer was described as being a credible source for safety messages. One boy described his trust in a police officer by simply saying, “he knows his stuff”. In this regard, boys and girls seem to be affected similarly.

Therefore, as a result of this research, it is suggested that said social marketing campaign should hold credibility within the target market. That is, the children being targeted need to be able to resonate with someone or something within the campaign. For example, if a threat appeal is used to market to adolescent girls, the bicyclist that is being portrayed as risky and inevitably becoming injured must be recognizable or at least someone that they can relate to; perhaps a role model for the audience. The marketing efforts must personalize the campaign either by recreating an event the children can resonate with or by using a spokesperson who the children can connect with personally. By including a role model as a part of the distribution and advertisement with this campaign, the children will have a more
difficult time ignoring the threats and negative outcomes and may choose to approach bicycling with a safer attitude in order to avoid injury.

4.3 Channel

Girls

Current research is exploring the effectiveness and accessibility of social marketing through several mediums. Several of the studies referenced delivered their marketing campaigns at schools through the use of social media or the internet (Hoelscher et al., 2004; Wakhisi et al., 2011; Wong et al., 2004; NFL, 2007). Throughout the data collection process of this research study, the most commonly suggested and discussed channel of deriving information from was a television commercial.

One girl suggested that a commercial which focused on safety education could be administered effectively from an experienced and credible bicyclist, “Maybe if it could be like a commercial of like a camp that the athlete [Olympic Cyclist] was hosting? They could like show a day of camp and all of the fun activities that they did. They could video tape the athlete talking about bike safety.”

Multimedia campaigns for not only children but also their parents were also frequently mentioned:

- Postal mail, “because it’s delivered to everybody in the country.”

- Television, “because lots of people watch television.”

- Radio, “because lots of people like to listen to the radio.”

Therefore, as a result of interviewing female children, although multimedia campaigns were suggested, the most commonly recurring form of message delivery was a commercial being delivered through television. This message should clearly outline and describe the importance of bicycle safety and risk avoidance and should be delivered by a respectable and recognizable role model.
Boys

Alternatively, the males who participated in this study focused less on commercials and more on the internet and attractive posters. A few of the internet and Social Media ideas that were suggested included:

- Wonderopolous (an interactive blog-type site).
- Facebook, “because lots of people go on Facebook.”

Although not as common among males, the idea of television commercials were presented throughout the interviews. One boy described a commercial very similar to Picture #3 (Appendix G) and stated that he was interested in something similar to this bicycle accident scene because most children are affected by a realistic story that relates either in age or in experience to the children. He noted after visually witnessing a scene such as Picture #3, that children can live vicariously through the injured bicyclist in the commercial thereby avoiding injury by not taking unnecessary risks and being more aware of bicycle safety strategies. The boy also praised the effectiveness of marketing through commercials “because they can show multiple pictures and they also can talk about [bicycle safety].”

More specifically, the picture/poster idea was commonly mentioned among the male children. In order to effectively design such posters, the boys suggested that the campaign should, “catch people’s attention” by being unusual and appealing to young and old. Location ideas were as follows:

- Restaurants, such as Tim Hortons, “because everybody goes to Tim Hortons, like my mom goes every day.”
- Schools, “because a lot of people go to school and they’re in young ages and you don’t want anyone getting hurt at that sort of age ‘cause it could ruin the rest of their life.”
- London Knight hockey games or Banks.

In conclusion, the boys were most attracted to eye popping, catchy posters that would be posted all around their schools, their community centres, as well as commonly visited shops that their parents would visit, such as Tim Hortons, banks, or local community venues. These posters should consist of an unusual character or intricate scene with a recognizable person either acting out the scene or with a speech bubble giving advice.

### 4.4 Limitations

This research focused only on children and did not interview parents (the secondary market) due to time constraints and in order to maintain the focus of this thesis on the children. A trade-off was discussed and the Interviewer and Advisory Committee decided that more depth was important to this research and in turn, the study lacked breadth.

In relation to depth, this research focused on only two segments within the target audience: boys versus girls. These segments were decided upon as a result of the literature review relating to risk perception, bicycle safety and physical activity. The primary researcher and Advisory Committee assumed that these were the proper segments because of the literature as well as time constraints. In order to properly determine what all of the existing segments were, a full-on situational analysis and demographic profile would needed to have been conducted and created which could potentially be a research project on its own. Other potential segments considered were: physically active versus non-physically active, children who regularly ride their bicycle versus children who do not regularly ride.

An additional limitation to this research is the decision making process with respect to bicycle safety. For example, as a result of this research it is unknown whether the children decide that they would like to attend bicycle safety training and their parents give them
permission or if the parents are the primary decision makers and therefore the children’s decisions do not matter. This has significant implications for the investment of scarce social marketing resources. As a result, future research should be done with this secondary market.

4.5 Future Research

Future research should be conducted with the aim to generate a social marketing campaign and expose both positioning statements that came from this research; “We want boys 9 to 12 years of age to see the importance of bicycle safety as a means of gaining independence and as more important and beneficial than inactive transportation thereby providing freedom and access to more physical activity.”; and, “We want girls 9 to 12 years of age to see the importance of bicycle safety as a means of behaving safely thereby avoiding injury and gaining parents’ trust to participate in more regular bicycle riding rather than using inactive modes of transportation.”

As the research unfolded, the data was inherently lacking perceptive information regarding competing factors to bicycle safety training. In order to gain a better appreciation for such competition thereby strengthening the Marketing Mix, future research should be conducted. This research could investigate potential competition (e.g., playing computer games) that could possibly prevent the children from attending said training and ask the children why they would prefer the competition over attending bicycle safety training.

As well as marketing the message to the target audience, the message should be tracked to determine which channel and which message is most appealing to children in that they actually sign up for bicycle safety training. For instance, as a result of this research, a better understanding of segmentation has been established; two very different segments exist in this age group: boys and girls. Furthermore, this research has also identified that within
these two segments, girls are more affected by fear appeal messages and education pertaining to safety whereas boys prefer marketing which focuses on having fun and adventure or education about tricks.

Therefore the suggested next steps are that the campaign be implemented with six messages, for example, designed to appeal to three separate markets within each segment: fear appeal, fun, educational, safety and parents. Three schools of similar demographics could be tested and each would receive two messages; one for the boys, one for the girls. This study could then be tested experimentally and collect data that would quantify which one of the messages attracted more students to sign up for subsequent safety training. A profile would then be available of each segment, including: perceptions of how the segment would react to this campaign and its message, perceptions of barriers to participating in bicycle safety training, and targeted ways to reach the segments, including channels for distributing the messages and influential distributors (Staten et al., 2006).

More work should also be done with parents and/ or guardians, as well as teachers, coaches, and police officers. As a result of this research, children appear to be the gatekeepers for bringing the information home to the parents/guardians from either school or word of mouth. If the purpose of the marketing campaign is to attract children to attend to the message and in turn sign up for the safety training, the parent needs to be involved in the sign-up stage. Therefore, further research should be on the parents’ perspective of bicycle safety because it is unknown whether the children or parent plays a more pivotal role in regards to being aware of the campaign and the training and wanting to actually attend said training. More research should also be done with teachers and coaches of children in this study’s designated age group as well as police officers. From this research, it has been
determined that children may not only look to their parents as role models, but credible authority figures as well. More research with this group should be conducted in order to ascertain whether this marketing campaign would more affective if targeted at this audience rather than children.

5. Conclusion

As a result of performing this research, there is a better understanding of what a social marketing campaign targeted at children, ages 9 to 12 years, would require in order to entice this audience to participate in a bicycle safety training program. This research contributes to the health literature by adding the rationale for bicycle safety training and strengthens the argument that bicycle safety training could help fight against the overwhelming disease that is affecting our nation at large; obesity. Extending from this research, a social marketing campaign targeted at children to participate in bicycle safety training will not only allow the parents of the children to have more confidence in their child’s bicycling abilities, but will endow children with access to independent and active transportation. Therefore, safety training will encourage more safe cycling and thereby, increase frequency and duration of moderate-vigorous physical activity.
6. References


http://dvqdas9jty7g6.cloudfront.net/reportcard2011/

ahkc2011_shortform_eng_final.pdf


http://www.canadian-cycling.com/cca/education/canbike.shtml


http://www.nfl.com/play60


ontario_injury_data_report.html


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1253475/


Appendix A

University of Western Ontario Health Sciences Research Ethics Board approval form.

<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Document Name</th>
<th>Comments</th>
<th>Version Date</th>
</tr>
</thead>
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<tr>
<td>Dr. Alan Saloni</td>
<td>Western University Protocol</td>
<td></td>
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<tr>
<td></td>
<td>Letter of Information &amp; Consent</td>
<td>Parent/Guardian</td>
<td>2012/07/06</td>
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<tr>
<td></td>
<td>Assent</td>
<td></td>
<td>2012/05/29</td>
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This is to notify you that the University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects (NMRREB) which is organized and operates according to the Tri-Council Policy Statement, Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMRREB's periodic requests for surveillance and monitoring information.

Members of the NMRREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussions related to, nor vote on, such studies when they are presented to the NMRREB.

The Chair of the NMRREB is Dr. Riley Hinson. The NMRREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 0000941.
Appendix B

Letter of Information presented to study participants and their parents.

Parent/Guardian Letter of Information

Understanding what would make children want to attend a bicycle safety training program

My colleagues and I, at Western University, are writing to request permission for your child’s participation in a research study that we are conducting to understand what would make youth want to attend a bicycle safety training program.

Purpose of the Study
We would like to invite your child to participate in a study in which he/she will tell us what he/she thinks about bicycle safety and safety training.

Procedures
Participation in this study involves one interview that will last approximately 15 to 20 minutes. The interviews will be tape recorded to allow further analysis of the answers provided by the children. No names will be attached to the interview recording.

Feedback from the study
You may request the general findings of this research after the study is complete. If you have any concerns, please feel free to contact the researchers above.

Potential Risks and Discomforts
There are no known or anticipated risks associated with participation in this study.

Benefits
Potential benefits of participating in this study are increased awareness regarding bicycle safety and physical activity.

Compensation
There is no compensation for participating in this study.

Confidentiality
All information that is obtained in connection with this study will remain confidential. Your child’s name will not be recorded. All information obtained will be kept in a locked cabinet in the investigator’s office and will be destroyed once the study is complete. Representatives of The University of Western Ontario Health Science Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

Participation and Withdrawal
Participation in this study is voluntary. Your child may refuse to answer any questions he/she does not want to answer or withdraw from the study at any time.

Rights of Subjects
Contact the Office of Research Ethics at Western University with questions regarding your child’s rights as a participant.

Thank you for your consideration. Please fill out the attached form and have your son or daughter return it to his or her teacher/ camp counsellor.
Appendix C

Consent form given to parents of children recruited for this study.

Parent/Guardian Consent Form

Understanding what would make youth want to attend a bicycle safety training program

I, __________________________ have read the Letter of Information, have had the nature of the study explained to me and I agree to allow my child, __________________________ to participate. All questions have been answered to my satisfaction.

Parent/ Guardian Name (please print clearly): __________________________

__________________________________________
Parent/ Guardian Signature Date

Participant’s (Youth’s) Name (please print clearly): __________________________

__________________________________________
Participant’s (Youth’s) Signature Date

OR I do not wish to have my child __________________________ participate.

Name of child

Person obtaining consent
Appendix D

Assent form given to children recruited for this study.

Assent Form

Understanding what would make youth want to attend a bicycle safety training program

Purpose of the Study

We would like to invite you to participate in a study in which you will tell us what you think about bicycle safety and safety training.

What will happen once you sign up for this study?

You will be asked to meet once for a group interview in which you and one or two more youth will be asked a variety of questions pertaining to bicycle safety. This meeting will last for 20 to 30 minutes and will occur at your school/camp over your lunch break, for your convenience.

Confidentiality

Your privacy is very important and therefore, any information you provide during the focus group meeting will be kept private and will not be shared.

Participation

You can ask questions at any time, before, during or after the interview. Your parent(s)/guardian had given permission for you to participate, however you do not have to participate if you do not want to. If you would like to participate in this study, check “Yes” and sign your name below.

Yes □

I, ___________________________ understand what I am being asked to do to be in this study, and I agree to be in this study.

Participant’s Name (please print clearly)

__________________________ __________________________
Signature Date

Person obtaining consent

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Appendix E

Focus Group Discussion Guide.

Hello everyone, I would first like to thank you for joining me today to participate in this study. My name is Cassie and I am a Masters student at Western University. I am here today because I am interested in hearing what you have to say about bicycle safety and bicycle safety training.

I would like to inform you that our talk today will be audio recorded for research purposes, only. I understand how important it is that information is kept private and confidential. With that in mind, I ask that everyone respects each other’s confidentiality and that people be allowed to talk without interruption or criticism. Are there any questions before we begin?

Interview Questions

(semi-structured questions to be used as a checklist during each focus group meeting)

Stories
1. Think about your friends who ride their bike to school or to your house. Do you think they are more confident and/or independent because they can ride their bike by themselves?
2. Do you think girls or boys are more likely to get hurt? Why? Have you ever been hurt?
3. Can you tell me about a friend that is most likely to injure themselves while riding a bike. Least likely? Some people are the same and some are different. Do you think you are the same or different from your friend that injures themselves while biking?

  Prompts: What do they look like; who are they with; what day/time is it? Characteristics.
4. A. Describe a girl who would want to attend bike safety training? B. Describe a boy who would attend a bike safety training? C. How do you think we could get people to see the importance of bike safety training? Why would you go; what would you get from attending?
5. When you think of your friends’ parents, would they want your friends to take bike safety training or not? How are they the same or different from you? (characteristics, behaviour)

Pictures
6. Draw or make a list of everything you think makes a bike more safe to use. Prompts: Why do you think you should wear helmets and other protective wear while riding a bike?
7. What are some ‘key words’ you think could be used in a commercial for bike safety in order to catch people’s attention? Make a list.
8. Write a commercial for bike safety training. Include what you wrote on your safety and word list.
9. Do you think the commercial should be: Fun, playful, serious, scary, other?
10. What colours do you think should be in the commercial?
11. How would you feel if you saw this type of commercial?
12. Now think of a famous Canadian athlete (Snowboarder, X-games, hockey…). How would you feel if you saw them in a commercial talking about how important it is to practice biking safely and wear protective gear?

Thank you for your cooperation. Your help is very much appreciated. Again, I will remind you that today’s discussion was done in confidence so please refrain from sharing the other person’s stories when you leave here today. Does anyone have any questions before we end our meeting?

Thank you.
Appendix F

*Interview Discussion Guide.*

Interview discussion guide (20 minutes)
(One on one interviews with youth conducted in order to attain more information pertaining to the marketing campaign and what youth perceive as appealing and effective.)

Hello, my name is Cassie and I am a Masters student at Western University. I am here today because I am interested in hearing what you have to say about bicycle safety and bicycle safety training.

I would like to thank you for joining me today to participate in this study. Do you have any questions before we begin?

*Interview Questions*
(Open-ended semistructured questions)

1. Think about your friends who ride their bikes to school or to your house. How do you think this makes them feel?

2. **A.** If you watch television, what is your favourite commercial? *OR* What commercial comes on the television that immediately makes you stop whatever else you’re doing so that you can watch the commercial instead? **B.** Why? What about this commercial is so interesting?

3. **A.** When you look at this picture, how does it make you feel? Rate it on a scale of 1 to 5, 1 being “I don’t like it”, 5 being “I love it”. (show them 1 photo at a time, have them rate it). **B.** Why does this picture make you feel that way? What about this picture is (un)interesting?

4. **A.** After talking about commercials and looking through these pictures, do you think this sort of ad could be used for bicycle safety training? **B.** Who do you think should be in the ad or show you the ad that would make you want to go to bicycle safety training? Ex. Teacher, coach, police officer, parent, friend, celebrity... **C.** How do you think bicycle safety could be advertised so that you or your friends would want to attend training? Ex. Television, social media, poster, flyer, announcement, radio...
Appendix G

*Pictures used during Interviews.*
Appendix H

Curriculum Vitae.

Name: Cassandra Ellis
Post-secondary Education and Degrees:
The University of Western Ontario
London, Ontario, Canada
2007-2011 B.A. (Honors) Kinesiology
2011-2013 M.A Kinesiology candidate

Honours and Awards:
Western Student Graduate Scholarship
2011-2012, 2012-2013
Brescia University College Entrance Scholarship
2007

Related Work Experience:
Teaching Assistant
The University of Western Ontario
2011-2013

Publications: