Social Marketing Messaging to Promote Girls' Active Transportation to School in Victoria, BC

by

Claire Sauvage-Mar
Bachelor of Arts, Goucher College, 2011

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
MASTER OF SCIENCE
in the School of Exercise Science, Physical and Health Education

Supervisory Committee

Social Marketing Messaging to Promote Girls' Active Transportation to School in Victoria, BC

by

Claire Sauvage-Mar
Bachelor of Arts, Goucher College, 2011

Supervisory Committee

Dr. Patti-Jean Naylor, School of Exercise Science, Physical and Health Education
Co-Supervisor

Dr. Joan Wharf Higgins, School of Exercise Science, Physical and Health Education
Co-Supervisor

Abstract

Supervisory Committee

Dr. Patti-Jean Naylor, School of Exercise Science, Physical and Health Education
Co-Supervisor

Dr. Joan Wharf Higgins, School of Exercise Science, Physical and Health Education
Co-Supervisor

Background: Physical activity (PA) is responsible for a multitude of health benefits for girls and young women. Research on active transportation to school (ATS) shows that it is a known way to increase PA. However, girls do not regularly use ATS despite the many physical, mental, and community health benefits of an active commute. One route to improve girls' ATS is by using a Social Marketing framework to discern critical messages for use in a public health marketing campaign. **Methods**: Focus groups with 79 girls between the ages of 7 and 15 were conducted in Spring 2017. Transcripts and poster data were *a priori* categorized by the SM '4Ps' framework (Product, Price, Place and Promotion). Participant groups were segmented into three age categories for tailored messaging. Data were managed using NVivo 11 and were analyzed using Constant Comparative Method tools (Strauss & Corbin, 1998). **Results**: Two thematic areas, Price and Place, were particularly important to girls in defining and appropriate 'marketing mix' for an ATS campaign. Based on our findings, a Social Marketing initiative with girls as the priority audience should be built on empowering girls to overcome the barriers to ATS. Positive and lighthearted messaging emphasizing friendship and independence as promised benefits of ATS would resonate with girls across a broad age range. Further segmentation of the audience would result in more tailored messages based on the different core values and beliefs held by this diverse group.

Table of Contents

List of Tables

List of Figures

Acknowledgements

Thank you first and foremost to PJ Naylor, for all her support and insights during this research project. I am eternally grateful to be in your compassionate and energetic orbit. Forget hard knocks – I'm lucky to be trained in 'the school of PJ'! Thank you. I also want to sincerely thank Joan Wharf Higgins for her expertise in the finer points of community-based research and Social Marketing; your presence and advice enriched my thesis experience. As a female student working with girls throughout this project, I owe a great debt to these two admirable women who demand much of themselves and the next generation of researchers.

The faculty and staff at EPHE have been wonderful guides and mentors – thank you! To the wider Way2Go! team, especially Helen vonBuchholz, Cher Ghafari, Teresa Hartrick, and Jen Parisi, without whom the project would never have gotten off the ground or become an actual campaign, I express my gratitude. Tricia Roche at CFYS was also an amazing help in shaping the research early on.

To my friends and family around the world, I have so much to be thankful for every day. My parents and brother are amazing, my whole family (old and new!) are amazing, and Ali my husband especially is amazing. I love you all.

Claire

Victoria, BC
March 2018

Chapter 1: Introduction

1.1 Overview

Physical inactivity is a childhood epidemic currently contributing to increased levels of overweight, obesity and chronic illnesses such as cardiovascular disease (CVD) and Type II diabetes (Patnode et al., 2010; Spurr, Bally, Trinder, & Williamson, 2016). Meanwhile, regular physical activity (PA) and moderate to vigorous PA (MVPA) is protective against these conditions and is critical to a person's overall health and wellness across the lifespan (Center for Disease Control [CDC], 2011; Tremblay et al., 2011). MVPA can be accomplished with vigorous play, cycling uphill, or even playing a heavy musical instrument in a marching band (CDC, 2000). Walking, biking, and use of other modes of active transportation can also increase PA and MVPA in a person's day (CDC, 2000).

Despite the strong connection between PA and lifelong health, and the wide variety of ways to engage in daily activity, estimates have shown that only 7%-9% of children and youth in Canada participate in 60 minutes or more of MVPA every day (Barnes et al., 2016; Tremblay et al., 2011). In girls specifically, activity and sports participation levels are consistently lower than boys and drop alarmingly in adolescence (Dumith, Gigante, Domingues, & Kohl, 2014; Pearson, Braithwaite, & Biddle, 2015; Trost et al., 2002; van Sluijs, McMinn, & Griffin, 2007). Furthermore, girls are also less likely to be engaged in active transportation to school (ATS), instead being driven passively by an adult or older sibling more than boys (Cooper, Andersen, Wedderkopp, Page, & Froberg, 2005; Leslie, Kremer, Toumbourou, & Williams, 2010).

A growing body of research suggests that ATS is a reliable way for students to expend energy and increase daily MVPA by walking, cycling, skating, or taking public transportation (Andersen et al., 2006; Bere, Seiler, Eikemo, Oenema, & Brug, 2011; Cooper et al., 2005;

Simons et al., 2014; Sisson & Tudor-Locke, 2008). Given that children of school age spend the majority of each year in school, representing at least two trips per day where ATS could be used, an improved understanding of issues around school-related travel behaviour can be beneficial to improving this type of PA.

As with other health behaviours, the decision to engage in active travel is multi-faceted and influenced by a number of beliefs and values. In their conceptual model of active travel, Panter, Jones and van Sluijs (2008) posit that determinants are both individual and community level. At an individual level, choices are influenced by life chances and circumstances (Viner et al., 2012; Wharf Higgins, Rickert, & Naylor, 2006). At the community level, collective action to support behaviour change requires dealing with knowledge, attitudes and intentions of its members (Humpel, Owen, Iverson, Leslie, & Bauman, 2014). Active commuting has been associated with further socioecological elements such as walking infrastructure, safety or neighborhood norms (Panter et al., 2008).

ATS has been described as "popular, convenient and free," (Panter et al., 2008, p. 2). However, the popularity of ATS may be overstated. Current estimates are that 24-26% of Canadian 5-17 year olds use ATS (Canadian Fitness and Lifestyle Research Institute [CFLRI], 2013; PartipACTION, 2016). However, between 2000 and 2010 "the proportion of 5- to 17-year olds using only inactive modes of travel to school… to get to and from school has increased from 51% to 62%" (Mammen et al., 2014, p. 55). Canadian rates of ATS are currently higher than the United States by approximately 10%, but both countries reported a decline in recent decades (Dentro et al., 2014). Ham, Martin, and Kohl (2008) showed that in the 1960's, 48% of American students reported using ATS compared

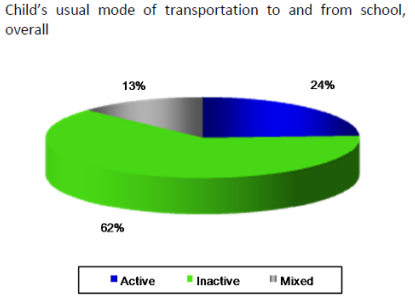


Figure 1. 2011 CFLRI estimates of mode of transportation

to 13% in 2008. This was corroborated by Dentro and colleagues (2014) with a later ATS prevalence estimate of <15%. Beyond North America, global rates of ATS are also in what has been described as a "precipitous" decline (Davison, Werder, & Lawson, 2008).

Given that very few Canadian children currently meet the daily recommended value of 180 minutes of MVPA per day, it is not surprising that the country earned an overall D- grade on the 2016 ParticipACTION Report Card for PA (Figure 2) (Barnes et al., 2016). ATS is one of the measured indicators assessed in the report card, with the country scoring a 'D' in this realm. The report recommends that government and nongovernment (who received grades of B- and A- respectively) partners continue to improve collaboration and funding, as well as addressing inclusion in policy and programming to reflect social determinants of health, in anticipation that these efforts will increase PA in all communities (Barnes et al., 2016). Because ATS is influenced at multiple levels, as outlined by Panter et al. (2008) and others, it requires both individual and community participation as well as policy considerations.

Grades According to Physical Activity Indicator in the Canadian 2016 ParticipACTION Report Card on Physical Activity for Children and Youth

Indicator	Grades
Overall Physical Activity	*D-*
Organized Sport and Physical Activity Participation	*B*
Active Play	*D+*
Active Transportation	*D*
Physical Literacy	*D+*
Sleep	*B*
Sedentary Behaviors	*F*
Family and Peers	*C+*
School	*B*
Community and Environment	*A-*
Government	*B-*
Nongovernment	*A-*

Note. The grade for each indicator is based on the proportion of children and youth meeting a predefined benchmark: *A* is 81% to 100%; *B* is 61% to 80%; *C* is 41% to 60%, *D* is 21% to 40%; *F* is 0% to 20%.

Figure 2. ParticipACTION 2016 Physical Activity Report Card, showing a "D" for active transportation and a "D-" for overall PA

A focus on marketing messaging may complement policy and community infrastructure, with strategies being used to enable and reinforce uptake and maintenance of commuting actively. Improved message quality is one way to maximize uptake of the desired behaviour change, ATS, in the priority audience, girls. This could take the form of evidence-based Social

Marketing (SM) techniques to improve these messages to enhance the success of a health promotion campaign.

SM is the application of commercial marketing techniques to encourage a prosocial behaviour or limit a risky one, and emphasizes keeping the priority audience or 'customer' at the heart of all marketing activities (Andreasen, 1995). Central to SM is a strict belief that the customer must be engaged at all stages of an initiative. Andreasen (1995) describes this focus as a 'fanaticism'. Using tools from the traditional marketing kit, such as focus groups, through which the beliefs, values and motivations of the customer can be deeply understood, SM has met success in various youth health settings, such as smoking cessation (Mintz, Hazel, & Schoales, 1999), safer sex practices (Messer, Shoe, Canady, Sheppard, & Vincus, 2011), sunscreen use (Iannacone & Green, 2014), as well as PA (Cavill & Maibach, 2008). These real-world campaigns draw on the most effective behaviour change techniques to come out of commercial marketing and advertising (Andreasen, 1995).

While SM use in public health has been effective in mass-media campaigns, there is opportunity to employ its suite of techniques to other settings (Cavill & Maibach, 2008; Mintz et al., 1999). Schools are a promising place to establish health promoting behaviours. Children spend prolonged periods of time at school during crucial developmental stages; 'active schools' programs such as those in British Columbia have shown promise to successfully promote PA, particularly in elementary schools (Naylor, Macdonald, Warburton, Reed, & McKay, 2008). Meanwhile, there is a trend to involve children and youth in the development of PA programming, making it a natural fit for SM techniques which can capture audience perspectives and apply it to a promotional campaign (Naylor & McKay, 2009)

Specifically in cities like Victoria, BC, policy priorities reflect a move toward sustainable travel, including updating infrastructure and multi-sectorial efforts to make routes to school safer and easier for students and other commuters in an effort to create healthy communities (Capital Regional District [CRD], 2017). One initiative, titled People Power, implemented through partnership with the Vancouver Island Regional Health Authority (IH), addressed ATS globally and specifically in schools through the Active and Safe Routes to School Program. Based on the strong evidence citing the importance of ATS to overall PA, and that girls were not as active overall as boys and less likely to use ATS, IH set out to design a campaign to increase ATS in girls of all ages, given the title Way2Go! Girls (CRD, 2017). The partnership was expanded to include a SM research component conducted in three South Vancouver Island school districts and was provided funding by the CRD to support a qualitative research project ahead of an IH campaign. Way2Go! was also supported by the Roy Watson Traffic Safety, an initiative funding research on safe roadways in the Victoria Region through the Centre for Youth and Society.

1.2 Purpose of Research

This study used a social marketing lens to understand girls' ATS in Victoria, BC, so that it could be better promoted within this priority group through a subsequent public health campaign.

1.3 Research Questions

1) What are the barriers, motivators, and enablers experienced by girls between 7 and 15 years old in using ATS?
2) What are the critical messages within a campaign that will attract girls to ATS from a social marketing perspective?

1.4 Operational Definitions

1) **Active Transportation to School (ATS):** transportation which includes any "people-powered" or "leg-powered" travel, such as walking, skating, or biking which involve self-locomotion, to travel to and from school (Merom, Tudor-Locke, Bauman, & Rissel, 2006). 'Combined mode trips' are a mixture of active and passive travel such as walking to a bus stop are also included because studies have shown children who take public transportation to school gain PA minutes compared to non-active travelers (Frazer et al., 2015).
2) **Social Marketing (SM):** the application of commercial marketing techniques to programs designed to influence voluntary behaviour of an audience ('customer') in order to improve personal welfare (Andreasen, 1995). All SM research strategies begin with the customer in mind.
3) **4 P's of SM**: Product, Price, Place, and Promotion (Andreasen, 1995). The Product in the present study is girls' ATS and reflects not only the actual activity, but also the underlying beliefs and benefits associated with ATS (e.g., increased CV health and limiting carbon emissions). Price is the relative cost of adopting a behaviour, both in the short term (e.g., cost of a bus pass) and those tied to negative emotions (e.g., fear of strangers or embarrassment). Place captures the distribution channels or where ATS can be encouraged or taken up by the customer. Promotion identifies the key messages and means by which ATS is presented to the customer, for example advertising or peer-to-peer awareness raising.

1.5 Assumptions

Assumptions for the project included:

- Participants willingly and honestly took part in focus group discussions and activities.
- The researcher's rapport with participants informed interpretation of data.
- Students have access to bicycles, scooters or other modes of ATS such as public transportation.

Chapter 2: Literature Review

2.1 Introduction

Physical inactivity is partially responsible for the epidemic of obesity and overweight affecting children and youth around the world (Patnode et al., 2010; Spurr et al., 2016). The "inactivity crisis" is important to address in pediatric populations because failing to meet daily PA recommendations increases the risk of diseases such as Type II diabetes and CVD later in life (Tremblay et al., 2011). Of particular concern is girls' inactivity, which increases as they enter adolescence; studies have shown that activity and sports participation levels drop alarmingly at puberty (Dumith et al., 2011; Pearson et al., 2015; Trost et al., 2002; van Sluijs et al., 2007). Early development of healthy habits such as regular PA has been shown to track along the lifespan, so that children who engage in PA will become adults who engage in PA (Naylor et al., 2008). Increasing girls' overall activity thus contributes to their health as adult women.

A major challenge in turning the tide of girls' inactivity is to understand what factors can influence the adoption of PA behaviours, including ATS (Mota et al., 2007). This review of literature is composed of the following sections: first, evidence will be presented on the

association of ATS and health. Major determinants of ATS will be discussed, including a section specifically on gender, followed by key lessons learned from past youth health-oriented SM campaigns. Finally, limitations and gaps in existing research will be identified.

2.2 ATS and health

ATS encompasses several modes of PA, for example walking, cycling, and skating, as well as mixed modes of travel such as walking to a bus stop (Merom et al., 2006). Accelerometer-based studies have shown that children will gain PA minutes during an active commute that passive commuters will not (Lubans, Boreham, Kelly, & Foster, 2011). Estimates are that ATS itself contributes between 3.5-14 more minutes of MVPA during the actual journey to school, which is typically under one kilometer (Faulkner, Buliung, Flora, & Fusco, 2009; Lubans et al., 2011). Additionally, there is evidence that ATS translates to higher step counts and burning of kilocalories (Faulkner et al., 2009).

Meta-analyses and reviews have shown that children who engage in ATS report more overall minutes of MVPA each day (Faulkner et al., 2009; Larouche, Saunders, Faulkner, Colley, & Tremblay, 2014; Lubans et al., 2011). Faulkner and colleagues (2009) found that in 13 studies, active commuters accumulated at least 20 minutes more of MVPA compared to non-active commuters each day; in girls, ATS users reported an average of 4.7 to 40 minutes more of MVPA than non-ATS users. Larouche et al. (2014) found that 81.6% of 68 studies reviewed showed that ATS "was associated with significantly higher PA levels, despite the limitation of accelerometers and pedometers in measuring PA during cycling" (p. 209).

Importantly, the positive association between ATS and MVPA appears stronger during weekdays than weekends. Saksvig et al. (2007) found that girls who reported using ATS before

and after school had a total of 13.7 minutes more of overall PA and 4.7 minutes more of MVPA on weekdays only (in Faulkner et al., 2009). A British study found no significant differences between groups on weekends, but a significant difference in PA during weekdays, particularly in boys (Cooper, Page, Foster, & Qahwaji, 2003). In the British Columbian context, Frazer et al. (2015) found that over one third of school-day MVPA was explained by ATS in all children. The literature shows a clear weekday association between active commutes and PA, an expected result as this type of activity only occurs on days when school in is session. Faulkner et al. (2009) suggest that in addition to more PA through commuting, it may be that ATS users engage in additional sport-based activities during the week, but there is no consensus on the association between ATS and participation in other activities.

Heelan and colleagues (2005) posited that the amount of energy expended during a commute cannot counteract a chronic lack of PA and the associated obesity epidemic. In other words, a mere 20 minutes of ATS may not offset multiple sedentary hours of television or other screen time each day (Faulkner et al., 2009; Poitras et al., 2016). Additionally, studies may be inconsistently defining what makes an active traveler. Often included are students who use ATS once per week, or who use active travel either only to school or only returning home; this highlights the need for consistent measures and ideally only the inclusion in this category of "those individuals whose primary mode (3 or 5 times per week) involves self-locomotion" (Faulkner et al., 2009, p.7).

The link between ATS and healthy weight or BMI is less straightforward than the relationship between active commuting and PA (Faulkner et al., 2009; Lubans et al., 2011; Schoeppe, Duncan, Badland, Oliver, & Browne, 2013). There is even conjecture that students who use ATS are likely to buy food during an unsupervised trip, though this may not be a

significant factor to weight status (Madsen & Gosliner in Schoeppe et al., 2013). In a European study isolating cycling and prevalence of overweight, results indicated a significant negative association between cycling to school and being overweight (Bere et al., 2011). On the other hand, a study of 600 children living in Nebraska found significant results in the opposite direction, suggesting higher ATS rates were associated with greater BMI (Heelan et al., 2005). These surprising results in some studies of a positive relationship between ATS and weight requires more investigation (Larouche et al., 2014; Schoeppe et al., 2013).

Given that the literature on ATS demonstrates a positive association between ATS and PA, the fact that no clear relationship exists for healthy weight and other fitness indicators is perhaps unexpected (Lubans et al., 2011; Schoeppe et al., 2013). Furthermore, the benefits of ATS with regards to MVPA minutes may be restricted to weekdays and limited to a smaller timeframe of a child's year (Faulkner et al., 2009). More research is needed to explore these questions in order to arm ATS promoters with a more fulsome understanding of how active commutes impact child and adolescent health.

2.3 Determinants of and Barriers to ATS

Studies using socioecological models of behaviour have theorized that dozens of variables determine ATS with varying strength, including physical environment (i.e., street lighting), economic (i.e., parent's occupation status), and socio-cultural factors (i.e., ethnicity) (Panter, Corder, Griffin, Jones, & van Sluijs, 2013; Pont, Ziviani, Wadley, Bennett, & Abbott, 2009). This discussion will identify the most significant relationships present in the literature. For a comprehensive view of all social and environmental determinants of ATS, refer to Panter et al., 2008.

Distance to a destination is consistently the strongest determinant of active travel in cross-sectional studies (Faulkner et al., 2009; Panter et al., 2008; Panter et al., 2013; Pont et al., 2009). Numerous research reviews have shown that ATS trips are generally taken when the

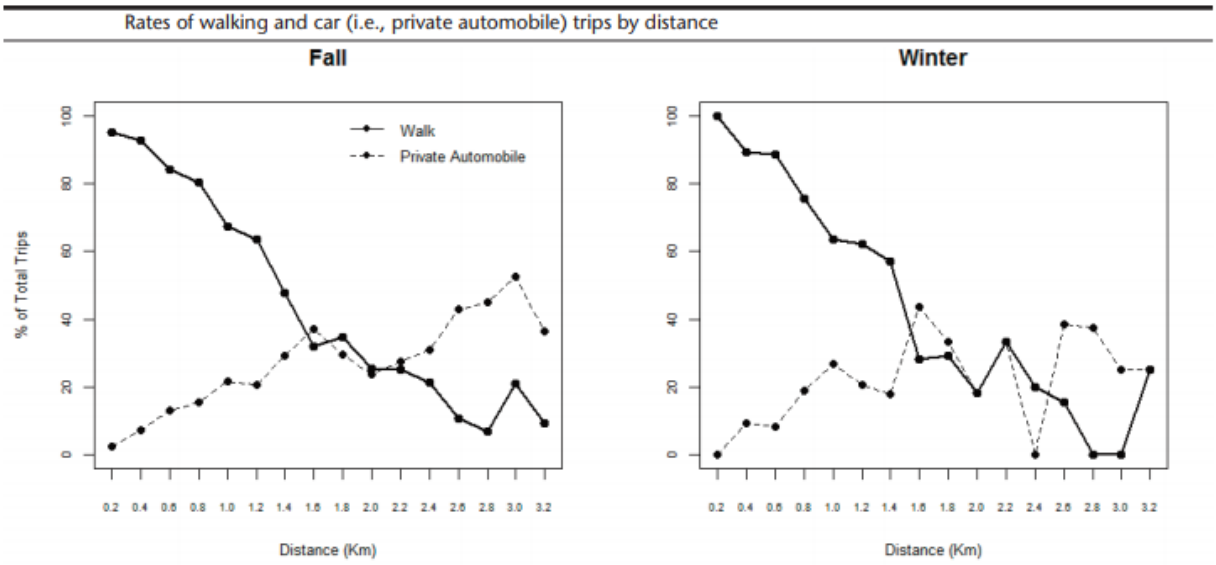


Figure 3. Fall versus winter travel mode and distance from school. With increasing distance, % of total walking trips decreases (Mitra & Faulkner, 2012)

distance is small, lasting less than 15 minutes or one kilometer (Faulkner et al., 2009; Lubans et al., 2011). Interestingly, distance has a negative relationship with rates of walking regardless of uncontrolled factors such as changes in seasonal climate, as shown by Mitra and Faulkner (2012) in their comparison of ATS in fall and winter in urban Toronto (Figure 3). Snow, rain, and extreme temperatures can affect type of clothing worn for a commute or even road quality, but do not impact rates of ATS (Mitra & Faulkner, 2012).

Physical environmental factors include attributes of the route, such as topography, aesthetics and street connectivity, as well as attributes of the destination, such as school size (Panter et al., 2008). Relationships between physical environment factors were moderated by distance, age, and gender across the literature (Faulkner et al., 2009; Panter et al., 2013; Pont et al., 2009). In a systematic review of 38 studies, Pont and colleagues (2009) found that proximity

to parks, recreation centres and play areas was significantly associated with children's PA, as was density of population. Interestingly, one study included in the review found that girls 10-15 years old who could name 10 or more recreation areas near their home were significantly more likely to use active transportation (Evenson et al., 2006, in Pont et al., 2009).

Children were shown to engage in more ATS when parents perceived a safe neighbourhood in terms of crime and child safety (e.g., 'Stranger Danger'), but with small effect sizes (Davison et al., 2008; Pont et al., 2009). Traffic safety was found by Humpel and colleagues (2014) to have no association with physical activity. Reviews have shown that concerns about personal safety were associated with ATS in both negative and positive directions, with effects not necessarily mediated by age or gender (Panter et al., 2008; Pont et al., 2009). The mixed associations between ATS and perceived safety, both from crime and from traffic risks, reflects a complex conceptualization of safety which requires further investigation from both parent and child perspectives.

There is some research into whether demographic and family characteristics play a role in determining ATS. In Dutch and American contexts, immigrant or ethnic minority background has been shown to be positively related with ATS (Pont et al., 2009). Considerable variability has been observed in studies looking at the relationship between parent's marital status or family structure and ATS (Faulkner et al., 2009; Panter et al., 2013).

Age has been found to act as a considerable modifier on the relationship between ATS and the built environment in younger age groups (Panter et al., 2008; Pont et al., 2009). In a sample of 6 to 14-year-olds, Mammen and colleagues (2014) found that for every one year of age, children were significantly more likely to change from being driven to ATS. However, this positive relationship of age and ATS behaviour appears not to extend into secondary school,

when youth are beginning to drive or be driven by peers. In the Canadian context, higher prevalence of walking or cycling have been reported in elementary populations compared to secondary school students (Wong, Faulkner, Buliung, & Irving, 2011).

Children's attitude to PA is a key individual level factor studied in relation to ATS. Measures of attitude such as enjoyment of PA or eagerness to walk have not been associated with commuting behavior (Davison et al., 2008). However, Panter et al. (2008) posited that attitudes would "clearly" influence a child's decision to walk or cycle and that it could be that these contradicting findings result from elastic measures of child (or for that matter, parental) attitudes toward ATS. Travel behaviour results from a complex deliberation of the relative benefits of passive and active transport, attitudes about which, Panter points out, could change daily.

2.4 Gender

ATS is in decline worldwide among all genders (Dentro et al., 2014). Nevertheless, there is evidence that the number of girls actively transporting in all settings is in decline faster than boys (Mammen, Faulkner, Builiung, & Lay, 2012). Analysis of gender influences in ATS research has shown that boys engage in slightly more ATS than girls, mirroring overall PA engagement (Davison et al., 2008; Faulkner et al., 2009). This complements longitudinal evidence that they self-selected out of PA as they aged into young adulthood (Dumith et al., 2011; Trost et al., 2002).

Davison and colleagues (2008) found boys using ATS gained 45 minutes more of MVPA per day, a high estimate compared to other studies; they also found female ATS users only had a difference of 4 minutes of MVPA on weekdays compared to female passive commuters (p. 2).

However, in a later review by Lubans et al. (2011), 12 studies found that boys walked more than girls, but six found that girls walked more than boys. Three reviews found modal differences according to gender, suggesting that girls favoured walking over cycling or skating (Cooper et al., 2005; Davison et al., 2008; Leslie et al., 2010). A study of child cyclists in the UK found that girls were less likely to have cycled in the past week compared to boys, and that fewer than 2% of girls reported regular cycling as part of their school commute (Teyhan, Cornish, Boyd, Sissons Joshi, & Macleod, 2016). Concurrently, research indicates that cycling is more energy intensive per unit of time compared to walking (Bere et al., 2011). Girls thus tended to opt out of more strenuous forms of ATS even when they did engage in active commuting.

A concept related to ATS is independent mobility, which is measured by unsupervised travel and is largely determined by the same factors noted in the discussion above (Schoeppe et al., 2014). As supervised passive transport is on the rise, this may translate to a "loss of opportunity for children to explore independently their local neighborhoods" (Tranter & Whitelegg, 1994, p. 265). Of children who did engage in independent mobility, boys were found to have more freedom to venture from home without supervision compared to girls their age (De Meester, van Dyck, De Bourdeaudhuij, & Cardon, 2014). Further study of independent mobility as a potential mediator of ATS and PA could be twinned with a qualitative inquiry into parental perceptions of their children's self-efficacy or confidence to use ATS. This may shed light on parents' decision-making processes, as they are 'gatekeepers' of child PA and travel behavior (De Meester et al., 2014).

It is evident that a number of elements factor into girls' ATS behaviour. Due to the complex, multi-level influences on active travel, clearly a greater understanding of the perspectives of both girls and their parents is needed to increase ATS prevalence. In addition to

continued observational study of commuting behaviour, applying a social marketing lens could greatly expand our conceptualization of ATS by weaving in the values and beliefs girls themselves hold about active travel. A Social Marketing approach may thus support the creation of relevant messages to inspire girls to take up and maintain ATS.

2.5 Social Marketing

The "bottom line" in SM is influencing behaviour, and builds on various theories of behaviour change and approaches to addressing social problems (Andreasen, 1995). Traditional efforts of marketers have focused on the sale of tangible products directly to customers; however, the uptake of social or behavioural change is not so easily measured. In the 1940's, marketers began to question why they could not "sell brotherhood like you sell soap" (Wiebe in Kotler & Zaltman, 1971). The field of SM has thus developed to learn from consumer marketing in order to affect change in individual behaviour and wider communities (Andreasen, 1995).

In addition to commercial concepts, SM also embraces numerous and compatible behaviour change theories, such as Social Learning Theory, Transtheoretical Model, Self-Determination Theory, Social Ecological Model, and Behavioural Economics to name a few, to inform the development and tailoring of the marketing mix for different audiences. There is evidence to suggest that SM is an effective framework for enhancing knowledge translation and uptake of public health messages (Wharf Higgins, 2011). Indeed, there is compelling evidence in the Australian context that skin-cancer awareness campaigns have coincided with a 'generational shift' in melanoma incidence, suggesting that agile marketing can be an effective public health tool (Iannacone & Green, 2014).

Since the 1960's, the concept of the SM marketing mix has been defined principally by the '4Ps': Product, Price, Place and Promotion (Andreasen, 1995; Lee & Kotler, 2011). Product reflects three aspects: (1) the Core Product or the underlying beliefs and benefits associated with ATS, (2) the Tangible Product or actual activity of ATS (e.g., biking, walking, blading), and (3) the Augmented Product or ways in which value is added to enrich the experience of ATS. Price includes both the short-term or instrumental costs associated with the product which may be endured during ATS, such as getting wet in rainy weather or purchasing helmets and other safety gear, and those terminal costs tied to negative emotions such as fear, trust, or embarrassment. Place captures the distribution channels or where ATS can be taken up, including networks and physical spaces. Promotion identifies the key messages and delivery modes needed to inform about ATS and inspires the priority audience to act on the behaviour (Andreasen, 1995).

A debate on the role and relevance of the 4Ps may see the model updated to further re-orient marketing efforts toward consumers' perspectives (Gordon, 2012). This has regrettably resulted in marketing mix recipes "displaying a strange predilection towards alliteration, naming six, seven then perhaps a limitless number of Ps" (Gordon, 2012, p. 124). As no proposed model has garnered as much backing as the original 4Ps framework it remains a standard, though some assert that the field may eventually face a paradigm shift in terms of what is considered the best marketing mix (Constantindes, 2006).

A SM approach was used in a youth health setting in the VERB™ campaign of 2002-2006 in the US. This campaign sought to market PA, sport and play to young audiences, specifically 'tweens' aged 9 to 13 years old (Cavill & Maibach, 2008). VERB™ was groundbreaking because it deliberately used techniques known to be successful in the private sector to "sell" PA (Asbury, Wong, Price, & Nolin, 2008). Two elements crucial to the success

of the VERB™ campaign were a powerful brand identity and the segmentation of audiences into smaller consumer groups with distinct motivations for adopting PA (Aeffect Inc, 2001; Andreasen, 1995). The campaign recruited celebrities for commercials, engaged in pop-up marketing at various cultural events, and eschewed the dry public service announcements which were long synonymous with health education (Aeffect Inc, 2001; Asbury et al., 2008; Cavill & Maibach, 2008). A fun, social, and flexible brand for youth PA encapsulated in the tagline, *"It's what you do!"* was then applied across planned campaign messages and activities (Aeffect Inc., 2001; Asbury et al., 2008).VERB™'s innovative strategies are generally "now thought of as a national demonstration project" on the impact of social marketing campaigns on population health (Cavill & Maibach, 2008, p. S173).

Segmentation of the national tween audience was two-fold and aimed to address health inequities in populations thought to be less likely to connect to the general VERB™ messaging strategy. First, English-language marketing activities targeted a broad swathe of American youth; second, professional advertising agencies were hired to develop messages specifically tailored for four ethnic minority groups (Huhman et al., 2008). The market research within each segment represented a commitment by VERB™ to reach every customer with tailored messaging. The resulting strategies toward each segment were cool, edgy brands which connected with culturally distinct audiences (Andreasen, 1995; Berkowitz et al., 2008).

Another exemplar of a successful SM campaign that has endured to this day was the truth® campaign to stop teen smoking. Field studies and at least one quasi-experimental study have shown that exposure to the truth® campaign was associated with a decreased risk of smoking in youth (Farrelly, Nonnemaker, Davis, & Hussin, 2009). Based in Florida, truth® is widely credited with innovative messaging which demonized tobacco, while not falling into the

trap of attracting teens to a taboo product (Hicks, 2001). The message quality in truth® – frank, honest, and foregoing a moralistic stance on smoking – serves as a reminder that youth abhor being "told what to do," and that successful social marketing campaigns should refrain from "preaching" if a brand is to become popular among young people (Hicks, 2001).

Legacies from these SM examples revolve around the commitment to youth perspectives and engagement driving the campaign. Importantly, both the VERB™ and truth® campaigns were awarded sufficient funding as to enable consulting with private sector marketing firms throughout the process. VERB™ had the largest ever CDC budget for a single initiative with $125 million allocated; truth® was in fact funded with $200 million out of a settlement paid for by major tobacco companies (Hicks, 2001; Wong et al., 2004). Beyond large budgets, the cross-disciplinary methods used in planning VERB™ and truth® have made public health officials reevaluate the options available to them when promoting health to young people (Cavill & Maibach, 2008; Wong et al., 2004). Efforts to enhance youth health increasingly engage the priority audience through the use of SM techniques for youth-centric campaign design.

Smaller SM campaigns, not just those with big budgets, have successfully been used in university settings to create messaging that resonate with young adults. Namely, a student-led campaign aimed at curbing dangerous alcohol use titled, "The Stupid Drink", was extremely successful in striking a audience-friendly tone (Sinopoli, Savaiano, Rozmus, & Ceran, 2009). Similar to the truth® campaign's non-authoritarian messaging style, "The Stupid Drink" did not frame the pervasive act of "drinking" as taboo or even negative, but instead sought to stigmatize the one drink which put students into the territory of "drinking too much" (Hicks, 2001; Sinopoli, Savaiano, Rozmus, & Ceran, 2009). Students exposed to the campaign found the messages believable and effective, a goal in any SM campaign.

2.6 Limitations and Key Gaps in the Literature

The current state of the literature on ATS demonstrates some methodological limitations. In particular, the large number of variables measured and the cross-sectional nature of the studies demonstrate the complexity of ATS behaviour (Davison et al., 2008; Faulkner et al., 2009). In elucidating the variety of factors affecting ATS uptake, there appears to be little consensus on where to prioritize future research efforts based on current frameworks. While the focus has been on conceptualizing frameworks for ATS, some determinants such as beliefs about the impact of ATS on climate change or the impact of family dynamics must be further examined, as both environmental and sociological changes continue to be seen (Panter et al., 2008; Pont et al., 2008).

Qualitative studies have looked at factors influencing PA and describe school travel experiences of youth in a variety of settings and using tools such as focus groups (Race et al., 2017; Simons et al., 2014). Included in these qualitative studies are visual methods, such as 'draw and write' reactions to photo prompts (Chadborn et al., 2013). However, to our knowledge no focus group or poster-voice studies on youth perceptions of ATS have focused on girls exclusively. This is the body of literature to which we seek to contribute.

2.7 References (Chapters 1 and 2)

Aeffect, Inc. (2001). *Message Strategy Research to Support Development of the Youth Media Campaign (YMC): Revealing Target Audience Receptiveness to Potential YMC Message Concepts (Rep.).* Lake Forest, IL.

Andreasen, A. (1995). Marketing social change. 1st ed. San Francisco: Jossey-Bass.

Asbury, L. D., Wong, F. L., Price, S. M., & Nolin, M. J. (2008). The VERB™ campaign: Applying a branding strategy in public health. *American Journal of Preventive Medicine, 34*(6 Suppl), S183.

Barnes, J. D., Cameron, C., Carson, V., Chaput, J-P., Faulkner, G.E.J., Janson, K., Janssen, I., Kramers, R., LeBlanc, A.G., Spence, J.C., Tremblay, M.S. (2016). Results from Canada's 2016 ParticipACTION Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health, 13*(Suppl. 2), S110-S116). http://dx.doi.org/10.1123/jpah.2016-0300

Bere, E., Seiler, S., Eikemo, T. A., Oenema, A., & Brug, J. (2011). The association between cycling to school and being overweight in Rotterdam (The Netherlands) and Kristiansand (Norway). *Scandinavian Journal of Medicine and Science in Sports, 21*(1), 48–53. https://doi.org/10.1111/j.1600-0838.2009.01004

Berkowitz, J. M., Huhman, M., Heitzler, C. D., Potter, L. D., Nolin, M. J., & Banspach, S. W. (2008). Overview of formative, process, and outcome evaluation methods used in the VERB™ Campaign. *American Journal of Preventive Medicine, 34*(6 SUPPL.), 222–229.

Canadian Fitness and Lifestyle Research Institute. (2013). *Bulletin 10: Transportation Among Children and Youth.* Retrieved from: http://www.cflri.ca/sites/default/files/node/1235/files/CFLRI%20PAM%202010-2011%20Bulletin%2010%20EN.pdf

Capital Regional District. (2017). *Active & Safe Routes to School*. Retrieved from: https://www.crd.bc.ca/project/regional-transportation/active-safe-routes-to-school

Cavill, N., & Maibach, E. W. (2008). VERB™: Demonstrating a viable national option for promoting physical activity among our children. *American Journal of Preventive Medicine, 34*(6 SUPPL.), 173–174. https://doi.org/10.1016/j.amepre.2008.03.013

Center for Disease Control and Prevention. (2000). *General Physical Activities Defined by Level of Intensity.* Retrieved from https://www.cdc.gov/nccdphp/dnpa/physical/pdf/pa_intensity_table_2_1.pdf

Center for Disease Control and Prevention. (2011). *Strategies to Prevent Obesity and Other Chronic Diseases: The CDC Guide to Strategies to Increase Physical Activity in the Community.* Atlanta, GA: U.S. Department of Health and Human Services.

Chadborn, N. H., Gavin, N. T., Springett, J., & Robinson, J. E. (2013). "Cycling - exercise or trying to stop pollution": Methods to explore children's agency in health and climate change. *Local Environment, 18*(3), 271-288.

Constantinides, E. (2006). The marketing mix revisited: Towards the 21st century marketing. *Journal of Marketing Management, 22*(3-4), 407-438. 10.1362/026725706776861190

Cooper, A. R., Andersen, L. B., Wedderkopp, N., Page, A. S., & Froberg, K. (2005). Physical activity levels of children who walk, cycle, or are driven to school. *American Journal of Preventive Medicine, 29*(3), 179–184. https://doi.org/10.1016/j.amepre.2005.05.009

Cooper, A. R., Page, A. S., Foster, L. J., & Qahwaji, D. (2003). Commuting to school: Are children who walk more physically active? *American Journal of Preventive Medicine, 25*(4), 273-276.

Davison, K. K., Werder, J. L., & Lawson, C. T. (2008). Children's active commuting to school: Current knowledge and future directions. *Preventing Chronic Disease, 5*(3), 1-11.

De Meester, F., Van Dyck, D., De Bourdeaudhuij, I., & Cardon, G. (2014). Parental perceived neighborhood attributes: Associations with active transport and physical activity among 10-12 year old children and the mediating role of independent mobility. *BMC Public Health, 14*(1), 631. 10.1186/1471-2458-14-631

Dentro, K. N., Beals, K., Crouter, S. E., Eisenmann, J. C., McKenzie, T. L., Pate, R. R., Saelens, B. E., Sisson, S.B., Spruijt-Metz, D., Sothern, M. S., & Katzmarzyk, P. T. (2014). Results from the United States' 2014 Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health, 11*(S1), S105-S112.

Dumith, S. C., Gigante, D. P., Domingues, M. R., & Kohl III, H. W. (2011). Physical activity change during adolescence: A systematic review and a pooled analysis. *International Journal of Epidemiology, 40*(3), 685-698.

Farrelly, M. C., Nonnemaker, J., Davis, K. C., & Hussin, A. (2009). The influence of the national truth ® campaign on smoking initiation. *American Journal of Preventive Medicine, 36*(5), 379-384. 10.1016/j.amepre.2009.01.019

Faulkner, G. E. J., Buliung, R. N., Flora, P. K., & Fusco, C. (2009). Active school transport, physical activity levels and body weight of children and youth: A systematic review. *Preventive Medicine, 48*(1), 3–8. https://doi.org/10.1016/j.ypmed.2008.10.017

Frazer, A., Voss, C., Winters, M., Naylor, P. J., Wharf Higgins, J., & McKay, H. (2015). Differences in adolescents' physical activity from school-travel between urban and suburban neighbourhoods in metro Vancouver, Canada. Preventive Medicine Reports, 2, 170-173. 10.1016/j.pmedr.2015.02.008

Gordon, R. (2012). Re-thinking and re-tooling the social marketing mix. *Australasian Marketing Journal (AMJ), 20*(2), 122-126. 10.1016/j.ausmj.2011.10.005

Ham, S. A., Martin, S., & Kohl III, H. W. (2008). Changes in the percentage of students who walk or bike to school—United States, 1969 and 2001. *Journal of Physical Activity and Health*, *5*(2), 205-215.

Heelan, K. A., Donnelly, J. E., Jacobsen, D. J., Mayo, M. S., Washburn, R., & Greene, L. (2005). Active commuting to and from school and BMI in elementary school children - preliminary data. *Childcare, Health and Development, 31*(3), 341-349. 10.1111/j.1365-2214.2005.00513.x

Hicks, J. J. (2001). The strategy behind Florida's "truth" campaign. *Tobacco Control, 10*(1), 3-5. 10.1136/tc.10.1.3

Huhman, M., Berkowitz, J. M., Wong, F. L., Prosper, E., Gray, M., Prince, D., & Yuen, J. (2008). The VERB campaign's strategy for teaching African-American, Hispanic, Asian, and American Indian children and parents. *American Journal of Preventive Medicine, 34*(6), S194–209. https://doi.org/10.1016/j.amepre.2008.03.012

Humpel, N., Owen, N., Iverson, D., Leslie, E., & Bauman, A. (2014). Perceived environment attributes, residential location, and walking for particular purposes. *American Journal of Preventative Medicine, 26*(2), 119-125.

Iannacone, M., & Green, A. (2014). Towards skin cancer prevention and early detection: evolution of skin cancer awareness campaigns in Australia. *Melanoma Management 1*(1). https://doi.org/10.2217/mmt.14.6

Kotler, P., & Zaltman, G. (1971). Social Marketing: An approach to planned social change. *Journal of Marketing, 35*(3), 3-12.

Lee, N. & Kotler, P. (2011). Social Marketing: Influencing Behaviors for Good. 3rd Edition. Thousand Oaks, CA: SAGE.

Larouche, R., Saunders, T. J., Faulkner, G. E.J., Colley, R., & Tremblay, M. (2014). Associations between active school transport and physical activity, body composition, and cardiovascular fitness: A systematic review of 68 studies. *Journal of Physical Activity and Health, 11*(1), 206-227.

Leslie, E., Kremer, P., Toumbourou, J.W., & Williams, J.W. (2010). Gender differences in personal, social and environmental influences on active travel to and from school for Australian adolescents. *Journal of Science and Medicine in Sport, 13*(6), 597–601. https://doi.org/10.1016/j.jsams.2010.04.004

Lubans, D. R., Boreham, C. A., Kelly, P., & Foster, C. E. (2011). The relationship between active travel to school and health-related fitness in children and adolescents: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity, 8*(1), 5-27.

Mammen, G., Faulkner, G., Buliung, R., & Lay, J. (2012). Understanding the drive to escort: a cross-sectional analysis examining parental attitudes towards children's school travel and independent mobility. *BMC Public Health, 12*(862), 1–12. https://doi.org/10.1186/1471-2458-12-862

Mammen, G., Stone, M. R., Faulkner, G., Ramanathan, S., Buliung, R., O'Brien, C., & Kennedy, J. (2014). Active school travel: An evaluation of the Canadian school travel planning intervention. *Preventive Medicine, 60*(1), 55-59.

Merom, D., Tudor-Locke, C., Bauman, A., & Rissel, C. (2006). Active commuting to school among NSW primary school children: Implications for public health. *Health & Place, 12*(4), 678-687.

Messer, L. C., Shoe, E., Canady, M., Sheppard, B. K., & Vincus, A. (2011). Reported adolescent sexual norms and the development of a social marketing campaign to correct youth

misperceptions. *Journal of Children and Poverty, 17*(1), 45–63. https://doi.org/10.1080/10796126.2011.539197

Mintz, J. H., Hazel, J., & Schoales, T. (1999). Challenge to youth: A Health Canada anti-tobacco campaign. *Social Marketing Quarterly, 5*(3), 99-102. https://doi.org/10.1080/15245004.1999.9961071

Mitra, R., & Faulkner, G. (2012). There's no such thing as bad weather, just the wrong clothing: Climate, weather and active school transportation in Toronto, Canada. *Canadian Journal of Public Health, 103*(9 Suppl 3), eS35.

Mota, J., Gomes, H., Almeida, M., Ribeiro, J. C., Carvalho, J., & Santos, M. P. (2007). Active versus passive transportation to school – differences in screen time, socio-economic position and perceived environmental characteristics in adolescent girls. *Annals of Human Biology, 34*(3), 273-282.

Naylor, P. J., Macdonald, H. M., Warburton, D. A., Reed, K. E., & McKay, H. A. (2008). An active school model to promote physical activity in elementary schools: Action Schools! BC. *British Journal Of Sports Medicine, 42*(5), 338-343. 10.1136/bjsm.2007.042036

Naylor, P. J., & McKay, H. A. (2009). Prevention in the first place: schools as a setting for action on physical inactivity. *British Journal of Sports Medicine, 43*(1), 10-13.

Naylor, P. J., Strange, K., Kopelow, B., Fenton, J., Li, L., Burrows, M., Wharf Higgins, J., & McKay, H. (2011). A creative brief for physical activity messaging. *Physical & Health Education Journal, 77*(3), 6-11.

Panter, J. R., Jones, A. P., & van Sluijs, E. M. F. (2008). Environmental determinants of active travel in youth: A review and framework for future research. *International Journal of*

Behavioral Nutrition and Physical Activity, *5*(34), 1–14. https://doi.org/10.1186/1479-5868-5-34

Panter, J., Corder, K., Griffin, S. J., Jones, A. P., & van Sluijs, E. M. (2013). Individual, socio-cultural and environmental predictors of uptake and maintenance of active commuting in children: Longitudinal results from the SPEEDY study. *The International Journal of Behavioral Nutrition and Physical Activity, 10*(1), 83-83. 10.1186/1479-5868-10-83

ParticipACTION. (2016). *The 2016 ParticipACTION Report Card on Physical Activity for Children and Youth.* Retrieved from: https://www.participaction.com/sites/default/files/downloads/2016%20ParticipACTION%20Report%20Card%20-%20Full%20Report.pdf

Patnode, C. D., Lytle, L. A., Erickson, D. J., Sirard, J. R., Barr-Anderson, D., & Story, M. (2010). The relative influence of demographic, individual, social, and environmental factors on physical activity among boys and girls. *International Journal of Behavioral Nutrition and Physical Activity, 7*(79), 1-10.

Pearson, N., Braithwaite, R., & Biddle, S. J. H. (2015). The effectiveness of interventions to increase physical activity among adolescent girls: A meta-analysis. *Academic Pediatrics, 15*(1), 9–18.

Poitras, V. J., Carson, V., Chaput, J. P., Saunders, T. J., Connor Gorber, S., Kho, M.E., & Tremblay, M. S. (2016). *Canadian 24-Hour Movement Guidelines for Children and Youth: An Integration of Physical Activity, Sedentary Behaviour, and Sleep Guideline Development Report.* Retrieved from: http://www.csep.ca/en/guidelines/canadian-24-hour-movement-guidelines

Pont, K., Ziviani, J., Wadley, D., Bennett, S., & Abbott, R. (2009). Environmental correlates of children's active transportation: A systematic literature review. *Health and Place, 15*(3), 849-862. 10.1016/j.healthplace.2009.02.002

Race, D. L., Sims-Gould, J., Lee, N. C., Frazer, A. D., Voss, C., Naylor, P. J., & McKay, H. A. (2017). Urban and suburban children's experiences with school travel – A case study. *Journal of Transport & Health, 4(1)* 10.1016/j.jth.2017.01.011

Schoeppe, S., Duncan, M. J., Badland, H. M., Oliver, M., & Browne, M. (2014). Associations between children's independent mobility and physical activity. *BMC Public Health, 14*(1), 91. https://doi.org/10.1186/1471-2458-14-91

Simons, D., Clarys, P., De Bourdeaudhuij, I., de Geus, B., Vandelanotte, C., & Deforche, B. (2014). Why do young adults choose different transport modes? A focus group study. *Transport Policy, 36*(1), 151–159. https://doi.org/10.1016/j.tranpol.2014.08.009

Sinopoli, M., Savaiano, P., Rozmus, G., & Ceran, P. (2009). *Syracuse University's "The Stupid Drink" Campaign Book* [Slideshow]. Retrieved from: https://www.slideshare.net/prceran/syracuse-universitys-the-stupid-drink-campaign-book

Sisson, S. B., & Tudor-Locke, C. (2008). Comparison of cyclists' and motorists' utilitarian physical activity at an urban university. *Preventive Medicine, 46*(1), 77–79. https://doi.org/10.1016/j.ypmed.2007.07.004

Spurr, S., Bally, J., Trinder, K., & Williamson, L. (2016). A multidimensional investigation into the predictors of physical activity in Canadian adolescents. *Journal of Holistic Nursing, 4*(1), 390-301. 10.1177/0898010115625504

Teyhan, A., Cornish, R., Boyd, A., Sissons Joshi, M., & Macleod, J. (2016). The impact of cycle proficiency training on cycle-related behaviours and accidents in adolescence: Findings

from ALSPAC, a UK longitudinal cohort. *BMC Public Health, 16*(469). 10.1186/s12889-016-3138-2

Tranter, P., & Whitelegg, J. (1994). Children's travel behaviour in Canberra: Car-dependent lifestyles in a low density city. *Journal of Transportation Geography, 2*(4), 265–273. https://doi.org/10.1016/0966-6923(94)90050-7

Tremblay, M.S., LeBlanc, A.G., Kho, M.E., Saunders, T.J., Larouche, R., Colley, R.C., Goldfield, G., Connor Gorber, S.C. (2011). Systematic review of sedentary behaviour and health indicators in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity, 8*(1), 98–119. https://doi.org/10.1186/1479-5868-8-98

Trost, S. G., Pate, R. R., Sallis, J. F., Freedson, P. S., Taylor, W. C., Dowda, M., & Sirard, J. (2002). Age and gender differences in objectively measured physical activity in youth. *Medicine & Science in Sports & Exercise, 34*(2), 350-355.

Van Sluijs, E.M.F., McMinn, A.M., & Griffin, S.J. (2007). Effectiveness of interventions to promote physical activity in children and adolescents: Systematic review of controlled trials. *BMJ, 335*(1). https://doi.org/10.1136/bmj.39320.843947.BE

Viner, R. M., Ozer, E. M., Denny, S., Marmot, M., Resnick, M., Fatusi, A., & Currie, C. (2012). Adolescent health 2: Adolescence and the social determinants of health. *The Lancet, 379*(9826), 1641.

Wharf Higgins, J. (2011). Navigating through translational research – a social marketing compass. *Health Marketing Quarterly, 28*(1), 1-15

Wharf Higgins, J., Rickert, T., & Naylor, P. J. (2006). The determinants of physical activity – why are some people active and others not? In C. Saylor (ed.), *Weight Loss, Exercise and Health* (pp. 99-152).

Wong, B.Y.E., Faulkner, G., Buliung, R., & Irving, H. (2011). Mode shifting in school travel mode: Examining the prevalence and correlates of active school transport in Ontario, Canada. *BMC Public Health, 11*(1), 618-620.

Wong, F., Huhman, M., Heitzler, C., Asbury, L., Bretthauer-Mueller, R., McCarthy, S., & Londe, P. (2004). VERB - a social marketing campaign to increase physical activity among youth. *Preventing Chronic Disease, 1*(3), A10. https://doi.org/A10

Chapter 3: Manuscript for Social Marketing Approach to Understanding and Promoting Girls' Active Transportation

3.1 Introduction

Despite the strong connection between physical activity (PA) and lifelong health, and the wide variety of ways to engage in daily activity, current rates of PA are extremely low among young Canadians. Estimates are that only 7%-9% of children and youth participate in 60 minutes or more of moderate to vigorous PA (MVPA) every day (Barnes et al., 2016; Tremblay et al., 2016). Inactive young people are unnecessarily at risk for developing chronic illnesses such as cardiovascular disease and Type II diabetes (Patnode et al., 2010; Spurr, Bally, Trinder, & Williamson, 2016). Regular exercise is also known to have effects on cognition and psychosocial function in children (Lees & Hopkins, 2013). As PA behaviour tracks into adulthood, with research suggesting that active children become active adults, it is appropriate to prioritize youth PA for its protective effects on health across the lifespan (Malina, 1996).

Research shows that girls do less PA as they become adolescents compared to their male counterparts (Dumith, Gigante, Domingues, & Kohl, 2014; Pearson, Braithwaite, & Biddle, 2015; Spurr et al., 2016; Trost et al., 2002). Girls are also less likely to engage in active transportation to school (ATS) (Cooper, Anderson, Wedderkopp, Page, & Froberg, 2005; Davison et al., 2008; Patnode et al., 2010; van Sluijs et al., 2007). ATS is a reliable way to expend energy by walking, cycling, skating, or taking public transportation (Andersen et al., 2006; Bere, Seiler, Eikemo, Oenema, & Brug, 2011; Cooper et al., 2005; Merom, Tudor-Locke, Bauman, & Rissel, 2006; Simons et al., 2014; Sisson & Tudor-Locke, 2008). Female ATS users report 4.7 to 40 minutes more MVPA than female non-ATS users (Faulkner, Buliung, Flora, & Fusco, 2009). Current estimates are that 24-26% of Canadian 5-17 year olds use ATS regularly,

but children are increasingly using only inactive modes of travel since 2000 (Canadian Fitness and Lifestyle Research Institute [CFLRI], 2013; Mammen et al., 2014; PartipACTION, 2016).

Along with gender, other major determinants of ATS include distance from school and age (Panter, Jones, & van Sluijs, 2008). Distances of more than 15 minutes or one kilometer consistently show a strong negative relationship with ATS (Faulkner et al., 2009; Frazer et al., 2015; Lubans, Boreham, Kelly, & Foster, 2011; Panter et al., 2008; Pont, Ziviani, Wadley, Bennett, & Abbott, 2009; Wong, Faulkner, & Buliung, 2011). Environmental factors studied in relation to ATS include attributes such as quality of the route and aesthetics, traffic safety, and personal safety (Panter et al., 2008). Weather has been studied as a barrier, but no significant statistical effects have been observed (Mitra & Faulkner, 2012). Several other factors have been studied, such as family dynamics, ethnicity, modelling, independent mobility, and mode of ATS (Bere et al., 2011; De Meester, van Dyck, De Bourdeaudhuij, & Cardon, 2014; Pont et al., 2009).

Based on the strong evidence indicating the importance of ATS to overall PA, the Capital Regional District of Vancouver Island (CRD) began an initiative titled People Power to create safer active commutes in Victoria, British Columbia. Based on further evidence that girls were less likely to use ATS than boys a sub-project, focused on girls and young women, partnered the Vancouver Island Regional Health Authority (IH) with the University of Victoria (UVic) and utilized a Social Marketing (SM) lens to better understand girls' experiences of, and encourage participation in, ATS (Naylor et al., 2011). These "upstream" stakeholders sought perspectives from girls, the priority "downstream" audience, in order to inform future strategies to boost girls' PA (Lee & Kotler, 2011).

Rather than beginning with a mindset that any campaign to increase ATS would be successful in changing travel behaviour, a SM framework was chosen because it requires

researchers and public health practitioners to learn directly from the priority audience what messages they feel would be effective based on their age, gender, behaviour, attitudes and beliefs directly from the priority audience (Andreasen, 1995; Naylor et al., 2011). SM is the application of commercial marketing techniques to encourage a prosocial behaviour or limit a risky one, and emphasizes keeping the priority audience or 'customer' at the heart of all marketing activities; a focus that has been described as a 'fanaticism' (Andreasen, 1995; Lee & Kotler, 2011). Using tools from the traditional marketing kit, SM has met success in various youth health settings, such as curbing alcohol abuse (Sinopoli, Savaiano, Rozmus, & Ceran, 2009), smoking cessation (Mintz, Hazel, & Schoales, 1999), safer sex practices (Messer, Shoe, Canady, Sheppard, & Vincus, 2011), sunscreen use (Iannacone & Green, 2014), as well as PA (Cavill & Maibach, 2008).

The purpose of the present research was: a) to identify key creative messages to guide a campaign for ATS in the CRD and b) to add to the evidence base linking ATS and girls' PA.

3.2 Research Design

We employed a pragmatic approach to this qualitative case study in order to describe the barriers and motivators of ATS in girls. The study aimed to provide insights into a future real-world SM campaign, and could be classified as an instrumental case study (Stake, 2003). This design enables the researcher to view complex, real-world phenomenon holistically (Yin, 2003).

According to Patton (2015), rigorous techniques are needed to address any controversy about the quality of findings in qualitative analysis, including case studies. With this in mind, a two-step process was used. The first step consisted of semi-structured focus group interviews to identify crucial barriers to and determinants of ATS. The second step brought three purposively chosen groups back together to confirm the findings and have the priority audience create posters

with messages they thought would attract their cohort to ATS. These posters constituted a secondary visual data source.

3.2.1 Recruitment and sample

School principals in three school districts and a non-governmental organization in the Greater Victoria area were contacted by the research team or a project partner. Students were recruited either directly by the researchers through classroom recruitment meetings, or by individual teachers identified by the school or organization administration. Ethical approval for the study was obtained from the Ethics Review boards of the University of Victoria, Island Health, and the three participating School Districts. Seventy-nine youth participants were recruited in Spring 2017 including Elementary (ES, n = 28), Middle (MS, n = 26), and Secondary School (SS, n = 25) aged girls.

Segment	**Age range**	**Number of focus groups**	**Number of participants**	**SD 61**	**SD 62**	**SD 63**	**Other**
Elementary	7-10	4	28	1	1	1	1
Middle	11-13	4	26	1	0	2	1
Secondary	14-15	5	25	1	1	2	1
Total		*13*	*79*	*3*	*2*	*5*	*3*

Table 1. Participants were segmented into three age groups: Elementary, Middle, and Secondary

3.2.2 Data Collection

The first data collection period consisted of 35-60 minute-long focus groups, with 4-9 girls, one facilitator and an assistant. Interviews took place both inside and outside of school hours, and at a variety of times based on participant availability; non-school groups met during weekends or evenings (Table 1). Non-school groups included a dance group, a Girl Guides group, and a group of recent newcomers to Canada. If the interview was conducted during or

around a school lunch period, a full meal was provided; otherwise, a healthy snack was offered to all participants. The focus groups followed a semi-structured interview schedule (Appendix B, C). Participants and a parent or guardian provided written consent, and pseudonyms chosen by each participant were used throughout the study to help protect their anonymity. During the second data collection period, the research team asked participants from three purposively chosen groups to clarify the main barriers and facilitators to ATS based on initial focus group themes. Participants were then asked to make posters related to the ideas generated in the discussion. They were prompted to create messages they thought would be successful in attracting girls to ATS based on ideas generated in discussion. Following the two data collection periods, the primary researcher transcribed interviews, memos and notes verbatim, and photographed posters (Gale, Heath, Cameron, Rashid, & Redwood, 2013; Strauss & Corbin, 1998).

3.2.3 Data Analysis

Our methods, described following, were guided by procedures in other school-based research (Chadborn, Gavin, Springett, & Robinson, 2013; Naylor et al., 2011; Spurr et al., 2016). Both interview and poster data were managed and analyzed using NVivo 11 (QSR International, Melbourne, Australia). Analysis of posters identified representations of key family members associated with ATS and extracting phrases reflecting the priority audience's beliefs and attitudes toward the desired behaviour (Chadborn et al., 2013; Naylor et al., 2011). These visual data acted as a supplementary source to provide more depth to emergent themes (Strauss & Corbin, 1998).

We used the Constant Comparative Method, including the use of framework analyses, to analyze our data (Strauss & Corbin, 1998). To precisely explicate and systematize our work to

increase traceability, we derived a three-step analysis procedure based on previous research processes to analyze text (Boeije, 2002; Gale et al., 2013). Based on the material gathered, our three steps of comparison were:

1. Comparison within a single interview;
2. Comparison between interviews from different groups in the same age segment;
3. Comparison between interviews of different age segments.

In Step 1, the aim was to develop a list of provisional codes to describe the core tenor of each passage, an inventory of these codes, and a summary of each interview (Boejie, 2002). The initial open coding process was informed by the a priori SM framework as a means to reduce and organize the interview data. Provisional themes were organized *a priori* by the parent SM concepts Product, Price, Place, Promotion (Andreasen, 1995). Memos written during this step focused on consistency of code development, with an eye to any contradictions present within the transcription (Boejie, 2002).

In Step 2, the Constant Comparative Method (CCM) and Framework Analysis matrices were used to categorize, code, delineate and connect chunks of data based on provisionary theoretical concepts from Step 1 (Boeije, 2002; Gale et al., 2013). A secondary aim of Step 2 was to better understand how the three audience segments perceived ATS, requiring a side-by-side comparison of fragments from different interviews in the same segment.

During Step 3, no more code words were added as the primary goal was to gain deeper insights into the motivations and barriers to do ATS in the three segments we interviewed. The step was undertaken to triangulate data by taking interviews from different segments and comparing how they experience the same phenomena (Boeijie, 2002). We compared fragments

in Framework Matrices from different segments with the same code side-by-side to tabulate results based on how many times they emerged in a discussion.

3.3 Results

Our semi-structured focus group schedule was created to facilitate discussion about ATS and how best to encourage this physical activity in girls aged 7-15. Results were organized *a priori* by the following SM themes: Product (surrounding perceived benefits associated with ATS), Price (costs associated with ATS), Place (spaces and openings to engage in ATS), and Promotion (means to inform and communicate about ATS opportunities and increasing its popularity). These themed results are elucidated following (Figure 4). Illustrative quotes are subsequently organized by major theme and are identified by pseudonym and school code in brackets to clarify if the participant was in the Elementary School (ES), Middle School (MS) or Secondary School (SS) segment.

Figure 4. Main themed results in 4P's framework

Product

Appreciation of the **physical health benefits** as a product of ATS was clear in younger segments. Understanding of the physical health benefits was discussed at length with the youngest study participants, who believed that ATS could "get your legs stronger, and you can do more, harder things" [Kole, ES03]. Positive effects and feelings were shared, for example: "I really do enjoy the feeling after doing it" [Sara, MS02]. Though MS and SS students fully understood the physical health benefits of ATS, they were reluctant to endorse it as a fun way of getting exercise compared to ES. North [SS05] noted that as an athlete, she felt "active enough with all the sports that we play, that [I] don't really want to have to walk places or bike places".

Curbing climate change was important to all audience segments, who spoke articulately about the connection between passive transport and fossil fuel use. Terms such as "air pollution", "environment", and even the more technical "climate change" were articulated by younger segments. ES and MS students described car use as "wasting gas", and felt "happy" when they could do something that was "better for nature" and "polar bears" [Gemma, MS02; Fern, ES02]. Again, SS students reflected on the apathy in their adolescent age group. Multiple students explicitly said that the environmental case for ATS would not be effective against apathy in adolescents: "it sounds bad, but people don't really care" [North, SS05].

MS and SS participants equated ATS and **mental health benefits**. They said that it provided access to "fresh air" [Star, MS01; Lulu, SS02] and time away from a screen [Ryan, MS01]. Overall, they preferred relaxing trails or side streets to high volume roads which were "too loud", while being "in a small neighborhood or through a trail… it's just more relaxing and more enjoyable… you feel less tired when you get to school, and more able to work" [Sonya, SS03]. The same participant went on to associate healthy eating with PA and access to nature as beneficial to her well-being.

Being with friends was framed as an opportunity for "bonding… so if you want to hang out with one another you can walk with them" [Arwen, SS01]. Socializing with peers could offset a longer journey by providing a distraction: "it goes by really fast" [Jocelyn, SS03] and does not feel "lonely" with a companion [Lucy, ES01]. Arriving at their destination with a group was regarded as being socially desirable; one MS student said that "it doesn't matter where" she goes on the bus so long as she had "a little group of people, your squad" [Ella, MS02].

Price

Distance was a price and barrier for active commuting to any "faraway place" because of the increased travel time [Lucy, ES01]. When asked if she used ATS, Oakley said, "I probably wouldn't bike to school because I live too far" [MS02.1]. Older segments acknowledged that they could walk "if they wanted to", but still found distance a barrier [HS05]. An SS participant added that ATS would be more palatable if she had something to look forward to:

> When it's just a boring day at school, and you have to do a test or something, it makes me want to sleep in. But when there's something exciting at school, I think, oh, I'm going to walk today. You're prepared for school. [Sonya, SS03]

ES participants said **traffic** was "scary", and shared experiences of speeding cars "whipping around a corner" [ES03]. All segments reported a feeling of claustrophobia when interacting with vehicles, and noted drivers being distracted by loud music or other people in the vehicle [Lucy, HS03]. They admitted some fault may be with distracted pedestrians: "I don't find it cool when you're going for a walk and people have their earbuds in and they can't really hear what's going on in the road, they can't really hear the cars are honking at them and crashing into the sidewalk" [Gemma, MS02.1]. Improved visibility would allay their nervousness: "I don't

think that cars can see the bike lanes. And that makes me scared while I'm in it" [Banana, MS01].

Personal safety was equated with fear of strangers and travelling alone, especially at night. Across segments, participants noted that "potentially sketchy people" made them avoid certain routes [North, SS05]. Some individuals responded to the issue of 'stranger danger' with phrases such as, "If they say get in the van because we have candy, don't get in the van," [Willow, MS01], similar to responses from youth focus groups in other research, which may have been said with tongue in cheek (Race et al., 2017). Interestingly, while most other groups focused on fears, a group comprised of recent adolescent newcomers to Canada said that they felt totally safe travelling in Victoria [Lulu, Baro, SS02].

Most groups noted that **weather, carrying large items**, and **falling** were potential prices associated with ATS. Pepper [MS01] said that "when it's raining, my dad will drive me or my family" in order to avoid weather she considered "rainy and just gross and cold and stuff." Lulu [SS02], on the other hand, said she liked snow and did not mind walking in a flurry, and other participants pointed out ways to overcome poor weather:

Facilitator: "What kind of things could make you walk, regardless of the weather?"

Sonya: "Maybe if you have a friend, or an umbrella?"

Carrying large items was considered especially inconvenient, explained for example by Amanda [PFG01] who noted that "in band… you have to carry your instrument… and it's really heavy." Across segments, anecdotes of falling during ATS were a barrier in that participants reported being too scared to try rollerblading or biking in the rain. "If you fall or really hurt yourself, there's no one there to help," worried one ES participant [Lily, ES03].

Place

Uniformly, the **aesthetics** of natural landscapes were preferable to busy roads. A natural setting was considered much more pleasant when compared to walking past construction or loud roads: "walking on the side of the road isn't the nicest thing… and sometimes it just doesn't feel safe. Whereas on trails, it's just better," said Ryan (MS02.1). Flowers, trees, animals, and sunrises [SS03, MS01, SS01] were memorable natural phenomena on the trip to school. **Road and sidewalk quality** were frequently described as disrupting or enriching their experience performing ATS. The actual routes where girls take up ATS sometimes have "potholes in some places and no sidewalks or anything," making the risk of falling much higher [Lucy, SS03]. In the winter, lack of sidewalks or inadequate upkeep meant that one student "had to walk into the middle of the road because that was the only part that was getting salted" [Alena, PFG01]. More than one student lamented that steep hills are "not fun to bike. They're the main reason I don't want to do it" [Pepper, MS01].

All segments referred to **school** as an opening to place ATS. This was discussed in the form of school-wide events, such as bike rodeos or Victoria Walk and Bike To School Week [MS01] and intra-class competitions [ES02]. Daniela [HS01] suggested that school credit would attract older students concerned about graduation, "if you somehow found a way… if you walk home from there you get a certain amount of credits… I know I would." Incorporating walking in other school activities was suggested as a way to promote ATS:

> Last year [we] had this teacher who on Mondays would take us out for nature walks… a lot of people don't walk because they think, oh, I'm not in shape to walk, I can't do that. So, it would be like, oh actually, you can walk, you learned how. [Banana, MS01]

Improved bathrooms and locker rooms were suggested as supportive of ATS; if girls felt sweaty or dirty, these would be places to prepare for the day. However, it was thought that shared areas may quickly become dirty and unappealing if not kept clean, calm, and well stocked [PFG01; SS02]. Effective placement at school would also include influencers who support ATS. SS participants noted that older youth would be effective messengers by modelling the behaviour. Lucy [SS03], for instance, noted that "the [Grade 12 students] are always really pumped up about everything. They could probably convey the message pretty loudly".

Family dynamics emerged as a complicating factor in the placement of ATS. In families where parents did not live together, participants described two commuting plans based on which house they had slept at or which house they were going to. Positioning ATS in the context of family may need to reflect that many children split time between houses, affecting the way they conceptualize ATS:

> I have two different houses, so my parents are divorced. I have two nannies, I usually walk with one. And then with my dad… we will drive there and then my dad has to drive to work because his work is really far away… When I'm at my mom's I walk with my best friend Oliver, he lives one street away from me. [Nina, ES03].

While not discussed in depth, the theme **time of day** emerged in all segments, with older segments reporting more activities after school. Girls suggested that they were more likely to take up ATS behaviour after school (i.e. on the way home) as opposed to before school, because it was "cold and dark" in the morning, particularly in winter [ES01, SS01]. "I think if school did start later it would encourage walking," said North [SS05] and other older students, who also cited jobs and sports as other places they might ATS to.

Promotion

All segments volunteered **incentives, games, and competitions** as ways to promote ATS. As an incentive, candy and pizza were universally popular. Eva, one of the youngest ES participants, said that "a million dollars… or a free cotton candy" would be appropriate prizes to reward ATS. "I feel like if they had … pizza, I would definitely walk," said one SS student [SS03], but other incentives were more activity based. Daisy and Winter [MS02.1] were enthusiastic about an outdoor "Fun Day!... with maybe some hamster balls, and some games to use", while others in their age segment suggested days for both adults and children to improve cycling skills [MS01]. ES students suggested updating games they already played themselves: "Something that would be fun for me, when I go on my bike… I try not to hit any sticks or leaves, and kind of dodge them. It's pretty fun," said Ally [ES01].

All segments suggested that **quality of messaging** be fun, positive, and amusing. MS and SS students noted that a campaign must not come across as patronizing. A complaint was that school authorities and teachers "tell you what to do all day long" [James Bond, SS03], and that "kids don't like being told to do something… it's a fact," [Alena, PFG01]. The idea of ATS as a 'chore' was unappealing. When discussing a possible promotional movie, Jen [SS05] noted that people need to want to "watch it on their own time" [SS05].

Not surprisingly for this digital generation, **technology** featured in discussions with MS and SS participants. This was less so with ES participants, who may not have access to their own devices yet. Specific platforms were discussed by adolescents as ways to promote ATS:

> Oakley: Set a trend on Instagram or Snapchat.
>
> Facilitator: What kind of pictures would you post?
>
> Daisy: Of you walking to school.

> Summer: You'd have to post a picture and then write what it is as a caption, and put in some slang. [MS02.1]

MS students suggested that school websites [MS01] and announcements [PFG01] would be effective, though SS student Jen [SS05] had a different opinion: "I'm pretty sure [our school has] Instagram and Twitter accounts. But nobody follows them." For this reason, she and other SS students suggested school social media would not work in their segment to promote ATS.

Participants of all ages thought – and many social marketers would agree – that **peer-to-peer** promotion would be effective (Andreasen, 1995). "Tell them the benefits. And then tell them why it's good for them," said Daisy [MS02]. An ES student echoed this idea of friends convincing each other to give up driving to school:

> Fern: Try to stop using gas... and do the active travel, and try to ride more environmental things.
>
> Facilitator: And how would you get people to do that?
>
> Fern: Say to them that it's not healthy to use vehicles like that. [ES02]

Overall, the sentiment with students was that if "more people do it", ATS will gain a following [MS01; MS02]. Youth in a slightly older age group were again considered better messengers than parents or teachers: "Yeah, I think that people older than us [are] more effective to tell us to walk to school," said Sonya [SS03]. One participant succinctly noted, "Monkey see, monkey do. We learn off our parents. If they ride a bike more, we ride a bike more" (Suze, MS0101).

Posters

Posters were created based on what images and words participants thought would attract their age group to ATS. Interestingly, an ES poster positively depicted ATS in rainy "Stormville", reading "Walk in the rain, its fun!!" and "rain is awesome" (Figure 5). This echoes research by Mitra and Faulkner (2012) regarding weather and walking in Toronto, which found that inclement weather does not affect ATS behaviour.

Figure 5. Detail of ES poster, "Walk in the rain!"

Another theme in posters was incentivizing ATS (Figure 6). Posters made by both MS and ES students depicted "sweet treats" as a lure to ATS [Watermelon, MS02.1]. One featured a large cupcake, underneath which small letters read: "Just kidding, but you do get 2 free Timbits [bite-sized fried dough balls] when you ride your bike!" Similarly, ES students created posters in which free food was offered to children for ATS, while free coffee was offered to parents.

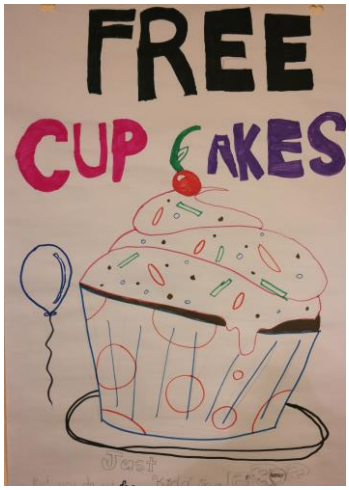


Figure 6. Middle School poster using incentive

Interestingly, the language used by SS participants was generally in the imperative, extolling the viewer to do ATS because it was "good for you" or that it was a responsibility to "save the environment" (Figure 7). This was in contrast to focus group data in the segment, in which it was suggested that neither a compulsory nor an environmental message would be appropriate to promoting ATS as a product for adolescent girls.

Figure 8. Secondary School poster, using language in the imperative and focusing on an environmental message

A noteworthy incentive suggested in the oldest age segment was the opportunity to be independent through ATS. Older students thought parents would support ATS if the act helped teenage girls learn independence, indicating that the positioning of ATS as a family activity may be more appropriate for girls who have not yet reached adolescence [SS02]. Mothers were depicted three times in posters; fathers were not mentioned. A large-font message was directed at Mom to "STOP!" because the child doesn't "need a ride" (Figure 8). A depiction of a family car is covered with a red 'X'.

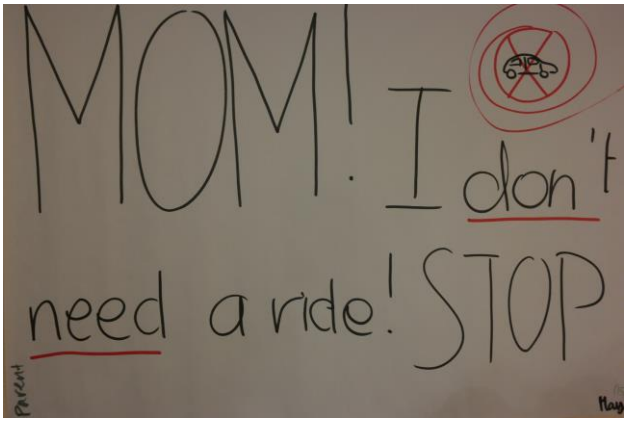


Figure 7. Poster emphasizing independence from parents and the family vehicle

3.4 Discussion

The importance of early adoption of PA to health across the lifespan is well established (Malina, 1996). The known association between girls' PA and ATS makes it an appropriate target for a public health campaign because it is free, easy to adopt, and can take place during

much of the year (Panter et al., 2008). A social marketing campaign to promote ATS may build from lessons learned in other youth health promotion campaigns by hearing directly from the group whose behaviour we seek to change (Andreasen, 1995; Cavill & Maibach, 2008; Mintz et al., 1999; Naylor et al., 2011). Messages can be built around concepts raised by the priority audience in order for them to truly resonate (Sinopoli, Savaiano, Rozmus, & Ceran, 2009).

While ATS is the desired behaviour of an SM campaign targeting the three age segments of girls in our study, it is important that the core values and beliefs held by the priority audience be folded in to campaign messaging. With some overlap, we identified one core value to describe each age segment. The youngest participants, in Elementary School, valued having fun above all during ATS; Middle Schoolers suggested that an environmental message was important to them, as well as having fun; and Secondary Schoolers told us that learning independence from their parents through ATS was their most valued attribute of ATS (Figure 9). The tenor of messaging should reflect these core values gleaned directly from each segment and forego an authoritative bent, instead using recognizable language and concepts from the lives of the priority audience (Mintz, Hazel, & Schoales, 1999; Sinopoli, Savaiano, Rozmus, & Ceran, 2009).

Two thematic areas of the 4P's framework, Price and Place, are particularly important to defining the elements of a successful SM campaign according to our results. Prices such as the physical costs of being uncomfortable due to poor weather or an overloaded backpack, emotional and psychological costs associated with fear of traffic or strangers, and perceived costs associated with time spent commuting were all major barriers to taking up ATS. A social marketing initiative to encourage ATS must address girls' perceptions of the importance or likelihood that these costs will be experienced among female students. Places were discussed in the context of the school setting, inclusive of physical spaces and networks of people, as well as

the built and social environment girls must navigate during ATS, such as negotiating traffic in a busy intersection. Social marketing 'Place strategies' can also be effective in diminishing instrumental and psychological costs related to ATS.

We have devised an easy-to-remember acronym, "A-T-S", based on our findings to minimize prices associated with active travel in the places where the behaviour can be taken up, which combined with segmented core values and belief can be used to enact behaviour change (Figure 9). This abbreviation is meant to remind upstream audiences of the non-PA elements surrounding ATS behaviour according to girls. Campaign planners and policy makers can use this tool to jumpstart the creation of a 'marketing mix' to address the following elements so that the audience links the desired behaviour back to their core values and belief (Andreasen, 1995).

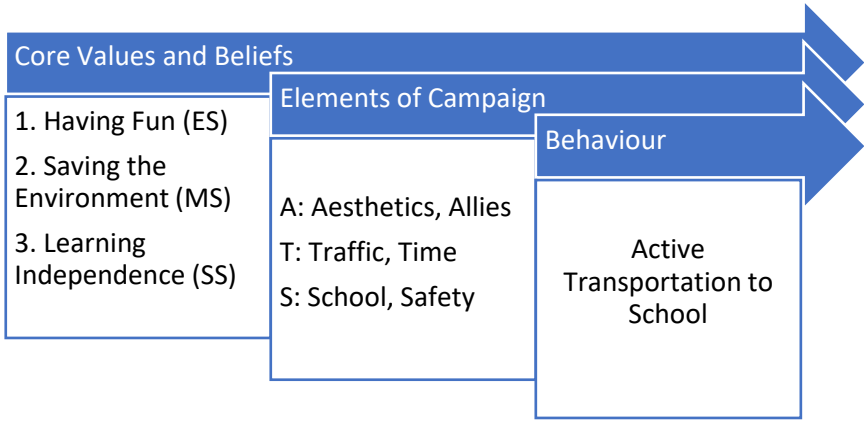


Figure 9. Ways forward for SM campaign messaging

Enhancing aesthetics of the built and natural environment have been proposed by past research (Panter et al., 2008). Participants suggested an enhanced trail and bike path network, and other ways of making the location of the behaviour more appealing such as public art along their route (Lee & Kotler, 2011). Allies, a strong external motivator, were positively associated with ATS and may help them overcome perceived barriers such as poor weather (Mitra & Faulkner, 2012). Allies include family and teachers, but especially friends.

Efforts to enhance ATS must address traffic, particularly to empower girls to feel safe around motor vehicles by helping them overcome psychological barriers associated with ATS (Faulkner et al., 2009; Lee & Kotler, 2011; Pont et al., 2009; Race et al., 2017). Participants identified biking lessons as ways for children – and adults – to become more proficient ATS users. Time, associated with distance, is an important external element to address as it is a strong deterrent of ATS (Faulkner et al., 2009; Panter et al., 2008). A SM campaign can emphasize avoiding traffic on foot or by bike; time spent in commute could also be recast as a moment for improving mental health in preparation for the day. A school-based SM campaign may choose a place strategy such as extending hours available for students to ATS by pushing back school start times to accommodate longer commutes (Lee & Kotler, 2011).

School is an extremely important venue for childhood PA (Naylor et al., 2011). Participants suggested multiple activities for ATS based in the school environment, such as class trips or credits, which may spur activity across multiple age groups by working within existing channels which distribute messaging about healthy living (Lee & Kotler, 2011). Another strategy suggested by SS students was to make access to driving more difficult, for example by removing parking spaces. Finally, De Meester et al. (2014) and others have linked ATS and broader safety concerns as particularly important for girls, who are less likely to travel unaccompanied compared to boys (Faulkner et al., 2009). Increasing the benefits of ATS for girls may take the form of recognizing that girls face more barriers to ATS than boys, such as a sticker prize for girls who regularly ATS, or more public recognition like an annual award for girls presented by a respected female community member or girl-focused organization (Lee & Kotler, 2011).

3.5 Limitations and Ways Forward

This pragmatic qualitative case study used a SM lens to identify key messages to promote ATS in girls. It was delimited to English-speaking children and youth identifying as female between the ages of 7-15 in the Victoria Capital Regional District with parental consent to participate.

While to our knowledge this is the first study to undertake formative SM research in girls' ATS, there were limitations. Limitations associated with focus groups include potential response and recall bias, as well as in-group dynamics affecting the consensus of the group (Andreasen, 1995). Further, no psychometric, demographic, or physiological moderators of PA assessed, nor were interviews conducted with parents or the school administration to triangulate the findings from the youth data.

A methodological limitation was that poster data were only collected with three groups, limiting these visual results to a subset of participants. Finally, there was potential selection bias of volunteer participants. Four of 13 groups (31%) were recruited from physical education (PE) or leadership classes and may have had a disproportionate participation in and appreciation for PA and school wellness programs, potentially limiting the study's internal validity.

Future ways forward can extend the findings of our study. For example, any campaign should have a regional understanding of the priority audience. The girls in our study all lived within three school district areas of the Victoria, B.C. region, but there was still variability within the types of neighbourhoods where they lived or went to school, bringing to light differences between suburban and urban ATS (Frazer et al., 2015). Further, other stakeholders could be included, such as upstream audiences like policy makers and city planners, as well as teachers and planners. SM principals like customer orientation could remain the same in such a study, but

would create messages to a different priority audience of adults who might influence girls' ATS (Lee & Kotler, 2011). More longitudinal data on ATS prevalence in girls and their families would present the impetus to conduct future research in the area.

Development and design of marketing collateral with an outside advertising agency would produce high quality and attractive materials for a pro-ATS campaign (Cavill & Maibach, 2008). Attractive, entertaining messages with a lighthearted tone will be effective in promoting ATS if properly tailored to each segment. A lesson reiterated by the participants in our study is that making ATS popular among adolescents will require that the messaging and campaign avoids condescension (Mintz et al., 1999). The results show the importance of segmentation; messaging reflecting the diversity of developmental stages in each segment will be needed (Andreasen, 1995). A campaign must be mindful of the wide variety of feelings, experiences, and interpretations of ATS shared by the girls and young women through this study.

3.6 Summary

The participants in this study spend over half of each year in school from Monday to Friday, but their commute is an often overlooked opportunity for PA. Our current understanding of girls' ATS behaviour is that they are generally more passive travelers than boys, thus not benefitting from the strong association between ATS and overall PA (Faulkner et al., 2009). We have also seen that past SM campaigns in youth health have found success when rooted in messaging tailored to different segments while avoiding pejorative language (Mintz et al., 1999; Cavill & Maibach, 2008). Based on the evidence that girls of all ages are not using ATS regularly, promotional efforts by regional health authorities may benefit from studies such as ours which focus on what values and beliefs the priority audience holds about ATS (Andreasen, 1995; Faulkner et al., 2009).

ES participants engaged in ATS and appreciated the physical sensations associated with vigorous PA. MS audiences were motivated not only by the immediate physical effect of ATS, but also by how their actions affected their social surroundings and the natural environment. As all groups noted the importance of older students modelling ATS behaviour, SS girls are an influential group for whom to develop specific messaging. For all groups, tangible incentives such as food or school credit for participation may be appropriate initially, but intangible benefits such as being considered part of a cool "squad" or being independent from parents appear to be stronger motivators.

In summary, key messages for a SM campaign to increase ATS should be tailored to girls based on their ages. Marketers should strive to create age-appropriate messages addressing six key elements which address both upstream and downstream improvements: aesthetics and the physical environment's effect on travel; allies who may aid in the overcoming of barriers to ATS; traffic and other safety concerns; time and perceived convenience compared to passive travel; and school as an appropriate centre of SM activities. By increasing the use of active transportation in girls, a successful campaign can impact their lifelong health and wellness as adult women.

3.7 References

Andersen, L. B., Harro, M., Sardinha, L. B., Froberg, K., Ekelund, U., Brage, S., & Anderssen, S. A. (2006). Physical activity and clustered cardiovascular risk in children: A cross-sectional study (The European Youth Heart Study). *Lancet, 368*(9532), 299–304. https://doi.org/10.1016/S0140-6736(06)69075-2

Andreasen, A. (1995). Marketing social change. 1st ed. San Francisco: Jossey-Bass.

Barnes, J. D., Cameron, C., Carson, V., Chaput, J-P., Faulkner, G. E. J., Janson, K., Janssen, I., Kramers, R., LeBlanc, A. G., Spence, J. C., Tremblay, M. S. (2016). Results from Canada's 2016 ParticipACTION Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health, 13*(Suppl. 2), S110-S116. http://dx.doi.org/10.1123/jpah.2016-0300

Bere, E., Seiler, S., Eikemo, T. A., Oenema, A., & Brug, J. (2011). The association between cycling to school and being overweight in Rotterdam (The Netherlands) and Kristiansand (Norway). *Scandinavian Journal of Medicine and Science in Sports, 21*(1), 48–53. https://doi.org/10.1111/j.1600-0838.2009.01004

Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality & quantity*, *36*(4), 391-409.

Canadian Fitness and Lifestyle Research Institute. (2013). *Bulletin 10: Transportation Among Children and Youth.* Retrieved from: http://www.cflri.ca/sites/default/files/node/1235/files/CFLRI%20PAM%202010-2011%20Bulletin%2010%20EN.pdf

Cavill, N., & Maibach, E. W. (2008). VERB™. Demonstrating a viable national option for promoting physical activity among our children. *American Journal of Preventive Medicine, 34*(6 SUPPL.), 173–174. https://doi.org/10.1016/j.amepre.2008.03.013

Chadborn, N. H., Gavin, N. T., Springett, J., & Robinson, J. E. (2013). "Cycling - exercise or trying to stop pollution": Methods to explore children's agency in health and climate change. *Local Environment, 18*(3), 271-288.

Cooper, A. R., Andersen, L. B., Wedderkopp, N., Page, A. S., & Froberg, K. (2005). Physical activity levels of children who walk, cycle, or are driven to school. *American Journal of Preventive Medicine, 29*(3), 179–184. https://doi.org/10.1016/j.amepre.2005.05.009

Davison, K. K., Werder, J. L., & Lawson, C. T. (2008). Children's active commuting to school: Current knowledge and future directions. *Preventing Chronic Disease, 5*(3), A100.

De Meester, F., Van Dyck, D., De Bourdeaudhuij, I., & Cardon, G. (2014). Parental perceived neighborhood attributes: Associations with active transport and physical activity among 10-12 year old children and the mediating role of independent mobility. *BMC Public Health, 14*(1), 631. 10.1186/1471-2458-14-631

Dumith, S. C., Gigante, D. P., Domingues, M. R., & Kohl III, H. W. (2011). Physical activity change during adolescence: A systematic review and a pooled analysis. *International Journal of Epidemiology, 40*(3), 685-698.

Faulkner, G. E. J., Buliung, R. N., Flora, P. K., & Fusco, C. (2009). Active school transport, physical activity levels and body weight of children and youth: A systematic review. *Preventive Medicine, 48*(1), 3–8. https://doi.org/10.1016/j.ypmed.2008.10.017

Frazer, A., Voss, C., Winters, M., Naylor, P. J., Wharf Higgins, J., & McKay, H. (2015). Differences in adolescents' physical activity from school-travel between urban and

suburban neighbourhoods in metro Vancouver, Canada. *Preventive Medicine Reports, 2*(1), 170-173. 10.1016/j.pmedr.2015.02.008

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, *13*(1), 117-124.

Iannacone, M., & Green, A. (2014). Towards skin cancer prevention and early detection: evolution of skin cancer awareness campaigns in Australia. *Melanoma Management 1*(1). https://doi.org/10.2217/mmt.14.6

Lee, N. & Kotler, P. (2011). Social Marketing: Influencing Behaviors for Good. 3rd Edition. Thousand Oaks, CA: SAGE.

Lees, C., & Hopkins, J. (2013). Effect of aerobic exercise on cognition, academic achievement, and psychosocial function in children: a systematic review of randomized controlled trials. *Preventing Chronic Disease, 10*(1), 1-8. https://doi.org/10.5888/pcd10.130010

Lubans, D. R., Boreham, C. A., Kelly, P., & Foster, C. E. (2011). The relationship between active travel to school and health-related fitness in children and adolescents: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity, 8*(1), 5-17.

Malina, R. M. (1996). Tracking of physical activity and physical fitness across the lifespan. *Research Quarterly for Exercise and Sport, 67*(sup3), S3-8.

Mammen, G., Stone, M. R., Faulkner, G., Ramanathan, S., Buliung, R., O'Brien, C., & Kennedy, J. (2014). Active school travel: An evaluation of the Canadian school travel planning intervention. *Preventive Medicine, 60*(1), 55-59.

Merom, D., Tudor-Locke, C., Bauman, A., & Rissel, C. (2006). Active commuting to school among NSW primary school children: Implications for public health. *Health & Place, 12*(4), 678-687.

Messer, L. C., Shoe, E., Canady, M., Sheppard, B. K., & Vincus, A. (2011). Reported adolescent sexual norms and the development of a social marketing campaign to correct youth misperceptions. *Journal of Children and Poverty, 17*(1), 45–63. https://doi.org/10.1080/10796126.2011.539197

Mintz, J. H., Hazel, J., & Schoales, T. (1999). Challenge to youth: A Health Canada anti-tobacco campaign. *Social Marketing Quarterly, 5*(3), 99-102. https://doi.org/10.1080/15245004.1999.9961071

Mitra, R., & Faulkner, G. (2012). There's no such thing as bad weather, just the wrong clothing: Climate, weather and active school transportation in Toronto, Canada. *Canadian Journal of Public Health, 103*(9 Suppl 3), S35-S40.

Naylor, P. J., Strange, K., Kopelow, B., Fenton, J., Li, L., Burrows, M., Wharf Higgins, J., & McKay, H. (2011). A creative brief for physical activity messaging. *Physical & Health Education Journal, 77*(3), 6-11.

Panter, J. R., Jones, A. P., & van Sluijs, E. M. F. (2008). Environmental determinants of active travel in youth: A review and framework for future research. *International Journal of Behavioral Nutrition and Physical Activity, 5*(34), 1–14. https://doi.org/10.1186/1479-5868-5-34

ParticipACTION. (2016). *The 2016 ParticipACTION Report Card on Physical Activity for Children and Youth.* Retrieved from:

https://www.participaction.com/sites/default/files/downloads/2016%20ParticipACTION%20Report%20Card%20-%20Full%20Report.pdf

Patnode, C. D., Lytle, L. A., Erickson, D. J., Sirard, J. R., Barr-Anderson, D., & Story, M. (2010). The relative influence of demographic, individual, social, and environmental factors on physical activity among boys and girls. *International Journal of Behavioral Nutrition and Physical Activity, 7*(79), 1-10.

Patton, M. Q. (2015). Qualitative research & evaluation methods: Integrating theory and practice (Fourth ed.). Thousand Oaks, California: SAGE Publications, Inc.

Pearson, N., Braithwaite, R., & Biddle, S. J. H. (2015). The effectiveness of interventions to increase physical activity among adolescent girls: A meta-analysis. *Academic Pediatrics, 15*(1), 9–18.

Pont, K., Ziviani, J., Wadley, D., Bennett, S., & Abbott, R. (2009). Environmental correlates of children's active transportation: A systematic literature review. *Health and Place, 15*(3), 849-862. 10.1016/j.healthplace.2009.02.002

Race, D. L., Sims-Gould, J., Lee, N. C., Frazer, A. D., Voss, C., Naylor, P. J., & McKay, H. A. (2017). Urban and suburban children's experiences with school travel – A case study. *Journal of Transport & Health, 4*(1). doi:10.1016/j.jth.2017.01.011

Simons, D., Clarys, P., De Bourdeaudhuij, I., de Geus, B., Vandelanotte, C., & Deforche, B. (2014). Why do young adults choose different transport modes? A focus group study. *Transport Policy, 36*(1), 151–159.https://doi.org/10.1016/j.tranpol.2014.08.009

Sinopoli, M., Savaiano, P., Rozmus, G., & Ceran, P. (2009). *Syracuse University's "The Stupid Drink" Campaign Book* [Slideshow]. Retrieved from: https://www.slideshare.net/prceran/syracuse-universitys-the-stupid-drink-campaign-book

Sisson, S. B., & Tudor-Locke, C. (2008). Comparison of cyclists' and motorists' utilitarian physical activity at an urban university. *Preventive Medicine, 46*(1), 77–79. https://doi.org/10.1016/j.ypmed.2007.07.004

Spurr, S., Bally, J., Trinder, K., & Williamson, L. (2016). A multidimensional investigation into the predictors of physical activity in Canadian adolescents. *Journal of Holistic Nursing, 4*(1), 390-301. 10.1177/0898010115625504

Stake, R.E. (2005). Case Studies. In N.K. Denzin & Y.S. Lincoln, (Eds.), *Strategies of Qualitative Inquiry* (pp. 134-164). Thousand Oaks, CA: Sage Publishing.

Strauss, A., & Corbin, J. (1998). Basics of qualitative research techniques. Sage publications.

Tremblay, M. S., Carson, V., Chaput, J. P., Gorber, S. C., Dinh, T., Duggan, M., Faulkner, G., Gray, C. E., Gruber, R., Janson, K., Janssen, I., Katzmarzyk, P. T, Kho, M. E., Latimer-Cheung, A. E., LeBlanc, C., Okely, A. D., Olds, T., Pate, R. R., Phillips, A., Poitras, V. J., Rodenburg, S., Sampson, M., Saunders, T. J., Stone, J. A., Stratton, G., Weiss, S. K., Zehr, L. (2016). Canadian 24-Hour Movement Guidelines for Children and Youth: An Integration of Physical Activity, Sedentary Behaviour, and Sleep. *Applied Physiology, Nutrition, and Metabolism, 41*(1), S311-S327. https://doi.org/10.1139/apnm-2016-0151

Trost, S. G., Pate, R. R., Sallis, J. F., Freedson, P. S., Taylor, W. C., Dowda, M., & Sirard, J. (2002). Age and gender differences in objectively measured physical activity in youth. *Medicine & Science in Sports & Exercise, 34*(2), 350-355.

Van Sluijs, E. M. F., McMinn, A. M., & Griffin, S. J. (2007). Effectiveness of interventions to promote physical activity in children and adolescents: Systematic review of controlled trials. *BMJ, 335*(1). https://doi.org/10.1136/bmj.39320.843947.BE

Wong, B. Y. E., Faulkner, G., Buliung, R., Irving, H. (2011). Mode shifting in school travel mode: Examining the prevalence and correlates of active school transport in Ontario, Canada. *BMC Public Health, 11*(1), 618-620.

Yin, R. K. (2003). Applications of case study research (2nd ed.). Thousand Oaks: Sage Publications.

Appendices

Appendix A
Certificate of Ethical Approval for Study

Board of Record
University of Victoria

Human Research Ethics Board (HREB)
Administrative Services Building
Room B202
PO Box 1700 STN CSC
Victoria, BC V8V 2Y2

Certificate of Ethical Approval for Harmonized Minimal Risk Health Study

Also reviewed and approved by:
Island Health

island health

Principal Investigators:
Claire Sauvage-Mar

Primary Appointment:
University of Victoria

Board of Record Approval Reference #:
BC16-450

Study Title: **Way2Go Girls and Young Women Social Marketing Project**
Study Approved: **23 JAN 2017** Expiry Date: **22 JAN 2018**

Research Team Members:

Patti-Jean Naylor	**University of Victoria**
Helen Von Buchholz	**Island Health**
Joan Wharf-Higgins	**University of Victoria**
Shaherazad Ghafari	**Island Health**
Murray Fyfe	**Island Health**
Dee Hoyano	**Island Health**
Tricia Roche	**Centre for Youth and Society**

Sponsoring Agencies: Island Health, Centre for Youth and Society—Roy Watson Traffic Safety Fund

Documents included in this approval:

Document Name		**Approved version date**
Human Research Ethics Application, January 19, 2017, Version #2		January 19, 2017
APPENDICES		
1	Invitation Script, January 19, 2017, Version #2	January 19, 2017
2	Promotion Poster/Flyer, January 19, 2017, Version #2	January 19, 2017
3	Focus Group Questions, Girls Group 1, January 19, 2017, Version #2	January 19, 2017
4	Focus Group Questions, Girls Group 1, Session 2, January 19, 2017, Version #2	January 19, 2017
5	NEWS-Y Parent Survey, January 19, 2017, Version #2	January 19, 2017
5a	Implied Consent for Parent/Guardian Survey, January 19, 2017, Version #2	January 19, 2017
6	Focus Group Questions for Parents/Guardians Group 2, January 19, 2017, Version #2	January 19, 2017
7	Consent Form for Girls and Parents/Guardians, January 19, 2017, Version #2	January 23, 2017

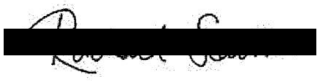
8	Informational Notice, January 19, 2017, Version #2	January 19, 2017
9	Verbal consent Group 1 Focus Group (Session 2), January 19, 2017, Version #2	January 19, 2017
10	Parent/Guardian Focus Group Consent Form	January 23, 2017

This ethics approval applies to research ethics issues only and does not include provision for any administrative approvals required from individual institutions before research activities can commence.

The Board of Record (as noted above) has reviewed and approved this study in accordance with the requirements of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2, 2014).

The "Board of Record" is the Research Ethics board designated on behalf of the participating REBs involved in a harmonized study to facilitate the ethics review and approval process. In the event that there are any changes or amendments to this approved protocol, please notify the Board of Record.

Board of Record Research Ethics Board Representative
Name: Dr. Rachael Scarth
Signature:



Title: Associate VP Research Operations
Date: January 23, 2017

Appendix B
Focus Group Round 1 Questions

Focus group questions Girls Group 1 (Session 1)

We would like to start by saying thank you for agreeing to meet with us and talk about active transportation to school among girls your age.

You can decide to withdraw at any time, meaning that if you no longer want to take part in this group, you may leave at anytime without any negative consequences.

1. When you leave your house, how do you usually travel around? (Walk, scooter, skate, bicycle, school bus, public transit, car (just your family), carpool (2 or more families), or a combination?)
2. When you use active transport, who do you usually travel with? (With your parents? With your siblings? With your friends? By yourself?)
3. What do you think are the main advantages of active transport and why? What are your main reasons for using active transport (regardless of how often you use it)? (Physical activity/exercise? It's easier/more convenient? It's less expensive than driving? It's fun?)
   Prompts:
   - If easier/convenient: What makes it convenient?
   - If fun: What makes it fun?
4. What do you think are the main disadvantages of active transport and why? What stops you from using active transport? (Safety? Parents? Time? It's inconvenient? Weather?)
   Prompts:
   - If safety: What makes you feel unsafe? How can we make you feel safer?
   - If Parents: Why don't your parents let you use active transportation? Why we can address their concerns?
   - If time: Why is time an issue?
   - If inconvenient: What makes it inconvenient?
   - If weather: What can we do to make you want to use active transport regardless of the weather?
5. What would make it easier for you to take active transport on your own? (Bike lanes? Availability of public transport? Safer walking routes – more sidewalks and crosswalks?)
6. What kinds of active transport do you think are cool? Not cool? Why? (Rollerblading, scootering, skateboarding, cycling, walking, bussing)
7. How can we make active transport cool and/or fun? (Create more walking/biking trails?)
8. What could your school do to encourage active transportation? (Get bike racks? Provide bike locks? Provide areas to store skateboards/rollerblades? Organize neighbourhood walking groups?)
9. If you were in charge of motivating students in your school to do more active transport, what would you do/say? What images, pictures, words, sounds, colours etc. would you use? Who might be good to join you in spreading the word? How would your message best reach – be seen/heard/understood - other students in your school?
10. Is there anything else you would like to add?

Thank you for your time!

Appendix C
Focus Group Round 2 Questions

1. **What are the most important reasons for you to do active transportation?**
2. **How can we lessen the negatives of active transportation for you and girls at your school?**
3. **How can we make active transportation more appealing or nudge you to do it?**
4. **What can we change to make sure active transportation is easy and fun for you to do?**
5. **What could someone show, do, and say to motivate your friends and other students to do active transportation?**
6. **What could someone show, do, or say to your <u>parents</u> to convince them to let you actively transport?**
7. **Is there anything else you'd like to tell us?**

Appendix D
Participant Consent Forms

Way2Go Girls! Parental Consent Form

Your child has been invited to participate in a study entitled Way2Go Girls! that is being conducted by researchers from the University of Victoria and Island Health. Claire Sauvage-Mar is the lead investigator and is a Masters candidate at the University of Victoria. You may contact her if you have further questions by email at csauvage@uvic.ca OR 250-[redacted].

Purpose and Objectives Your daughter's school is partnering with the University of Victoria and Island Health on Way2Go Girls! The purpose of this study is to evaluate factors believed to be related to walking and other active transportation in girls and children who identify as female ages 7-15, such as cycling, walking, skateboarding, or using public transport.

Importance of this Research Evaluation and research of this type is important because it will help to establish an understanding of current trends in active transportation of girls across the Greater Victoria region. Your child's participation will provide valuable insight into what affects walking and other transit habits in children and youth like her.

High rates of physical inactivity affect both children and adults in Canada, contributing to increased levels of overweight and obesity and chronic diseases like heart disease and Type II diabetes. Only 7% of children meet the recommended daily physical activity guidelines for health. In children and youth physical activity improves cognitive development, mental well-being and contributes to academic performance. Active transportation is known to be one of most common ways that children can get their daily physical activity.

Participants Selection Your child is being invited to participate in this study because she is between the ages of 7-15. Her school has identified her as a potential candidate for the Way2Go Girls! focus groups. **If you consent to your child's participation, she will be asked to participate in two focus groups.** Focus groups are semi-structured group interviews in which the research team will ask participants what they think about active travel to and from school. Audio recording, photos, and written notes will be taken.

Gender Inclusion The Way2Go Girls! study is gender inclusive, inviting all girls and children who identify as female to participate in focus groups.

Inconvenience Participation in this study may cause a small time inconvenience. However, as focus groups will take place during the lunch hour (with a healthy meal provided), all effort is being made to minimize disruptions. Please make sure any food allergies are known to the school administration.

Risks There are no known or anticipated risks to your daughter by participating in this research.

Benefits The potential benefits of your daughter's participation include being given a chance to discuss and reflect on her experiences with active transportation and potentially influence future policies regarding promotion of active school travel. Her input will help to inform the design of a social marketing intervention which can be adapted to benefit the health of children across Canada.

Voluntary Participation Your daughter's participation in this research is completely voluntary. If you and your daughter decide to participate, she may withdraw at any time without any consequences or any explanation. If your daughter withdraws from the study, any data she provided during the focus

groups will be used in summarized form with no identifying information. Your daughter's teachers and school are not involved in the study, and there will be no negative repercussions (ie grades or class standings) if she does not participate or withdraws.

Anonymity All focus groups will be audio recorded and photographed. No videos will be made. What your child shares with the researchers during the focus group will remain anonymous as names will not be used during the session, and researchers will use a coding system during transcription and all identifiable information will be removed during analysis. During focus group sessions, however, it is impossible to remain anonymous as other children will hear what is said. Photos will be taken with your permission (please mark consent form attached) and will only be used at academic and public health conferences to communicate how data was collected during focus groups.

Confidentiality During the focus group, we will ask all participants to respect confidentiality by not sharing with others what was discussed in the session. Your child's confidentiality and the confidentiality of the data will be protected by storing the data using codes that only the researchers will have access to and storing it in a secure, locked lab at the University of Victoria where only the research team has access. All digital files will be stored on a password protected dedicated research local area network at the University of Victoria

Dissemination of Results It is anticipated that the results of this study will be shared with others through presentations at conferences and classes; through academic publications and on the internet; in the media (e.g. newspaper); and directly to participants involved through a summary report. Photos will only be used in academic or public health settings.

Disposal of Data Data from this study will be disposed of after 5 years through confidential shredding of paper data and permanent erasing of digital data.

Contacts Individuals that may be contacted regarding this study include Claire Sauvage-Mar at csauvage@uvic.ca OR 250-[redacted], Dr. Patti-Jean Naylor, (University of Victoria Professor) at [redacted]@uvic.ca OR 250-[redacted], or Dr. Joan Wharf-Higgins (University of Victoria Professor) at [redacted]@uvic.ca OR 250-[redacted]. Approval to conduct this research was granted by the University of Victoria Human Research Ethics Board and your child's school district. If you have any questions, concerns or complaints about your rights as a research participant, contact the Human Research Ethics Board in the UVic Office of Administrative Services at 250-472-4545 or e-mail ethics@uvic.ca.

Parent/Guardian Consent Statement

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researchers, and that you consent your daughter to participate in this research project.

Please check the following:

___ I agree that my child can participate in Way2Go! study measurements (focus group 1 and 2) and that her information can be used for research/evaluation.

___ I DO NOT agree that my child can participate in Way2Go! study measurements (focus group) and that her information MAY NOT be used for research/evaluation.

Photos may be taken of my child to communicate how data was gathered during focus group interviews*: _____

(Parent/guardian to provide initials above, only if you consent. *Even if no names are used, your child may be recognizable if visual images are shown as part of the results.)

I, _____the parent/guardian of _____
(Please print name of one or both parents/guardians) (Please print child's first/last name)
understand the purpose and procedures of this study as described.

_____ _____
Signature of Parent *Date*

Child's Consent Statement:

Photos may be taken of me in the focus group interviews: _____

(**Child to provide initials**, only if she consents)

I, _____ **understand the purpose and procedures of this study as described**
(Please print child's first and last name)
and agree to participate in the Way2Go! study.

_____ _____
Signature of Child *Date*

If you would like a copy of this consent form emailed to you, please provide your email address here: _____