An impact evaluation of the Ontario ban on smoking in schools and on school property:
Does the ban on smoking influence high school students' intentions to smoke cigarettes?

Bradley A. Corbett, B.A.

Department of Graduate and Undergraduate Studies in Education

Submitted in partial fulfillment of the requirements for the degree of Master of Education

Faculty of Education, Brock University
St. Catharines, Ontario

© June, 2001
Abstract

The Ontario Tobacco Control Act of 1994 imposed a total ban on smoking in schools, and on school property for every school in the province. The imposition of this policy created problems for school administrators. For instance, students who were smoking on walkways and properties adjacent to school boundaries, clashed with neighbouring property owners who were angry about the resulting damage and disruption.

The enforcement of this policy consumes valuable resources at each school; therefore, knowledge about the impact of the policy is important. If effective, this policy has the potential to improve the health of students over their lifetime, by preventing or delaying smoking behaviour. Alternatively, an ineffective policy will continue to create administrative problems for the school and serve no legitimate purpose. Therefore, knowledge about the impact of the smoking ban policy on students’ smoking intentions assists policy makers and school administrators in their understanding of the policy’s impact within the schools.

This research provided an impact evaluation of the ban on smoking in schools and on school property in Ontario. A total of 2069 students, from five high schools, in the Niagara Region, provided complete responses to a survey, designed to test whether smoking intentions were affected by the imposition of the policy. The study used Ajzen’s theory of planned behaviour (Ajzen, 1991), specifically, the perceived behavioural control measure, to gain some understanding of students’ perceptions of control over smoking imposed by the ban.
The findings indicate the policy has the potential to influence students’ overall smoking intentions. The ban on smoking policy was found to be a significant predictor of the smoking intentions of high school students. As well, attitude, social norms, and perceptions of control were significant predictors of smoking intentions. Exploratory findings also indicated differences between the control beliefs of students from different high schools, indicating potential differences in the enforcement of the smoking ban between schools.

The findings also support the utility of the theory of planned behaviour as a methodology for evaluating the influence of punitive policies. This research study should be continued by utilizing the full theory of planned behaviour, including two phases of data collection and the measurement of actual smoking behaviour.
Acknowledgements

The creation of this work required an incredible amount of time and resources. So many people have contributed to my development over the years and I would like to thank and acknowledge some of them here.

Dr. Kelli-an Lawrance has been an incredibly important person in my life over the past few years. She has dedicated so many hours from her very busy schedule to guide me through this process. She demands a lot from her students but they get a lot in return. In addition to being a true professional in all aspects of her vocation, Kelli-an has an incredible ability to make her students feel comfortable in their learning, while instilling confidence along the way.

I would also like to thank my family, Laura, Olivia, and Bridget. They have been deprived of many hours and resources as a direct result of this work. We all survived the process together and have hopes of enjoying the benefits of our sacrifices in the future. Having suffered the loss of family members, due to diseases related to tobacco smoke, my hope is that this research will support the efforts of those who strive to reduce tobacco use throughout the world.

My mother Sharon and sister Lynette have provided me with unending moral support throughout the pursuit of my education. Without their constant encouragement and support things would have been much more difficult. Thanks for being there!

Finally, I would like to thank my Sensei Joe Fournier. Through karate he has provided me with many lessons, good health and opportunities to test and exceed my self-imposed limits, giving me the confidence to do things others told me were not possible.
## Table of Contents

Abstract .................................................................................................................. ii
Acknowledgments .................................................................................................... iii
List of Tables ............................................................................................................ viii
List of Figures .......................................................................................................... ix

### CHAPTER ONE: INTRODUCTION

Significance and Need for the Study ...................................................................... 3
Scope of the Study .................................................................................................... 3

### CHAPTER TWO: LITERATURE REVIEW

Philosophies Connecting Health and Education ..................................................... 5
The Background of Schools and Their Social Settings ........................................... 5
Viewing Schools from a Social Systems Approach ............................................... 6
Adolescent Smoking: Combating A Healthy Behaviour Problem Through the School System ................................................................. 13
Assessing the Cost .................................................................................................. 13
Tobacco Control ..................................................................................................... 14
Healthy Public Policies in Canada ......................................................................... 15
Historical Overview of Health Policy Developments ......................................... 16
The Ontario Tobacco Strategy .............................................................................. 17
Background ............................................................................................................ 21
Theoretical Context for Evaluating the Research Question ................................. 23
Applying the Theory of Planned Behaviour ................................................. 24
Appropriateness of the Theory of Planned Behaviour ................................. 31
Objectives of the Study ........................................................................... 34
Hypothesis and Research Questions ......................................................... 35
Null Hypotheses ...................................................................................... 35

CHAPTER THREE: METHODOLOGY ............................................................. 37
Collection of Data .................................................................................... 37
Sample Description .................................................................................. 37
Survey Instrument ................................................................................... 38
Procedures ............................................................................................... 42
Consent .................................................................................................... 43
Subject Selection ...................................................................................... 44
Survey Administration ............................................................................. 44

CHAPTER FOUR: RESULTS ...................................................................... 47
Sample Demographics ............................................................................ 48
Policy Issues ............................................................................................ 49
Scale Analysis .......................................................................................... 52
Correlation and Regression Analysis ......................................................... 53
Relationships Among Key Variables ....................................................... 54
Predicting Smoking Intentions From Attitude, Norms, and Policy ............. 54
Predicting Smoking Intentions from Attitude, Norms, Control and Policy .. 54
Exploratory Data Analysis ....................................................................... 58
CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion ................................................................................................................................. 62

Relationship Between Attitude, Norms, Control, and Policy .................................................. 63

Exploratory Findings ................................................................................................................. 67

Limitations and Delimitations ................................................................................................. 68

Recommendations ..................................................................................................................... 69

References .................................................................................................................................. 71

Bibliography .............................................................................................................................. 76

Appendix A ................................................................................................................................ 79

Appendix B ................................................................................................................................ 84

Appendix C ................................................................................................................................ 88

Appendix D ................................................................................................................................ 90

Appendix E ................................................................................................................................ 92
List of Tables

Table 1: Participants’ Control Beliefs Regarding the Likelihood of Penalties for Smoking

Table 2: Perceived power of Penalty to Influence Smoking Likelihood

Table 3: Relationship Among Measures of the Theory of Planned Behaviour

Table 4: Prediction of Intent from Attitude, Norms, and Policy

Table 5: Prediction of Intent from Attitude, Norms, Control and Policy

Table 6: Comparison of Smoking Cohorts’ Average Control Beliefs

Table 7: Smoking Cohorts’ Perceptions of Power to Influence Smoking Likelihood
List of Figures

Figure 1: State Directed Network ............................................................... 7
Figure 2: Viewing Schools from a Social Systems Perspective .................. 9
Figure 3: The Theory of Planned Behaviour ........................................... 25
CHAPTER ONE: INTRODUCTION

The purpose of this study was to examine the impact of a smoking ban in schools, and on school properties, in Ontario. The ban was implemented as part of the Ontario Tobacco Control Act of 1994, in response to increases in youth smoking rates, escalating costs of treating tobacco related illnesses, and a worldwide campaign to ban smoking in public places. Tobacco related problems from the Ontario Government’s perspective, such as increases in youth smoking in Ontario, have been addressed through the implementation of policies such as the smoking ban that was imposed on every school in Ontario. However, the ban on smoking influences several different aspects of a school and has created problems throughout the school system.

The implementation of the smoking ban has created problems for some schools and the principals who were responsible for school management. The imposing of the smoking ban on schools is not without repercussions and should be evaluated to assure administrators and policy makers that the policy is making a difference. Decisions about the effectiveness of the smoking ban should be based on empirical evidence with regard to changes in student smoking intentions and behaviours. Therefore, the goal of this study was to investigate the policy’s influence on students’ smoking intentions and behaviours.

The explicit purpose of the smoking ban in schools and on school properties was stated as an attempt to protect children from exposure to tobacco smoke (Ontario Ministry of Health, 2000). There was also an implicit purpose, as outlined in the Ontario Tobacco Strategy, to reduce the prevalence of smoking among youths (Ontario Ministry of Health, 1993). Initial research findings indicated that the goal of reducing children's
exposure to second hand smoke has been quite successful (Northrup, Ashley, Ferrence, Klucha, Pollard, Rhyne, Adlaf, Brown & Pickett, 1999), identifying an approximate 96% rate of compliance with the policy, among Ontario high schools. A central weakness with this research was that it surveyed school administrators, not youth. Furthermore, it did not examine the impact on youth smoking behaviours.

The current study investigated the influence of the ban on smoking in schools and on school property as it relates to adolescents' intentions to smoke. Components (i.e., attitudes, social norms, and perceived behavioural control) from the theory of planned behaviour (Ajzen, 1991) were used to evaluate the policy's impact on students' perceived control over their smoking behaviours, after the implementation of the smoking ban. In particular, the role of the perceived behavioural control component in the theory was used to determine whether students' perception of control over smoking behaviour was a predictor of their behavioural intention. If students' behavioural intention towards smoking were conditioned in part by their perceptions of control over smoking, then policies designed to decrease perception of control over smoking would have the potential to decrease youth smoking rates. Therefore, this study measured the influence of the ban on smoking in schools and on school property as it related to students' intentions to smoke.

During adolescence, developmental issues include expanding input for developing social constructs, beyond parental influence. Adolescents' attitudes toward their behaviour and influences from their own referents influence their behaviour. For example, peer influences may become increasingly more important to adolescents with
age, therefore, it is important to examine the role of students’ salient attitudes and social norms when predicting their intentions toward the behaviour of interest.

**Significance and Need for the Study**

The purpose for this study was to evaluate the effectiveness of the policy, which imposed a ban on smoking in schools and on school property. The issues of tobacco use prevention and cessation are primarily public health issues, yet the policy impacts schools because administrators must enforce the policy. The enforcement of the policy also consumes valuable and limited resources.

The implementation and enforcement of this policy has created additional problems in most schools, with some problems being described as major problems. These problems add to the workload of school staff and administration, who have been reporting excessive workloads and demands associated with their positions. Because the policy creates problems within the system, the effectiveness of the policy should be assessed. This study provides some information regarding the influence of the policy on perceptions of behaviour.

**Scope of the Study**

This study does not investigate the full theory of planned behaviour and as a result it cannot, and should not, be interpreted as a causal model of student smoking behaviour. Evidence from numerous studies using the theory of planned behaviour have shown behavioural intentions to be a good predictor of actual behaviour, however, two phases of data collection would be necessary to imply a causal effect.
The intention of this study was to gather information about the relationship between perceptions of control over smoking on school property and smoking intention, created by the ban on smoking in schools and on school property, within the high school student population, in the Niagara Region. The theory of planned behaviour facilitated this goal, because it measures perceived behavioural control and two other major predictors of smoking behaviour, attitudes and social norms.

This study will add to the body of education and health sciences research by providing information about implementing policies that are designed to protect the health of students in schools. Additionally, the study will assist policy makers and school administrators in their understanding of the ways policies, in general, can influence the behavioural intentions of high school students, and specifically, how the ban on smoking in schools and on school property influences student smoking intentions.
CHAPTER TWO: LITERATURE REVIEW

Philosophies Connecting Health and Education

The Background of Schools and Their Social Settings

**Historical context.** Health and education share philosophical roots that are deeply embedded in the structure of Canada's governance system. While education and health have shared this long history, the connection between them may not be readily understood. Ancient philosophers who formed the basis of democratic society included health and education for every citizen as a part of their plans for an ideal society. The influence of these great thinkers continues to have implications in our society.

Philosophers such as Plato (427-347 BC) and Aristotle (384-322 BC) spoke of the importance of education to the polis, or city-state (Oksenberg-Rorty, 1998). As people began to live and work closer together, the educating of every citizen became an integral part of the emerging democratic philosophy of citizen-rulers. Education provided citizens with the skills to rule themselves, and was a vehicle for the entrenchment of democratic values within the citizenry. Education, then, facilitated the creation of a common understanding among the people, through their shared educational experiences. The importance of education to the city-state led governments to maintain continuous involvement in the systems of formal education throughout history; a trend continued by democratic governments today.

Scholars still study the role of state managed, formal education in society. For example, Loveless (1998) describes how governments have propagated public education by protecting it from other competing sources of learning, such as the church. The
governments have done so because the benefits of public education, to the state, today are similar to those of the Platonic era: a steady supply of skilled workers, and informed voters who have shared common social experiences through learning. Therefore, the system of education is of great importance to the state.

Plato also provided direction as to other components necessary when properly educating citizens of the republic. These instructions included the need for physical activity. This component of Plato's curriculum was designed to produce a "healthful well-balanced body" that was trained to a high level of endurance (LoShan, 1998). Thus, along with the establishing of state managed education for the people, Plato established health education as a necessary component of his education system.

**Viewing Schools from A Systems Approach**

*Schools as open systems.* Many scholars in Education choose to view the formal education system as a separate entity, a closed system. However, in Ontario, many layers of government exert legislative power over the education system. While it may be prudent, or necessary, at times, to study education in the context of a separate, or closed system, the role of government in education cannot be ignored.

When classifying policy networks, Pal (1997) provides a model of the State-Directed Network that demonstrates the relationship between the government, and the formal education system in Ontario (see Figure 1). The state agency in this model is strong and autonomous, while the individual schools are weak and dispersed. Provincial, regional and federal governments control education policy in Canada. Power
Figure 1. The policy network of the school system can be described as a State-Directed Network (adapted from Pal, 1996). The provincial government controls all of the schools in the province through several layers of management (not shown).
flows from the state to the education system through these governments with provincial
governments holding the majority of the power.

This organizational structure is parallel to the organization of health care delivery
in Canada. While the federal government is a large financial and legislative contributor
to health care, the provincial governments are responsible for health care delivery. Thus,
formal education and public health initiatives are provided, and to some degree overlap
through the mandates of the provincial government.

Schools as social systems. The concept of the school as an open system is
important to this study. The influence of environmental pressures, such as legislation
passed down by the provincial government, has an impact on what happens in the school
setting. Hoy and Miskel (1996) present the Social System Model for Schools as an
appropriate way of studying the School in an organizational context (see Figure 2). The
model follows an open systems approach, describing inputs, transformation processes,
and outputs that embody the process of formal education.

Schools take in inputs from the environment around them. These inputs can
consist of human and capital resources, equipment, government directives and board
policies. As these inputs enter the school system they undergo a transformation process.

The transformation process occurs as inputs are transformed into outputs. As the
model indicates, the inputs are exposed to things such as: the structural system of the
school, cultural systems, political systems, and individual systems. These systems have
an influence on the inputs as they move toward becoming outputs. Therefore, a student
who enters high school may be a non-smoker and have no understanding of algebra.
Figure 2. Schools can be viewed from a Social Systems perspective (adapted from Hoy & Miskel, 1996). The external environment can influence the transformation process of the school as realized with the implementation of the Tobacco Control Act. Under the Act, schools are expected to ban smoking in the school and on school property.
When the student finishes high school, he or she may have been influenced to smoke by their friends and learnt the basic concepts of algebra from his or her math teacher. The student is transformed while in school, having additional or different habits and knowledge from the ones possessed upon entering school.

The transformation process is also influenced by the environment, that is by definition, anything outside the boundaries of the system that either affects the attributes of the internal components, or is changed by the social system itself (Hoy & Miskel, 1996). When the provincial government banned smoking from school buildings and properties, it attempted to change the internal environment of the school by providing better protection against second-hand environmental tobacco smoke. Changes in the internal environment, according to the model, result in changes to the outputs of an organization.

Outputs are the end results of the inputs that have been transformed while in the system, specifically, the school system. The model suggests that things like, achievement, job satisfaction, absenteeism, dropout rate, or overall quality could represent the outputs of a school.

Healthier children who have had less exposure to environmental tobacco smoke is one of the desired outputs of the Ministry of Health. To achieve this output, legislation mandating the ban on smoking, in schools and on school property, has been used as an environmental influence to change the transformation process of the school system. By imposing restrictions on smoking in the school and on school property, the government is affecting the transformation process of the school. All of the outcomes influenced by these processes are, however, unknown. These changes may be positive, as in reducing...
exposure to second-hand smoke, negative, as in forcing students off of school property during school hours, or a combination of various positive and negative outcomes.

**Health policy influences on school systems.** Tobacco, alcohol and other drug uses pose problems for both schools and the government. Therefore, schools have welcomed government driven prevention and protection efforts among school populations in the past. However, banning smoking from school property has created other problems, which have not been welcomed by school administrators. For example, there have been clashes with neighbours over students who are smoking, trespassing, and littering on or near their property, because they must leave the school property to smoke (Courtemanche, Fraser, Gasparini, Sauve, & Westhaver, 2000).

Some schools have held community forums in an effort to resolve the problems, while other schools have chosen to relax bans to remedy the problem. While research has estimated high compliance with the legislated ban (Northrop et al, 1999), this research relied on the honesty and accuracy of school administrators as they reported compliance levels to the researchers. These findings could be biased, based on the perceived repercussions the administrators might be associating with the “wrong” answer.

Furthermore, the previous studies did not address student perceptions of the ban, indicating an area that requires some investigation. Clearly, more studies measuring the impact of the ban on students’ smoking behaviour are needed. This present study provides more information and some necessary insight regarding the impact of the smoking ban.

**The school system in society.** It is difficult, if not impossible to separate the influence of society on the school, from the influence of the school on society. It must be
recognized that a school can be viewed as social system on its own or as a component of a larger social system. For example, a student can enter the school as an input and leave as an output that has been changed in some way. The same student can also participate as a citizen of the province while being a student or enter another organization as an employee during and after the school experience.

Participating in one social system does not exclude the individual from participating in others. Schools are distinct systems, but they are also a part of many larger systems in our society. Due to the complexity of these associations, it is important to have a context for describing and understanding schools as organizations.

Viewing schools in the context of the Social Systems Approach provides some perspective for understanding the way policies influence schools. Policies are enacted to influence changes in behaviour, however, the nature of those changes may not be as expected and can certainly not be guaranteed. Policies benefiting one social system do not necessarily benefit other social systems; in fact, conflicting goals between social systems often produce disputes and discord between them. Policies designed to serve and benefit society may create hardships, and provide little benefit to individual schools.

**Relation of the school within society.** Schools, as open systems, are subject to the larger goals of the government and society. This often results in the utilizing of the public education system for the delivery of other government initiatives. Public health initiatives are one example where this can happen. From the government's perspective, schools serve the dual purpose of providing a learning environment, and capturing a population of people targeted for specific health education initiatives. Due to common health behaviour problems experienced by schools and society, health education in the
school setting provides benefits to health and education systems, as well as the larger system of the provincial government.

Adolescent Smoking: Combating a Health Behaviour Problem Through the School System

Smoking has been identified as the single most preventable cause of mortality in Canada, and throughout the world, for decades (Health Canada, 1999). Lung cancer is the best-known and most predictable outcome of smoking with other health problems such as coronary heart disease following (Health Canada, 1999). Given that smoking onset typically occurs during adolescence, preventing tobacco use among adolescents has been known to be an important step toward improving population health for many years (U. S. Department of Health and Welfare, 1976 as cited in Chassin et al. 1981). The following section will review the problems faced by the school system, and society, regarding adolescent smoking behaviour.

Assessing the Costs

Tobacco use in Ontario, as in other areas throughout the world, is linked to economic losses, increased usage of health care resources, chronic disease, and death. In each year it has been estimated that tobacco use, in Ontario, is responsible for the death of 12,000 Ontarians, 2.6 billion dollars of lost productivity, and the use of more than one million hospital days, at a cost of 1.1 billion dollars to the health care system (Adlaf, Ivis, & Smart, 1997).

For the majority of smokers, problems generated by tobacco use are manifested during adulthood; however, the uptake of smoking behaviour is initiated during the
adolescent years. According to the Ontario Student Drug Use Survey (1999), 7.4% of grade seven students indicate that they have already used cigarettes. The percentage of students using cigarettes increases throughout the school years, up to and including grade 11, where 41.7% of students reported using cigarettes. The number of students using cigarettes in grades 12 and 13 begins to decrease slightly with 38.6% and 38.0% of students reporting cigarette use respectively.

The age of uptake and the development of tobacco using behaviour correspond with the age adolescents are engaged in formal education in Ontario. Residents of Ontario are required to participate in formal education between the ages of five and sixteen, and most continue their education until the age of eighteen.

Evidence suggests that there is a greater risk of addiction for people who smoke at a younger age (Breslau & Peterson, 1996; Chassin, Presson, Sherman, & Edwards, 1990; Kandel, Yamaguchi & Chen, 1992; Henrisken, & Jackson 1999). Therefore, smoking prevention, and delay of smoking onset efforts, are very important steps towards improving population health among the citizens of Ontario.

**Tobacco Control**

Using schools for intervention. Data from the Student Drug Use Survey (1999) demonstrated youth smoking rates increased as grade level increases. While this correlation may be linked to other causal factors, it does indicate that schools are good avenues for smoking prevention interventions because youths are attending school during the years when significant smoking uptake occurs. Smoking behaviour and exposure to environmental tobacco smoke, therefore, are major concerns that can be addressed through the implementation of interventions and programs in schools. One such effort to
reduce smoking uptake among students is the ban on smoking in schools and on school property.

The Ontario Tobacco Strategy (Ministry of Health, 1992) was a comprehensive approach toward tobacco control in Ontario. The legislative component of this strategy, the Tobacco Control Act, initiated a province wide attempt to decrease tobacco use in Ontario. One of the components of the Act was to ban smoking on school property, in an attempt to decrease children's exposure to tobacco and tobacco smoke.

**Intervention has joint benefits.** Tobacco, alcohol, and other drug uses have been shown to have a measured association with poor academic achievement and a negative effect on graduation rates, class grades, performance on standardized tests, attendance rates, behavioural problems at school, degree of involvement in school activities, attitude toward school, and personal attitude (Wolford Symons, Cinelli, James, & Groff, 1997). These outcomes are often used as performance indicators within the education system as a way of evaluating schools. Therefore, these results indicate the use of substances has a negative association with health, resulting in high social and economic costs for the province and lower performance outcomes for schools.

**Healthy Public Policies in Canada**

During the last decade of Canada's history, aggressive regulations have been put in place to discourage tobacco smoking behaviour. One example of this would be the increase in bans on smoking in public places. The political environment that has allowed for these changes is one that has developed over time. Changes in the federal government's approach to health and stronger anti-smoking advocacy coalitions have resulted in changes to the way tobacco can be used in Ontario. These many changes have
culminated to impact smoking behaviour throughout the province, including smoking behaviour in the student population.

An abridged history of these changes is provided in the following section. This history is important to understanding the development of healthy policy. These changes have shaped a culture where anti-smoking legislation could be developed and accepted by the Government of Ontario. This development of anti-smoking legislation has impacted the transformation process of every school in Ontario, making the measurement of change at the school level an important step for evaluating the impact of the policy.

Historical Overview of Health Policy Developments

The history of health policy in Canada is as long as the history of Canada itself. Through centuries of change the laws governing the allocation of jurisdictions and responsibilities of various government bodies has morphed into the development of healthy public policy. This approach conceptualizes health as being a factor of everything Canada does as a nation; an ideology drastically different from the one held by Government a century ago.

Chenier (1999) chronicles a history of health policy in Canada. She demonstrates how the concept of health has changed in the past few decades from a focus on health institutions and the provision of medical care, to the broader focus of setting and meeting the health goals of a nation. In 1964, Canada decided to provide access to medical care for all Canadians. Again in 1974, the concept of health changed at the federal level when the Lalonde Report altered health policy by identifying health services as only one aspect of a healthy nation. The setting of health goals and the planning of strategies for reaching
These goals marked a drastic change in the way the federal government conceptualizes health as being a factor in everything Canada does as a nation.

By viewing health as something to be achieved, rather than something to be treated or managed, the federal government broke with long standing traditions and ways of addressing health issues. While medical services still remained a strong part of the health focus, health promotion and prevention efforts have also been accepted as a vital part of a healthy population. These changes led to better definitions of health by identifying predictors of health, such as income and education levels or housing and security. A new focus on the causes of illnesses as well as the traditional focus on medical treatments to cure them has been accepted.

To reflect changes in the government's perception of health, Chenier indicates that a federal, provincial and territorial committee in 1994 identified five categories, which are considered to be determinants of health. These were: social and economic environment; physical environment; personal health practices; individual capacity and coping skills; and health services. These changes in the way the federal government has defined health, largely influence the way provincial governments approach the development of health policies on a provincial level.

The Ontario Tobacco Strategy

An example of healthy public policy at the provincial level is the Ontario Tobacco Strategy. This strategy is an attempt to encourage changes in personal health practices and improve physical environments by reducing exposure to tobacco smoke. Because the issue of smoking can be approached through a variety of policies, the Tobacco Strategy attempts to coordinate these policies in a concerted effort to reduce tobacco use in
Ontario. The Tobacco Control Act of 1994 is an example of specific policies that have been developed and implemented in the province. Some of these policies target the physical environment by controlling the places where people are permitted to smoke.

Tobacco policy is not only influenced by the tobacco strategy. Tobacco policies are influenced by various groups, who seek to promote their own position through policies that provide favorable conditions for the promotion of their own interests, called interest groups.

**Interest group politics.** Interest groups, both for and against tobacco, provide strong arguments for and against the development of policies designed to inhibit tobacco use throughout the world. Multi-national tobacco corporations, earning billions of dollars each year from tobacco sales, are fighting the governments of the United Nations and the World Health Organisation for the right to sell tobacco products to people throughout the world. Pal (1997) identifies the term "policy communities" to describe the arena in which various players compete to push forward their own agenda. Individual players inside the policy community, who share common goals, will often form Advocacy Coalitions. Two such coalitions are those who are for smoking and those who are against smoking.

Court ordered publications of executive memorandums provide evidence of major tobacco companies forming an advocacy coalition in 1976 to generate a "defensive smoking and health strategy". The Shockerwick File (Canadian Broadcasting Corporation, 2000) contains evidence of tobacco companies in Canada and the United States conspiring to refrain from competition that might provide information or indication that cigarettes are not safe. For example, the companies agreed not to publish data that
would indicate one brand of cigarettes had a lower level of tar than another brand because this type of information could be used as evidence that all cigarettes contain tar and are harmful.

A position paper, classified as a "secret" document was produced in 1977, outlining an industry-wide response to the smoking and health issue. The tobacco companies, to provide a unified response to public inquiry, developed this paper in an effort to protect the industry from any one company divulging information that could be used against the industry as a whole. The paper instructed all companies to make arguments like, “Statistical and epidemiological associations alone cannot demonstrate cause and effect.” and “Tobacco companies are being responsible by conducting research on their products.”

While tobacco companies and others have organized effective and powerful arguments for smoking, there is a strong anti-smoking movement that also offers effective and powerful arguments against smoking. In Ontario, various levels of government, ranging from federal to municipal, support anti-smoking advocacy coalitions. The provincial government, for example, has provided funding and support for organizations such as the Ontario Tobacco Research Unit (OTRU) and the Program Training and Consultation Centre (PTCC). These organizations have been created to enhance the capacity of Ontario communities to implement effective provincial and community-based tobacco use reduction strategies. On a federal level, organizations such as the Heart and Stroke Foundation and the Canadian Lung Association receive and distribute government funding as well as charitable donations to fund research and services focused on smoking issues. Local advocacy groups and Public Health...
Departments work at the local level to implement by-laws banning smoking in specific locations throughout the community.

**Implementation of the Tobacco Control Act.** Advances in the anti-smoking movement, in Ontario, allowed the government to enact more powerful tobacco control laws in the province. In 1994 the Ontario Government introduced the Tobacco Control Act (TCA) designed to implement new rules about selling and smoking tobacco in the province (Ontario Ministry of Health, 2000). The Act specified rules such as the minimum age of people who can purchase tobacco products, places where tobacco can and cannot be sold, and places where tobacco cannot be smoked. Of specific interest to Education, is the portion of the TCA that completely bans smoking at public and private schools, both inside and on school grounds. The ban is applicable to everyone, including teachers, principals, and visitors to the school; and is enforceable twenty-four hours a day, seven days a week, 365 days a year.

The TCA gives power to police and inspectors who are employed by local Public Health Departments, to enforce the law. In the Niagara Region, teachers and school staff members have also been extended the power to identify and report students who are smoking on school property, however, most jurisdictions do not extend this power. Penalties for smoking on school property can be up to $1,000 for a first offence and up to $5,000 for additional offences, however, the penalties are usually significantly less. Because the fines are designed to control smoking behaviour on school property, an investigation into the level of control perceived by students, in relation to the penalty for smoking on school property is important in the evaluation of the policy’s impact on smoking behaviour. This study will measure the students’ perception of control over
smoking on school property through the use of a perceived behavioural control measure, based on the theory of planned behaviour\textsuperscript{1}.

**Purpose for developing the TCA.** The purpose of developing policies such as the ban on smoking on school property is to change undesirable behaviour (Pal, 1997). Pal describes policy development as a process in which efficiency and effectiveness guide decisions about choosing the most appropriate instrument to deal with the policy problem. The data from the Ontario Student Drug Use Survey indicated that cigarette smoking among students was increasing, thus, from the government's perspective a policy problem was evident.

One policy solution that was derived from the Ontario Tobacco Strategy was to ban smoking on school property. Thus, through legislation, the Ontario Government attempted to alter the balance between the perceived benefits and hazards of smoking, by imposing penalties on students, and others, who are caught smoking on school property. The expressed purpose of this policy was to protect children from tobacco smoke. Therefore, the measurement of students' perceptions of control over smoking on school property and its relationship to students' smoking intentions is one approach for evaluating the effectiveness of the smoking ban policy.

**Overview of the Research Question**

**Background**

The Ontario Tobacco Control Act serves as an example of how environmental pressures influence the social system of the school. When viewing the school as a social system, the influences from larger social systems have a direct impact on what happens

\textsuperscript{1} The theory of planned behaviour is explained in the following section.
within the school, (e.g., the school must enforce the smoking ban imposed by the government). However, as noted earlier, imposing the smoking ban has created problems for school administrators. Therefore, it is important to assess the relative benefits and costs of the TCA on the smoking intentions and behaviour of students. To do so requires the collection of evaluation data and subsequent analysis that will be helpful in understanding the impact this policy has on students’ smoking behaviours. This study provides some evidence by measuring the prediction of smoking intentions through students’ perceptions of control over smoking on school property.

If Legislators and School Administrators have evidence regarding the influence specific policies are having on the student population, they have the ability to make better, more informed decisions about the benefits associated with maintaining the policy or removing the policy. Therefore, the findings of this study will provide information, important to understanding the impact of the ban on smoking in schools and on school property.

By measuring students’ perceptions of the policy, and comparing them to students’ intention to smoke, the researcher has the ability to assess the policy’s potential for creating a barrier to smoking. If the students do not perceive a barrier to smoking on school property and perceive the benefits of smoking cigarettes to be higher than the benefits of not smoking cigarettes, then students are more likely to engage in smoking behaviour. (This relates to subjective expected utility theory – explained later in the literature review.)

Significant findings in the relationship between perceived behavioural control (specifically measuring control over smoking on school property) and behavioural
intention to smoke, will provide indications that students’ levels of compliance to the policy can be used as a predictor of intention to smoke. Identifying the policy issue of control over smoking, on school property, as a predictor of smoking intention, is an important step, because providing evidence that explains the existence of a relationship indicates the policy is on target for influencing smoking intentions. The theory posits that smoking intentions are the proximal determinant of smoking behaviour (Ajzen, 1991).

Therefore, the research question for this study was: Does the Ontario Tobacco Control Act influence the smoking behaviours of high school students? To answer that question, students’ perceptions of the policy and their intentions to smoke will be investigated, to determine whether the Tobacco Control Act is perceived to create a barrier to smoking. These variables will be investigated within the theoretical context provided by the theory of planned behaviour. This theory takes into consideration the impact of external factors, such as policies, on a person’s perceived volition towards a specific behaviour. It also specifies that behaviours are influenced by attitudes and social norms. The application of the theory of planned behaviour to the research question is described in more detail in the following section.

Theoretical Context for Evaluating the Research Question

Theory of planned behaviour. The theory of planned behaviour is based on subjective expected utility theory (Edwards, 1954, cited by van der Plight & de Vries, 1998) and is used to understand the perceptions of participants, with regard to decision-making activities. The theory of subjective expected utility posits that people make decisions, about engaging in or refraining from behaviours, based upon a cognitive
balance between their evaluation of the favourable and unfavourable outcomes associated
with the behaviour. Therefore, if the perceived outcomes of engaging in the behaviour
were favourable, a person would be expected to participate in the behaviour. Conversely,
if the perceived outcomes of engaging in the behaviour were perceived as unfavourable,
the person would be expected to avoid the behaviour.

Utilizing this concept of measuring the balance between favourable and
unfavourable perceptions, the theory of planned behaviour measures three predictors of
behavioural intention: attitude toward behaviour, subjective norms and perceived
behavioural control. behavioural intention represents a person’s motivation toward the
behaviour under investigation. According to the theory of planned behaviour,
behavioural intention is the proximal determinant, or most important cause, of behaviour
(Ajzen, 1991), and is treated as the dependent variable in this study.

Applying the Theory of Planned Behaviour

The theory of planned behaviour uses three main predictors of behavioural
intention. These are attitude toward behaviour, social norms, and perceived behavioural
control (see Figure 3). Direct measurements or composite measurements may be used to
determine each of these predictors.

Behavioural intention (Intent). According to the theory, behavioural intention is
the proximal, or most important determinant of behaviour (Conner & Sparks, 1997).
Therefore, by predicting behavioural intention, the researcher is gaining important
information about future behaviour. The determinants of behavioural intentions
Figure 3. The theory of planned behaviour (Ajzen, 1991).
are Attitude, Norms, and Control. Policy has been added to the analysis, specifically to
determine if it is also a predictor of Intent. A description of these predictors follows.

**Attitude toward behaviour (Attitude).** According to the theory, attitude toward
behaviour refers to an individual’s appraisal (favourable or unfavourable) of the
behaviour under investigation. The determinants of attitude toward behaviour are
behavioural beliefs, which are considered to be a measure of the perceived outcomes of
the behaviour, and evaluation of behavioural outcomes, which are considered to be an
evaluation of the favourable or unfavourable nature of the outcomes. The behavioural
belief score is multiplied with the evaluation of behavioural outcome score, and called the
belief factor, to produce an individual score for each of the beliefs measured in relation to
the behaviour. This is the composite measure of attitude toward behaviour.

For example, to determine the belief factor for *concentration*, a student could be
asked to respond to the statement: “Smoking cigarettes helps you concentrate better.” on
a 7-point, semantic differential scale, ranging from 1 (strongly disagree) to 7 (strongly
agree). This is the control belief score for *concentration*. For the purposes of this
demonstration, imagine the student responds with a score of 2.

Next, the student is asked to respond to the statement: “Concentrating better is…” on
a 7-point, semantic differential scale, ranging from 1 (bad) to 7 (good). This is the
evaluation of behavioural outcome score for *concentration*. The student responds with a
score of 6.

To determine the belief factor score for *concentration*, multiply the behavioural belief
score of 2 and the evaluation of behavioural outcome score of 6 to get a belief factor
score of 12 for concentration.
Because people tend to have more than one relevant belief factor for a behaviour, it is usual for studies to present many sets of composite attitude toward behaviour score items. By calculating the average product of these individual belief factor scores, the composite measure of Attitude can be obtained. The belief factor items used in this study were derived from van der Plight and de Vries (1998).

The theory also specifies the importance of using salient beliefs when measuring attitude toward behaviour (Ajzen, 1991). Budd (1986) and van der Pligt and de Vries (1998) demonstrated the importance of measuring salient beliefs in their research. van der Plight and de Vries compared the method using attitude toward behaviour scores derived by three salient scores of the individual to the method using the mean average of all 15 belief factor scores. Their results indicate the attitude toward behaviour score derived by using three salient beliefs ($r = .52, p < .001$) was a significantly better predictor than the score derived by using all beliefs ($r = .37, p < .001$).

Attitude toward behaviour can also be assessed directly, by asking individuals to evaluate the behaviour, at the appropriate level, on a series of semantic differential scales. The poles of these scales would indicate favourable or unfavourable evaluations of the behaviour. However, this method was not used because the composite approach provides a more comprehensive measurement of behaviour (Babbie, 1998).

**Subjective norms (Norms).** According to the theory, subjective norm refers to an individual’s perception of social pressure to participate, or not participate, in the behaviour under investigation. Referents, who are specific individuals, or groups, who influence the participant, are deemed to be the source of social pressure for the participant.
The determinants of subjective norms are normative beliefs and motivation to comply. Normative beliefs are believed to measure how much a specified referent would, or would not, want the participant to do the behaviour under investigation. Motivation to comply is believed to measure the participant’s desire to do what the referent wants him/her to do. The normative belief score is multiplied with the motivation to comply score to generate a subjective norm factor for each referent.

For example, to determine the subjective norm factor for the first referent, a student could be asked to respond to the statement: “This person/group thinks I should smoke.” on a 7-point, semantic differential scale, ranging from 1 (strongly disagree) to 7 (strongly agree). This is the normative belief score for the first referent. For the purpose of this example, imagine the student responds with a score of 2.

Next, the student is asked to respond to the question: “How much do you want to do what the person/group wants you to do?” on a 7-point, semantic differential scale, ranging from 1 (not at all) to 7 (very much). This is the motivation to comply score for the first referent. The student responds with a score of 6.

To determine the subjective norm factor score for the first referent, multiply the normative belief score of 2 with the motivation to comply score of 6 to get a normative factor score of 12 for the first referent.

Because people might have more than one referent influencing them, multiple sets of composite subjective norms are usually provided to the participant. In the present study, participants were given the option of providing up to 3 referents, although it is possible as few as one referent might be identified. By calculating the average of all
subjective norm factor scores, the composite measure of Norms is obtained. Again, the theory emphasizes the importance of salient referents when measuring subjective norms.

Subjective norms can also be assessed directly, by asking individuals to evaluate, at the appropriate level, how people who are important to them would view the specified behaviour. The poles of this scale would indicate favourable or unfavourable evaluations of the behaviour. Again, this method was not used because the composite approach provides a more comprehensive measurement of behaviour (Babbie, 1998).

Perceived behavioural control (Control). The perceived behavioural control portion of the theory of planned behaviour has been devised to account for non-volitional considerations. Behavioural decisions are not always under the complete control of the participant. Resources or ability can facilitate, or inhibit, a person’s ability to perform behaviour. For example, eating healthier may require access to additional monies to purchase better food. When one makes a decision about participating in a specific behaviour that is not under his/her total control, such as youths deciding to smoke, the control portion of the theory acts as an evaluation of perceived control over the behaviour.

The purpose of this study was to measure the influence of the smoking ban policy. This was facilitated through the use of the composite perceived behavioural control measure of the theory of planned behaviour. The purpose of this approach was to measure the perception of control specifically related to the smoking ban policy.

Three possible outcomes of smoking on school property in the Niagara Region, if caught are: getting a warning, getting a suspension and getting a ticket. Additionally, items measuring students’ willingness to leave the school if they decided to smoke and
the impact having to leave the school to smoke would have on their smoking behaviour were included in the study. Therefore, the composite measures of perceived behavioural control in this study evaluate students’ perceptions of outcomes specific to the smoking ban policy.

According to the theory, perceived behavioural control refers to a person’s perceptions about access to the necessary resources and/or opportunity to perform the behaviour of interest successfully. The determinants of perceived behavioural control are control beliefs and perceived power. Control beliefs in this study were considered to be measures of a person’s perception of getting caught and being punished for smoking on school property (i.e. not at all likely to very likely). These measures related specifically to the levels of punishment that are possible, if a student were caught smoking on school property (e.g., getting a ticket). Perceived power is a measure of strength in the ability of the controlling factor to influence or inhibit the behaviour of interest (e.g., possibility of a ticket makes the individual more or less likely to smoke).

The control belief score is multiplied by the associated perceived power score, to provide the policy factor score. Thus, an accompanying perceived power score weights each control factor. This is the composite measure of perceived behavioural control.

For example, to determine the policy factor for getting a warning, a student is asked to respond to the question: “If you decided to smoke on school property, what are the chances you would get a warning from the school?” on a 7-point, semantic differential scale, ranging from 1 (not at all likely) to 7 (very likely). This is the control belief score for getting a warning. For the purposes of this example, imagine the student responds with a score of 2.
Next, the student is asked to respond to the statement: “The possibility of getting a warning would make you...” on a 7-point, semantic differential scale, ranging from 1 (less likely to smoke) to 7 (more likely to smoke). This is the perceived power score for getting a warning. The student responds with a score of 6.

To determine the policy factor score for the first referent, multiply the control belief score of 2 with the perceived power score of 6 to get a policy factor score of 12 for getting a warning. The mean of the policy factor scores is calculated to provide the policy score.

Perceived behavioural control can be assessed using a direct measure, by asking individuals to evaluate, at the appropriate level, on a series of semantic differential scales, the amount of overall control they have over performance of the behaviour. The poles of this scale would indicate high, or low, evaluations of control. It is important to note that this approach was used in the current study to measure overall control related to smoking.

Appropriateness of the Theory of Planned Behaviour

It must be acknowledged that smoking behaviour is influenced by a host of factors; only one of which is policy. As Pal has indicated, separating the specific influence of the ban on smoking from other influences, such as Attitude is difficult. Therefore, it is important for the researcher to identify and measure other predictors of smoking behaviour, with the goal of controlling for their influences on smoking intention. Two well known predictors of adolescent smoking behaviour, identified through the literature, and controlled in the present study are attitudes toward smoking and social norms (Godin, Valois, LePage, & Desharnais, 1992; Morrison, Simpson, Gillmore, Wells, & Hoppe, 1996; van der Plight & de Vries, 1998).
Chassin et al. (1981) observed that youths indicating an intention to engage in smoking behaviour could be identified through their specific attitudes toward smoking behaviour. Another study by O'Callaghan, Callan, and Baglioni (1999) tested Ajzen's theory of planned behaviour as an explanation of youth smoking behaviour. They determined adolescents' attitudes toward smoking, as well as their perceptions of the normative value of smoking, were predictors of smoking behaviour. These and other studies provide support for measuring the influence of Attitudes and Norms in this study.

When considering youths' intentions to smoke and the policy designed to restrict this behaviour, the theory of planned behaviour has potential benefits for evaluating this issue. The theory allows the researcher to gather information about factors that influence behaviour associated with the policy such as attitude, social norms, and perceptions of control over performing the behaviour. Hierarchical multiple regression techniques also allow the researcher to identify the independent influence of these predictors in order of importance. Thus, this theory provides the researcher with the ability to control for the influence of two major predictors of smoking, while measuring the policy's unique contribution to the prediction of behavioural intention.

An effective policy should target the predictors leading to the performance of undesirable behaviour. Therefore, it is important to assess the significance of perceived behavioural control over smoking, in schools and on school property, as a predictor of behavioural intention. An effective policy should target behaviour that leads to changes in the performance of the undesirable behaviour. Therefore, it is important to assess the influence of the Policy on intention to smoke.
Studies predicting behaviour using behavioural intention. The full application of the theory of planned behaviour requires data collection at two different phases. Phase one requires the collection of information for the portion of the theory that provides a measure of behavioural intention. Phase two requires the collection of data on all measures of the model including a behaviour measure, during the second data collection phase. Behaviour data are compared with behavioural intention data and perceived behavioural control data. The inhibition or facilitation of the behaviour influenced by the policy can be assessed through the relationship between perceived behavioural control, intention, and behaviour. Because this study only collected data for phase one, it cannot be used to construct a causal model of youth smoking behaviour. However, it can be used to establish the presence of a relationship between the policy and smoking intention. This finding would indicate that the policy has the potential to influence the smoking behaviour of high school students.

Many studies utilizing the full theory have demonstrated the accuracy of behavioural intention to predict behaviour. Godin, Valois, LePage, and Desharnais (1992) specifically demonstrated the theory of planned behaviour was useful for understanding smoking behaviour. They conducted two studies of adult smoking behaviour, concluding that knowing individuals’ perceived behavioural control increased the prediction of smoking behaviour. O'Callaghan, Callan, and Baglioni (1999) also tested the effectiveness of various theories in predicting cigarette smoking in adolescents. They did not find the Control measure of the theory to be significantly related to intention, however, the literature indicates many studies fail to have success in clearly reporting the relationship between perceived behavioural control and behavioural
intention. The lack of fit for perceived behavioural control in the O’Callaghan study might be due to their approach to measuring perceived behavioural control rather than the theory itself (Conner & Sparks, 1997).

Since the purpose of this study is to evaluate youth perceptions of barriers to smoking, rather than behaviour itself, the data was only collected for time one (i.e., to the point of behavioural intention only).

Different use of the perceived behavioural control variable. Despite consistency in the measuring of Attitudes and Norms, Control has been measured in a variety of ways. The O’Callaghan study presented perceived behavioural control in terms of how much personal control the respondents thought they had over their decision to smoke. The Godin study appeared to approach perceived behavioural control in terms of control over addiction and the current study will measure the relationship between control over smoking on school property and smoking intentions.

It is apparent from the literature that different approaches toward the measurement of perceived behavioural control have resulted in varying degrees of success when attempting to predict behavioural intention. Therefore, further exploration into the measurement of perceived behavioural control as a predictor of smoking intention is needed.

Objectives of the Study

The objective of this study was to measure the relationships among Attitudes, Norms, Control, Policy, and Intent. Specifically, whether, and to what degree, each of these is associated with Intent will be explored. This evaluation is intended to provide
important information to legislators and administrators regarding the influence of the
policy on smoking intentions.

For the purpose of this study, perceived control over smoking in, or on school
property has been defined as policy control. By measuring students' control beliefs and
perceived power on four policy issues, the researcher intends to measure the relationship
between the influence of the policy, measured by changes in perceived behavioural
control and students intention to smoke.

The study also includes a measure for general perceived behavioural control over
smoking (Control). The specific action that influences students' perceptions of control
are not identified or specified. This measure of general perceptions of control was used
to measure possible differences between Control (control over smoking in schools and on
school properties) and general barriers towards youth smoking, (e.g., lack of access to
cigarettes or lack of opportunity). The direct measure of perceived behavioural control
was used to collect these data.

Hypotheses and Research Questions

Null Hypotheses

Hypothesis I. There is no relationship between attitudes toward smoking and the
smoking intentions of high school students.

Hypothesis II. There is no relationship between the subjective norm held by high
school students regarding smoking and the smoking intentions of high school students.
Hypothesis III. There is no relationship between the perceived behavioural control of high school students, regarding smoking on school property and the smoking intentions of high school students.

Hypothesis IV. There is no relationship between the control of high school students over the smoking ban and the smoking intentions of high school students.

Hypothesis V. Students’ perception of control over policy will not add to the prediction of Intent, over and above the prediction of Attitude, Norms, and Control.
CHAPTER THREE: METHODOLOGY

Collection of Data

The data for this study were collected along with data for a second study, which examined smoking cessation preferences among high school students (Lawrance, 2000). Monies for both studies were provided through a grant received from the Canadian Tobacco Research Initiative.

Sample Description

Participants. A total of 2,532 students from four different high schools and two different school boards in the Niagara Region were administered a questionnaire on smoking behaviours and preferred quitting methods. Of the students who participated, 1,340 (52.9%) were girls, 1,118 (44.2%) were boys, and 74 (2.9%) did not provide a response. The ages of the participants ranged from 12 to 20 years, with a mean age of 15.5 years (SD = 1.35). The number of students in grades 9, 10, 11, 12, and OAC were 715 (28.2%), 657 (25.9%), 501 (19.8%), 450 (17.8%), and 181 (7.1%) respectively, with 28 students who did not provide an age response. Due to missing data (as described below), the eventual sample was 2,069.

Sampling. The sample of participants best reflects a purposive sample. Random sampling of the participants was not possible because school board regulations prohibit free access to the individual schools and students. As a result, the researcher had to rely on volunteer access to both schools and individual participants.

One school only permitted access to grade 9 and 10 students. As a result, these populations are over represented in the sample.
Survey Instrument

The survey developed for this study is presented in Appendix A. Descriptions of measures are accompanied by reference to survey items (e.g., Q-#). Development of survey items measuring the theory of planned behaviour was guided through the use of two main sources: Conner and Sparks (1996), and Ajzen (1991). These sources were used to inform the general design of the survey instrument including the wording of the items, response categories, scaling and the ordering of questions on the survey. Research reported in the literature review section was used to gain information specific to smoking behaviour.

The questionnaire includes questions addressing adolescents’ attitudes, subjective norms, perceived behavioural control, and behavioural intentions related to smoking. Other measures were also collected on preferences for smoking cessation interventions. Only those measures relevant to this study are described below.

Demographic data. Basic demographic data for sex, age, and grade (Q-1 to Q-3), were collected from all respondents.

Intention to smoke (Intent). Behavioural intention represents the respondent’s perceived likelihood of performing a specified behaviour. In this study, the specified behaviour is smoking. As suggested by Conner and Sparks (1996), a multiple item measure, which refers to the respondent’s intention to smoke and expectation of smoking was used (Q-56, Q-57, Q-58). Respondents answered each question on a 7-point, bipolar scale, with the anchors unlikely (1) and likely (7).
Attitude toward smoking (Attitude).

The measure of attitude toward smoking was derived from 28 items (Q-9 to Q-36). There were 14 behavioural belief items, which measured different beliefs about smoking. Seven “positive” and seven “negative” statements about fourteen beliefs about smoking were measured. These statements were derived from a list of fifteen beliefs about smoking used by van der Plight and de Vries (1998). Consistent with previous research on the theory of planned behaviour, behavioural belief items were rated on 7-point bipolar scales with the anchors strongly agree (1) to strongly disagree (7).

Each behavioural belief item had a corresponding evaluation of behavioural outcome item. For example, item 9, measured the belief that smoking is relaxing and item 10, measured the corresponding evaluation about that outcome of smoking. Seven “positive” and seven “negative” statements about the evaluations of behavioural outcomes were measured (Item 32 was erroneously phrased in the positive on the survey. The statement should have read, “Having bad health is…” therefore the responses were reverse coded.). Evaluations of behavioural outcome items were rated on 7-point bipolar scales with the anchors bad (1) to good (7). Negative statements were reverse coded to achieve agreement of valence, such that lower scores represented a more negative attitude toward smoking for all questions.

Respondents also indicated which three beliefs about smoking were most salient to them (Q-61). Products of these three behavioural belief items and the respective evaluation items were averaged to give a measure of respondents’ most salient attitudes toward smoking. This salient score ranged from 1 to 49, with lower scores indicating
more negative views of smoking. The salient attitude score was used wherever Attitude was represented.

Subjective norm (Norm). The measure of subjective norm was derived from two to six items (Q-60), depending upon the number of referents identified by the student. Referents were the person or group of people who would influence them the most, second most and third most. The survey allowed students to identify up to three referents. Thus, the respondents' subjective norm scores were based on normative beliefs about smoking and their motivation to comply with the identified referents.

Normative belief items measured the respondents' views for each referent. Consistent with previous research on the theory of planned behaviour, normative belief items (this referent thinks I should smoke) were rated on 7-point bipolar scales with the anchors strongly disagree (1) - strongly agree (7). Each normative belief item had a corresponding motivation to comply item, which asks students how much they want to do what the referent thinks they should do. Motivations to comply items were rated on 7-point bipolar scales with the anchors not at all (1) - very much (7). Scores for each pair of normative beliefs and corresponding motivation to comply were multiplied, and the resulting products were averaged to yield a final score between 1 and 49. Lower scores represent less social pressure to perform the behaviour (smoking) and higher scores indicate more social pressure to perform the behaviour (Ajzen, 1991).

Perceived behavioural control (Control). Perceived behavioural control (over smoking) was measured by a 2-item direct measure. The direct measure was intended to measure perceptions of control related to smoking cigarettes and would be consistent with the original use of perceived behavioural control in the theory of planned behaviour.
The direct measure (Q-52, Q-54) required students to respond on 7-point bipolar scales to two statements about smoking: Smoking would be... *hard* (1) – *easy* (7); If you wanted to smoke, you could smoke... *strongly disagree* (1) – *strongly agree* (7).

**Policy control (Policy).** Policy control was a composite measure of four scores, derived by multiplying the control belief score with the corresponding perceived power score (Q-37 to Q-44). This measure, using four paired items, was intended to measure perceptions of control related to the policy of smoking cigarettes on school property.

Students were asked about the likelihood of: getting a warning (Q-37); a suspension (Q-39); a ticket (Q-41); going off school property to smoke (Q-43). The first three statements were derived from possible consequences of smoking on school property as outlined in the Tobacco Control Act and the fourth statement measured compliance with the policy. Consistent with previous research on the theory of planned behaviour, perceived control items were measured on 7-point, bipolar scales, with the anchors *not at all likely* (1) – *very likely* (7).

Each control belief item had a corresponding perceived power item, for example, question 37 measured one perceived control item (getting a warning) and item 38 measured the corresponding perceived power of that control belief (getting a warning would make me...). Perceived power items were rated on 7-point bipolar scales with the anchors *less likely to smoke* (1) – *more likely to smoke* (7). Scores for each pair of control belief and corresponding perceived power were multiplied, and the resulting four products were averaged to yield a final score between 1 and 49. As perceived behavioural control increases, the individual’s intention to perform the behaviour is also expected to increase (Ajzen, 1991).
Procedures

School Selection. All of the secondary schools, from both the Public and Catholic School Boards in the Niagara Region, were invited to participate in a survey of youth smoking behaviour. Representatives of both the Catholic and Public School Boards approached potential participating schools at their weekly Principals’ Meetings. Lists of schools indicating an interest in participating were forwarded to the researcher and the school principals were contacted by telephone.

Details of the study were explained to the principals. To be eligible to participate, the school (principal) had to agree to the study protocol which required them to: distribute and collect parental consent forms; allow researchers thirty minutes of class time (total); and help monitor the classrooms. The researcher met with principals from each of the participating schools to outline the study protocol, and make all the necessary arrangement for data collection. Because all surveys were to be administered during the first class of the day, a class list for each first period class and a map of the school was obtained from the principals at that meeting. Shortly after the meeting, principals were provided with copies of a written memo to be distributed to teachers in advance of the study, a copy of the written memo to be distributed to the parents, and a copy of the parental consent form. These documents outlined teachers’ roles in the upcoming study, provided a detailed description of the study protocol, and outlined the consent gathering procedures as well as the date and time of the study (see Appendix B).

Five of the schools agreed to the terms of the study and negotiated a suitable time for data collection, there were two schools from the Catholic School Board and two from the Public School Board. Once a date was agreed upon, the researcher and a research
Consent

Consent for this study was received from the Brock University Sub-Committee on Research with Human Participants, the Niagara District School Board, the Niagara District Separate School Board, each of the participating High Schools, Parents of the participating students, and the students who participated in the study. The protocol for the parental consents and student consents were as follows.

Parental consent. Letters explaining the research study along with a consent form that was to be returned to the students’ homeroom were given to students to take home to their parents or guardians. Over the following three days, teachers collected consent forms and checked the names of students from the class list. The day before the survey researchers collected completed consent forms and a class list from each teacher. Students who returned the signed parental consent form were eligible to participate in the study.

Student Consent. On the day of the survey, students who had obtained parental consent were provided with consent information that included a description of the study and a form to sign, indicating their willingness to participate in the study (Appendix C). The students were asked to read over the consent form and to sign it before the questionnaire was distributed to them.
Subject Selection

Questionnaires were distributed to all students who provided parental and student consents and agreed to participate in the study, regardless of their smoking status. Alternative assignments were provided for the students who did not participate in the study.

Survey Administration

Protocol. On the day prior to the survey the researcher picked up the signed parental consent forms and class lists from the participating school. The researcher and the research assistants assembled packages containing a list of instructions for the homeroom teacher, a list of participating students, a student consent form, a number of surveys equal to the number of students with parental consents, alternative assignments for students not participating, a large envelope for the completed surveys and enough pencils for each of the surveys provided.

The following day teachers in each homeroom were provided with a package. The researcher and the research assistants distributed the packages to each homeroom before the start of the first period. Each research assistant was responsible for distributing the packages and answering questions in a predetermined section of the school. The research assistants also distributed surveys to students who returned parental consent forms on the day of the survey. The researcher was available to answer any questions that could not be addressed by the research assistants and observed the administration of the survey to ensure protocol was followed.

Written instructions to the teacher contained information regarding the conditions of participation, how to complete the survey, a class list indicating which students
returned consent forms, and a student consent form. The teachers were asked to read the survey instructions to the students (Appendix D), have willing students sign the consent form, and issue a survey and pencil to those students. Survey administration was scheduled to last thirty to forty minutes, however, at the teacher’s discretion, this period could be extended to allow students who needed more time to complete the survey the extra time they needed.

When the students completed their survey they placed the survey in a large envelope provided with the homeroom package. Surveys were designed with blank sheets on the front and back of the survey to conceal any potentially sensitive data from the view of the teacher or other students. The last student to complete the survey was instructed to seal the envelope and deliver the package to the research assistant.

Confidentiality. Several steps were taken to maintain the confidentiality of students’ responses to the survey. First, the students were instructed not to put their name on their surveys. Second the students devised their own identification code number to ensure confidentiality, while also allowing for the possibility that a student may change their mind about participating in the study. Third, the first and last pages of the survey were blank, such that no responses were visible during collection. Fourth, the students personally placed their own questionnaire into a large envelope, which the final student sealed. Fifth, at no point did the teacher or researcher handle the completed surveys. Finally, the extra student consent forms were collected separately and placed in a separate envelope. The instructions the teacher read informed the students that all information they offered is confidential and private and that they had the right to withdraw from the study at any time.
Debriefing procedures. The day following the survey, teachers were provided with a list of smoking cessation and prevention resources to share with their students. Students were made aware that the school nurse was available to answer any questions or concerns that they might have concerning smoking (see Appendix E). Later, a written summary of results – with no identification – was made available to principals as soon as possible after completion of the data collection. Also, a simplified summary of results for students - suitable for posting on a school bulletin board - was made available.
CHAPTER FOUR: RESULTS

Screening the data. Of the 2532 students surveyed, 174 were identified as ex-smokers. These participants were not included in the study. Ex-smokers are a natural part of the high school population, however, including this group in the analyses introduces confounding factors and interrupts the ordinal nature of the categories with respect to smoking intent.

Among the remaining 2358 non-smokers and smokers, a number of participants did not answer all items used to generate scores for Attitude, Norms, Control, Policy, and Intent. Accordingly, mean replacement for single items was employed. Another 289 participants did not supply sufficient responses to generate Attitude, Norms, Control, Policy or Intent scores. A conservative approach to generating mean scores was taken because of the large number of participants.

An analysis of the data indicated that none of the variables in the original data set were missing more than six percent of the responses; missing data appeared to be random and dispersed. Chi-square tests were administered, comparing the original data set to the mean replaced data set (final data set). Chi-square comparisons of the original data set and the final data set were calculated for the variables gender, $\chi^2(1, N = 4286) = .94, \text{ns}$, age, $\chi^2(8, N = 4360) = .78, \text{ns}$, grade, $\chi^2(4, N = 4358) = .87, \text{ns}$, and self perceived smoking status (Q-8), $\chi^2(4, N=4391)=.37, \text{ns}$. These analyses indicated no significant differences between the original data and the final data. Therefore, all analyses are based on the responses of the remaining 2069 students.
Sample Demographics

Grade. Of the 2069 participants in the study, 576 (27.8%) were grade 9 students, 517 (25.0%) were in grade 10; 416 (20.1%) of the respondents were grade 11 students; 391 (18.9%) were grade 12 students; 157 (7.6%) of the respondents were in OAC. Grade was unknown for 12 students. The modal grade was grade 9.

Age. The age range for students represented in this study were between 12 to 20 years old (M =15.49; SD =1.36). There was one 12 year old represented in the sample; 47 (2.3%) 13 year olds; 560 (27.2%) 14 year olds; 498 (24.0 %) 15 year olds; 418 (20.2%) 16 year olds; 366 (17.6%) 17 year olds; 155 (7.5%) 18 year olds; 8 (0.4%) 19 year olds; 5 (0.2%) were 20 years of age or older.

Smoking behaviour of peers. In response to the question, “How many of your friends smoke?” 268 students (13.0%) responded none of their friends smoked; 964 students (46.6%) reported having just a few friends who smoked; 345 students (16.7%) indicated that about half of their friends smoked; 234 students (11.3 %) reported many of their friends smoked and 249 students (12.0%) reported almost all of their friends smoked. Nine students (0.4%) did not respond to the question.

Smoking history. When asked: Have you ever smoked a cigarette, even just a few puffs? 803 students (38.8%) responded “no” and; 1260 students (60.9%) responded “yes”. Six students (0.3%) did not answer the question.

In response to the question: Have you smoked 100 or more whole cigarettes in your life? 1561 students (75.4%) indicated they had not; 466 students (22.5%) indicated they had; and 42 students (2.0%) did not respond to the question. Students who smoked were also asked how often they smoked in the past 30 days. Of the 567 students who
responded, 44 (2.1%) did not smoke at all, 56 (2.7%) smoked once or twice, 92 (4.5%) smoked some days each week, and 375 (18.2%) smoked almost every day. One thousand four hundred and ninety-three (72.5%) did not respond.

Nine hundred and sixty-five students, who had ever smoked, responded to the question: How old were you the first time you smoked a whole cigarette? On average students were 12.5 years old (SD = 2.12), the first time they smoked a cigarette. Sixty students did not provide a response to this question.

Self-identification of smoking status. When participants were asked to rate their smoking status, 1137 (55.0%) rated themselves as non-smoker who had never smoked; 467 (22.6) rated themselves as non-smokers who smoke sometimes; 112 (5.4%) rated themselves as light smokers; 280 (13.5%) rated themselves as medium smokers; and 73 (3.5%) rated themselves as heavy smokers.

Policy Issues

Control beliefs. Table 1 shows the proportion of respondents in each response category for the four control items. Students rated on a 7-point scale (with 1 representing “not at all likely” and 7 representing “very likely”), how likely they would be to receive a warning for smoking on school property (M= 4.65; SD= 2.23); receive a suspension for smoking on school property (M= 4.47; SD= 2.28); receive a ticket for smoking on school property (M= 3.92; SD= 2.16); leave the school to smoke (M= 5.00;SD= 2.26).

Perceived power. Table 2 shows the proportion of respondents in each response category for the four items. Students rated on a 7-point scale (with 1 representing
Table 1
Participants’ Control Beliefs Regarding the Likelihood of Penalties for Smoking

<table>
<thead>
<tr>
<th>Response</th>
<th>Chance of Warning&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Chance of Suspension&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Chance of Ticket&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Leaving to Smoke&lt;sup&gt;d&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Not at all likely (1)</td>
<td>300</td>
<td>14.5</td>
<td>324</td>
<td>15.7</td>
</tr>
<tr>
<td>Unlikely (2)</td>
<td>212</td>
<td>10.2</td>
<td>179</td>
<td>8.7</td>
</tr>
<tr>
<td>Somewhat unlikely (3)</td>
<td>147</td>
<td>7.1</td>
<td>126</td>
<td>6.1</td>
</tr>
<tr>
<td>Neither (4)</td>
<td>217</td>
<td>10.5</td>
<td>206</td>
<td>10.0</td>
</tr>
<tr>
<td>Somewhat likely (5)</td>
<td>240</td>
<td>11.6</td>
<td>201</td>
<td>9.7</td>
</tr>
<tr>
<td>Likely (6)</td>
<td>254</td>
<td>12.3</td>
<td>267</td>
<td>12.9</td>
</tr>
<tr>
<td>Very likely (7)</td>
<td>690</td>
<td>33.3</td>
<td>752</td>
<td>36.3</td>
</tr>
</tbody>
</table>

<sup>a</sup> 9 students did not answer; M = 4.65; SD = 2.23.  
<sup>b</sup> 14 students did not answer; M = 4.47; SD = 2.16.  
<sup>c</sup> 19 students did not answer; M = 3.92; SD = 2.16.  
<sup>d</sup> 18 students did not answer; M = 5.00; SD = 2.26.
Table 2

Perceived Power of Penalty to Influence Smoking Likelihood

<table>
<thead>
<tr>
<th>Response</th>
<th>Warning&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Suspension&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Ticket&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Leaving to Smoke&lt;sup&gt;d&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Less likely to smoke</td>
<td>483</td>
<td>23.5</td>
<td>684</td>
<td>33.4</td>
</tr>
<tr>
<td>Somewhat less likely</td>
<td>201</td>
<td>9.7</td>
<td>221</td>
<td>10.8</td>
</tr>
<tr>
<td>Slightly less likely</td>
<td>223</td>
<td>10.8</td>
<td>206</td>
<td>10.1</td>
</tr>
<tr>
<td>Neither more or less</td>
<td>808</td>
<td>39.1</td>
<td>646</td>
<td>31.6</td>
</tr>
<tr>
<td>Slightly more</td>
<td>151</td>
<td>6.3</td>
<td>113</td>
<td>5.5</td>
</tr>
<tr>
<td>Somewhat more</td>
<td>80</td>
<td>3.9</td>
<td>61</td>
<td>3.0</td>
</tr>
<tr>
<td>More likely</td>
<td>133</td>
<td>6.4</td>
<td>116</td>
<td>5.7</td>
</tr>
</tbody>
</table>

<sup>a</sup>10 students did not answer; M = 3.33; SD = 1.72.  <sup>b</sup>22 students did not answer; M = 2.97; SD = 1.78.  <sup>c</sup>23 students did not answer; M = 2.86; SD = 1.69.  <sup>d</sup>27 students did not answer; M = 3.58; SD = 1.85.
“less likely to smoke” and 7 representing “more likely to smoke”), the likelihood that their smoking behaviour would be influenced by: getting a warning ($M = 3.33; SD = 1.72$); receiving a suspension ($M = 2.97; SD = 1.78$); getting a ticket ($M = 2.86; SD = 1.69$); having to leave school property ($M = 3.58; SD = 1.85$).

**Scale Analysis**

Cronbach’s alpha analyses were run for each of the scales to ensure internal consistency. An $\alpha = .70$ was set as the minimum standard for internal consistency.

**Behavioural Belief.** With all 14 items, an internal consistency of 0.75 was achieved. No item had a corrected item-total correlation below .24. Deletion of any item did not improve internal consistency.

**Evaluation of Behavioural Outcome.** With all 14 items, an internal consistency of .73 was achieved. No item had a corrected item-total correlation below .23. Deletion of any item did not improve internal consistency.

**Normative Belief.** With all 3 items, an internal consistency of .79 was achieved. No item had a corrected item-total correlation below .58. Deletion of any item did not improve internal consistency.

**Motivation to Comply.** With all 3 items, an internal consistency of .88 was achieved. No item had a corrected item-total correlation below .74. Deletion of any item did not improve internal consistency.

**Perceived behavioural control.** With both items, an internal consistency of .75 was achieved. Neither item had a corrected item-total correlation below .60. Deletion of either item did not improve internal consistency.

---

2 Negative items have been recoded to attain agreement of valence amongst these items.
Control belief (Policy). With all 5 items, an internal consistency of .65 was observed. Because a low corrected item-total correlation for item 45 occurred ($r = .18$), this item was removed. Deletion of item 45 improved internal consistency to .70.

Perceived Power (Policy). Item 46 was removed due to the removal of its corresponding control belief score, item 45. With the remaining 4 items, an internal consistency of .83 was observed. Deletion of item 44 could have improved internal consistency to .87. However, item 44 was retained because deletion of the corresponding control belief item (Q-43) would have reduced the internal consistency of the control belief scale below acceptable limits.

Behavioural intention (Intent). With all 3 items, an internal consistency of .92 was achieved. No item had a corrected item-total correlation below .81. Deletion of any item did not improve internal consistency.

Correlation and Regression Analyses

Testing assumptions. Prior to submitting variables to bivariate or multiple correlation/regression analyses, the following assumptions were assessed: linearity, homogeneity, homoscedasticity, colinearity between the predictors, and normal distribution of residuals. Few violations were observed. Where violations did occur, the nature and extent of the violation is reported with the specific analysis.

Alpha level. Unless otherwise stated an alpha level of $p < .001$ was used for all statistical tests. It was chosen to control for Type I error. Also, the large sample size ensured adequate power would be retained with an alpha this conservative.
Relationships Among Key Variables

The findings indicate positive, significant correlations among the variables that were tested, relating to the theory of planned behaviour. Attitude had the highest correlation with Intent ($r = .574, p < .001$). The Attitude and Norms and Control variables indicate a moderate correlation with Intent. The Policy variable measuring perceptions of control regarding the smoking ban approached a moderate, significant, correlation with the Intent variable ($r = .274, p < .001$). The correlation matrix for Intent, Attitude, and Control and Policy is provided in Table 3.

Predicting Smoking Intention from Attitude, Norms, and Policy

Hierarchical, multiple regression analyses were conducted where Intent was regressed on Attitude and Norms in the first step, and Policy in the second step. This analysis was conducted to test the theory without the influence of the Control variable, which is a general measure of perceived behavioural control. The results are presented in Table 4. At the first step, Attitude and Norms significantly accounted for 42.5% of the variability in Intent ($F (2, 2066) = 762.45, p < .001$). The addition of Policy improved the model ($R^2$ change $= .014, p < .001$), such that the final model with Attitude, Norm, and Policy accounted for 43.9% of the variability in Intent ($F (3, 2065) = 538.52, p < .001$).

Predicting Smoking Intentions from Attitude, Norms, Control and Policy

Hierarchical multiple regression analyses were conducted where Intent was regressed on Attitude and Norms in the first step, Control in the second step, and Policy
Table 3

Relationship Among Measures of the Theory of Planned Behaviour

<table>
<thead>
<tr>
<th>Measures</th>
<th>Intent</th>
<th>Attitude</th>
<th>Norms</th>
<th>Control</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intent</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.574***</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norms</td>
<td>.468***</td>
<td>.304***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>.465***</td>
<td>.338***</td>
<td>.251***</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Policy</td>
<td>.274***</td>
<td>.222***</td>
<td>.162***</td>
<td>.179***</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. N=2069. N for Control = 2065

***p < .001 level, two-tailed.
Table 4

Prediction of Intent from Attitude, Norms, and Policy

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>sr</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.475***</td>
<td>.453</td>
<td></td>
</tr>
<tr>
<td>Norms</td>
<td>.324***</td>
<td>.309</td>
<td>.425***</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.452***</td>
<td>.423</td>
<td></td>
</tr>
<tr>
<td>Norms</td>
<td>.311***</td>
<td>.295</td>
<td></td>
</tr>
<tr>
<td>Policy</td>
<td>.123***</td>
<td>.120</td>
<td>.014***</td>
</tr>
</tbody>
</table>

Total R² = .439

Note: N=2069.

***p < .001 level.
Table 5

Prediction of Intent from Attitude, Norms, Control and Policy

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>sr</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.475***</td>
<td>.453</td>
<td></td>
</tr>
<tr>
<td>Norms</td>
<td>.324***</td>
<td>.309</td>
<td>.425***</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.401***</td>
<td>.366</td>
<td></td>
</tr>
<tr>
<td>Norms</td>
<td>.282***</td>
<td>.265</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>.258***</td>
<td>.240</td>
<td>.058***</td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.385***</td>
<td>.347</td>
<td></td>
</tr>
<tr>
<td>Norms</td>
<td>.273***</td>
<td>.256</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>.248***</td>
<td>.229</td>
<td></td>
</tr>
<tr>
<td>Policy</td>
<td>.100***</td>
<td>.096</td>
<td>.009***</td>
</tr>
</tbody>
</table>

Total R²  .492

Note. N=2069.

***p < .001 level.
in the third step. The results are presented in Table 5. This model reached significance
\( F(4, 2068) = 498.71, \ p < .001 \), with Attitude, Norms, Control and Policy accounting for
49.2% of the variability in smoking intention.

As predicted, the measure of students’ perception of control over smoking on
school property (Policy) was a significant predictor of smoking intention over and above
that accounted for by Attitude, Norms, and Control measures. Perception of control over
smoking on school property represented 0.9% of the variance in smoking intention after
the other variables. These data indicate the ban on smoking on school property is a
significant predictor of students’ intention to smoke over and above attitudes toward
smoking, social norms and general perceptions of control associated with smoking.

Exploratory Data Analysis

Post hoc Analysis of Variance analyses were conducted to examine potential
differences in perceived behavioural control responses between students from different
smoking cohorts classifications (i.e., smoker, experimental smoker, non-smoker). The
results of these findings are provided in this section.

Smoking classification. Analyses of variance were conducted, comparing the
responses from different smoking cohorts, to perceived control over smoking on school
property, control belief items and perceived power items. Non-smoker (n = 1069),
experimental smoker (n = 436), and regular smoker (n = 438) cohorts were identified as
defined by Brown (1999). Smokers were classified as students who smoked 100 or more
whole cigarettes in their lifetime and had smoked in the past month, or students who had
smoked 100 or more whole cigarettes in their lifetime and identified themselves as
smokers. Experimental smokers were students who had not smoked 100 or more whole
cigarettes in their lifetime but had smoked in the past month. Also included in this group were students who had not smoked 100 or more cigarettes in their lifetime, but identified themselves as non-smokers who smoke sometimes. The remaining students were classified as non-smokers.

**Control over smoking on school property.** An analysis of variance test was conducted to compare perceptions of control over smoking on school property, between regular smokers ($M = 18.95$; $SD = 8.75$), experimental smokers ($M = 14.55$; $SD = 8.19$), and non-smokers ($M = 12.83$; $SD = 8.04$). The results showed a significant difference in the means of the groups - $F(2,1940) = 85.78$, $p < .001$. Higher scores represent higher perceptions of control over smoking on school property.

**Control beliefs.** Analysis of variance tests were conducted to compare the group means, of the smoking cohorts, for each of the control belief measures. Table 6 provides the statistics regarding students’ perceptions about receiving a warning, suspension, ticket or leaving the school to smoke. The results demonstrate there are no significant differences between the smoking cohorts for each of the items measured.

**Perceived Power.** Analysis of variance tests were conducted to compare the group means, of the smoking cohorts, for each of the perceived power measures. Table 7 demonstrates the influences of receiving a warning, a suspension, a ticket, or having to leave school to smoke, have on smoking likelihood. The results demonstrate significant differences, in the means, between the cohorts, for each measure of perceived power.
### Table 6

**Comparison of Smoking Cohorts’ Average Control Beliefs.**

<table>
<thead>
<tr>
<th>Control Belief</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance of a warning</td>
<td>0.86</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>4.61</td>
<td>2.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>4.60</td>
<td>2.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>4.76</td>
<td>2.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance of a suspension</td>
<td>1.48</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>4.78</td>
<td>2.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>4.72</td>
<td>2.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>4.55</td>
<td>2.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance of a ticket</td>
<td>0.18</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>3.91</td>
<td>2.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>3.72</td>
<td>2.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>3.97</td>
<td>2.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance of leaving school to smoke</td>
<td>1.80</td>
<td>n.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>5.03</td>
<td>2.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>5.07</td>
<td>2.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>4.81</td>
<td>2.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Non-smoker \( N = 1069 \); experimental smoker \( N = 436 \); regular smoker \( N = 438 \); \( df = 2, 1940 \).
Table 7

Smoking Cohorts’ Perception of Power to Influence Smoking Likelihood.

<table>
<thead>
<tr>
<th>Influence of...</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A warning</strong></td>
<td></td>
<td></td>
<td>77.01</td>
<td>.000</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>2.98</td>
<td>1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>3.31</td>
<td>1.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>4.15</td>
<td>1.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A suspension</strong></td>
<td></td>
<td></td>
<td>131.68</td>
<td>.000</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>2.53</td>
<td>1.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>2.89</td>
<td>1.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>4.05</td>
<td>1.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A ticket</strong></td>
<td></td>
<td></td>
<td>120.08</td>
<td>.000</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>2.44</td>
<td>1.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>2.84</td>
<td>1.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>3.84</td>
<td>1.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Leaving school to smoke</strong></td>
<td></td>
<td></td>
<td>77.15</td>
<td>.000</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>3.20</td>
<td>1.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental smoker</td>
<td>3.57</td>
<td>1.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular smoker</td>
<td>4.45</td>
<td>1.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Non-smoker N = 1069; experimental smoker N = 436; regular smoker N = 438; df = 2, 1940.
CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

In 1994 the Ontario Government enacted changes to the Tobacco Control Act (TCA), which affected all schools in the province. The TCA, which is designed to control the use and distribution of tobacco throughout the province, bans smoking on school property (among other things). The smoking ban policy was developed to protect children from second hand smoke and fulfilled a goal of the Ontario Tobacco Strategy to ban smoking from public schools (Ontario Ministry of Health, 2000).

The implementation of the TCA exerted an external influence on schools, which resulted in changes to the way schools could manage student smoking. Approximately 30% of school administrators reported major problems and an additional 50% indicated minor problems associated with banning smoking from school property (Northrup, Ashley, & Ferrence, 1996).

Because schools are weak and dispersed and subject to the demands of the provincial government (Pal, 1996), they are expected to comply with the laws. Even so, the government should ensure the policy is having the desired impact, especially since the policy has generated problems for school administrators.

The government designed the policy, which addresses public health issues, and is implemented through schools at the local level, yet as Pal (1997) has indicated, a good policy coupled with bad implementation results in failure. Successful implementation requires a collaborative effort between the Ontario Tobacco Strategy and local school administrators, as the policy is applied across the province. This study provides the
province, and school administrators with information about the impact the policy is having on students' smoking behaviour.

As predicted, compliance with the smoking ban was related to a decrease in students' intentions to smoke cigarettes. Thus the findings of this study indicate the policy has the potential to decrease students' smoking intentions if it is enforced. While this study did not measure behaviour, the theory posits that behavioural intentions are the best predictors of future behaviour, and by extension suggest that the policy can influence smoking behaviour.

The exploratory findings indicate the influence of the policy is stronger for non-smoking students, and thereby, appears to be most effective in preventing and delaying smoking uptake. Because most people who smoke begin smoking during their time in high school, this policy has the potential to decrease smoking rates, in Ontario, by inhibiting the smoking intentions of students who are not currently smoking. The goal of the policy was to protect students from second hand smoke, while at school, however, this study indicates the benefits of the policy exceed expectations by providing some preventative influences.

Relationship between Attitude, Norms, Control and Policy

The theory of planned behaviour states that behavioural intentions are the proximal determinant of behaviour. That is to say, when attempting to predict behaviour, knowing one’s intentions provides a lot of information about future behaviour. The predictors of smoking intentions, according to the theory, are attitudes toward smoking, social norms about smoking, and perceptions of control over smoking. Indeed, research has found that smoking behaviours are related to smoking intentions, and smoking
intentions are related to attitudes toward smoking, social norms, and perceptions of control over smoking (Godin, Valois, LePage, & Desharnais, 1992; Chassin Corty Presson, Olshavsky, Bensenberg, & Sherman, 1981).

Whether policy also influences youths' smoking intentions through perceived behavioural control has not been fully explored. This study explored the concept that policy also provides a specific and unique barrier toward smoking intentions. In particular, it was determined that the smoking policy is providing a weak but highly significant influence on smoking intentions, beyond the influence attitudes, subjective norms and perceived control have on smoking intentions. The influences of attitudes, subjective norms, overall control over smoking and policy were as follows.

**Attitude toward behaviour.** Students with more favourable attitudes towards smoking expressed greater intention to smoke. This finding confirms the relationship between salient attitudes toward smoking and students' intentions to smoke cigarettes. It is important to identify this relationship to avoid reporting a confounding or spurious relationship between perceptions of control over policy and smoking intentions.

**Subjective norms.** Students, who have respected referents who would support their decision to smoke, also had greater intentions to smoke. This finding confirms the relationship between subjective norms and students' intentions to smoke cigarettes. This is also an important factor used to remove potential confounding or spurious relationships between perceptions of control over policy and smoking intentions that are related to subjective norms.

**Perceived behavioural control.** Students, who think they could smoke if they wanted to smoke, had greater intentions to smoke. This finding confirms the relationship
between perceptions of control over smoking and intention to smoke and limits the reporting of confounding or spurious relationships between perceptions of control over the policy and smoking intentions. It is important to identify the perceived behavioural control variable because it measures general perceptions of control over smoking (i.e., perceived ease of smoking cigarettes).

**Perceived control over smoking on school property.** After removing the influence of the variables identified through the theory of planned behaviour, the influence of the smoking ban policy continued to demonstrate that students who complied with the smoking ban were less likely to have smoking intentions. The regression analysis indicates that policies restricting smoking are related to students’ intention to smoke cigarettes. This finding indicates that the smoking ban does influence students’ decision to smoke cigarettes, and confirms the policy is on target for changing smoking behaviour.

An important caveat to dismissing this weak relationship as unimportant lies in the definition of the Intent variable. Intent measured students’ overall smoking intentions. Therefore, the smoking policy that is limited to banning smoking on school property only, influences students’ overall smoking intentions: Had Intent specifically measured intention to smoke on school property, the relationship between Policy and Intent would be expected to be stronger, however, the practical application of measuring intention to smoke on school property is limited. It is much more interesting to understand how the ban on smoking relates to a student’s overall smoking behaviour.

An examination of students engaging in different levels of smoking behaviour, ranging from non-smokers to regular smokers, demonstrated the majority of students from all groups indicated an intention to comply with the policy. All three smoking
cohorts indicated the chance of getting a warning or suspension was likely, however the chances of getting a ticket for smoking on school property were considered somewhat less likely. This finding is especially interesting in the Niagara Region, because teachers have the ability to identify students who smoke on school property and have them charged.

The findings also indicated the influence (perceived power) of the policy is different between smoking cohorts. Non-smokers indicated the threat of a warning suspension or ticket would make them less likely to smoke on school property. Having to leave the school to smoke would also make them less likely to smoke. The smoking cohort reported a different pattern of responses, indicating they would be “neither more nor less likely” to smoke on school property if there was a threat of a warning, suspension or a ticket. Having to leave school property to smoke was also considered “neither more nor less likely” to influence smoking among this group. The experimental group indicated a warning, suspension or ticket would make them less likely to smoke on school property, however this group was not influenced as much as the non-smoker cohort. Therefore, in addition to providing students with protection from second hand smoke while at school, the policy appears to decrease the smoking intentions of non-smoking students and students who are experimenting with smoking.

The expressed purpose of the smoking ban was to protect children from second hand smoke. The findings of this study provide evidence that would support the achievement of this goal in addition to the suggestion that the policy may provide some prevention or delay of smoking uptake. The majority of smokers and experimental smokers reported it was likely they would leave the school to smoke.
Exploratory Findings

Based on the findings that the smoking ban policy has the potential to influence students’ smoking intentions, the researcher was interested in exploring differences between various cohorts within the sample. Analyses of variance were conducted to identify differences in smoking classification cohorts.

Smoking classification. Based upon classifications defined by Brown (1999), students were categorized as non-smokers, experimental smokers and smokers. These groups were compared to understand if there were differences in the amount of control they reported over smoking on school property and how much influence the policy would have on their smoking behaviour.

No significant differences were observed between the cohorts regarding their perception of receiving a warning, suspension, ticket or leaving the school to smoke. However, there were significant differences in the likelihood that these things would influence smoking intentions. The non-smokers indicated these policy items would make them less likely to smoke, whereas, the regular smokers indicated they were neither likely nor unlikely” to be influenced by them.

These findings demonstrate how the policy has the ability to delay or prevent smoking uptake among non-smoking students, and the experimenting students to a lesser degree, yet the policy does not appear to support smoking cessation among the smoker cohort. More success in influencing smoking cessation may be realized in the experimental smoker cohort.
Limitations and Delimitations

Over representation of grade 9 and 10 students. The grade 9 and 10 students were over represented in this sample. This over representation could have influenced the findings because the data indicate students in grade 9 and 10 have higher control beliefs and perceived power than the more senior grades.

Sample selection. A purposive sampling technique was adopted for this study. Newman (1997) indicates purposive sampling is appropriate when trying to reach a difficult-to-reach, specialized population. An effort to include schools from different geographical regions within the area was made. The Niagara Region also contains both urban and rural settings, an attempt to include schools from both of these settings as well.

The optimal sample selection technique for this study would have been a random sample of students throughout Ontario. Random sampling is a vital concept to probability testing and for generalizing the findings to a larger population. Unfortunately, random sampling is not a reality in school-based research because the student population has rightly been deemed as “vulnerable”. Laws and regulations in Ontario protect the student population from external sources of influence by controlling access to them.

Any deviation from random sampling increases the potential for error in a study. Therefore, the reader is cautioned to consider the potential for error associated with generalizing these findings. Specifically, restrictions preventing randomized sampling decrease the probability of gaining an unbiased sample that represents the population of students in Niagara.
Response bias. Conducting research in schools in the Niagara Region requires signed consent from both parents and students as outlined in the methodology section of this study. This restriction presents a problem, for example, students within the population who were disinterested, forgetful, or having parents who object to the data collection did not participate in the study.

Measuring Control. Attitude, Norms and Policy questions were measured using the composite approach but general control was measured by the direct approach. It is evident that the direct approach has the potential to overestimate or underestimate the relationship between Control and Intent. The study could be improved by using the composite approach for measuring Control.

Recommendations

Support for maintaining the smoking ban. It is recommended that the smoking ban policy should be maintained. The findings from this study indicate that students are willing to comply with the smoking ban, which reduces students’ exposure to second hand smoke. The findings also indicate the policy may prevent or delay smoking uptake in non-smoking students and influence the smoking intentions of Experimental smokers.

This study highlights the importance of attitudes toward smoking and social norms as predictors of behavioural intention. Therefore, schools have the added potential to reduce smoking intentions and behaviour by influencing attitudes and social norms through curriculum.

Application of the full theory of planned behaviour. It is recommended that this study should be extended to examine the full theory of planned behaviour. Conducting a
second data collection phase, which includes measuring behaviour and evaluating the relationship between behavioural intentions and behaviour, could achieve this. A full examination of the theory would allow the researcher to examine the relationship between perceived behavioural control and behaviour. This relationship is important because, according to the theory, it measures the ability of the control measure to facilitate or inhibit behaviour. When analyzing policy, a full application of the theory of planned behaviour may provide more information as to the true impact of the policy on behaviour.
References


Bibliography


Stop Smoking Programs: What do YOU like?

Answer every question as honestly as you can. All your answers are confidential. Ask for help if you don’t understand a question. Always fill in JUST ONE bubble -- unless the question says "choose as many as you need."

4. How many of your friends smoke?
   - none
   - just a few
   - about half
   - many
   - almost all of them

5. Have you ever smoked a cigarette, even just a few puffs?
   - no
   - yes

6. How old were you the first time you smoked a whole cigarette?
   - less than 5
   - 5 years old
   - 6 years old
   - 7 years old
   - 8 years old
   - 9 years old
   - 10 years old
   - 11 years old
   - 12 years old
   - 13 years old
   - 14 years old
   - 15 years old
   - 16 years old
   - 17 years old
   - 18 years old
   - 19 years old
   - 20 or more years old
   - I’ve never smoked a whole cigarette

7. Have you smoked 100 or more whole cigarettes, in your life?
   - no
   - yes

8. Would you consider yourself a:
   - non-smoker who has never smoked
   - non-smoker who smokes sometimes
   - light smoker
   - medium smoker
   - heavy smoker
   - ex-smoker who has totally quit

   If you are an ex-smoker how long have you been totally smoke-free?
   - more than 1 year
   - between 6 months and 1 year
   - less than six months
   - I still smoke

---

<table>
<thead>
<tr>
<th>Write your birthday here:</th>
<th>day</th>
<th>month</th>
<th>year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Write your middle name here:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Fill in a bubble to match the second letter.  

- a
- b
- c
- d
- e
- f
- g
- h
- i
- j
- k
- l
- m
- n
- o
- p
- q
- r
- s
- t
- u
- v
- w
- x
- y
- z

How many letters are in your middle name? __

Fill in a bubble to match this number. If it’s 10 or higher, fill in 0.

---

1. Gender:
   - male
   - female

2. Grade:
   - 9
   - 10
   - 11
   - 12
   - OAC

3. How old are you?
   - 12 years old
   - 13 years old
   - 14 years old
   - 15 years old
   - 16 years old
   - 17 years old
   - 18 years old
   - 19 years old
   - 20 or more years old
Instructions: The statements below provide opinions that other people have about smoking. Please indicate how you feel about the statement (i.e. bad, good or somewhere in between) by filling in the bubble that matches your feelings the best. Answer every question as honestly as you can; there are no right or wrong answers.

9. Smoking cigarettes reduces your fitness level ...................................... strongly disagree
10. A reduction in my fitness level is .......................................................... bad
11. Smoking cigarettes makes you feel relaxed ........................................ strongly disagree
12. Feeling relaxed is .............................................................................. bad
13. Smoking cigarettes makes you cough more often ........................... strongly disagree
14. Coughing more is .............................................................................. bad
15. Smoking cigarettes helps you deal with stress better .................. strongly disagree
16. Dealing with stress better is ................................................................. bad
17. Smoking cigarettes helps you increase your popularity ............ strongly disagree
18. Increasing my popularity is ................................................................. bad
19. Smoking cigarettes helps you meet people .................................. strongly disagree
20. Meeting more people is ....................................................................... bad
21. Smoking cigarettes makes your clothes smell bad .................... strongly disagree
22. Having clothes that smell bad is .............................................................. bad
23. Smoking cigarettes helps you stay thinner ........................................ strongly disagree
24. Staying thinner is ................................................................................ bad
25. Smoking cigarettes is addictive .............................................................. strongly disagree
26. Being addicted to cigarettes is ............................................................... bad
27. Smoking cigarettes makes it harder to breath .......................... strongly disagree
28. Having a harder time breathing is ........................................................ bad
29. Smoking cigarettes helps you concentrate better .................. strongly disagree
30. Concentrating better is ....................................................................... bad
31. Smoking cigarettes is bad for your health ........................................ strongly disagree
32. Being healthier is ................................................................................ bad
33. Smoking is a social activity ................................................................. strongly disagree
34. Being more social is .............................................................................. bad
35. Smoking cigarettes increases your risk of cancer and heart disease strongly disagree
36. Developing cancer or heart disease is ............................................. strongly disagree
37. If you decided to smoke on school property, what are the chances of getting a warning from the school? 
not at all likely

38. The possibility of getting a warning would make you...
less likely to smoke

39. If you decided to smoke on school property, what are your chances of getting a suspension? not at all likely

40. The possibility of getting a suspension would make you...
less likely to smoke

41. If you decided to smoke on school property, what are your chances of getting a ticket? not at all likely

42. The possibility of getting a ticket would make you...
less likely to smoke

43. If you decided to smoke, what are the chances that you would leave the school to do it? not at all likely

44. Having to leave school property to smoke, would make you...
less likely to smoke

45. If you decided to smoke, what are the chances that banning smoking on school property would make you think more about whether to smoke? not at all likely

46. Thinking more about smoking would make you...
less likely to smoke

47. If you wanted to buy cigarettes, what are your chances of buying them at a store, gas station, etc.? not at all likely

48. Being able to buy cigarettes in a store would make you...
less likely to smoke

49. What are the chances of your friends pressuring you to smoke at school? not at all likely

50. Being pressured to smoke would make you...
less likely to smoke

51. How often do you smoke on school property? never

52. How much control do you feel you have over your decision to smoke? no control

53. If you wanted to smoke, it would be hard

54. If you wanted to smoke, you could smoke strongly disagree

55. Smoking one or more cigarettes tomorrow would be bad
(answer all three)

56. I plan to smoke cigarettes before I finish high school not at all likely

57. I want to smoke before I finish high school strongly disagree

58. I will smoke cigarettes before I finish high school not at all likely

59. People who are important to me think I should smoke strongly disagree
60. When you think about smoking or not smoking, who influences you the most? Is it your best friend or a group of friends, family members, teachers, your girlfriend / boyfriend, team mates, people you work with, a girl / guy you'd like to date, a coach, your doctor, or others not used here?

The person / group of people who would influence me the most is: ________________________________

(Fill in the Blank)

This person / group thinks I should smoke. ................... strongly disagree
neither
strongly agree

How much do you want to do what this person / group thinks you should? ........................... not at all
very much

The person / group of people who influence me second-most is:

(Fill in the Blank)

This person / group thinks I should smoke. ................... strongly disagree
neither
strongly agree

How much do you want to do what this person / group thinks you should? ........................... not at all
very much

The person / group of people who influence me third-most is:

(Fill in the Blank)

This person / group thinks I should smoke. ................... strongly disagree
neither
strongly agree

How much do you want to do what this person / group thinks you should?

very much

61. From the list below, what three points are the most important to you when it comes to smoking?
(Fill in 3 bubbles)

- it reduces your fitness level
- it makes you feel more relaxed
- it makes you cough more often
- it helps you deal with stress
- it helps increase your popularity
- it helps you meet people
- it makes your clothes smell bad
- it makes you addicted
- it is harder to breathe
- it helps you concentrate better
- it is bad for your health
- it is a social activity
- it increases your risk of cancer

62. What percent of people your age smoke? ______ %

63. What percent of smokers your age try to quit smoking? ................. ___ %

64. What percentage of smokers your age successfully quit? ................. ___ %
**MONDAY NOVEMBER 29:** Hand out consent form to students in your first-period class.

As students return forms, check their name off the class list. Place completed consent forms back into the envelope. Deliver the envelope to the main office on Thursday (noon).

---

**PLEASE READ THESE INSTRUCTIONS TO YOUR STUDENTS**

Researchers from Brock University and local health agencies want to study your opinions about smoking and quitting. They will be here on Friday, December 3.

They want to survey every student in our school. So, think of this as a chance to express your views on smoking and quitting. It doesn’t matter whether or not you smoke; it doesn’t matter whether or not you want to quit smoking. You can still be in the study and give your opinion!

BUT... To be in this study, you must get permission from your parents. The letter to them explains very clearly that everyone in the whole school can be in the survey. It also states that, being in the study doesn’t mean that you smoke. Finally, it explains that all the answers you give are absolutely private. There is no way that your parents – or your teachers – can find out your answers. In fact, you don’t even put your name of the study.

So, take this form home, have your parent sign it, then bring it back tomorrow or the next day.
Information to parents

Smoking: A study of teens' opinions

Cigarette smoking among adolescents is a serious health concern. Although most teens do not smoke, up to 25% of teens report smoking cigarettes. To help teen smokers quit, we need effective smoking cessation programs that appeal to teens.

With funding from the Canadian Tobacco Research Initiative (National Cancer Institute of Canada), Dr. Kelli-an Lawrance and other researchers from Brock University and community agencies are examining teens' perceptions of smoking cessation interventions.

ALL students at E.L. Crossley are being asked to participate in this study. There has been no pre-screening for smoking status. Asking your child to participate in this study does NOT imply he/she smokes cigarettes.

Your child's involvement in this study is voluntary and anonymous. Your child may withdraw from the study at any time either before or during the study.

If you consent, and your child agrees to be in the study, he/she will be asked to fill in a survey which covers topics such as:

- what program formats are most acceptable? (e.g., group, self-help, etc.)
- who should provide programs? (e.g., peers, teachers, health professionals, etc.)
- where should the programs be delivered? (e.g., school-based, community-based, etc.)
- what intervention methods should be used? (e.g., discussion, self-learning, etc.)

The Project Coordinator and a research assistant will be responsible for administering the survey, and collecting completed surveys from students.

Summaries of the results will be made available to each school involved in the study. Results can be obtained by contacting your child's school or the researchers. Under no circumstances will individual information will be reported.

School health nurses, and counselors will be available to the students if they wish to discuss cigarette smoking or any other health issues related to this study.

IMPORTANT:
Your permission to allow your son/daughter to participate in the study is requested.
Complete the attached form to indicate whether your child may or may not participate in the study. Have your child return the form to his/her teacher by Wednesday, November 24.

This study has received approval from Brock University's ethics review committee, as well as your school board. If you have any questions or concerns, please contact Dr. Kelli-an Lawrance, Health Studies Department, Brock University, 688-5550, ext. 4288.
Parental Consent Form
Smoking: A study of teens’ opinions

I, ________________________________________, consent / do not consent to my son/daughter
(print your name) (circle your response)
__________________________________________ participating in a survey which asks adolescents their
(print his/her name) opinions about smoking and smoking cessation programs. The purpose and procedures for this study
are explained below and in the enclosed letter from the researchers.

In consenting to allow my son/daughter to participate, I understand that my son/daughter will be
asked to give his/her consent to be in the study.

If I consent and my child consents, she/he will be involved in a study as described below:

• My son/daughter will be asked to complete a survey which is anonymous and confidential.

• The purpose of the survey is to ask teens their opinions about smoking and stop-smoking
  programs.

• The data provided by my son/daughter will be kept strictly confidential and secure; it will be
  available only to the researchers.

• The results of this study will be reported in a manner such that my son/daughter can not be
  identified in any way. Published reports will refer to grouped data and not to any individual.

• During this study, my son/daughter may decline to answer any questions asked of him/her.

• My son/daughter may withdraw from this study at any time and for any reason.

I have read the information page. I have been provided with the researcher’s name and phone
number. Any questions I had have been answered to my satisfaction.

Signed: ____________________________________________

Date: ____________________________________________
APPENDIX C
Student Consent Form
Smoking: A study of teens' opinions

Researchers from Brock University and community agencies in the Niagara region are studying teens' opinions and behaviours related to smoking and smoking cessation. They want to know your views on smoking and stop-smoking programs. It doesn't matter whether or not you smoke; it doesn't matter whether or not you want to quit smoking. They still want to know your opinion!

If you decide to be in this study, it is important to give honest answers. Your answers - but not your name - will be entered into a computer for analysis. All your answers will be kept private (confidential). There is no way that your teachers or parents can find out your answers. After all the data is entered into the computer, the surveys will be destroyed.

If you choose to be in this study, you should know that:
- you are a volunteer
- being in this study, is NOT a sign of whether or not you smoke.
- you will be asked to fill in surveys about smoking, quitting, and stop-smoking programs.
- the purpose of the study is to determine teens' opinions about stop-smoking programs.
- your answers are private: parents & teachers will never know your answers.
- when results of the study are reported, your answers won't be identifiable in any way.
- during this study, you may refuse to answer questions, and you may withdraw from the study at any time and for any reason.

If you agree to be in the study, please sign the class list.

If you have any questions about this study, contact Dr. Kelli-an Lawrance at Brock University. Her phone number is (905) 688-5550, Ext. 4288; her e-mail is klawrance@arnie.pec.brocku.ca.
Here is some information for you.

- **Students who returned consent forms**: Provide them with a survey.
- **Students who return their consent forms today**: Provide them with a survey.
- **Students who plan to return their consent forms tomorrow**: Provide them with a survey, BUT ask the student to draw a star (*) at the top of the survey cover page.
- **Students who did not return forms / did not get consent**: Provide them with the “alternate task.”

- As students work, pass around the student consent form and class list for survey participants to sign.
- Allow students to place their own surveys / tasks in the envelop. Ask the last student to seal the envelop and deliver the sealed envelop to the main office.
- If students have questions, please encourage them to simply do the best they can!
- Allow students approximately 30 minutes to complete survey.

**INSTRUCTIONS FOR SURVEY DAY**

*Please read these instructions to the students in your first period class today.*

EVERYONE, please listen to these instructions very carefully. If you returned a consent form, or plan to return one tomorrow, you will receive a survey. If you did not return the consent form, you will receive another activity to do.

For those of you doing the survey... Always read the instructions at the top of the page. There is one page in the middle of the survey that only smokers should answer. And, there are some pages that ask non-smokers to answer the way smokers would. The instructions at the top of the page tell you this. So, be sure to read them carefully.

Use a pencil to fill in the survey. For each question, choose the answer that best matches how you feel, then fill in the bubble beside that answer. Be sure to colour in the whole bubble and to erase any mistakes you make. For each question, you can fill in whichever bubble you want to, but always fill in *just one* bubble unless the question tells you to choose more than one answer.

When you’re done, bring your survey to the front, and put it straight into this envelop.

For those of you not doing the survey... I have other activities for you to do. Please work on these activities until the study is over, then place your work into this envelop.
APPENDIX E
Student Post-Survey Information

Smoking: A study of teens' opinions

Thank you for your time and co-operation in completing the survey. The answers you gave will be grouped with answers from thousands of other high school students. After all the answers are entered in the computer, researcher will analyze the information to decide how to design better smoking cessation programs for teens. The general results of this study will be posted at your school. If you want to see these general results, ask your teacher where they are posted. You could also contact Dr. Kelli-an Lawrance at Brock University, (905) 688-5550, ext.4288. Or, you can view the results via the internet. Simply go to this web site: http://www.brocku.ca:8900/. Click “Faculty of Physical Education and Recreation.” Then click “Smoking Cessation Research Project.” Enter ctrl as your user name and usmoke as the password, and follow the directions!

If you smoke, and you want to quit, the guidance counselors and the public health nurses at your school can help you. If you need to discuss any issues that were covered in this study or if you want more information on quitting smoking, be sure to contact them.

Here are some other places to get health information:

- Web site: http://www.cyberisle.org

- Web site: http://www.hc-sc.gc.ca/hpb/tobaccocontrol/
  then click on the icon: Total Web Sensation, Q4L

- Phone the Regional Niagara Public Health Department and ask about a stop-smoking program called One Step At A Time for Teens. It's a program that you use by yourself, at your own pace, with no hassles. One Step At A Time for Teens helps you decide whether you want to quit. If you do decide to quit, it helps you do that too. And there are different programs for guys and for girls since everyone knows they have different issues to deal with in life.

- Ask a teacher to call the Program Training and Consultation Centre 1-800-363-7822. The people there will help your teacher get all sorts of smoking cessation information.

- Talk to your doctor. Your doctor can offer good options for quitting smoking.

- Talk to your friends. They will respect your decision to quit, and be your biggest help!