

“TO TAKE P.E. OR NOT TO TAKE P.E.? THAT IS THE QUESTION.”:
AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOR.

by

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ABSTRACT

This study examined the choices of physical education students about whether or not they would take a grade eleven physical education course as understood by the Theory of Planned Behavior (Ajzens, 1991). Subjects were 248 P.E. 10 students (129 males, 119 females) who were assessed via a 49 item instrument. Simultaneous regression conducted separately on each determinant of the Theory of Planned Behavior (TPB) revealed that Attitude Towards the Behavior (ATB), Subjective Norm (SN), and Perceived Behavioral Control (PBC) all produced a statistically significant prediction of the Intention to take P.E. 11. A series of Hierarchical Regression Analyses showed that ATB uniquely accounted for 19.8% ($p < .001$) of the variance of Intention while SN uniquely accounted for 2.8% ($p < .001$) of the variance. PBC did not contribute a significant amount to Intention. Standardized coefficients of the regression on Intention on the TPB determinants revealed that the instrumental component of ATB and the pressure component of the SN significantly contributed to the prediction of Intention to take P.E. 11. It appears that the students had a favourable attitude towards P.E. 11 but their perception of the costs and benefits of the subject were such that it was not important enough to include in their grade 11 schedule. Based on the statistical evidence of the worsening health levels of our youth it is recommended that physical education be made mandatory for every student as a condition of graduation from high school.

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CHAPTER I: LITERATURE REVIEW

The present thesis investigates the choices of high school students to take physical education or not, within the framework of The Theory of Planned Behavior (Ajzen, 1991).

The importance and benefits of physical activity to physical and mental health have been well documented (Canadian Association for Health, Physical Education, Recreation and Dance (CAHPERD) 1998; Summerfield, 1998).

Physical education curricula in the public schools reflect the importance of this material as society undertakes to educate its youth in the importance of healthy life styles (British Columbia Ministry of Education, Skills, and Training, 1997). However, many of the youth are not embracing this information and are not making physical activity a priority in their life. The majority of students in high school elect not to take physical education when it is no longer compulsory (CAHPERD, 1998). Having taught physical education grades eight through twelve in four different schools of the Delta School District, the present author believes that the information on the health benefits of exercise is being well disseminated (Delta School District, 1992). Students experience many different physical activities throughout their school years and are given the theoretical foundation to support activity in the junior high years. The factors affecting a student's decision not to elect to take physical education are probably varied.

Physical activity has many documented health benefits. Summerfield (1998) identifies the following benefits: (a) reductions in hypertension, type 2

diabetes, high blood lipids, cardiovascular disease, and obesity; (b) lowered risk of colon cancer; (c) an increase in bone density; (d) a reduction in anxiety; (e) an improvement in body image and mood; (f) the development of physical fitness; and (g) the promotion of weight control. Allensworth, Lawson, Nicholson, and Wyche (1997) suggest that physical activity in schools also enhances academic performance, self concept, and mental health. In addition the Canadian Association for Health, Physical Education, Recreation and Dance (1998) states that youth who are physically active are less likely to use tobacco, alcohol, drugs, and have fewer problems of juvenile delinquency.

Young (1998, para. 6) quotes the U.S. Surgeon General as stating that school based physical education is: "... the most widely available resource for promoting physical activity among young people in the United States."

Summerfield (1998) also identifies physical education at school as the ideal way to encourage activity and develop fitness among children because for many children this is their only preparation for an active lifestyle.

Despite the documented benefits of physical activity and the exposure to physical activity in the school system, the National Institute of Health (NIH, 1994) reported a decline in physical activity of students from grade nine through twelve in the U.S. They report only one half of male students are active and one quarter of female students are active. The NIH states that research studies of the determinants and efficacy of interventions to prevent the decline in physical activity during adolescence (particularly in girls) are needed.

The CAHPERD (1998) release summarizes the problem of inactive youth in Canada. It reports that two thirds of youth do not meet the average physical activity guidelines to achieve optimal growth and development. One quarter of children and youth can be classified as obese and this figure is rising. The release also highlights the implications of these trends for the health of the future adult population of Canada. The CAHPERD (1998) release also reports that the four western provinces have demonstrated the highest commitment to physical education, but in B.C. only 22% of grade eleven students and 13% of grade twelve students take physical education.

Physical education is mandatory in the B.C. public school system from kindergarten through grade ten. After grade ten it is an elective. Physical education eleven and twelve are not required for high school graduation. With the documented benefits of physical activity and the exposure of students from kindergarten through grade ten to physical activity, the purpose of this study was to investigate the physical education choices of grade ten students from the vantage of The Theory of Planned Behavior (Ajzen, 1991).

Theories and Models of Physical Activity

This chapter will briefly describe major theories and models that account for participation in physical activity, the major constructs that have been investigated to account for participation in physical activity, the designs and populations that have been used in research on participation in physical activity; and a summary of currently available findings.

Much of physical activity in North America is determined by personal choice. This section will present the Theory of Planned Behavior. Other models that account for participation in physical activity will be addressed, as well as how they are accounted for in the Theory of Planned Behavior.

The Theory of Planned Behavior . Research suggests that behavior is a function of intent and perceived behavioral control (Ajzen ,1991; Ajzen & Driver, 1991). Intention captures the motivational factors that shape the choice to behave. The greater the intent the harder a person is willing to try to perform the behavior. If the intention to behave is limited in volitional control then perceived behavioral control becomes a factor along with intent in the performance of the behavior. Perceived behavioral control is influenced by those factors that affect the perceived ease or difficulty of performing the behavior.

As currently formulated in Ajzen's model, intention to behave is affected by three independent global determinants - the attitude towards the behavior; the subjective norm; and the perceived behavioral control (see Figure 1). The attitude towards the behavior is the degree to which a person has a favorable or

unfavorable attitude towards the behavior in question. The subjective norm is the perceived social pressures to perform or not perform the behavior. Perceived behavioral control is the perceived ease or difficulty of performing the behavior. Perceived behavioral control directly affects intention, and in situations of low volitional control, jointly with intention affects the performance of a behavior.

The relative importance of attitudes, subjective norms, and perceived behavioral control in the prediction of intention will vary across behaviors and situations. The intention to behave may be determined by one global determinant alone or by any combination of the three.

Each global determinant is affected by salient beliefs. The attitude towards behavior is affected by behavioral beliefs. These behavioral beliefs are further divided into instrumental beliefs and affective beliefs (Ajzen & Driver, 1991). Instrumental beliefs look at the costs and benefits of performing a certain behavior. Affective beliefs involve the positive and negative feelings associated with the performance of the behavior. The subjective norm is affected by normative beliefs. Normative beliefs reflect the individual's perception of the important individuals or groups who would approve or disapprove of the performance of the behavior. The perceived behavioral control determinant is affected by control beliefs. Control beliefs are the presence or absence of the requisite resources and opportunities to perform the behavior. Included in the control beliefs are information from past experiences as well as any second hand

information. This information contributes towards the perceived difficulty of performing the behavior.

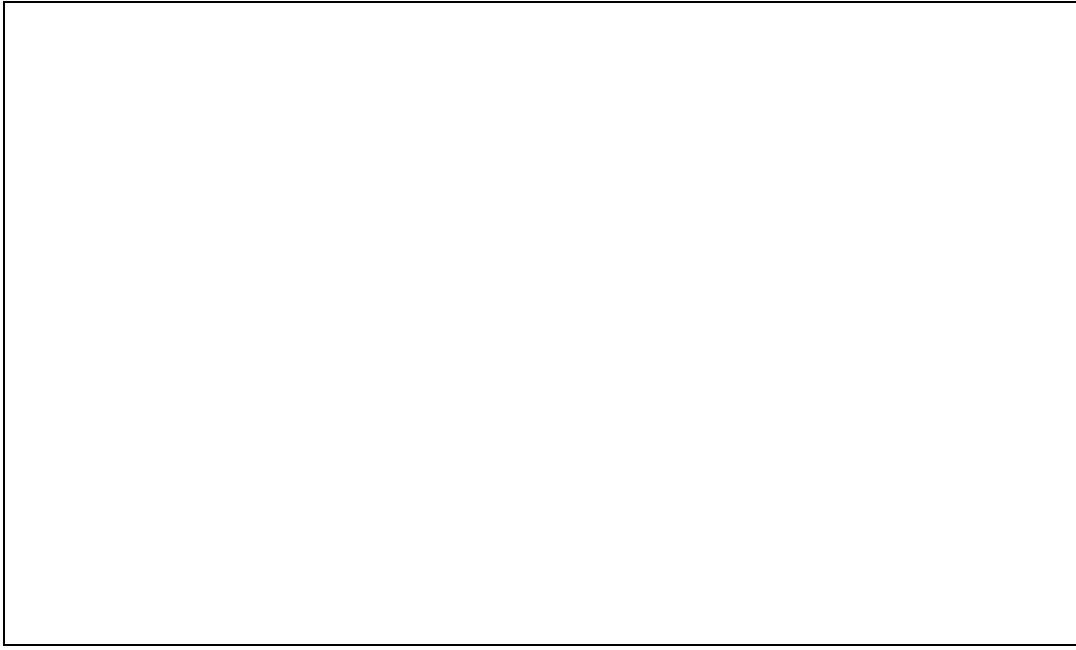


Figure 1. The three determinants of the TPB can affect Intention directly which in turn affects behavior while Perceived Behavioral Control along with Intention can also affect behavior directly in situations of low volitional control (Ajzen, 1991).

The Theory of Planned Behavior acknowledges many of the processes used to explain physical activity choices. These processes are thought to influence intention indirectly, being mediated through the direct and indirect measures of TPB. The concept of self-esteem is one of these processes.

Self-esteem and physical activity . Ken Fox (1988) addresses the role of self-esteem in youth exercise participation. Fox's self-esteem model has evolved

from a number of different sources. He cites Campbell (1984) as stating that the First Law of Human Behavior is to maximize our chances of feeling good about ourselves. Fox identifies self-esteem as a global concept that is a phenomenologically defined standard and thus pertains to whatever terms of reference each individual chooses.

The global perception of self-esteem leads to a multidimensional approach to self-esteem that suggests individuals have different evaluative perceptions of themselves in separate aspects of their lives. An example of a multidimensional approach is Harter's (1985) description of self in children that involves perceptions of scholastic ability, social competence, behavioral conduct, physical appearance, and athletic competency. A child could have very high self-esteem scholastically while having very low self-esteem in athletic competency. Fox suggests that the multidimensional approach to self-esteem allows the study of patterns of self-esteem in different domains. Each domain is hierarchical in structure and represents the perceptions of sub-domains that result from greater situation specificity. Fox and Corbin's (1988) model of exercise for junior high students illustrates this concept (see Figure 2). This model allows eventual modification of global constructs through modification of self perception changes at the lower levels of experience.

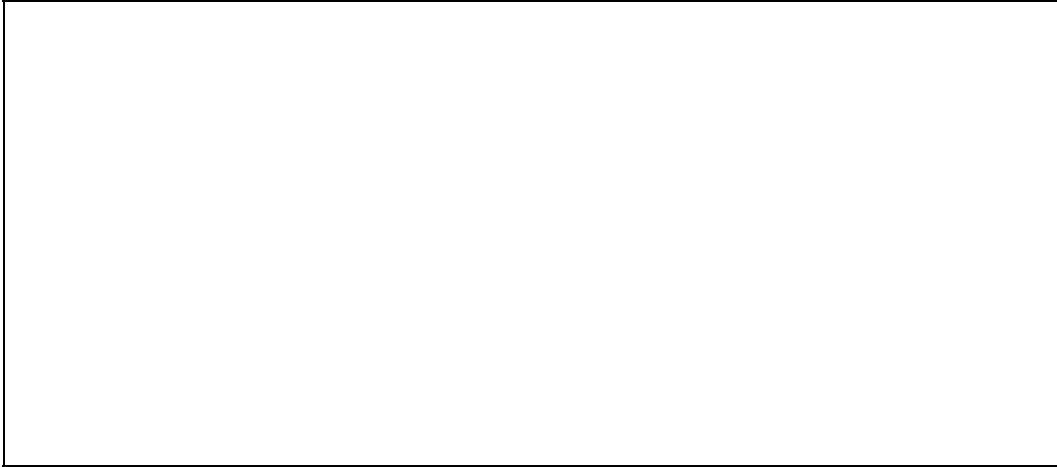


Figure 2. Physical self-worth is an example of one of the hierarchical variables of global self-esteem (Fox, 1988).

Fox suggests that the physical self is one of the multidimensional aspects of the global self-esteem that is representative of perceptions in the physical domain. However, Fox claims that researchers and fitness experts have defined the physical self with little information on how youth perceive and personally define physical activity or even if it is important in the self-esteem of youth. When youth perceptions are identified then deeper theoretical questions regarding change can be addressed. Fox, in his model, suggests that other antecedent agencies, such as somatotype and stature, actual fitness levels, parental exercise habits, parental athletic ability and youth sport involvement impact physical self-perceptions which in turn affect choice to engage in physical activity.

To make physical activity choice central in youth self-esteem structure it is felt that it must have a high personal value to the youth. There must be

appropriate opportunities to experience feelings of success and competence. It is the perception of physical ability rather than actual ability that is important with regards to physical activity involvement. It is how good the child feels he or she is that will affect physical activity involvement.

Participation in physical activity from the initiation of the activity, to the adherence or maintenance of the activity over time, is partly a function of motivation. Motivation is accounted for within the Theory of Planned Behavior but it has been widely addressed as a model on its own.

Motivation and Physical Activity. Motivation to engage in physical activity appears to include a continuum of rewards that run from intrinsic to extrinsic (Fox & Biddle, 1989). Intrinsic rewards or motivation lead to the performance of physical activity for the satisfaction one gains from engaging in the activity itself. These gains would include the mastery or competence attained through the challenges of learning and performing skills. Enjoyment involving fun, the pursuit of interests, and stimulation arising from the activity are also examples of intrinsic rewards or motivators. Extrinsic rewards or motivation lead to the performance of physical activity for outcomes that are separate from the behavior itself. Examples of extrinsic rewards may be grades, money, or body related motives such as the desire to improve appearance or fitness. It is felt that extrinsic motivation can be either self or non-self determined while intrinsic motivation is self determined.

Ryan, Frederick, Lepes, and Sheldon (1997) suggest that extrinsic motivation is a factor for many people that determines whether or not to initiate physical activity while intrinsic motivation is necessary for adherence to the activity over a prolonged period of time. Fox and Biddle (1989) also suggest that extrinsic rewards or motivation will improve short term commitment to physical activity, however, in the long term when choice becomes an important element, the lack of external rewards will lead to physical activity dropout.

Nicholls (1984) suggests that the defining feature of achievement behavior is the feeling of competence. The perception of competence is the critical mediator of performance and persistence. The perception of competence can be defined by the individual through either task-oriented goals (intrinsic motivation or rewards) or ego-oriented goals (extrinsic motivation or rewards). A task-oriented individual is more apt to sustain participation than an ego-oriented individual.

While self-esteem and motivation can play integral roles in choosing to exercise, individuals may be thinking about exercise participation but may or may not be prepared to initiate activity. Readiness to initiate change can be a factor affecting exercise participation.

The Transtheoretical Model of Change. The Transtheoretical Model of Change (TM) is a stage of readiness model developed by Prochaska and DiClemente (Prochaska, DiClemente, Norcross, 1992) in the early 1980s. Originally formulated to deal with health-related matters such as smoking

addictions, it has been widely applied to the physical activity domain (Courneya, 1995). The TM identifies five stages that are involved in changing behavior.

They are: precontemplation, contemplation, preparation, action and maintenance. In the precontemplation stage the individual has no intent of changing their behavior. They are unaware or under aware of a problem. In the contemplation stage a person is aware of the change to be made. They are seriously thinking but not yet committed to action. A person can stay in this stage for a long period of time. In the preparation stage there is an intention to change their behavior and there may be some attempt at behavior change, however a criterion for effective action has not yet been reached. The action stage involves the modification of a person's experiences and environment to perform the new behavior. A considerable amount of time and energy is put forth to reach the particular criterion that signifies behavior change. This stage often lasts six months. The maintenance stage is the consolidation of the gains made in the action stage. This stage is identified once the behavior change criterion has been in place over six months.

The Theory of Planned Behavior and other models. Key concepts that have been identified in the literature to explain the intent to be physically active include: self-esteem (Fox, 1988), motivation (Duda, 1987; Fox & Biddle, 1989; Ryan et al., 1997), and decision making (Prochaska et al., 1992). These constructs all fit well with the Theory of Planned Behavior. Hausenblas, Carron, and Mack (1997) reported in their review of literature that Maddux (1993) suggested that

TPB incorporated the major components of many social cognitive models that attempt to explain intention to behave.

Self-esteem appears to be associated with all three determinants of the TPB. The importance of the behavior to be performed to a person's self-esteem would be reflected in the Attitude Towards the Behavior. Conforming to the Subjective Norm could enhance the person's self-esteem. The self-perceived level of competence in performing the behavior, which in turn affects self-esteem, would be reflected in the Perceived Behavioral Control.

Intrinsic and extrinsic motivation are both addressed by the Theory of Planned Behavior. Within the determinant Attitude Towards the Behavior the instrumental component, which reflects the costs and benefits of the behavior to be performed, would be affected by extrinsic motivation while the affective component, which reflects how one feels about the behavior to be performed, would be affected by intrinsic motivation. Significant others could be affecting motivation to perform the behavior by offering various external incentives such as money or acceptance. This would be reflected in the Subjective Norm. The drive to attain competence or mastery of a desired behavior, whether it was for intrinsic reasons or extrinsic reasons, would be reflected in the Perceived Behavioral Control.

The decision making process within the Transtheoretical Model of Change resulting in an intention to perform a behavior can be identified within the Theory of Planned Behavior. Intention to perform a behavior within the Theory

of Planned Behavior would reflect the first three stages of the TM - precontemplation, contemplation, and preparation. In this study elements of the fourth TM stage (action) would also be reflected in intention. This blending of the preparation and action stages is unique to educational settings. Within the school system the selection of a course for next year is indicating action as very few students change their initial choices once course request forms are submitted.

There is a difference in emphasis with each of the above concepts but there is a global compatibility of the Theory of Planned Behavior with various models.

Empirical Research on The Theory of Planned Behavior

The Theory of Planned Behavior, its determinants and related concepts have been extensively researched in the literature. Attitude has been addressed in several different ways. It has been investigated as a determinant of the intention to perform physical activity within the Theory of Planned Behavior (Ajzen, 1991; Ajzen & Driver, 1991, 1992; Blue, 1995; Chatzisarantis & Biddle, 1998; Courneya, 1995; Courneya & McAuley, 1994, 1995; Courneya et al., 1999; Godin & Kok, 1996; Hausenblas et al., 1997; Kerner & Grossman, 1998; Michels & Kugler, 1998; Mummery & Wankel, 1999; Papaioannou & Theodorakis, 1996). Attitude has also been surveyed directly in specific populations within an exploratory strategy (British Columbia Ministry of Education, Science and Technology, 1979; Earl & Stennett, 1987; Luke & Sinclair, 1991).

The concept of subjective norm within the Theory of Planned Behavior has been researched (Ajzen, 1991; Ajzen & Driver, 1991, 1992; Blue, 1995; Chatzisarantis & Biddle, 1998; Courneya, 1995; Courneya & McAuley, 1994; Courneya et al., 1999; Godin & Kok, 1996; Hausenblas et al., 1997; Kerner & Grossman, 1998; Michels & Kugler, 1998; Mummery & Wankel, 1999; Papaioannou & Theodorakis, 1996). Constructs that are similar to the construct of subjective norm in that they investigate the effect of others on a person's intent to behave that have been identified and studied are: social influence (Reynolds, Killen, Bryson, Maron, Taylor, Maccoby & Farquhar, 1990) social support (Courneya & McAuley, 1995); and cohesion (Courneya & McAuley, 1995).

Perceived behavioral control within the Theory of Planned Behavior has been addressed (Ajzen, 1991; Ajzen & Driver, 1991, 1992; Blue, 1995; Chatzisarantis & Biddle, 1998; Courneya, 1995; Courneya & McAuley, 1994, 1995; Courneya et al., 1999; Godin & Kok, 1996; Hausenblas et al., 1997; Kerner & Grossman, 1998; Michels & Kugler, 1998; Mummery & Wankel, 1999; Papaioannou & Theodorakis, 1996). Similarly, concepts of self-efficacy and stress have been investigated (Reynolds et al., 1990).

Research has investigated intention as a construct (Reynolds et al., 1990) and as a function of attitude towards behavior, subjective norm, and perceived behavioral control within the Theory of Planned Behavior (Ajzen, 1991; Ajzen & Driver, 1991, 1992; Blue, 1995; Chatzisarantis & Biddle, 1998; Courneya, 1995;

Courneya & McAuley, 1994, 1995; Courneya et al., 1999; Godin & Kok, 1996; Hausenblas et al., 1997; Kerner & Grossman, 1998; Michels & Kugler, 1998; Mummery & Wankel, 1999; Papaioannou & Theodorakis, 1996).

Beliefs - behavioral, normative, and control - and their relationship on the intent to behave within the context of the Theory of Planned Behavior have been studied (Ajzen, 1991; Ajzen & Driver, 1991; Blue, 1995; Courneya, 1995, 1999; Mummery & Wankel, 1999).

The research on the Theory of Planned Behavior and each of its determinants and components and their effect on the intention to behave have produced varied results.

Empirical findings. The following studies investigate factors that affect intent and participation to exercise as well as research specifically on physical education class. Ryan and his colleagues (1997) investigated the relationship of motivation to exercise adherence in two separate studies. In study one there were 40 subjects (24 female, 16 male) who were students and employees of a university. They were voluntarily enrolled in either an aerobics class or a Tae Kwon Do class. Their motivation for participating was assessed on the Motivation for Physical Activities Measure (MPAM). The measure consisted of 23 items rated on a 7 point Likert scale. Three subscales measured two intrinsic motives (Competence and Enjoyment) and one extrinsic motive (Body Related). Subjects were tracked on their attendance to their class for 10 weeks. Results indicated that exercise adherence could be significantly predicted by the intrinsic

motives but there was no relationship between adherence and the extrinsic motive. In study two the measure (MPAM-R) was expanded to 30 items in order to discriminate five motives. An additional intrinsic motive (Social) was added to now total three. The extrinsic motive Body Related was divided into two separate motives (fitness and appearance). The subjects were 155 university fitness center members (89 female, 66 male) who had just recently taken out membership. They completed the MPAM-R and their attendance was tracked for four months. In addition to having their attendance recorded the subjects reported on the length of each workout, their enjoyment level for each workout, and their challenge level for each workout. The results further supported the findings of study one. Intrinsic factors significantly predicted exercise adherence while the extrinsic factors were not significantly related to exercise adherence. Extrinsic factors may be important to initiate activity but intrinsic motives are necessary for adherence to activity.

Reynolds et al. (1990) examined four possible influences affecting activity choices. The measure was a questionnaire from the Stanford Adolescent Heart Health Program that had predictor items for intention, self-efficacy, stress, and direct social influence. The intention, self-efficacy, and social influence items were statements that were rated on a six point scale from strongly agree to strongly disagree. The stress was a perceived stress scale in which 15 items were rated on a scale of 1 to 5. Physical activity was self-reported frequency of 19 activities. The subjects were 388 male and 355 female grade 10 students that

were assessed three times over a 16 month period. They were assessed at baseline, four months post baseline, and 16 months post baseline. Results supported the relationship of intention and perceived self-efficacy as predictors of engaging in physical activity but the relationships of stress and direct social influence on physical activity were unclear.

Ajzen and Driver (1991, 1992) investigated leisure participation prediction within the Theory of Planned Behavior. The constructs studied were the global determinants of intention (attitude towards the behavior, subjective norm, perceived behavioral control) and the antecedent salient beliefs (behavioral beliefs, normative beliefs, control beliefs) and their relationships with the intent to perform leisure activities. The subjects were 146 undergraduate psychology students (103 female, 43 male) who were given extra course credit for participating in the study. The subjects answered a questionnaire that had items related to five different leisure activities - going to the beach, jogging, mountain climbing, boating, and biking. The questionnaire had items to discriminate the three global determinants of the intention to behave as well as the antecedent salient beliefs of each global determinant. The global determinant, attitude towards the behavior, was measured with twelve items. Each item was rated on a 7 point Likert semantic differential scale. Within this construct two separate attitudes were differentiated - instrumental and affective. The global determinant, subjective norm, was measured with two items on the same scale. Each of the two items were global in nature, "most people," as opposed to using

specific individuals as a referent point. The global determinant, perceived behavioral control, was measured with two items on the same scale. The salient beliefs were rated on a 7 point scale that ranged from -3 to +3. The two behavioral beliefs (affective beliefs, instrumental beliefs) and the control beliefs were each measured with two items. Normative beliefs were rated on five salient referents - friend, parent, sibling, boy/girl friend, and other family member. A questionnaire was mailed to each subject one year later to assess their participation in each leisure activity. A scale of 0-6 was assigned each behavior based on the frequency of performance for each behavior over the preceding year. Results for the correlations between any single belief and participation ranged from .12 to .52. Even though the correlations were low, all but one of the twenty (.12) were significant. Participation was enhanced if it was associated with favorable outcomes, friends and family were supportive, and the subject possessed the resources to perform the activity. At the global level both intention and perceived behavioral control made significant predictions in three of the five activities. The greater the volitional control, the more the behavior is guided by intention alone. There is no significant direct prediction of attitudes to behavior. Both the affective component and the instrumental component of the attitude towards the behavior are necessary to assess. All three global determinants contribute to intention which affects behavior. With less volitional control, perceived behavioral control becomes a direct determinant, with intention, on performance of a behavior.

Courneya and McAuley (1994) investigated a modified version of the Theory of Planned Behavior with physical activity. Courneya and McAuley defined physical activity as comprising three components: frequency, intensity, and duration; whereas most researchers have investigated physical activity in terms of frequency only. The subjects were 170 undergraduate students (89 female, 81 male) who were assessed on an initial survey on intention, attitude, self-efficacy and affect in respect to physical activity. Physical activity was measured by self-reports at two weeks and at four weeks after the initial assessment. Intention was measured with an open measurement which consisted of filling in the number of times they planned to be active over the next four weeks. Attitude towards physical activity was measured by two assessments. The first assessment was an one item, 11 point rating of physical activity. The second assessment was the same scale but with physical activity being rated against eight other activities (e.g., T.V.). Self-efficacy was measured by three, seven item, 11 point scales, on the components of frequency, intensity, and duration. Affect was measured by the Subjective Exercise Experience Scale (SEES). The SEES assesses three independent dimensions labeled Positive Well Being, Psychological Distress, and Fatigue on an 11 point scale. The results indicated that self-efficacy was the most important determinant of the three components of physical activity. Attitude was a significant determinant of frequency and duration but not intensity of exercise.

Courneya and McAuley (1995) investigated the cognitive constructs of the Theory of Planned Behavior (attitude, subjective norm, perceived behavioral control) and selected social influence constructs (subjective norm, social support, cohesion) and their effects on exercise adherence. The subjects were volunteers from a number of aerobics classes at a large university. Questionnaires measuring social cognitive constructs were administered at weeks 1, 4, 8, and 12. Social influence constructs were assessed at week 4. Cognitive constructs were administered at week 8. Exercise adherence data was drawn from weeks 9 through 12. Subject attrition resulted in 62 completed surveys out of an original 131 who completed the assessment at week 1. Subjective norm was assessed on a four item, 7 point, Likert scale. Social support was assessed on the Social Provisions Scale (SPS) which consisted of 24 items designed to determine six subscales (attachment, guidance, opportunity for nurturance, reassurance for worth, reliable alliance, social integration). Cohesion was measured by the Group Environment Questionnaire. Attitude was assessed by three items for instrumental attitude and three items for affective attitudes. Perceived behavioral control was assessed on three additional items. Intention was assessed by an one 7 point scale item. The results indicated that intention was the sole determinant of exercise adherence. Intention was determined equally by attitude and perceived behavioral control. Social influence affected exercise adherence positively via two pathways. The first pathway was social support through perceived behavioral control, from perceived behavioral control through

intention and from intention to adherence. The second pathway was cohesion through attitude, from attitude to intention and from intention to adherence. Subjective norm did not reveal any significant correlations in adherence to activity and this may have resulted from inconsistency in measurement. Subjective norm could be assessed in four possible ways. Important others can think, approve, support or pressure a subject in relation to exercise. All four approaches need to be discriminated.

The British Columbia Ministry of Education (1979), Earl and Stennett (1987), and Luke and Sinclair (1991) investigated high school students' attitudes towards participation in physical education. Earl and Stennett (1987) investigated the attitudes of students towards physical education in Ontario. Eleven hundred and sixty-two students taking physical education and 645 students not taking physical education were surveyed with separate questionnaires. Both groups rated proposed program changes but the students taking P.E. were asked to rate various reasons for taking the course while students not taking P.E. were asked to rate various reasons for not taking it. Students taking P.E. rated the following five reasons for taking P.E.: liking activity, keeping fit, liking sports, having fun in classes and learning new skills. Both boys and girls selected the same reasons with slight differences in order. Students not taking P.E. rated the following five reasons for not taking P.E.: other subjects were more important, not liking some part of the program, having trouble getting it into the timetable, getting enough exercise outside of school,

and not liking becoming sweaty and then going to another class. Both groups were similar in their ratings of proposed program emphasis changes. They both rated the following program elements as important to emphasize: skill development, enjoyment of the class, getting everyone involved, getting along with each other, motivating the class, and recreation and fitness. Students not taking P.E. said they might consider taking it if more recreational activities were offered, if students could be grouped according to fitness and skill levels, and if teachers could make them feel good about physical education. Earl and Stennett felt that a major focus on student self concept is needed especially in girls. Classes that de-emphasize skills and build confidence are needed to encourage participation in physical activity.

Physical education attitudes were last assessed provincially in British Columbia in 1979 by the Ministry of Education. Opinions of students in physical education classes were surveyed in grades four, seven, and eleven. The grade eleven results are summarized here. At the time of this assessment P.E. 11 was still a compulsory course for graduation in B.C. since P.E. 11 did not become an elective course until 1985. The student's responses indicated: 46% of students often like P.E.; 68% of students felt that P.E. was as important as any other subject; and 77% felt that P.E. should be a mandatory subject. The assessment of attitudes towards physical activity asked students to rate a statement on a scale of 1 to 5 with 1 representing a negative attitude and 5 a positive attitude. The assessment looked at the following six components: physical activity as a social

experience; physical activity for health and fitness; physical activity as a thrill but involving some risk; physical activity as the beauty in human movement; physical activity as long and hard training; and physical activity for the release of tension. All statements received a mean positive rating. Physical activity as a social experience had the highest ratings with a mean rating of 4.5 for males and a mean of 4.6 for females. The lowest rated item was physical activity as long and hard training with a mean of 3.4 for boys and a mean of 3.2 for girls.

Luke and Sinclair (1991) assessed the reasons why students had elected to choose or not to choose physical education as part of their grade eleven subjects. The subjects were 488 students (255 female, 233 male) from four high schools in Vancouver, B.C. Two measures were used - a short questionnaire to assess demographics and a critical-incident report. The critical-incident report was an open ended instrument that allows each subject to comment freely on their physical education experience from grades one through ten. The data was collected and classified into thematic categories. The results indicated that the five major determinants of negative attitudes towards physical education by both students who had elected and not elected physical education were: (a) curriculum content, (b) teacher behavior, (c) self-perception, (d) atmosphere and (e) facilities. Both males and females not taking physical education rated curriculum content and teacher behavior as the top two reasons for disliking physical education. The five major determinants for positive attitudes towards physical education were: (a) curriculum content, (b) atmosphere, (c) self-

perception, (d) teacher behavior and (e) facilities. Both male and female students not taking physical education had the same pattern of positive responses towards physical education.

Summary and Conclusions

Fox and Biddle (1989) suggest that when investigating participation in physical education as a subject, one has to go beyond the attitude towards physical activity itself, and evaluate the total physical education experience. The Theory of Planned Behavior presents a model that incorporates the interaction of three global determinants on the intention to behave. These determinants address attitude (attitude towards the behavior), the perception of society towards the behavior (subjective norm), and the self-perception of whether or not the behavior can be performed (perceived behavioral control). Motivation theory and self-esteem theory fit within the Theory of Planned Behavior.

The Theory of Planned Behavior as a whole and its related constructs have been investigated. The global determinant, attitude towards behavior, along with subjective norm and perceived behavioral control affect intention which in turn effects behavior. The instrumental and affective components of the attitude construct both contribute separately to intention (Ajzen & Driver, 1992).

Courneya and McAuley (1994) found that attitude has a significant correlation with the frequency and duration of exercise. Ryan et al. (1997) suggested that an intrinsic orientation is necessary for the adherence to activity while an extrinsic orientation is associated with the initiation of activity. Duda (1987) suggested

that task-oriented (intrinsic) individuals would adhere to activity longer while ego-oriented (extrinsic) individuals were at greater risk of dropping out. The global determinant, subjective norm, along with attitude towards behavior and perceived behavioral control affect intention which in turns affects behavior (Ajzen & Driver, 1992). Reynolds et al. (1990) did not find social influence to significantly predict participation in physical activity. Godin and Kok (1996) reported that subjective norm reached significance less than attitude towards the behavior and perceived behavioral control, and when it was significant it contributed less to intention than the other two determinants. They reported that in their review several authors had suggested that subjective norm needs to be better operationalized. Courneya and McAuley (1995) suggested that social constructs may work through the other global determinants. They found that social support influenced perceived behavioral control while cohesion influenced the attitude towards behavior. Courneya and McAuley argued that the lack of empirical support for the subjective norm may be due to the inconsistency of measurement. The global determinant, perceived behavioral control, along with the attitude towards the behavior and subjective norm affect intention which in turn effects behavior (Ajzen & Driver, 1992). Reynolds et al. (1990) found that self-efficacy affected the decision to be physically active. Courneya and McAuley (1994) found that self-efficacy was the most important determinant of behaving when looking at physical activity within the three component definition of physical activity-- frequency, intensity, and duration. Fox (1988)

suggests that a child's perception of his abilities is the most important determinant of his intent to behave. Intention to behave is affected by the three global determinants attitude towards behavior, subjective norm, and perceived behavioral control (Ajzen & Driver, 1992). Reynolds et al. (1990) reported a significant relationship between intention and engaging in physical activity. Courneya and McAuley (1995) found that intention was the sole determiner of exercise adherence. Courneya also suggested that intention is affected equally by the attitude towards the behavior and perceived behavioral control. In situations where there is less volitional control, perceived behavioral control, as well as intention, together affect behavior (Ajzen & Driver).

Three studies surveyed high school students directly to examine their attitudes towards physical education as a subject. Earl and Stennett (1987) reported the top five rated reasons for non participation in physical education in Ontario: other subjects were more important, not liking some part of the program, difficulties fitting it into their time table, physically active outside of school, and not liking becoming sweaty and then going to class. Luke and Sinclair (1991) reported the five major determinants of negative attitudes towards physical education by students currently not taking physical education in British Columbia: curriculum content, teacher behavior, self-perception, atmosphere, and facilities. The B.C. Ministry of Education (1979) assessment of grade eleven attitudes towards physical education, while the subject was still compulsory for

graduation, reported that 77% of the students felt that physical education should be mandatory.

Several conclusions have particular relevance to the Theory of Planned Behavior as applied to physical activity. The global determinants of attitude towards the behavior and perceived behavioral control have frequently shown a direct effect on the intention to behave. The global determinant subjective norm has an inconsistent effect on the intention to behave. The global determinant of subjective norm has not been consistently defined. The impact of the determinants varies with population and situations. The Theory of Planned Behavior has had limited application to adolescents' physical activity and physical education as a subject. Many factors in school affect the intent whether or not to take physical education as a subject and not just the attitude towards physical activity. Measurement needs to include sufficient items to discriminate and evaluate the global determinants of the Theory of Planned Behavior in relation to the total physical education experience.

It appears that British Columbia is doing all the right things in educating its youth for healthy lifestyles. It has a comprehensive curriculum in place in its public schools. It has certified teachers implementing the curriculum. However, the majority of students do not take physical education after it becomes non-compulsory in grade eleven. The implications of an inactive youth who become inactive adults is frightening. With a health care system that is over taxed at the present, the burdens will only increase with a populace that is physically and

emotionally unfit. It is imperative that this trend towards inactivity be addressed. By investigating the choices of the youth who are active and inactive, it will be a step towards addressing the problem and correcting it. This study examined what factors influence the intention to take grade eleven physical education in a British Columbia school.

Hypothesis

Specifically it was hypothesized that each of the three global determinants of the Theory of Planned Behavior (Attitude towards the behavior; Subjective norm; Perceived behavioral control) would each demonstrate unique contributions to explain the intent to take physical education classes in grade eleven.

CHAPTER II: METHODOLOGY

Sample

The sample was grade ten students from South Delta Secondary School in Tsawwassen, B.C. South Delta Secondary has a socioeconomic status of middle to upper middle class. It is a junior-senior school (grades eight through twelve) that operates on a year long time-table. All of the grade ten students in South Delta Secondary were assessed in their Physical Education Ten class during the spring of 1999. There were thirteen grade ten classes. One subject refused to participate. The number of completed surveys were 253. Five were dropped due to incomplete data. The remaining 248 surveys consisted of 129 males and 119 females.

Instrument

The instrument consisted of 49 items designed to assess the three global determinants of The Theory of Planned Behavior, the intent as to whether or not to take P.E. 11, factors found in previous research with high school students, and sample demographics. Forty-four of the items requested seven point ratings on semantic pairs. Five items required other response formats (see Appendix A).

The Theory of Planned Behavior was measured with items 1 - 33, 39, 40, 41 and 42. The constructs for the questions measuring the global determinants Attitude Towards the Behavior and Perceived Behavioral Control were adapted from Ajzen and Driver (1991, 1992). The validity of the ATB and PBC items was demonstrated by Ajzen and Driver in their research on leisure activities

involving physical exercise. The constructs for measuring the global determinant Subjective Norm were adapted from Ajzen and Driver (1991, 1992) and incorporated the suggestions from Courneya and McAuley (1995). The validity of the modified SN items is best established by examining their performance in the present study and comparing these results with Ajzen and Driver. Content for the questions were domain specific for students taking physical education in the B.C. public school system. The instrument was field tested on students in the public system.

The global determinant Attitude Towards the Behavior was measured using the twelve semantic differential pairs adapted from Ajzen and Driver (1991, 1992). It was expected, based on Ajzen's research, that those items would combine into the two subscales, instrumental and affective. Items 1-12 assessed this determinant. Item 13 was added as a possible additional item related to these ATB subscales. A Principle Components Analysis (PCA) followed by a Varimax (orthogonal) rotation of the thirteen items extracted one factor with an eigenvalue greater than one. The reliability analysis of that factor produced a high internal consistency ($\alpha = .97$). All but one of the 13 item-total correlations were .7 or above. Ajzen and Driver (1991, 1992) utilized Principle Axis Factoring (PAF) addressing the items designed to measure the affective and instrumental components of the Attitude Towards the Behavior. They reported two factors. Principle axis factoring of items 1-13 (Varimax rotation) yielded one factor. The reliability analysis of that factor produced a high internal consistency

(alpha = .97). A second PAF was run on the data set with two forced factors followed by a Varimax rotation to compare results to Ajzen and Driver. The designated affective items (6-12) loaded together on one factor, along with the new item number 13. The designated instrumental items (1-5) loaded together on a second factor. High Cronbach alphas of .97 and .87 were obtained for the affective and instrumental components respectively. The correlation coefficient for the affective and instrumental components was .83. For the purpose of retaining comparability with the Ajzen and Driver analysis the two subscales of ATB were retained.

The global determinant, Subjective Norm, was measured using twenty semantic differential pairs (items 14 - 33) based on Ajzen and Driver (1991) and the recommended extensions by Courneya and McAuley (1995). Ajzen and Driver identified five social influences as: friend; parent; sibling; boy/girl friend; and other family member. This instrument used 'another adult' in place of 'other family member'. Courneya and McAuley (1995) suggested that the Subjective Norm social influences should be assessed in four ways: (a) What do they think of the intended activity? (b) Do they approve of the intended activity? (c) Would they support the choice of the intended activity? and (d) Would they pressure for a certain choice? The five social influences were each assessed by four separate items for a total of twenty items (see Appendix A). A PCA of Subjective Norm items was conducted to determine how the social influences could best be combined into subscales for the present sample.

A PCA of items 14-33 (Varimax rotation) extracted three factors with eigenvalues over one. Two factors were easily interpretable, but the simple structure of the factors was compromised when a third factor was retained. The 'support' items (16, 20, 24, 28, 32) and the 'approval' items (14, 18, 22, 26, 30) loaded clearly on the first factor while the 'pressure' items (17, 21, 25, 29, 33) loaded clearly on the second factor. The 'think' items (15, 19, 23, 27, 31) were dropped from this analysis as they did not load clearly on either of the first two factors. Subjective Norm is therefore represented in this sample by two subscales - Subjective Norm Support and Approval (SNSA) and Subjective Norm Pressure (SNP). A reliability analysis on SNSA produced an alpha of .94. Item-total correlations ranged from .62 to .79. The internal consistency for SNP was also high (alpha = .84). Item-total correlations ranged from .56 to .74.

The global determinant, Perceived Behavioral Control, was measured using four semantic differential items (39, 40, 41, 42) expanded from Ajzen's and Driver's (1991, 1992) items (see Appendix A). A PCA extracted one factor. The three items that addressed perceived abilities in physical education and athletics loaded highly on this factor. A reliability analysis produced an alpha of .76. The item-total correlations ranged from .61 to .63.

The intent to take P.E. 11 was measured with items B and C in the preliminary items section. Item B (stated intention regarding P.E. 11 in the fall) and item C (commitment to intent regarding P.E. 11) were combined to form an overall measure of Intent. Two coding procedures were considered. The

procedure chosen yielded scores from 1 to 14. Item C scores from those subjects who intended on taking P.E. 11 were coded as values 8-14 on intent. Item C scores from those subjects who intended on not taking P.E. 11 were reversed to form values 1-7 on overall intent (see Appendix B). The 1-14 scale yielded stronger relationships with the independent variables than did an alternate coding procedure (see the histograms in Appendix C).

Supplementary Variables

Luke and Sinclair (1991) identified five major factors that affected grade ten students' attitudes towards physical education. These were: self-perception, facilities, teacher rating, curriculum, and class atmosphere. Five items (34, 35, 36, 37, 38) addressed these factors (see Appendix A). Each factor was assessed by a domain specific statement rated on a seven point Likert Scale. The items were field tested in the public school system. These items were used to examine whether they make unique contributions to understanding Intention beyond the three global determinants of TPB. The Theory of Planned Behavior acknowledges that there are domain specific factors present that can affect the intent to perform different behaviors. Question 43 was used for a sample comparison with a 1979 Ministry of Education study (see Appendix A). Two items (44, 45) were asked to screen for possible nuisance variables (see Appendix A).

Procedure

Permission was obtained from the principal at South Delta Secondary School as well as the physical education department heads to conduct the study. A letter of notification was sent home with each grade ten student notifying the parents of the study (see Appendix D). The student was to return the signed 'tear off' portion of the notice to their respective teacher if the parent did not want the student to participate in the study. A field test was carried out on a grade eleven physical education class to assess the readability of the instrument. The instrument was administered to all students present in every grade ten physical education class at South Delta Secondary over a three day period in 1999.

CHAPTER III: RESULTS

Descriptive Statistics

Descriptive statistics and bivariate correlations among each of the main constructs of interest are presented in Table 1. In this chapter, the term “determinant” refers to either the Attitude Towards the Behavior, Subjective Norm, or Perceived Behavioral Control. The term “component” refers to the instrumental and affective part of the Attitude Towards the Behavior or the pressure and support/approve part of the Subjective Norm.

Table 1

Descriptive Statistics and Correlation Coefficients of the Predictor and
Dependent Variables

Variables	1	2	3	4	5	6	<u>M</u>	<u>SD</u>
1. ATBA ^a	-						4.72	1.71
2. ATBI ^a	.83**	-					4.43	1.51
3. SNP ^a	.23**	.32**	-				2.13	1.33
4. SNSA ^a	.56**	.58**	.12	-			5.50	1.42
5. PBC ^a	.65**	.55**	.17**	.51**	-		5.74	1.40
6. INT ^b	.63**	.71**	.38**	.44**	.42**	-	6.67	5.37

Note. ATBA = attitude towards the behavior affective; ATBI = attitude towards the behavior instrumental; SNP = subjective norm pressure; SNSA = subjective norm support and approve; PBC = perceived behavioral control; INT = intention.

^a possible scores range from 1-7. ^b possible scores range from 1-14.

* $p < .05$. ** $p < .01$.

Hypotheses

The main hypotheses concerning the Theory of Planned Behavior (TPB) were tested using Hierarchical Regression Analyses (HRA). First, a simultaneous regression was conducted separately on each determinant of TPB to determine if each determinant alone could affect Intention as reported by Ajzens (1991). A HRA was conducted on the model as a whole to identify the unique variance of Intention accounted for by each determinant.

The TPB accounted for 53.8% of the variance of the Intent to take physical education. Intention was regressed simultaneously on the two Attitude Towards the Behavior (ATB) affective and instrumental components. ATB accounted for 51% of the TPB variance in Intent ($R^2 = 0.51$, $F(2, 245) = 127.25$, $p < .001$). Intention was regressed on both components of the Subjective Norm (SN) determinant (SNSA and SNP). SN accounted for 30.4% of the TPB variance in Intent to take physical education ($R^2 = 0.304$; $F(2, 245) = 53.39$; $p < .001$). Intention was regressed on the component Perceived Behavioral Control (PBC). PBC accounted for 17.9% of the TPB variance in Intent ($R^2 = .179$; $F(1, 246) = 53.74$; $p < .001$). In support of Ajzen's approach, all three determinants of the TPB can singularly be used to independently explain Intention.

A series of HRAs were conducted, regressing Intention on all three determinants to identify the unique variance accounted for by each determinant.

Table 2 summarizes the results of the HRAs.

All three determinants together of TPB accounted for 53.8% of the variance of Intent. The majority of the TPB variance accounted for is shared among the three determinants (31.2%). The TPB unique variance accounted for 22.6% of the total variance. Within this sample ATB and SN contributed unique variance towards the prediction of the Intention to take physical education while PBC contributed shared variance only (see Appendix G).

Table 2

Unique Variances in Intention Accounted for by each Determinant of TPB after a series of HRAs (N = 248)

Variables	ΔR^2	ΔF	df	p
ATB	.198	51.72	(2, 242)	.000
SN	.028	7.37	(2, 242)	.001
PBC	.000	0.006	(1, 242)	.939

Table 3

Standardized Coefficients of the Regression of Intention on the TPB

Determinants

Predictors	β	p
ATBA	.15	.082
ATBI	.50	.000
SNP	.18	.000

SNSA	.05	.383
PBC	- .01	.939

Note. ATBA = attitude towards the behavior affective; ATBI = attitude towards the behavior instrumental; SNP = subjective norm pressure; SNSA = subjective norm support and approve; PBC = perceived behavioral control.

The standardized coefficients of regression (Table 3) reveal that there is a positive relationship between the determinants of the TPB and Intention. The components of ATB and SN are not equally important. ATBI and SNP contribute significantly to the prediction of Intention while ATBA and SNSA do not contribute significantly to the prediction of Intention to take P.E. 11.

Supplementary Results

Intention was regressed simultaneously on the five items measuring Luke and Sinclair's (1991) variables to explore the contributions of domain specific variables (see Appendix E for the descriptive statistics). These items accounted for 16.5% of the variance in Intention ($R^2 = .165$; $F(5, 242) = 9.55$; $p < .001$). The Luke and Sinclair variables were also entered as a fourth step in an HRA while controlling for the three determinants of the TPB. All together these five questions accounted for 3.6% of the unique variance in Intention out of a total of the 57.4% of variance accounted for by the TPB and these domain specific variables ($R^2 = .574$; $\Delta R^2 = .036$; $\Delta F(5, 237) = 4.01$; $p < .01$). This result

demonstrates that Luke and Sinclair have identified domain specific factors that should be taken into account when considering the Intent to take physical education in high schools although most of the influence is mediated by TPB.

Intent was regressed on gender to see if differences existed between the sexes. Gender accounted for 0.1% of the variance in Intention ($R^2 = .00096$; $F(1, 245) = .24$; $p > .05$). Gender did not have any significant effect on the Intention to take physical education within this sample. This supported previous research by Earl and Stennett (1987) and Luke and Sinclair (1991) but was contrary to the National Institute of Health (1994) findings. The differences possibly could reflect cultural factors. Earl and Stennett and Luke and Sinclair conducted their research on Canadian subjects while the NIH report was on American youth. It is generally accepted that Canada supports more of a wellness model which appeals to everyone while the U.S. focuses more on a competitive sport model which results in greater male participation.

The B.C. Ministry of Education (1979) survey of grade eleven students reported that 77% of them felt that P.E. 11 should be mandatory for high school graduation. The population in the present study indicated that only 12% felt that P.E. 11 should be mandatory. The high proportion reflects responses of grade eleven students in 1979, when P.E. 11 was mandatory while the lower proportion comes from grade ten students in 1999, when P.E. 11 is now an elective.

Questions 44 and 45 which were added to see if there were any consistent factors that had affected the students in their physical education experience in the high school. There were not any noticeable trends.

CHAPTER IV: DISCUSSION

It was hypothesized that all three determinants of the Theory of Planned Behavior would contribute unique variance to better understanding the intent of grade ten students whether or not to take P.E. 11.

This study supported Ajzen's (1991) findings and other previous work that each determinant can separately predict Intention. The ATB accounted for 51% of the Intention to take P.E. 11. Subjective Norm accounted for 30.4% of the Intention to take P.E. 11. The PBC accounted for 17.9% of the Intention to take P.E. 11. However, a series of HRAs regressing Intention on all three determinants of TPB reveals that there is a large proportion of variance that is being shared by the determinants within this population.

Unique variance is being contributed by ATB and SN alone. The ATB contributes 19.8% unique variance while SN contributes 2.8% unique variance. Within this study's sample the intent to take P.E. 11 is being affected primarily by their attitude towards the subject, while the social influences being significant, are small. Godin and Kok (1996) in their review of TPB studies reported that ATB and PBC accounted for the unique variance in Intention in most studies that they reviewed while SN contributed very little unique variance. They also reported that the reason for this was that perhaps that the SN was not being well enough defined. This study incorporated Courneya and McAuley's (1995) suggestions to define the social constructs within SN four different ways. Perceived Behavioral Control does not contribute any unique variance indicating

perhaps that having the requisite skills to take P.E. 11 is not a concern to most students when contemplating a P.E. 11 decision.

Within the ATB variable the standardized coefficients of the regression of Intention on the TPB reveals that the instrumental component is significantly affecting Intention while the Affective component is not. Mummery and Wankel (1999) reported the same effect in their study on adolescent swimmers. This would suggest that the costs and benefits of taking P.E. 11 have a greater impact on the student's attitude towards the subject than the affective feeling towards the course itself.

Examination of the standardized coefficients from the overall regression of Intention on TPB determinants reveals that the Pressure component significantly contributes to the equation while the Support/ Approve component does not. This suggests that the students within this sample are affected more by the pressure or the lack thereof from significant others to take P.E. 11 rather than whether or not they are supported or approved in their decision.

Luke and Sinclair (1991) identified five major determiners of attitudes towards physical education that are domain specific. They are: curriculum content, teacher behavior, self-perception, atmosphere, and facilities. When controlling for the TPB, Luke and Sinclair's variables account for an additional 3.6% of unique variance. Tests on the separate predictors in the regression of Intention on these factors suggests that the components of teacher behavior and classroom atmosphere are the significant contributors (see Appendix F). Because

this study was conducted in a school where the majority of students have taken all their high school physical education, the knowledge of who is teaching P.E. 11 could affect their decision as to whether or not to take physical education. Class atmosphere could also be affected by the knowledge that students are going from gender segregated classes in grade ten to gender integrated classes in grade eleven. Follow-up studies are required to clarify the meaning of these patterns.

Gender does not have any bearing on the intent to take physical education in this population. This would suggest that the curriculum being administered in this school is not gender alienating.

Summary and Implications

Within this study's population each of the determinants of the TPB can predict the Intention to take P.E. 11. However, only ATB and SN offer unique variance to the prediction to take P.E. 11. The instrumental component of ATB and the pressure component of SN were the significant contributors to the prediction of Intention to take P.E. 11 within each of these two determinants. PBC did not offer any unique variance for this population. Luke and Sinclair (1991) have identified additional variables that affect the Intention to take P.E. 11 within this population. Teacher behavior and class atmosphere contributed significant variance beyond the TPB. As is well known to researchers in TPB, domain specific variables are important to consider.

In 1985, the British Columbia Ministry of Education no longer required that physical education eleven be mandatory for high school graduation. It has

been offered as an elective only since then. Statistics in 1998 reported that only 22% of high school students in B.C. were electing to take physical education in grade eleven and only 13% were electing to take physical education in grade twelve (CAHPERD, 1998). Provincially, students are involved in physical education from kindergarten through grade ten. The benefits of exercise are extolled and upheld within society, yet we have the majority of students within B.C. not continuing to take physical education beyond grade ten. In this study the largest portion of unique variance accounted for in the Intention to take P.E. 11 was captured by the ATB. Within this determinant the instrumental component was the strongest contributor. This would suggest that it is not the like or dislike of physical education that is affecting students decisions per se. It would appear that within this population that the cost and benefit factors are the ones affecting physical education choice most directly. Physical education does not appear to be desired enough, despite its documented benefits, for teens to take the subject at the expense of other courses. Perhaps it is time for the B.C. Ministry of Education to reconsider its decision from 1985 and make physical education mandatory for high school graduation again. This appears to be one of those 'catch 22's' where students know what's good for them but unless they are required to take the course they won't.

The significant component that contributed unique variance within the SN determinant was social pressure. The "think" questions were dropped after the initial PCA (see Chapter Two). The support and approval questions seemed to

reflect a single set of concerns for most students. The concept of pressure within this population appears to reflect the lack of pressure by significant others in the student's lives to take P.E. 11. They appear to have the freedom to make whatever choice they feel is best for them. When examined closely, this group of students seems to be saying that the little pressure being offered by significant others to choose P.E. 11 has a minor impact. Their choices are being made mostly on the basis of the costs and benefits of including P.E. 11 in their high school studies. It would appear that they are making the choices that reflect personal priorities. Health goals for many youth have not yet become a priority in their lives. Given the high value of exercise in health policy, these results suggest that room within the mandatory curriculum must be made to encourage healthful activity.

Perceived Behavioral Control does not add any unique variance to the prediction of Intention in this population. Godin and Kok (1996) reported that after ATB, PBC contributed the next most significant amount of unique variance to intent to exercise in a variety of populations. However, PBC is probably not a factor to most students when considering physical education as a subject. The curricula are such that most students can be successful if they regularly attend class. They must have successfully completed physical education through the tenth grade to be able to graduate. Most students not motivated to choose P.E. 11 would probably not do so because they felt they did not have the requisite

skills. This situation is distinctive when compared to studies of competitive athletes and recreational athletes.

The Theory of Planned Behavior predicted a significant portion of the variance for the Intention to take P.E. 11 within this population. Because of the familiarity of the subject to most students PBC was not an unique contributor to the prediction. Within the determinant SN, the social pressure contributed a small amount of unique variance to the prediction of Intention. This appeared to illustrate that the students saw themselves as largely free to make their own choices. The majority of unique variance was contributed by the instrumental component of ATB. The students did not feel that P.E. 11 was important enough to select it as part of their grade 11 studies. This would indicate that if we can believe the statistics on the growing health concerns of our young population, we cannot wait for them to make the right decision. Physical education must be made mandatory through grade 12.

Research Limitations and Future Research

The major limitation with the research is that the study reflects the intent to take P.E. 11 within the population of one high school. This research needs to be replicated within other schools to confirm the trends within the present study. Replication of the results would have strong implications for the lobbying for mandatory physical education for high school students as the present trend appears that they will not willingly make that choice.

A second major limitation is the exclusive reliance on questionnaire data for the present sample. To validate the interpretations offered here and to clarify the meaning behind the huge overlaps among ATB, SN, and PBC qualitative investigations would be invaluable.

Conclusions

In 1985 P.E. 11 was dropped as a requirement for high school graduation in British Columbia. Presently less than 25% of high school students take P.E. 11 as an elective course. With the documented health benefits, the over burdened health care system, and the alarming percentage of unfit and obese students, this trend needs to be addressed and reversed. Based on the results of this study and the researcher's own practical experience as a physical educator for 20 years, it is recommended that the Ministry of Education again mandate physical education as a graduation requirement as students are not making it a priority in their personal lives. It is also recommended that P.E. 11 not only be reinstated as a requirement for high school graduation but P.E. 12 be added as a graduation requirement as well. It is felt by the researcher that the curriculum and delivery of a mandated P.E. 11 and P.E. 12 would need to be quite a bit different than what is presently being taught in the high school system. This new curriculum should focus on the development of lifelong personal wellness programs and move away from the emphasis on team games. It should eliminate the quantitative focus on performance with the assigning of letter grades. The movement to a complete/incomplete or a pass/fail assessment format of

meeting basic wellness criteria would be much more user friendly and have greater transferability to lifelong fitness.

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3. Taking P.E. 11 would be

useless 1 2 3 4 5 6 7 useful

15. My parents think I should take P.E. 11.
 should not 1 2 3 4 5 6 7 should
16. My parents would support me taking P.E. 11.
 no support 1 2 3 4 5 6 7 support
17. My parents would pressure me to take P.E. 11.
 no pressure 1 2 3 4 5 6 7 pressure

For the next four questions think of the brother or sister who has the most influence on you.

18. My brother or sister would approve of me taking P.E. 11.
 disapprove 1 2 3 4 5 6 7 approve
19. My brother or sister thinks I should take P.E. 11.
 should not 1 2 3 4 5 6 7 should
20. My brother or sister would support me taking P.E. 11.
 no support 1 2 3 4 5 6 7 support
21. My brother or sister would pressure me to take P.E. 11.
 no pressure 1 2 3 4 5 6 7 pressure
22. My friends would approve of me taking P.E. 11.
 disapprove 1 2 3 4 5 6 7 approve
23. My friends think I should take P.E. 11.
 should not 1 2 3 4 5 6 7 should
24. My friends would support me taking P.E. 11.
 no support 1 2 3 4 5 6 7 support
25. My friends would pressure me to take P.E. 11.
 no pressure 1 2 3 4 5 6 7 pressure

26. My boyfriend or girlfriend would approve of me taking P.E. 11.

disapprove 1 2 3 4 5 6 7 approve

27. My boyfriend or girlfriend thinks I should take P.E. 11.
 should not 1 2 3 4 5 6 7 should
28. My boyfriend or girlfriend would support me taking P.E. 11.
 no support 1 2 3 4 5 6 7 support
29. My boyfriend or girlfriend would pressure me to take P.E. 11.
 no pressure 1 2 3 4 5 6 7 pressure

For the next four questions think of an adult, other than your parents, whom you respect.

30. An adult other than my parents would approve of me taking P.E. 11.
 disapprove 1 2 3 4 5 6 7 approve
31. An adult other than my parents thinks I should take P.E. 11.
 should not 1 2 3 4 5 6 7 should
32. An adult other than my parents would support me taking P.E. 11.
 no support 1 2 3 4 5 6 7 support
33. An adult other than my parents would pressure me to take P.E. 11.
 no pressure 1 2 3 4 5 6 7 pressure
34. Physical education class is difficult for me.
 disagree 1 2 3 4 5 6 7 agree
35. The physical education facilities in my school are
 poor 1 2 3 4 5 6 7 excellent
36. The physical education teachers in my school are
 poor 1 2 3 4 5 6 7 excellent
37. I've heard that the physical education 11 activities are

- poor 1 2 3 4 5 6 7 excellent
38. P.E. 11 is a class where I will be able to have fun with my friends.
- disagree 1 2 3 4 5 6 7 agree
39. I found P.E. 10
- difficult 1 2 3 4 5 6 7 easy
40. I have the ability to handle P.E. 11.
- false 1 2 3 4 5 6 7 true
41. I am able to come up with the money necessary to take P.E. 11.
- false 1 2 3 4 5 6 7 true
42. Generally speaking, I consider myself an athlete.
- disagree 1 2 3 4 5 6 7 agree
43. P.E. 11 should be mandatory for graduation.
- disagree 1 2 3 4 5 6 7 agree

For the next two questions (44 and 45) please write in an answer in the space provided.

44. What is the best thing you like about P.E. 10?

45. What is the thing you like least about P.E. 10?

APPENDIX B - THE MEASURE OF INTENT

Two measures for the intent to take P.E. 11 were considered. Both incorporated the decision as to whether or not to take P.E. 11 the following year. That decision was then given a commitment rating. The scoring method retained resulted in a 14 point intent scale whereas the alternative method considered yielded a 7 point scale.

Scoring For Intention (14 point scale)

Item C - No

1. originally scored	1 uncommitted	to	7 committed
2. reverse scored uncommitted	1 committed	to	7

Item C - Yes

1. originally scored	1 uncommitted	to	7 committed
2. converted to	8 uncommitted	to	14 committed

Overall Combined Scale - Intention to Take P.E. 11		
1 no committed	----- 7- 8 ----- uncertain	----- 14 yes committed

Alternative Scoring For Intention (7 point scale)

Item C - No

1. originally scored	1 uncommitted	to	7 committed
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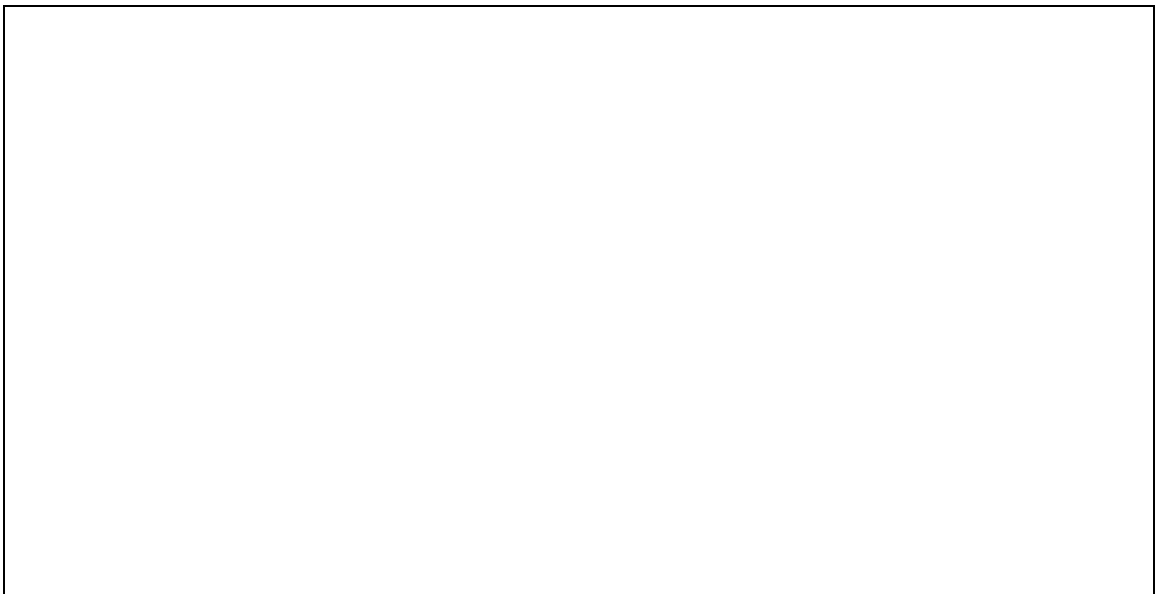
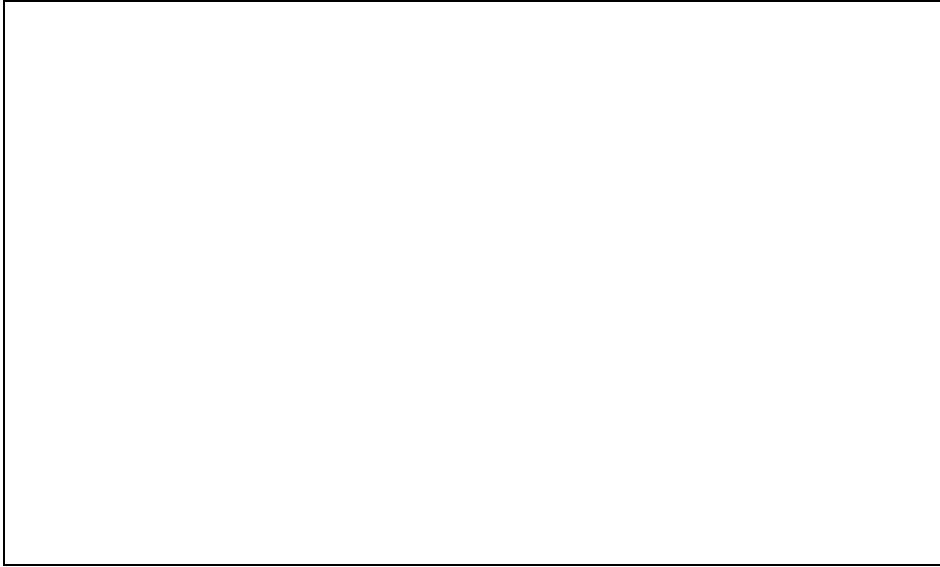
Item C - Yes

1. originally scored	1 uncommitted	to	7 committed
----------------------	---------------	----	-------------

2. reverse scored to 1 committed to 7
uncommitted

Overall Combined Scale - Intention to Take P.E. 11		
1 yes committed	----- 4 ----- uncertain	----- 7 no committed

APPENDIX C - HISTOGRAMS OF TWO CODING FORMULAS FOR
INTENTION TO TAKE P.E. 11



APPENDIX D - PARENTAL NOTIFICATION FORM

PARENTAL/GUARDIAN NOTICE
STUDENT PHYSICAL EDUCATION SURVEY

Dear Parent/Guardian:

The grade ten physical education students at South Delta Secondary will have their P.E. 10 experience surveyed to investigate curricular trends for physical education eleven. The survey consists of 49 questions that will take approximately 30 minutes of class time to administer. Students names will not be required to complete the surveys in order to guarantee anonymity and confidentiality of the respondents. The study is being conducted by a student from Trinity Western University as partial fulfillment for a M.A. in Counselling Psychology. The study will be conducted between May 31, 1999 and June 18, 1999.

If you have any questions regarding the survey, or would like a copy of the survey, you may contact the faculty advisor from T.W.U. (Dr. Marvin McDonald) or the student researcher (Brian W. McGill) at the numbers listed below.

FACULTY ADVISOR: Dr. Marvin McDonald

STUDENT: Brian W. McGill

TRINITY WESTERN UNIVERSITY DEPARTMENT: Counselling Psychology

OFFICE LOCATION: Stanley Nelson Center

TELEPHONE: (604) 513-2034 extension 3223 (Dr. McDonald) (B. McGill)

If you do not wish your child to participate in the study please return the tear off section below to your child's P.E. 10 teacher.

Thank you for co-operation.

Brian W. McGill

I, _____, do not want my child to participate in the physical education survey of grade ten students.

signature

name of child

APPENDIX E: DESCRIPTIVE STATISTICS AND CORRELATIONS OF THE
PREDICTOR, SUPPLEMENTARY AND DEPENDENT VARIABLES

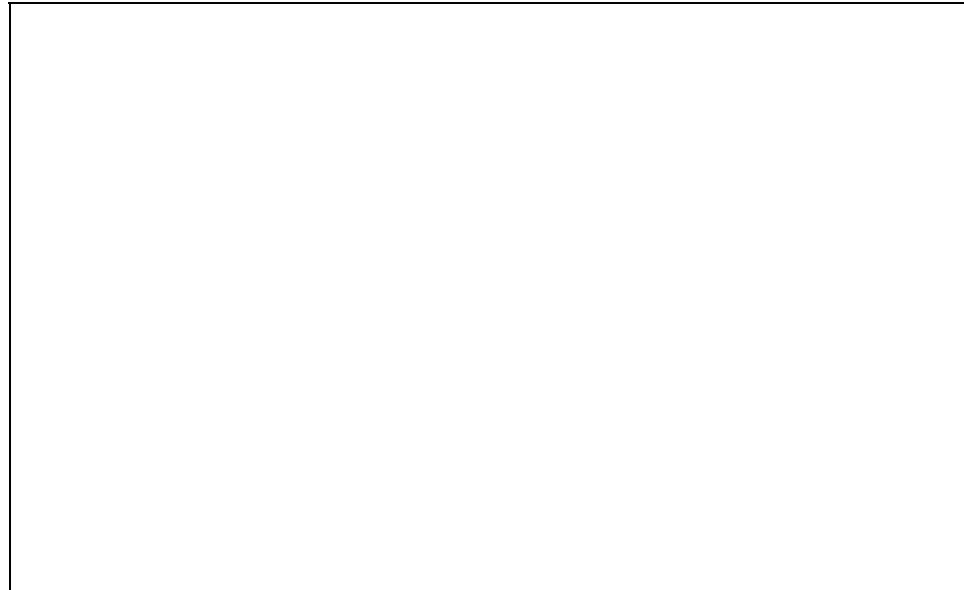
APPENDIX F: STANDARDIZED COEFFICIENTS OF THE REGRESSION OF
INTENTION ON THE SUPPLEMENTARY VARIABLES WHILE
CONTROLLING FOR TPB DETERMINANTS

Table 5
Standardized Coefficients of the Regression of Intention on the Supplementary
Variables While Controlling for the TPB Determinants

Predictors	β	p
PEDR	-.01	.830
PEFR	-.00	.942
PETR	-.15	.009
PECR	-.00	.979
PEAR	-.20	.003

Note: PEDR = physical education class difficulty rating (self-perception);
PEFR = physical education facilities rating; PETR = physical education teacher
rating; PECR = physical education curriculum rating; PEAR = physical education
atmosphere rating.

APPENDIX G: VENN DIAGRAM OF THE UNIQUE VARIANCES OF
TPB ON INTENTION



- TPB accounts for 53.8% of the total variance of Intention.

Determinants Separately

- ATB accounts for 51% of TPB variance of Intention.
- SN accounts for 30.4% of TPB variance of Intention.
- PBC accounts for 17.9% of TPB variance of Intention.

Determinants Combined

- ATB accounts for 19.8% of unique variance of Intention within TPB.
- SN accounts for 2.8% of unique variance of Intention within TPB.
- PBC accounts for 0.00 of unique variance of Intention within TPB.
- The total unique variance within TPB is 22.6%.

- The total shared variance within TPB is 31.2%.