The attitude-behaviour link: Planned behaviour, self-monitoring, behavioural variability, and condom use.

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The Attitude-Behaviour Link: Planned Behaviour, Self-Monitoring, Behavioural Variability, and Condom Use

by

David M. Ledgerwood

A Thesis
Submitted to the Faculty of Graduate Studies and Research through the Department of Psychology in Partial Fulfilment of the Requirements for the Degree of Master of Arts at the University of Windsor

Windsor, Ontario, Canada

1997
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Abstract
The purpose of this study was to examine the links between attitudes toward condom use and condom use behaviour, as well as the contribution of Ajzen's theory of planned behaviour (TPB), past behavioural variability with regard to condom use, and Snyder's self-monitoring construct to predict condom use behaviour. One-hundred and eleven sexually active undergraduate participants (92 female, and 19 male) responded to measures designed to test these constructs. Attitudes toward condom use explained a large proportion of the variance accounted for in condom use. Theory of reasoned action variables (attitude, subjective norm, and intentions), perceived behavioural control over condom use, and an interaction of the public performance factor (of the Self-Monitoring Scale) x past condom use variability each obtained support as predictors of actual condom use. A trend toward greater discrepancy between attitudes toward condom use and condom use behaviour was observed for participants who reported greater variability in their past condom use, and those who scored higher on the public performance sub-scale of the Self Monitoring scale. Finally, path analysis supported the theory of planned behaviour as a model to predict condom use over the revised model which included the public performance x variability interaction. Implications of these findings to safe-sex interventions are addressed.
ACKNOWLEDGMENTS

I would like to thank those people who helped me complete this thesis. A special thanks goes out to all of my committee members. Thank you Dale Rajacich, for your support, advice, and especially your enthusiasm. To Kathryn Lafreniere for your helpful feedback, for numerous opportunities to broaden my research experience, and for the support you have given me. I especially wish to thank Shelagh Towson for her ongoing support and enthusiasm with this project, for her honest evaluation of my work, and for teaching me how to be a good writer.

I would like to thank my family for their enthusiasm. Particularly, I would like to thank my mother and father for taking an interest in my work, and for "bragging" about it.

Thank you to Robin Sherman and Mary Osborne of the AIDS Committee of Windsor, and Denise Spedick of the Windsor-Essex County Health Unit for providing information that was vital to the procedure of this investigation.

Thank you Sandy Hunjan for your insightful feedback on earlier drafts of this document.

Finally, a special thanks to Brenda Davie. Thank you for always being there, and always believing that I could do it. You are the best friend anyone could ask for.
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The Attitude-Behaviour Link:
Planned Behaviour, Self-Monitoring,
Behavioural Variability, and Condom Use

One of the most elusive relationships in social psychological research has been the link between attitudes and behaviour. Numerous researchers have attempted to account for unexplained variance between these two factors in order to predict the occurrence of behaviour. If attitudes predicted behaviour perfectly, psychologists would have an easy job. The correspondence, however, is frustrated by a seemingly endless number of factors. For this reason, many researchers have attempted to find mediators of the attitude-behaviour link that account for the variance unaccounted for by the attitude-behaviour relationship alone.

The importance of determining which factors moderate the attitude-behaviour link is plainly evident. Performance of a behaviour, such as watching one's weight, or exercising regularly, is not solely determined by one's attitude towards these behaviours. If it were, psychologists and health-care professionals could easily prescribe regimens for people with (for example) weight problems, and help them adhere to those regimens by imparting a positive attitude toward the actions involved.

Wicker (1969), in a review of literature on attitude-behaviour linkages, concluded that "it is considerably more
likely that attitudes will be unrelated or only slightly related to overt behaviours than that attitudes will be closely related to actions" (p. 65). Wicker made a strong case, as his review covered a wide range of behaviours including (among others) work performance, participation in civil rights discussions, voting, cheating on exams, and breast feeding. Wicker concluded by reporting that correlations between attitudes and behaviours rarely reach .30 and that very little variance in behaviour is accounted for by attitudes (seldom over 10%).

Others, however, view Wicker's rejection of the attitude-behaviour link as too extreme. Eagly and Chaiken (1993) reviewed numerous studies conducted since Wicker (1969) which have had some success in finding factors that mediate the relationship between attitudes and behaviours. They contend that the relationship between attitudes and behaviour does exist, but that it is more complex than was once thought.

The present study will examine some of the more promising variables that have been studied in the past. Two goals are set forth for this study: First, to obtain a better understanding of the attitude-behaviour relationship by examining variables that mediate the relationship; and, second, to apply these external variables to prediction of an important health-behaviour, condom use.

This particular behaviour was chosen because of the prominence of sexually transmitted diseases, especially the human immunodeficiency virus (HIV) and acquired immunodeficiency
syndrome (AIDS), in North America. The World Health Organization (WHO) has depicted a world pandemic in which ten million people are already infected with HIV, and 5000 more cases appear each day (WHO, 1992). Furthermore, heterosexual contact has become the primary mode of transmission of the disease (contributing especially to the dramatic increase in HIV infected women). According to WHO (1992), heterosexuals are showing the greatest rate of increase in infection. Condoms have been suggested as one way of reducing the occurrence of HIV and AIDS. WHO (1992) points out that people who are not sure whether they are at risk for HIV and AIDS should either avoid penetrative sex or use condoms to reduce the chance of infection.

One large scale Canadian study of college and university students found that unprotected sexual activity was common among this population (MacDonald, et al., 1990). These researchers found that 74.3% of students had sex at least once, and that over 40% of both men and women reported having sex often. This study also found that of women who have had 1 or 2 partners, only 19.1% used condoms all of the time. Even more startling, of women who have had 10 or more partners, only 7.5% always used condoms. In their total sample, 5.5% of respondents reported having had at least one sexually transmitted disease (STD), while 24.2% of women and 10.6% of men who have had 10 or more partners reported history of STDs.

The present study examines university students who are sexually active. Primarily, this study will examine the degree
of relationship between attitudes toward condom use and actual condom use behaviour. Factors which have added to the prediction of behaviours in the past, and which will be discussed here, include those adapted from Ajzen's (1985) theory of planned behaviour, and Snyder's (1974) self-monitoring theory, as well as past behavioural variability.

Theories of Reasoned Action and Planned Behaviour

Ajzen's (1985) theory of planned behaviour (TPB) is a direct successor to Fishbein and Ajzen's (1975; Ajzen & Fishbein, 1980) theory of reasoned action (TRA). The TRA was an attempt to understand the attitude-behaviour link by incorporating subjective norms and intentions to behave as additional predictors (Figure 1). Attitude, as it pertains to TRA, means attitude toward a particular behaviour. In this case, for example, the attitude under study will be attitude toward using condoms. Behaviour is the completion of the act. Subjective norms are the perceptions held by an individual regarding the attitudes toward the target behaviour of people whose opinion that individual values. Finally, intentions represent the individual's personal aims with regard to the behaviour (i.e., whether they believe that they will try to perform the behaviour or not).

As Figure 1 indicates, intention to perform the behaviour mediates the relationship between attitude and subjective norm variables on the one side, and behaviour on the other. In addition, the diagram shows that subjective norms and attitudes
Figure 1. Theory of reasoned action
influence each other. Ajzen and Fishbein (1980) contended that this model mediates between behaviour and all other moderating (or external) variables. That is, variables other than attitude, subjective norms, and intentions may help predict behaviour but that the effects of these variables on the behaviour in question are mediated by attitude, subjective norm, and intention.

Attitudes are based on behavioural beliefs, and subjective norms are based on normative beliefs. A behavioural belief is an opinion that a particular behaviour will have either a positive or negative (or neutral) outcome (Ajzen & Fishbein, 1980). Normative beliefs are the opinions that a particular significant other person will view a behaviour either favourably or unfavourably (Ajzen & Fishbein, 1980).

TRA has generated a great deal of research, and it stands as a model of some importance in social psychology. Eagly and Chaiken have stated that "even though the considerable limitations of the theory have spawned substantial revisions, its seminal importance cannot be underestimated" (1993, p. 216). It greatly increased the amount of variance that could be accounted for in the attitude-behaviour relationship.

Although TRA was not specifically developed to study health issues, numerous studies have been conducted with this focus, many of which find strong support for the model. One study, for instance, examined the usefulness of TRA in predicting intentions to perform a novel behaviour, organ donation (Schwartz & Tessler, 1972). This study found that TRA accounted for over 50% of the
variance in intention to donate. Another study examining TRA's ability to predict intentions to diet and exercise found that TRA was able to predict intentions to a high degree (Sejwacw, Ajzen, & Fishbein, 1980).

In spite of positive results, however, many have criticized TRA. For example, Schwartz and Tessler (1972), in addition to studying the predictive ability of attitudes and subjective norms, looked at 17 moderating variables (external to the model) that were predicted to account for variance unaccounted for by the TRA components. They found that attitude toward the object, age, occupational prestige, ascription of responsibility, and religiosity accounted for significant amounts of unaccounted for variance. These researchers concluded that despite the large amount of variance accounted for by the model, TRA was insufficient at mediating the predictive ability of all factors not included in the model, as Ajzen and Fishbein (1980) had concluded.

Another study by Songer-Nocks (1976) found that discrepancies between behavioural intentions and actual behaviours were greater when performance feedback was given than when it was not. Also, two situational factors, prior experience with the act and whether the behaviour was competitive or not, interacted with TRA components. Attitude toward the act was a significant predictor when there was prior experience with the act but not when there was no such experience. The subjective norm factor was a significant predictor when the act was non-
competitive but not when it was competitive. These results suggest that the components of TRA do not explain the attitude-behaviour link entirely.

The strongest criticism of TRA involves the role of volition in enacting the behaviours being studied. Ajzen (1985; Madden, Ellen, & Ajzen, 1992) has suggested that attitude and subjective norms will only be sufficient to predict behaviours well if those behaviours are, or are perceived to be, under volitional control. Volitionality refers to the degree to which an individual is, or perceives him/her self to be, capable of performing a particular act. Another way of labelling this concept is as perceived behavioural control. Ajzen (1985) proposed inclusion of a measure of perceived behavioural control in TRA and developed a revised model, the theory of planned behaviour (TPB)(Figure 2). Ajzen's conception of perceived behavioural control is analogous to Bandura's (1986) concept of self-efficacy which states that a person has a perception of which behaviours are required to reach a goal, and a belief regarding whether or not they will be able to successfully perform those behaviours.

A number of studies have examined the TPB. Morrison, Gillmore and Baker (1995) examined condom use among heterosexuals judged to be at high risk for sexually transmitted diseases and found that, in addition to TRA components, perceived behavioural control contributed significantly to prediction of intentions to use condoms, but not to prediction of actual condom use behaviour. Chan and Fishbein (1993) examined college women's
Figure 2. Theory of planned behaviour
intentions to tell their partners to use condoms. This study examined attitudes, subjective norms, and perceived behavioural control with respect to telling a partner to use a condom, and found support for the attitude and subjective norm components of the model, but none for the perceived behavioural control component of TPB. The differences in the results of these two studies may be a result of the volitionality of the particular behaviours involved. If perceived ability to use condoms or to tell a partner to use condoms is high, then perceived behavioural control should not account for much variance in either intention to perform or in actual behaviour. This was the case in the Chan and Fishbein (1993) study, but not in the Morrison et al. (1995) study.

Other results in favour of TPB come from a study conducted by Schlegel, d'Avernas, Zanna, DeCourville, and Manske (1992). This research tested TRA and TPB to determine whether the latter was better at predicting alcohol consumption behaviours of problem and non-problem drinkers. The hypotheses of this study were that heavier drinkers would perceive less control over their drinking, that therefore TRA would predict intent and behaviour less as drinking became heavier, and that the perceived behavioural control component of TPB would increase the predictive power of TRA for both problem and non-problem groups. Each of these hypotheses received support. Non-problem drinkers perceived higher levels of behavioural control over drinking, and were less likely to intend to get drunk. Perceived control
affected problem drinkers such that the higher their perceived control over drinking, the lower their frequency of getting drunk. TRA predicted non-problem drinkers' behaviour better than that of problem drinkers; however, perceived behavioural control also added significantly to the prediction of non-problem drinker behaviour. Schlegel et al. (1992) concluded that perceived control is important to the prediction of drinking intentions and behaviours.

In another study, Ajzen and Madden (1986) looked at the addition of perceived behavioural control to TRA. Two experiments were conducted. In the first, students' attendance at lectures was examined. These researchers found that perceived behavioural control was a significant predictor of intentions, but that for actual attendance behaviour, perceived control was not a significant contributor. The researchers argued that this is because the behaviour in question is accompanied by a high degree of volitional control.

In the second experiment, the researchers examined intentions and behaviours with regard to getting an "A" in the course. As in the first experiment, perceived behavioural control contributed significantly to prediction of intentions. In contrast with the first experiment, however, perceived behavioural control came to predict actual grade obtained. The researchers concluded that this occurred because control over receiving an "A" in a course is not as great as is control over actually attending class.
These contrasting results illustrate two versions of TPB. In the first version (Figure 3), the influence of perceived behavioural control on behaviour is mediated by intention to perform that behaviour. This version of the model reflects the effects occurring in Ajzen and Madden's (1986) first experiment. Perceived control influences one's intentions to perform a particular behaviour. If a person does not believe that they can act in a prescribed way, they will be less likely to try.

In the second version of the theory, the effects of perceived behavioural control are, in addition to mediation through intentions, directly linked to the actual behaviour (see Figure 4). In this case, behavioural control need not be only perceived control. The control may actually accurately reflect resources and potential of the individual to behave in a particular way. In the case of getting an "A" in the course (Ajzen & Madden, 1986, experiment 2), students may have had adequate knowledge of their limitations when it comes to excelling in a course.

This conceptualization is reflected in the results of Schlegel et al. (1992). The research found that for non-problem drinkers, there is a high degree of perceived behavioural control and that they are more likely to form intentions either to drink or not to drink than are problem drinkers. For problem drinkers, intention will not be as predictive of behaviour because past experience has shown them that they get drunk despite intentions not to do so. This lack of perceived control likely reflects
Figure 3. Theory of planned behaviour (version 1).
Figure 4. Theory of planned behaviour (version 2).
actual control over drinking, as well.

In the present study, TPB with respect to condom use will be examined. One question which was addressed is whether condom use is under volitional control or not. It is expected that, since condom use requires the cooperation of a partner, there would be low to moderate volitional control over the behaviour, suggesting that the second version of the model will be supported.

**Moderating Variables**

A number of studies have examined the contribution that individual differences and situational variables make to prediction of behaviour in addition to TPB. Schwartz and Tessler's (1972) study is a notable example. Out of 17 external variables they examined, five contributed significantly to prediction of intentions to donate organs when analyzed after TRA factors had already been accounted for. Wicker (1969) also highlighted a number of alternative factors what may account for variance in behaviours.

Other lines of research have examined the links between the attitude-behaviour relationship (specifically in relation to TRA and TPB) and other variables. Two lines of research which seem to demonstrate a good deal of promise are self-monitoring, and past behavioural variability.

Snyder (1974) distinguished between high and low self-monitors. **High self-monitors** look to others for cues regarding the appropriateness or inappropriateness of emotional expression (Snyder, 1974). Snyder (1979) describes "prototypic" high self-
monitors as those who are especially responsive to the way they present themselves to people who they view as important, and use cues from these significant other people as guidelines of appropriate behaviour. Low self-monitors, on the other hand, have not developed a concern for self-presentation; these people are much less concerned with comparing their expression of emotion with others (Snyder, 1974). The "prototypic" low self-monitor, Snyder (1979) says, is not as concerned or well skilled as high self-monitors in self-presentation, and expressive behaviour is controlled by internal attitudes and emotional states rather than by cues presented from outside the individual.

Koestner, Bernieri, and Zuckerman (1992) examined the attitude-behaviour link in relation to self-determination theory, a theory similar to self-monitoring theory. The theory distinguishes between two types of people, autonomous and controlled (Koestner et al., 1992). Autonomous individuals pay more attention to their own needs and feelings than to outside influences so they are able to remain consistent and "true to themselves." Controlled individuals are always conscious of external controls and less conscious of their own needs, resulting in less correspondence between their thoughts and actions. Two studies were conducted, both of which demonstrated that autonomy-oriented respondents exhibited greater attitude-behaviour similarity than control-oriented respondents (Koestner et al., 1992).

DeBono and Omoto (1993) examined self-monitoring and the
attitude-behaviour link by looking at the likelihood that undergraduates would write a letter about proposed drinking legislation. These researchers predicted that for high self-monitors, both attitudes and subjective norms would be important components of TRA to predict behavioural intentions. For low self-monitors, on the other hand, it was predicted that attitudes alone would be sufficient to predict intent. Results supported these predictions. DeBono and Omoto (1993) found that high self-monitors were most likely to agree to write a paper to their congressman supporting one side of the debate over the legislation if they both held a positive attitude toward writing a supportive paper, and perceived that significant others felt similarly. For low self-monitors, on the other hand, they found that attitudes toward writing a supportive paper alone predicted whether the participant would agree to write the paper. DeBono and Omoto (1993) concluded that attitudes may be the only determinant of intentions for low self-monitors, while for high self-monitors, the views of significant other people are also important. The importance of this conclusion to the present study is that it indicates that there is a place for the concept of self-monitoring in the TPB. It suggests that self-monitoring mediates the relationship between subjective norms and attitudes toward a particular behaviour on the one hand, and intentions to behave on the other.

Zanna, Olson, and Fazio (1980) further examined the usefulness of self-monitoring in the attitude-behaviour link, as
well as past variability with respect to religion oriented behaviours (e.g., going to church services). This research looked at attitudes toward performing behaviours linked to religion, and actual performance of those behaviours. Their study was based on two premises. First, participants who are relatively invariant on any trait should be less variable across situations than those who believe that they are highly variable. Second, low self-monitors generally behave in accordance with internal states while high self-monitors base their behaviour on situational factors. Based on these two assumptions, these researchers predicted that low self-monitors with a history of behavioural invariability will display greater correspondence between attitudes and behaviours than participants who are high self-monitors and/or display higher levels of behavioural variability.

As predicted, the greatest attitude-behaviour consistency came from low self-monitors who reported low past behavioural variability with respect to religious behaviours (Zanna et al., 1980). The researchers concluded, "individuals who fail to satisfy one or both of these requirements will typically manifest attitude-behaviour correlations in the traditional .30 range" (Zanna et al., 1980). The present study will examine, in conjunction with TPB components, self-monitoring and past behavioural variability with respect to condom use.

**Synthesis and Implications for Condom Use**

The research highlighted here demonstrates that the accuracy
of prediction of behaviours from attitudes can be enhanced by the addition of information provided by individual difference variables. Whether this is true for condom use behaviours has yet to be studied. Although a number of studies have examined attitudes toward using condoms and condom use (e.g., Chan & Fishbein, 1993; MacDonald, Zanna, & Fong, 1996; Morrison et al., 1995), none have examined this relationship in terms of individual difference variables such as self-monitoring.

It would seem imperative that all factors that contribute to prediction of health behaviours (especially risky sexual behaviours like not using a condom in a casual sexual relationship) be studied. It is crucial to determine who is at risk for future problems, and to determine a specific target population for intervention. One study, for example, examined differences in attitude-behaviour discrepancies with regard to condom use between sober and intoxicated university students (MacDonald, Zanna, & Fong, 1996). These researchers found, generally, more positive intentions toward engaging in unprotected sexual intercourse among intoxicated participants than sober participants in two lab experiments, and one field study conducted in the campus pub. MacDonald et al. (1996) concluded that public intervention programs are necessary, not only to educate people about the importance of condom use, but also to explain the role of alcohol use in risky sexual behaviours.

Another study examined AIDS risk behaviour and deficits in
student's information regarding AIDS and HIV, motivation to engage in preventative measures, and the behavioural skills involved in dealing with the risk (IMB model) (Fisher, Fisher, Misovich, Kimble, & Malloy, 1996). The goal of this study was to determine where deficits in information, motivation and behavioural skills existed, and to develop and implement an intervention strategy to eliminate those deficits. Results of this study indicated that participants demonstrated an increase in keeping condoms accessible, an interest in buying condoms, in using condoms during intercourse for the purpose of AIDS risk reduction, and discussion of AIDS prevention with a partner (Fisher et al., 1996).

These studies demonstrate specific areas in which attitudes toward condom use behaviours and actual condom use behaviours have been examined in conjunction with other variables. In the study by MacDonald et al. (1996) it was the effect alcohol played in the attitude-behaviour relationship. In the Fisher et al. study (1996), information, motivation (attitude), and behavioural skills were being explored. In addition, in both studies, public education programs with the goal of increasing condom use, and decreasing AIDS risk have been discussed, and even implemented. It is the prediction of the present study that self-monitoring, subjective norms, perceived behavioural control concerning condom use, and past behavioural variability, in addition to attitudes, will be informative variables in the prediction of condom use, and that these relationships will have implications for safer-sex
promotion.

Implications for Theory

Thus far, I have reviewed literature concerning TPB, self-monitoring theory, and past behavioural variability. In conducting the present study, it is predicted that these constructs may be combined to form a more accurate model for predicting specific behaviours. This proposed modification to these models is presented in Figure 5.

As this figure illustrates, the relationship between attitudes and subjective norms on the one hand, and intentions toward the behaviour on the other, is mediated by the interaction between the self-monitoring construct and past variability with regard to condom use. It is predicted that for people who are generally high self-monitors, subjective norms will be more predictive of intentions than attitudes. For people who are generally low self-monitors, attitudes should be better predictors of intentions than subjective norms. Additionally, the prediction of behavioural intentions will be most successful for participants who are low self-monitors, and who have been invariant with respect to past condom use. These predictions were made on the basis of the defining characteristics of high and low self-monitors. High self-monitors are characterized by a need to use situational or social cues in order to determine the appropriateness of their behaviour. It makes sense, then, to suggest that high self-monitors would be more likely to look to significant other people in their lives in order to determine
Figure 5. Revised TPB model including the self-monitoring $X$ past behavioural variability interaction.
whether to perform a particular behaviour. Low self-monitors, on the other hand, are characterized by a general tendency to remain true to their own beliefs. Low self-monitors therefore, will be influenced more by their attitudes than by subjective norms when deciding whether or not to use condoms.

Conclusions made by Ajzen, Timko, and White (1982) conflict with the model presented here. These researchers incorporated the self-monitoring construct into TPB in order to observe its influence on the prediction of voting behaviours and marijuana smoking. They found, for both behaviours, higher correlations between intention to perform an actual behaviour for low self-monitors than for high self-monitors. Low self-monitors who intended to vote were more likely to vote than high self-monitors who intended to vote; the same results were found for marijuana smoking. Interestingly, this study also found higher correlations between attitudes toward voting and intentions to vote among high rather than low self-monitors. The difference between these two groups for marijuana smoking was not significant but followed the same trend. Ajzen et al. (1982) concluded that the relationship between intention and behaviour was the critical point at which the self-monitoring construct intervened in the TPB model.

There are problems with this conclusion, however. These researchers found that subjective norms were more important predictors of intention for high than for low self-monitors. For voting behaviour, for example, the correlation between subjective
norms toward voting and intention to vote was .49 for high and .29 for low self-monitors. Ajzen et al. (1982) did not take this finding into account in their conclusions in spite of the fact that it suggests that the self-monitoring construct enters the model before intention. Additionally, it is interesting to note that high self-monitors reported greater attitude-intention correspondence than low self-monitors. It is possible that this may be due to the high self-monitor's need to report attitudes consistent with significant other people. It would be interesting, then, to see whether Ajzen et al. (1982) found higher correlations between attitude and subjective norm scores for high self-monitors than for low self-monitors. All of this strongly suggests that the self-monitoring construct will take its place in TPB model between attitudes and subjective norms on the one side, and intentions on the other.

Research Hypotheses

This study will be conducted to answer research questions concerning the attitude-behaviour link and the variables discussed above. The first question to be addressed is, "can condom use behaviour be predicted by attitudes toward using condoms?" Based on past research and theory regarding the attitude-behaviour link, it is hypothesized that condom use attitudes will predict a significant amount of variance in condom use behaviours, but that correlations between these two variables will only reach the traditional .30 level.

The second question dealt with is, "do TPB variables
(subjective norms, intentions, and perceived behavioural control), past behavioural variability with respect to condom use, and self-monitoring contribute significantly to prediction of condom use behaviours from attitudes?" It is hypothesized that each of these variables will make a unique contribution to the prediction of condom use behaviours.

The specific relationship of self-monitoring and past condom use variability with attitude-behaviour discrepancies will also be explored. It is expected that attitude-behaviour differences would be least for low self-monitors whose past condom use has been stable (not variable), and greatest for high self-monitors whose past condom use has been variable.

Finally, addition of the self-monitoring X past behavioural variability interaction to the theory of planned behaviour will be examined. It is predicted that the self-monitoring concept will mediate between attitudes toward condom use and subjective norms concerning condom use on the one side, and intention to use condoms on the other.
Study One: Pilot

Method

The purpose of the pilot study was to evaluate the reliability of measures to be used in the main study, and to create an indirect measure of perceived behavioural control over condom use, in addition to the direct measure. Participants were 50 University of Windsor students recruited from introductory psychology classes. They were required to read and sign an informed consent form (Appendix A). Each of the measures mentioned below was administered (see Appendix B for the full pilot measure). Participants received extra course credit for participation in the pilot study.

Measures

Personal and demographic information. Participants were asked to indicate their age, current and past relationship status and duration, and sexual experiences (including current and past sexual activity and condom use)(Appendix B).

Attitudes. Creation of a direct measure of attitudes toward using condoms involved adaptation of the procedure used by Ajzen and Madden (1986). Participants responded to the item, "My using a condom is" by rating the statement on bipolar adjective scales adopted from Osgood, Suci, and Tannenbaum (1957; Ajzen, & Madden, 1986) (see Appendix B). Ajzen and Madden (1986) used this procedure to evaluate attitudes toward attending class lectures and developed a measure with an alpha coefficient of .86.
Subjective norm. Assessment of subjective norm was adapted from Ajzen and Madden (1986) (see Appendix B). Participants reported their normative beliefs regarding condom use (with regard to partners, peers, and closest friends). For example, the participant responded to the item, "My closest friends think that I should use a condom every time I have sex," on a 7-point scale from extremely likely to extremely unlikely. This provided a normative belief score for one's closest friends. The motivation to comply score was derived by items such as, "Generally speaking, how much do you want to do what your closest friends think you should do?" to which the participant responded on a 7-point scale ranging from very much to not at all (Ajzen & Madden, 1986). Normative belief scores for each significant other were multiplied by the corresponding motivation to comply score. These scores were then summed across each significant other group to obtain a subjective norm score for the participant. Using this procedure, Ajzen and Madden (1986) obtained an internal consistency alpha coefficient of .84.

Perceived behavioural control. A direct measure of perceived behavioural control was adapted from Ajzen and Madden (1986). Items were reworded to reflect condom use. Participants were asked three questions: 1) "How much control do you have over whether you use a condom every time you have sex?" rated by participants on a 7-point scale from complete control to no control; 2) "For me to use a condom every time I have sex is ___ ____," which the participant scored on a 7-point scale ranging from
very easy to very difficult; and 3) "If I wanted to, I could easily use a condom every time I have sex," which was rated on a 7-point scale from extremely likely to extremely unlikely (see Appendix B). Using this procedure, Ajzen and Madden (1986) obtained an alpha reliability coefficient of .74.

The procedure to develop an indirect measure of perceived behavioural control followed Ajzen and Madden's (1986) method. Participants were asked to list factors that would prevent them from using condoms (see Appendix B). The six most common responses were used to create the indirect measure of perceived behavioural control over condom use used in the main study. These responses included discomfort (or pain), availability, partner's attitudes toward condoms, getting caught up in the moment (or not having enough time to think), convenience, and decrease in pleasure. The wording of each item depended on the factor examined (see Appendix D final measure items 14 to 19). An example of an item developed using this method is "Does getting caught up in the moment influence your ability to use condoms?"

**Intentions.** Following Ajzen and Madden's (1986) procedure, participants responded to three items regarding intentions to use condoms (see Appendix B). These items were, "I intend to use a condom every time I have sex," and "I will try to use a condom every time I have sex," to which participants responded on a 7-point scale ranging from extremely likely to extremely unlikely. A third item included was, "How regularly do you intend to use a
condom during sex?" to which participants responded on a 7-point scale ranging from every time to rarely.

Self-monitoring. To measure the self-monitoring construct, Snyder's (1974) Self-Monitoring Scale was used (see Appendix B). This measure consists of 25 true-false items. An example of an item on the measure is, "In a group, I am rarely the center of attention." Low self-monitors would be more inclined to answer true to this item, while high self-monitors would be more likely to answer false. Another example is, "I guess I put on a show to impress or entertain people." Low self-monitors would be inclined to answer false to this item while high self-monitors would be inclined to answer true. The reliability and validity of the Self-Monitoring Scale have been discussed elsewhere (Snyder, 1974; Snyder & Gangestad, 1986). Snyder (1974) has found Kuder-Richardson reliability scores of .70 and .63, and test-retest reliability of .83 in university samples.

Past behavioural variability. Variability in condom use behaviour was evaluated using a procedure employed by Zanna et al. (1980) (see Appendix B). Participants responded to the item, "How much do you vary from one situation to another in whether or not you use a condom?" on a 7-point scale ranging from not at all to extremely.

Condom use behaviour. Participants were asked to respond to four additional items (see Appendix B). The first item was, "How many times have you engaged in sexual intercourse in the past month?" The second item was, "In approximately how many of those
instances did you use a condom?" The third and fourth items required the participant to identify how many times they had sex and has used condoms in the past year, respectively. Since the study is a cross-sectional, rather than longitudinal one, condom use was measured at the same time as the other variables. The use of cross-sectional methods similar to the one used here to predict condom use behaviour is well documented (examples include Morrison et al., 1995; White, Terry, & Hogg, 1994; Wilson et al., 1993).

**Results**

Alpha reliability scores for the attitude, subjective norm, perceived behavioural control, intention, and self-monitoring measures are presented in Table 1, and ranged from .54 to .97. The attitude toward condom use and intention to use condoms measures demonstrated high inter-item consistency (alpha equalling .88 and .97, respectively). The self-monitoring (alpha .67) and subjective norm (alpha .65) measures demonstrated acceptable moderate reliability scores. However, the perceived behavioural control measure demonstrated a relatively low reliability coefficient (alpha .54). A second (indirect) measure of perceived behavioural control was developed to supplement the pilot perceived behavioural control measure.

The indirect perceived behavioural control measure was created on the basis of responses to the open ended item, "Below, list as many factors you can think of which would prevent you from using condoms." Responses relating to issues of control and
the frequency of those responses were recorded. The ten most frequent control related responses are presented in Table 2. From the ten most frequently reported responses, those items that five or more participants reported (10% of the pilot study participants) were used to create the indirect measure of perceived behavioural control over condom use.
Table 1.

Scale reliability scores for pilot versions of self-monitoring, attitude, subjective norm, perceived behavioural control, and intention measures.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Alpha</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-monitoring</td>
<td>.67</td>
<td>-.484</td>
<td>.518</td>
</tr>
<tr>
<td>Attitude toward condom use</td>
<td>.88</td>
<td>1.683</td>
<td>4.160</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>.65</td>
<td>.825</td>
<td>.007</td>
</tr>
<tr>
<td>Perceived behavioural control</td>
<td>.54</td>
<td>-.665</td>
<td>.341</td>
</tr>
<tr>
<td>Intention to use condoms</td>
<td>.97</td>
<td>-.069</td>
<td>-1.430</td>
</tr>
<tr>
<td>Condom use variability</td>
<td></td>
<td>.135</td>
<td>-1.145</td>
</tr>
</tbody>
</table>
Table 2.

**Frequency of the ten most frequently reported impediments to control over condom use.**

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unavailability of condoms</td>
<td>14</td>
</tr>
<tr>
<td>Condoms make sex painful or uncomfortable</td>
<td>12</td>
</tr>
<tr>
<td>One's partner does not want to use a condom</td>
<td>9</td>
</tr>
<tr>
<td>Condoms decrease pleasure</td>
<td>7</td>
</tr>
<tr>
<td>Condoms are not convenient</td>
<td>6</td>
</tr>
<tr>
<td>Getting caught up in the moment prevents condom use</td>
<td>5</td>
</tr>
<tr>
<td>Condoms are too expensive</td>
<td>4</td>
</tr>
<tr>
<td>Allergic reaction to condoms</td>
<td>3</td>
</tr>
<tr>
<td>Embarrassment over buying condoms</td>
<td>3</td>
</tr>
<tr>
<td>Alcohol prevents condoms use</td>
<td>3</td>
</tr>
</tbody>
</table>

* Items chosen for the indirect measure of perceived behavioural control
Study Two: Main Study

Method

Research Participants

The research participants in this study were 148 undergraduate students from the University of Windsor. Participants were recruited from introductory psychology courses. An experimental credit point was given for participation in the study. Participants were required to read and sign an informed consent form (Appendix A) and to fill out a questionnaire which took about 20 minutes to complete (Appendix D).

Participants' scores were later excluded if they were not in a sexual relationship or had not been sexually active within the past year. The final sample consisted of 92 women and 19 men (N = 111).

Measures

Each of the measures administered to participants in the pilot study was included in the main study. In addition, indirect measures of attitudes toward condom use, and perceived behavioural control were added.

The indirect measure of attitudes toward condom use was added (see Appendix D attitude measure items 12 to 18) after the pilot data indicated that the direct measure of attitudes had a high (although not unacceptable) skew value. This measure was developed by Jemmott and Jemmott (1991). It consists of seven items to which participants responded on a seven point scale. Two sample items on the measure are "Sex does not feel as good
when you use a condom," and "I would feel funny saying to my partner 'let's use a condom'."

Procedure

The researcher solicited participation from students in undergraduate psychology classes by passing around sign-up sheets in class. At this time, the researcher described the research, and entertained any questions from the students. Students who signed up for the study were notified of the times, dates, and testing room locations for participation.

Participants were surveyed individually or in small groups of up to 15 in one large testing room. They read and signed the consent form and completed the questionnaire. Upon completion of the questionnaire, respondents removed the informed consent form from the questionnaire and handed in each separately. An information sheet was given at this point that described the hypotheses and expected findings of the study, as well as possible implications of the findings (see Appendix C). Contact names and office numbers were also included so that participants had the option of obtaining further information about the study. Pamphlets were distributed that provided further information about AIDS and condom use including how to reduce the risk of AIDS, where to get an anonymous AIDS test, and phone numbers of the AIDS Committee of Windsor. Participants were also offered free condoms, supplied by the AIDS Committee of Windsor.
Results

Demographic and Personal Variables

Analyses of variance were run on the entire sample (N = 148) to determine whether any differences existed on the variables used in the analysis on the basis of gender, ethnic identity, or religion. Eight ANOVA were run using the following dependent variables: 1) frequency of sexual encounters in the past month, 2) frequency of sexual encounters in the past year, 3) ratio of number of times a condom was used to frequency of sexual encounters for the past month, 4) and for the past year, 5) attitude toward condom use score, 6) subjective norm score, 7) perceived behavioural control score, and 8) intention to use condoms score. No significant main effects or interactions were found for any dependent measures, with the exception of frequency of sexual encounters in the past year (see Table 3). For this variable, a significant main effect was found for gender, F = 5.45, p < .05, revealing that men (M = 96.11) reported more sexual encounters than women (M = 61.82). No other significant interactions or main effects were found for this variable. Mean scores representing the number of times an individual has had sex in the past month and year are sorted by gender, and presented in Table 4.

Analysis revealed that 37 (25 %) participants had not had sex in the past year. These participants were omitted from further analyses. Of the resulting sample (N = 111) used in all subsequent analyses, 92 were female and 19 were male. The
Table 3.

ANOVA results for independent variables gender, ethnic identity, and religion, and eight dependent variables.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>F{Gender}</th>
<th>F{Ident.}</th>
<th>F{Religion}</th>
<th>F{Interaction}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual encounters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Past month</td>
<td>1.81</td>
<td>1.61</td>
<td>.40</td>
<td>N.S.</td>
</tr>
<tr>
<td>2) Past year</td>
<td>5.45*</td>
<td>1.12</td>
<td>.22</td>
<td>N.S.</td>
</tr>
<tr>
<td>Condom:Encounter Ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Past month</td>
<td>1.63</td>
<td>1.35</td>
<td>2.33</td>
<td>N.S.</td>
</tr>
<tr>
<td>4) Past year</td>
<td>1.76</td>
<td>1.97</td>
<td>1.51</td>
<td>N.S.</td>
</tr>
<tr>
<td>5) Attitude</td>
<td>.32</td>
<td>2.09</td>
<td>.30</td>
<td>N.S.</td>
</tr>
<tr>
<td>Toward Condom Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Subjective Norm</td>
<td>.11</td>
<td>.49</td>
<td>.71</td>
<td>N.S.</td>
</tr>
<tr>
<td>7) Perceived Control</td>
<td>.30</td>
<td>.24</td>
<td>.49</td>
<td>N.S.</td>
</tr>
<tr>
<td>8) Intention</td>
<td>.01</td>
<td>1.73</td>
<td>.39</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

* p < .05
Table 4.

**Average frequency and standard deviation of sexual encounters and condom use for the past month and for the past year.**

<table>
<thead>
<tr>
<th></th>
<th>Population (N = 111)</th>
<th>Females (n = 92)</th>
<th>Males (n = 19)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Encounters</strong></td>
<td><strong>Mean</strong></td>
<td><strong>SD</strong></td>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td>Past month</td>
<td>6.09</td>
<td>7.12</td>
<td>5.85</td>
</tr>
<tr>
<td>Past year</td>
<td>69.44</td>
<td>85.00</td>
<td>61.82</td>
</tr>
<tr>
<td><strong>Condom:Encounter</strong></td>
<td><strong>Past month</strong></td>
<td><strong>Mean</strong></td>
<td><strong>SD</strong></td>
</tr>
<tr>
<td>Past month</td>
<td>.33</td>
<td>.44</td>
<td>.34</td>
</tr>
<tr>
<td>Past year</td>
<td>.39</td>
<td>.44</td>
<td>.40</td>
</tr>
</tbody>
</table>
average age of these participants was 26.6 years, and the range of ages was 18 to 52. Fifty percent of the participants were 23 years or younger, 25% were 24 to 29 years old, and 25% were 30 or older. Given the wide age range, age was retained as a variable in regression analyses and as a covariate in ANCOVA.

Seventy six of the women and 15 of the men reported having had sex in the past month. Due to the small number of male participants, all regression analyses and ANCOVA were run twice, first examining females and males together, then analyzing females alone to determine whether differences existed. Additionally, gender was included as a predictor when men and women were examined together.

Sexually active participants reported having sex an average of 6.09 times in the past month and 69.44 times in the past year. Sexually active female participants reported having sex an average of 5.85 times in the past month and 61.82 times in the past year, while male participants reported having sex an average of 7.03 times in the past month and 96.11 times in the past year.

Condom use was low among these participants. The total sample reported a 33% condom use rate for the past month, and a 39% condom use rate for the past year. Women reported using condoms on average 34% and 40% of the time for the past year and the past month, respectively. Men, on average, reported using condoms 29% of the time in the past month and 35% of the time in the past year.
Preliminary Analyses

Alpha reliability scores for all dependent measures are presented in Table 5. Each of the measures demonstrated acceptable alpha reliability coefficients ranging from .66 to .91. Examination of the direct attitude measure designed for the pilot, and the indirect attitude measure revealed alpha reliability scores of .91 and .66, respectively. These measures were combined to produce one attitude toward condom use measure. Examination of the corrected item-to-total correlations for each attitude item revealed that four items demonstrated low values (<.30). These items were excluded from the attitude measure (see Appendix E).

The perceived behavioural control measures were also analyzed separately and combined into one measure. The direct perceived behavioural control measure and the indirect perceived behavioural control measure received separate alpha reliability coefficients of .75 and .85, respectively. The combined perceived behavioural control measure obtained an alpha reliability coefficient of .86 and was used for all further analyses.

Examination of the Self-Monitoring Scale revealed that many of the corrected item-to-total correlations were at an unacceptably low level. Exploratory factor analysis was used to examine the properties of the scale. Five, three and two factor solutions were analyzed. The two factor solution most closely resembled published factor analyses of the Self-Monitoring Scale
Table 5.

**Alpha reliability scores, scale means, and scale standard deviation for measures included in the main study (N = 111).**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Alpha</th>
<th>Scale Mean</th>
<th>Scale SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-monitoring</td>
<td>.69</td>
<td>14.10</td>
<td>3.97</td>
</tr>
<tr>
<td>Attitudes (direct)</td>
<td>.91</td>
<td>63.97</td>
<td>11.40</td>
</tr>
<tr>
<td>Attitudes (indirect)</td>
<td>.66</td>
<td>30.88</td>
<td>6.59</td>
</tr>
<tr>
<td>Attitudes (direct + indirect)</td>
<td>.89</td>
<td>94.79</td>
<td>16.04</td>
</tr>
<tr>
<td>Subjective Norms</td>
<td>.79</td>
<td>13.53</td>
<td>5.29</td>
</tr>
<tr>
<td>Perceived Behavioural (direct)</td>
<td>.75</td>
<td>17.18</td>
<td>3.94</td>
</tr>
<tr>
<td>Perceived Behavioural (indirect)</td>
<td>.85</td>
<td>29.84</td>
<td>9.54</td>
</tr>
<tr>
<td>Perceived Behavioural (direct + indirect)</td>
<td>.86</td>
<td>46.99</td>
<td>12.05</td>
</tr>
<tr>
<td>Intention</td>
<td>.97</td>
<td>12.88</td>
<td>7.34</td>
</tr>
</tbody>
</table>
(Briggs & Cheek, 1988). Briggs and Cheek uncovered two factors, one they characterized as public performance, and another called other-directedness.

The factor analysis of the Self-Monitoring Scale in the present investigation revealed a significant two factor solution (Appendix F). Items 1, 4, 5, 6, 8, 12, 18, 20, 21, 22 and 24 loaded most heavily on the first factor which closely resembles Briggs and Cheek's public performance factor. Items 2, 9, 10, 11, 13, 16, 17, 19, 23, and 25 loaded most heavily on the second factor which resembles Briggs and Cheek's other-directedness factor. Two new measures were developed on the basis of the factor loadings. Reliability analyses of these two measures revealed mixed results. The scale devised from factor 1 (public performance factor) revealed acceptable overall reliability (alpha = .74) and corrected item-to-total correlations (all greater than .30). The scale devised from factor 2 (other-directedness) demonstrated low reliability (alpha = .57) and poor corrected item-to-total correlations (most less than .30). For all further analyses, the public performance factor of the Self-Monitoring Scale was used as an independent variable. Other self monitoring items were omitted.

Regression Analyses

Analyses were conducted to address the hypothesis regarding the ability of theory of reasoned action (TRA) and theory of planned behaviour (TPB) variables, self-monitoring, and past condom use variability to predict condom use. It was predicted
that each of these variables would individually predict condom use behaviour. These analyses consisted of three pairs of hierarchical multiple regression analyses. One analysis in each pair was conducted using the entire sample (i.e., men and women), and another was conducted examining women only. Women were examined alone because of concern that the small sample of male participants and the possibility of gender differences would influence the results. Each analysis examined, as predictor variables, attitudes toward condom use, subjective norms, perceived behavioural control, the interaction of a sub-set of items from the self-monitoring measure (public performance) x variability, intention to use condoms and personal variables including gender, age, length of current relationship and length of recent past relationship.

The public performance x variability interaction was entered in the first step to determine whether this variable accounted for a significant proportion of the variance. In the second step, the attitude measure was entered. In step 3, subjective norm was entered to determine if this TRA variable contributed to prediction of variance in the dependent variables beyond attitude and the interaction. In the fourth step, perceived behavioural control was entered to examine if this TPB variable contributed significantly beyond the TRA variables, and the interaction. In the analyses which used the ratio of condom use to number of sexual encounters as dependent variable (i.e., analyses examining actual condom use behaviour), intention was entered in the fifth
step (in one set of analyses, intention was used as a dependent measure). In the final stage, personal variables - age, gender, and length of current and most recent past relationship - were entered to determine whether this information accounts for any of the variance in the dependent variables beyond the theoretical constructs. Gender was not included as a predictor variable when women were examined alone.

The first pair of analyses examined the ratio of condom use behaviour to sexual encounters over the past month as the criterion variable. The second examined the same predictors, and looked at the ratio of condom use behaviour to sexual encounters over the past year as the criterion variable. The criterion variable for the third pair was intention to use condoms. For each analysis, squared semi-partial correlations were calculated at the final step to determine the unique predictive ability of each predictor variable.

Correlations between variables included in the regression analyses are presented in Table 6. These values indicate that positive attitudes toward condom use are strongly associated with positive subjective norm, greater perceived behavioural control, and greater intention to use condoms (each correlation, \( p < .01 \)). Positive attitudes toward condom use are also strongly associated with greater condom use in the past month and past year (both correlations, \( p < .01 \)). The last two results reported are interesting because they are contrary to the original hypothesis that attitudes toward condom use would not be very helpful in
Table 6

**Intercorrelations among theoretical variables included in regression analyses**

<table>
<thead>
<tr>
<th>Var.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<td>.59*</td>
<td>.44**</td>
<td>.40**</td>
<td>.75**</td>
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<td>.91**</td>
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<td>-.27**</td>
<td>-.06</td>
<td>.07</td>
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<td>-.25**</td>
<td>-.17</td>
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<td>9</td>
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<td>-.12</td>
<td>.66**</td>
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<td>.03</td>
<td>-.04</td>
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<td>.29**</td>
<td>.07</td>
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<tr>
<td>11</td>
<td>-.13</td>
<td>.03</td>
<td>-.20*</td>
<td>-.06</td>
<td>.02</td>
<td>-.06</td>
<td>-.05</td>
<td>.01</td>
<td>.02</td>
<td>.09</td>
<td>-</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01

Variables: 1 = attitude toward condom use; 2 = subjective norms; 3 = perceived behavioural control; 4 = public performing factor x past variability in condom use; 5 = intention; 6 = condom use in the past year; 7 = condom use in the past month; 8 = age; 9 = length of current relationship; 10 = length of most recent past relationship; 11 = gender.
predicting actual condom use. The correlations between attitudes toward condoms use and actual condom use in the past year ($r = .53$) and in the past month ($r = .50$) demonstrate higher attitude-behaviour correspondence than has been observed traditionally (Wicker, 1969).

In addition to being strongly associated with attitude, subjective norm was also significantly negatively correlated with the public performance x variability interaction ($p < .05$), and positively correlated with intention to use condoms ($p < .01$), and condom use over the past year ($p < .01$) and past month ($p < .01$). It was predicted in the present study that the interaction between public performance and condom use variability would mediate the influence of subjective norm in the prediction of condom use. Therefore, it is not surprising that there is a significant relationship. In addition, it makes sense in terms of both the TRA and TPB models that subjective norm would be significantly associated with condom use behaviour and behavioural intent.

Greater perceived behavioural control over using condoms was significantly associated with lower scores on public performing x past behavioural variability with regard to condom use ($p < .01$), greater intention to use condoms ($p < .05$), and more condom use in the past year ($p < .01$) and month ($p < .01$). Again, these results suggest implications for the hypothesis that TPB variables can be used to predict condom use behaviour. Perceived behavioural control demonstrates significant links with condom
use behaviour and behavioural intent.

The public performance x variability interaction correlated negatively with intention to use condoms, and condom use over the past month (for both correlations, $p < .05$). This relationship would be expected if this interaction factor mediates between the exogenous TRA variables (attitude and subjective norm) and intention. Additional support is lent to this hypothesis by the fact that the public performance x variability interaction is also significantly correlated with subjective norm.

Intention to use condoms was highly positively correlated with condom use in the past year and past month (for both correlations, $p < .01$). This result supports the hypothesis that this TRA/TPB variable can be used to predict condom use. In fact, the relationship between behavioural intent and condom use presented here is remarkably large. The relationship is not, however, large enough to be considered multicollinear.

Additionally, personal variables demonstrated significant correlations with theoretical variables. Lower age was associated with more positive attitudes toward condom use, more positive subjective norms, greater intention to use condoms, greater condom use in the past year, and shorter recent and current relationships (all correlations, $p < .01$). Longer current relationships were related to less positive subjective norm ($p < .01$), and less intention to use condoms ($p < .05$). Longer recent past relationships are associated with less condom use in the past year ($p < .05$). Finally, women were less likely
than men to believe that they had control over their condom use \( (p < .05) \).

The results of the first hierarchical analysis, examining the ratio of number of times a condom was used to the number of sexual encounters in the past month, are presented in Table 7. The hypothesis that the predictors analyzed here would predict condom use behaviour received partial support. The interaction between past condom use variability and the self monitoring public performance factor was entered in the first step and, as predicted, accounted for a significant proportion of the variance in the dependent variable \( (R^2 = .13, p < .002) \), revealing that as the score on the interaction declines, condom use increases. Attitude toward condom use was entered in step 2 and accounted for a significant, and large, proportion of the variance beyond step 1 \( (R^2_{\text{change}} = .216, p_{\text{change}} < .000) \), indicating that positive attitudes are associated with greater condom use. Subjective norm was entered in the third step and accounted for a significant proportion of the variance in the dependent variable beyond the variables entered in steps 1 and 2 \( (R^2_{\text{change}} = .076, p_{\text{change}} < .004) \). A positive subjective norm is associated with greater condom use. Taken together, the combination of the performance x variability interaction, and these two exogenous TRA variables account for a significant proportion of the variance in condom use behaviour over the past month. Perceived behavioural control was entered in the fourth step and accounted for a non-significant proportion of the variance in the dependent
Table 7

Hierarchical multiple regression analysis for condom use for the past month.

<table>
<thead>
<tr>
<th>Step</th>
<th>$R^2_{change}$</th>
<th>Beta</th>
<th>$p_{change}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.129</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Public Performing Factor x Variability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.216</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td>.468***</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>.076</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Subjective Norm</td>
<td></td>
<td>.308**</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td>.014</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Perceived Control</td>
<td></td>
<td>.130</td>
<td></td>
</tr>
<tr>
<td>Step 5</td>
<td>.189</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Intention</td>
<td></td>
<td>.557***</td>
<td></td>
</tr>
<tr>
<td>Step 6</td>
<td>.025</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>.016</td>
<td></td>
</tr>
<tr>
<td>Length of present relationship</td>
<td></td>
<td>.020</td>
<td></td>
</tr>
<tr>
<td>Length of recent past relationship</td>
<td></td>
<td>-.164*</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>-.003</td>
<td></td>
</tr>
</tbody>
</table>

*** $p < .001$  
** $p < .01$  
* $p < .05$  

$R$ model = .806  
$R^2$ model = .649
variable ($R^2_{change} = .014$, $p_{change} < ns$). This result is contrary to the prediction that the theory of planned behaviour would predict behaviour better than the theory of reasoned action. Intention to use condoms was entered in the fifth step. Positive intention was significantly predictive of greater condom use, beyond the previous four steps in the analysis ($R^2_{change} = .189$, $p_{change} < .000$). Age, gender length of current relationship, and length of most recent past relationship were entered in the final step and accounted for a non-significant proportion of the variance ($R^2_{change} = .025$, $p_{change} < ns$). This final group of variables was not expected to account for a significant proportion of the variance.

This analysis was run again examining only female participant scores. Results are presented in Appendix G. No major differences were found between the two analyses.

Table 8 presents the squared semi-partial correlations, beta values, and significance levels for the predictors of the ratio of condom use to frequency of sexual encounters for the past month. Two predictors individually accounted for statistically significant unique proportions of the variance in condom use in the past month when the others were partialed out of the regression equation. Perceived behavioural control accounted for 2.23% of the variance in the ratio ($p < .05$) and intention to use condoms accounted for 20.2% of the variance in the ratio ($p < .001$). Two other predictors reached marginal significance; the public performance x variability interaction accounted for 2.16%
Table 8

Semi-partial correlations, beta weights, and significance levels for predictors of condom use in the past month (N = 92)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$S_{r1}^2$</th>
<th>Beta</th>
<th>p &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public performing factor x</td>
<td>.0216</td>
<td>-.1561</td>
<td>.052</td>
</tr>
<tr>
<td><strong>Variability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude toward condom use</td>
<td>.0003</td>
<td>.0227</td>
<td>ns</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>.0158</td>
<td>.1598</td>
<td>ns</td>
</tr>
<tr>
<td>Perceived behavioural control</td>
<td>.0223</td>
<td>.1732</td>
<td>.05</td>
</tr>
<tr>
<td>Intention</td>
<td>.2017</td>
<td>.5866</td>
<td>.001</td>
</tr>
<tr>
<td>Age</td>
<td>.0002</td>
<td>.0164</td>
<td>ns</td>
</tr>
<tr>
<td>Length of present relationship</td>
<td>.0002</td>
<td>.0196</td>
<td>ns</td>
</tr>
<tr>
<td>Length of recent past relationship</td>
<td>.0232</td>
<td>-.1645</td>
<td>.0502</td>
</tr>
<tr>
<td>Gender</td>
<td>.0000</td>
<td>-.0031</td>
<td>ns</td>
</tr>
</tbody>
</table>
of the variance \((p < .052)\), and length of recent past relationship accounted for 2.32 % of the variance in the ratio \((p < .0502)\). These results are interesting, because attitudes toward condom use and subjective norms are no longer demonstrating significant values; however, perceived behavioural control is now accounting for a significant proportion of the variance. This may be due, in part, to the high correlations between attitudes and perceived behavioural control, and between subjective norms, attitudes and intention to use condoms (see Table 6). The variance accounted for by attitudes and subjective norm may be overlapping with these other variables, and therefore they do not account for significant proportions of unique variance.

The results of the second analysis, examining the ratio of number of times a condoms was used to the number of sexual encounters in the past year, is presented in Table 9. This hierarchical analysis examined predictor variables entered in the same order as the prior analysis. The interaction between past behavioural variability and the public performance factor was entered in the first step and accounted for a significant proportion of the variance in the dependent variable \((R^2 = .094, p < .007)\). This revealed that as the score on the interaction increased, condom use decreased. Attitude toward condom use was entered in step 2 and accounted for a significant, and large proportion of the variance beyond the variable in step 1 \((R^2\text{change} = .218, p\text{change} < .000)\). A positive attitude toward
Table 9

Hierarchical multiple regression analysis for condom use for the past year.

<table>
<thead>
<tr>
<th>Step</th>
<th>R² change</th>
<th>Beta</th>
<th>p change &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.094</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Public Performing factor x Variability</td>
<td>-.307**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.218</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.470***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>.121</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Subjective Norm</td>
<td>.393***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td>.025</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Perceived Control</td>
<td>.173</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5</td>
<td>.144</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Intention</td>
<td>.495***</td>
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<td></td>
</tr>
<tr>
<td>Step 6</td>
<td>.034</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.035</td>
<td></td>
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</tr>
<tr>
<td>Length of present relationship</td>
<td>.014</td>
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<td>Length of past recent relationship</td>
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<tr>
<td>Gender</td>
<td>-.095</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** p < .001
** p < .01
* p < .05

R model = .797
R² model = .636
condom use was strongly associated with greater condom use. Subjective norm was entered in the third step and accounted for a significant proportion of the variance in the dependent variable beyond the variables entered in steps 1 and 2 ($R^2_{\text{change}} = .121$, $p_{\text{change}} < .000$) demonstrating again that TRA significantly predicts condom use. This relationship revealed that positive subjective norms concerning condom use are associated with greater condom use. Perceived behavioural control was entered in the fourth step and accounted for a non-significant proportion of the variance in the dependent variable ($R^2_{\text{change}} = .025$, $p_{\text{change}} < \text{ns}$). And again, contrary to the original hypothesis, TPB did not improve prediction of condom use over TRA. Intention to use condoms was entered in the fifth step and accounted for a significant proportion of the variance in the dependent variable beyond the previous four steps ($R^2_{\text{change}} = .144$, $p_{\text{change}} < .000$). Greater intention to use condoms was associated with greater condom use. Age, gender, length of current relationship, and length of most recent past relationship were entered in the final step and accounted for a non-significant proportion of the variance ($R^2_{\text{change}} = .034$, $p_{\text{change}} < \text{ns}$).

This analysis was run again examining only female participants' scores. Results are presented in Appendix G. No major differences were found between the two analyses.

Table 10 presents the squared semi-partial correlations, beta values, and significance levels for the predictors of the ratio of condom use to frequency of sexual encounters for the
### Table 10

**Semi-partial correlations, beta weights, and significance levels for predictors of condom use in the past year (N = 111)**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$S_{ri}^2$</th>
<th>Beta</th>
<th>p &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public performing factor x</td>
<td>.0083</td>
<td>-.0958</td>
<td>ns</td>
</tr>
<tr>
<td>Variability</td>
<td></td>
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<tr>
<td>Attitude toward condom use</td>
<td>.0000</td>
<td>-.0134</td>
<td>ns</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>.0415</td>
<td>.2635</td>
<td>.007</td>
</tr>
<tr>
<td>Perceived behavioural control</td>
<td>.0246</td>
<td>.1810</td>
<td>.05</td>
</tr>
<tr>
<td>Intention</td>
<td>.1643</td>
<td>.5375</td>
<td>.001</td>
</tr>
<tr>
<td>Age</td>
<td>.0007</td>
<td>.0348</td>
<td>ns</td>
</tr>
<tr>
<td>Length of present relationship</td>
<td>.0001</td>
<td>.0140</td>
<td>ns</td>
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<tr>
<td>Length of recent past relationship</td>
<td>.0213</td>
<td>-.1577</td>
<td>.05</td>
</tr>
<tr>
<td>Gender</td>
<td>.0079</td>
<td>-.0947</td>
<td>ns</td>
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</table>
past year. Four predictors individually accounted for statistically significant unique proportions of the variance in the ratio when the others were partialled out of the regression equation. Subjective norm accounted for 4.15% of the variance in the ratio ($p < .007$), perceived behavioural control accounted for 2.46% of the variance ($p < .05$), intention to use condoms accounted for 16.43% of the variance ($p < .001$), and length of recent past relationship accounted for 2.13% of the variance ($p < .05$). Again, Attitude toward condom use did not predict a significant proportion of unique variance in condom use, while perceived behavioural control did. Another interesting result is the significance of length of recent past relationship. Longer past relationships are associated with lower condom use. The data for condom use in the past month reached marginal significance, and for the past year accounted for a significant proportion of the variance in condom use. This was unexpected, and it is interesting to note that length of current relationship accounted for virtually none of the variance.

The results of the third analysis, examining intention to use condoms, are presented in Table 11. This hierarchical analysis examined predictor variables entered in the same order as the prior analyses. The interaction between past behavioural variability and public performance was entered in the first step and accounted for a significant proportion of the variance in the dependent variable ($R^2 = .071, p < .05$). Higher scores on the interaction are associated with lower intention to use condoms.
Table 11

Hierarchical multiple regression analysis for intention to use condoms.

<table>
<thead>
<tr>
<th>Step</th>
<th>$R^2_{\text{change}}$</th>
<th>Beta</th>
<th>$p_{\text{change}&lt;}$</th>
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<tr>
<td>Performing</td>
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<td>-.266*</td>
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<td>factor</td>
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<tr>
<td>Variability</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>0.237</td>
<td>***</td>
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</tr>
<tr>
<td>Attitude</td>
<td></td>
<td>.489***</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>0.089</td>
<td>**</td>
<td></td>
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<tr>
<td>Subjective</td>
<td></td>
<td>.337**</td>
<td></td>
</tr>
<tr>
<td>Norm</td>
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</tr>
<tr>
<td>Step 4</td>
<td>0.007</td>
<td>n.s.</td>
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<tr>
<td>Perceived</td>
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<td>-.092</td>
<td></td>
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<tr>
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<tr>
<td>Step 5</td>
<td>0.016</td>
<td>n.s.</td>
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<tr>
<td>Age</td>
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<td>Length of</td>
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<td></td>
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<tr>
<td>past</td>
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<td></td>
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<tr>
<td>relationship</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
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<td>.076</td>
<td></td>
</tr>
</tbody>
</table>

*** $p < .001$   R model = .647
** $p < .01$     $R^2$ model = .419
* $p < .05$     $
Attitude toward condom use was entered in step 2 and accounted for a significant proportion of the variance beyond the variables in step 1 ($R^2_{\text{change}} = .237$, $p_{\text{change}} < .000$). Subjective norm was entered in the third step and accounted for a significant proportion of the variance in the dependent variable beyond the variables entered in steps 1 and 2 ($R^2_{\text{change}} = .089$, $p_{\text{change}} < .002$). Attitudes toward condom use and subjective norms are strongly, positively associated with intention to use condoms. Again, taken together, these results provide support for the predictive ability of TRA. Perceived behavioural control was entered in the fourth step and accounted for a non-significant proportion of the variance in the dependent variable ($R^2_{\text{change}} = .007$, $p_{\text{change}} < \text{ns}$), demonstrating that TPB did not improve prediction of intention to use condoms beyond TRA and the interaction. Age, gender, length of current relationship, and length of most recent past relationship were entered in the final step and accounted for a non-significant proportion of the variance ($R^2_{\text{change}} = .016$, $p_{\text{change}} < \text{ns}$).

This analysis was run again examining only female participant scores. Results are presented in Appendix G. No major differences were found between the two analyses.

Table 12 presents the squared semi-partial correlations, beta values, and significance levels for the predictors of intention to use condoms. Two predictors individually accounted for statistically significant unique proportions of the variance in the ratio when the others were partialed out of the regression.
Table 12

Semi-partial correlations, beta weights, and significance levels for predictors of intention to use condoms (N = 111)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$s_{r1}^2$</th>
<th>Beta</th>
<th>p &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public performing factor x</td>
<td>.0340</td>
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<td>.066</td>
</tr>
<tr>
<td>Variability</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Attitude toward condom use</td>
<td>.1006</td>
<td>.4002</td>
<td>.001</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>.0695</td>
<td>.3220</td>
<td>.005</td>
</tr>
<tr>
<td>Perceived behavioural control</td>
<td>.0042</td>
<td>-.0746</td>
<td>ns</td>
</tr>
<tr>
<td>Age</td>
<td>.0003</td>
<td>-.0217</td>
<td>ns</td>
</tr>
<tr>
<td>Length of present relationship</td>
<td>.0002</td>
<td>.0205</td>
<td>ns</td>
</tr>
<tr>
<td>Length of recent past relationship</td>
<td>.0083</td>
<td>.0972</td>
<td>ns</td>
</tr>
<tr>
<td>Gender</td>
<td>.0051</td>
<td>.0755</td>
<td>ns</td>
</tr>
</tbody>
</table>
equation. Attitudes toward using condoms accounted for 10.06% of the variance in the ratio \( (p < .001) \), and subjective norm accounted for 6.95% of the variance in the ratio \( (p < .005) \). These results demonstrate that an intention to use condoms is very different from condom use behaviour. Attitude and subjective norm now show themselves to be the most important predictors of the dependent variable. This may be due to the high correlation between intention to use condoms and condom use behaviour. When behaviour was the dependent variable, a large proportion of the overlapping variance attributed to either attitudes or subjective norms was shared with intention to use condoms. When intention is being predicted, rather than behaviour, however (and since attitudes and subjective norms are highly correlated with intentions), these two predictors account for larger proportions of unique variance because they do not share as much overlapping variance with other predictors. Interesting, too, is the non-significant result of perceived behavioural control. TPB would predict that, if condom use requires a sense of volitional control, perceived behavioural control will account for a significant proportion of the variance. It is interesting that perceived behavioural control did not account for intention to use condoms, but did account for actual condom use behaviour. This result suggests that participants had less control over their condom use than they believed.
Analysis of Covariance

The second set of analyses further examined the self-monitoring (public performance) and past condom use variability variables and their relation to prediction of condom use from attitudes. Participants were designated either high or low scorers on the public performance factor by a median split of scores, determined separately for males and females. Similarly, participants were described as either variable or invariable with regard to past condom use behaviour on the basis of median split, also determined by gender. Public performance, behavioural variability, and gender were independent variables. A score was generated to stand as a measure of discrepancy between a participant's attitudes toward using condoms and his or her condom use behaviours. The first step was to calculate an attitude ratio (Attr) score. This was calculated by dividing the participant's actual score on the attitude measure (AcAtt) by the highest positive score that any participant could possibly receive (MaxAtt = 91),

\[ \text{Attr} = \frac{\text{AcAtt}}{\text{MaxAtt}} \]  

The second step was to calculate a behaviour frequency ratio (BFR) which was calculated by dividing the participant's frequency of condom use (FCU) by the participant's frequency of sexual encounters (FSE),
\[ BFR = \frac{FCU}{FSE} \quad (2) \]

The attitude-behaviour discrepancy score \( D \) was calculated by subtracting the behaviour frequency ratio from the attitude ratio, and then dividing that number by the attitude ratio,

\[ D = \frac{(AttR - BFR)}{AttR} \quad (3) \]

This produced a score which represented the degree of correspondence between one's attitudes, and behaviours. The greater the score produced, the greater the discrepancy. Discrepancy ratios closer to 1.00 were indicative of high discrepancy between attitudes and actions, while scores close to zero demonstrated high correspondence. High positive discrepancy ratios indicated that the participant did not use condoms as frequently as his or her attitudes would lead one to expect. High negative discrepancy ratios indicated that the participant used condoms more frequently than his or her attitudes would lead one to expect. Discrepancy ratios were calculated separately for behaviour frequency data for the past month, and for the past year. Therefore, two dependent measures were created.

These discrepancy ratios were used as the dependent variables in two \( 2 \times 2 \times 2 \) (self-monitoring \times \text{behavioural variability} \times \text{gender}) analyses of covariance, with age as a covariate. If the hypotheses are correct, the lowest attitude-behaviour discrepancies should be found among low self-monitors who report
low past condom use variability.

The first pair of analyses was conducted with the entire sample of sexually active participants (N = 92 for the past month, and N = 109 for the past year). For the public performance factor, the median for females was 7.0, and the median for males was 5.5. For condom use variability, the median for females was 2.5 and the median for males was 4.5. In the case of the median split for women on the public performance factor, the median fell on a scored value so groups were chosen to make the cell sizes as even as possible.

Examination of the attitude-condom use behaviour discrepancy score for the past month revealed that age was a marginally significant covariate, $F(1,82) = 3.039, \ p < .085$. The significant main effect for public performance, $F(1,82) = 2.931, \ p < .05$, indicated that low-scoring participants had significantly lower discrepancy scores ($M = 0.59$) than high-scoring participants ($M = 0.79$). That is, those who are characterized as high public performers exhibited more discrepancy between their attitudes toward using condoms and their actual condom use than those characterized as low public performers.

The main effect of past condom use variability was marginally significant, $F(1,82) = 3.909, \ p < .051$. The results of this main effect suggest that those in the group reporting more past behavioural variability exhibited more discrepancy between their attitudes and condom use ($M = 0.76$) than those in
the group reporting less variability (M = 0.62). No significant interactions were found. The results, therefore, partially confirmed the hypotheses. They indicated that both the public performance factor and variability influenced discrepancy scores, but the interaction between the two variables did not reach significance.

In the analysis of the discrepancy between attitudes toward condom use and condom use behaviour in the past year, age was a significant covariate, F(1,100) = 7.694, p < .007. The correlation between age and the discrepancy score was .24 (p < .05), which indicated that as age increased, the discrepancy between attitudes toward condom use and condom use behaviour also increased.

The main effect for past variability in condom use reached significance, F(1,100) = 14.674, p < .001. Those participants reporting greater variability in their condom use exhibited greater discrepancy between their attitudes toward condom use and their condom use behaviour (M = 0.76) than those reporting more consistency (M = 0.54). No other main effects or interactions reached significance. Again, the hypothesis was only partially supported. The discrepancy score was influenced by reported variability in condom use, but not by the public performance factor, or the interaction between the two variables.

The second pair of analyses examined the ratio of condom use to number of sexual encounters for the month and the year for female participants only. For both analyses, the public
performance factor and past condom use variability were
independent variables, and age was analyzed as a covariate (2 x 2
ANCOVA). For the discrepancy score using data from the past
month (N = 76), age was a marginally significant covariate,
F(1,71) = 2.950, p < .09, again indicating that as age increased,
the discrepancy between attitudes and condom use also increased
(with a correlation between age and the discrepancy score
equalling .19). The main effect for condom use variability was
significant, F(1,71) = 5.954, p < .05. Participants who
reported being more variable in their past condom use exhibited
more attitude-behaviour discrepancy (M = 0.73) than those in the
low variability group (M = 0.43).

The main effect for the public performance factor reached
marginal significance, F(1,71) = 3.516, p < .065. This result
suggests that those in the high public performance group
exhibited a greater discrepancy (M = 0.71) between their
attitudes and behaviour than those in the low public performance
group (M = 0.43). No interactions reached significance.

For the discrepancy score using data from the past year (N =
90) age was a significant covariate, F(1,85) = 7.008, p < .01.
The main effect for past condom use variability reached
significance, F(1,85) = 15.361, p < .001. Those participants in
the high variability group exhibited greater discrepancy between
their attitudes and behaviours (M = 0.71) than those in the low
variability group (M = 0.34).

The main effect for the public performance factor reached
marginal significance, $F(1, 85) = 3.066, p < .084$. These results reflect the fact that those in the high public performance group had greater discrepancy scores ($M = 0.63$) than those in the low public performance group ($M = 0.41$).

Path Analyses

Two pairs of path analyses were conducted on all of the predictors using the model patterns presented in figures 2 and 5. The first set examined the theory of planned behaviour (TBP). At the first level of analysis were attitudes toward condom use, subjective norms and perceived behavioural control. At the second level was intention to use condoms. At the final level was condom use (either for the month or for the year). It was predicted that intention would mediate the influence of attitudes, subjective norms and perceived behavioural control, but also that perceived behavioural control would account for a significant proportion of the variance in condom use independently of intention.

The second pair of path analyses examined the addition of the interaction: public performance x past condom use variability. At the first level of analysis were attitudes toward condom use, subjective norms and perceived behavioural control. At the second level was the public performance factor X past behavioural variability interaction which mediates between attitudes and subjective norms at the first level, and intention to use condoms at the third level. Intention to use condoms mediates between perceived behavioural control and public
performance X past behavioural variability variables on the one side, and actual condom use behaviour at the fourth level of the model.

The diagrams produced by the first pair of analyses are presented as Figures 6a and 6b for the two dependent variables, respectively. These diagrams show, for both sets of data, that intention to use condoms is strongly related to actual condom use. The relationship between attitudes toward using condoms and subjective norms, on the one side, and actual condom use on the other, is mediated by intention to use condoms. The exception to this relationship concerns the beta coefficient linking attitude toward condom use with intention to use condoms for condom use in the past month. Perceived behavioural control paths were consistent between data for the past month and for the past year. Both analyses indicate that the relationship between control and condom use is direct, rather than being mediated by intention to use condoms. That is, the path between perceived behavioural control and intention turned out to be statistically non-significant in both of the analyses, while the path between perceived behavioural control and actual condom use was significant in both cases.

When the interaction of public performance X past condom use variability was added to the model, interpretation became more difficult. Path diagrams representing the two dependent variables, condom use in the past month and the past year, are presented as Figures 7a and 7b, respectively. These diagrams
a) Condom use in the past month.

b) Condom use in the past year.

* Beta coefficient significant at .05

Figure 6. Theory of planned behaviour path diagram for condom use in the past month and past year.
a) Condom use in the past month.

b) Condom use in the past year.

* Beta coefficient significant at .05

Figure 7. Revised theory of planned behaviour path diagram for condom use in the past month and past year.
show, as in Figures 6a and 6b, that intention to use condoms is highly predictive of condom use behaviour, but that intention does not mediate between perceived behavioural control and condom use. Instead, perceived behavioural control predicts condom use directly. Both diagrams also show that the ability of the public performance x condom use variability interaction to predict actual condom use is mediated by intention. Participants who were relatively low on both the public performance and variability variables were more likely to intend to use condoms than those who scored higher. The difficulty occurs in the interpretation of the mediation of the interaction between the exogenous variables (attitude and subjective norm), on the one side, and intention on the other. As the diagrams demonstrate, attitude is a strong predictor of the interaction when condom use in the past month is considered (Figure 7a), while subjective norm is the only significant predictor of the interaction when condom use data for the year is used (Figure 7b). This suggests that the public performance x variability interaction does not fit TPB at the point in the model hypothesized in the present study. Thus, while the path diagrams depicting TPB alone were consistent between condom use over the past month and past year, addition of the interaction term produced inconsistencies between the two analyses. TPB by itself, then, is a better and more parsimonious model to predict condom use.
Discussion

The results presented in this study provide support for most of the hypotheses. Results, limitations, and implications for further research and intervention are discussed.

The Attitude-Behaviour Link

Attitudes toward using condoms accounted for a greater proportion of variance in condom use than was expected. Traditional accounts place the average attitude-behaviour link at a low level (an average correlation of .15, and not generally exceeding .30) (Wicker, 1969). The present study established correlations between attitudes and behaviour of .53 for condom use over the past year, and .50 for condom use over the past month. Even when attitudes were entered in the second step of the hierarchical analyses (after the public performance x variability interaction), attitude toward condom use accounted for a large portion of the variance in condom use behaviour, both for the past year and the past month.

There is evidence that the attitude-behaviour link for condom use may be greater than for other behaviours. For example, Jemmott and Jemmott (1991) reported that attitudes toward using condoms was highly correlated with the proportion of encounters where condoms were not used to the total number of sexual encounters ($r = -.51$), and with frequency of condom use ($r = .57$). Especially important to the present investigation is the fact that a different measure of attitudes toward condom use was used. Although the measure used by Jemmott and Jemmott's (1991)
was incorporated in this study, I excluded most of those items from the final measure of attitudes toward condom use in favour of a bipolar adjective rating scale.

Other studies have found different results. A study by Breakwell, Millward and Fife-Schaw (1994) examined more indirect aspects of attitudes toward condom use (including interpersonal costs of using condoms, and condom benefits and effectiveness). These researchers found modest or low correlations with condom use ($r \leq .28$). The values found are closer to the expected correlation of .30. Another study, by Cole and Slocumb (1995), found a correlation between attitudes toward condoms and safe sex behaviour of .38; again, a value closer to what has been expected traditionally.

It is clear that the question of whether attitudes alone can predict condom use behaviour remains unanswered. While past studies have paid a lot of attention to prediction of behaviours from attitudes, condom use and its importance have only recently become a central focus of study. As a result, the attitude-behaviour link as it relates to condom use is usually examined in the context of newer models, such as the theory of reasoned action (TRA) and theory of planned behaviour (TPB). It is worthwhile, though, while studying these models, to report the bivariate relationship between attitudes toward condoms and condom use behaviour in order to determine whether condom use poses an exception to the rule.
Predictors of Condom Use

Regression analyses, ANCOVAs and path analyses provided some support for the hypothesis that the predictors - public performance x variability, attitudes toward condom use, subjective norms, perceived behavioural control, and intention to use condoms - would each contribute to the prediction of condom use. This hypothesis was not supported in all cases. The influence of each predictor is considered individually.

Theories of reasoned action and planned behaviour. Support for the predictive ability of attitude toward condom use, subjective norm, and intention to use condoms (three components of TRA) is mixed. Each of these variables was significantly correlated with actual condom use behaviour ($r$ with absolute values of .36 to .59). Furthermore, each contributed significantly to the prediction of condom use behaviour when entered at its respective step in hierarchical regression analyses. When the unique contribution of each to the prediction of the variance in condom use behaviour was examined, however, attitude toward condom use accounted for a non-significant amount of variance in condom use in both the past month and past year. Similarly, although subjective norm predicted a significant unique proportion of the variance in condom use in the past year, it predicted a non-significant proportion of the variance in the past month.

These results suggest that the variance being accounted for in condom use behaviour by attitude toward condoms, and by
subjective norm, is shared with one or more of the other predictors in the study. Examination of the correlation matrix presented in Table 6 reveals that attitude toward condom use and subjective norm are highly correlated with intention, and with each other. Each of these variables is highly correlated with condom use behaviour (especially intention to use condoms). Much of the variance in condom use accounted for by attitude toward condoms, then, likely overlaps with the variance accounted for by intention and subjective norm. Similarly, much of the variance accounted for by subjective norm likely overlaps with the variance accounted for by intention and attitude toward condom use.

These results are similar to those found by White and her colleagues (1994). These researchers examined two criterion variables, condom use and discussion of condom use with a new partner. For both of these variables, attitude and subjective norm significantly predicted intention, but not actual behaviour. At the same time, intention was a strong predictor of condom use (although not of discussion with a new partner). Despite this, there were strong associations between attitude and subjective norm variables, and actual condom use (correlation coefficients of .42 and .67 for attitude and subjective norm, respectively). The present study results closely resemble the results reported by White et al. (1994) and suggest that the predictive ability of attitudes and subjective norm for condom use is mediated by intention.
Intention to use condoms corresponded most highly with reported condom use in the past year and past month. This strong association between behavioural intent and actual behaviour is prominent in studies of TRA and TPB. Some studies have approached the problem by assessing the relationship between intention to use condoms and actual condom use first, then assessing the ability of attitude and subjective norm to predict intention. For example, Kashima et al. (1993) examined condom use among Australian students and found a strong relationship between intention to use condoms and actual condom use. These researchers went on to assess the ability of attitudes and subjective norm to predict intention and, again, found a strong link.

Other studies have focused primarily on the prediction of intention to use condoms. Pleck, Sonenstein, and Ku (1990) found attitude toward condoms to be significantly associated with intention to use condoms among American teens, aged 15 to 19. Similarly, Krahe and Reiss (1995) found attitude toward condom use, but not subjective norm, to be predictive of intention to use condoms among secondary school students. These results differ from those of the present investigation in that both attitude and subjective norm predicted significant unique proportions of the variance in intention to use condoms.

These studies, and the results of the present investigation, support the assumption of TRA that attitude and subjective norm are effective predictors of behaviour. Furthermore, they suggest
that the predictive ability of attitude and subjective norm is mediated by intention.

The addition of the TPB variable, perceived behavioural control, produced mixed results. While perceived behavioural control did predict a unique proportion of the variance in condom use behaviour, it did not add significantly to the amount of variance accounted for when it was entered after the TRA variables in hierarchical analyses. Therefore, while control is a significant predictor of condom use, it did not add significantly to the prediction of condom use beyond TRA variables. This raises questions about the importance of volitional control in prediction of condom use. It does not, however, raise questions about the importance of perceived control over condom use in intervention as correlations indicated that those who believed that they had a relatively high level of control over their condom use were more likely to use condoms than those who reported feeling less control.

Some studies have found differing results. White, et al. (1994) examined three control measures focusing on self-efficacy, perceived behavioural control, and planning. They found self-efficacy to be a significant predictor of intention to use condoms, and of discussion of condom use with new partners, when entered after TRA variables in a hierarchical regression analysis. They also found perceived behavioural control to be a significant predictor of condom discussion in a hierarchical analysis.
Other studies have found that perceived behavioural control has little or no predictive ability with regard to condom use. Morrison et al. (1995), for example, found that control was a significant predictor of behavioural intent, but not of condom use behaviour. The results of the present investigation demonstrate the opposite. Perceived behavioural control proved to be a non-significant predictor of intention, but a significant predictor of condom use behaviour. In another study examining TRA and Triandis' attitude-behaviour models and their relationship with undergraduate condom use, perceived behavioural control did not account for a significant proportion of the variance in condom use (Boyd & Wandersman, 1991).

In conclusion, while perceived behavioural control does predict a significant proportion of the variance in condom use, it does not add significantly to prediction of condom use beyond TRA variables with these participants. Closer examination of the data revealed that, while perceived behavioural control predicted actual behaviour, it did not predict intention to use condoms. A series of regression analyses were conducted to produce path diagrams of TPB to determine the predictive ability of each of the variables. The results of the path analyses of TPB revealed that the ability of attitudes and subjective norm to predict condom use was mediated by intention, but that the ability of perceived behavioural control to predict condom use was not.

Public performance x condom use variability. The two hypotheses that the interaction between the self-monitoring
construct and past condom use variability would predict (1) condom use, and (2) attitude-behaviour correspondence were partially supported by the present investigation. Analysis of the reliability and validity of the Self-Monitoring Scale revealed that items of the measure could not be analyzed together as part of the same construct. As a result, a factor analysis was conducted which revealed one reliable factor, public performance. Analyses which were originally intended for the self monitoring x variability interaction were conducted on the public performance x variability interaction instead.

Regression analyses revealed mixed results. Although the interaction between the public performance factor and condom use variability predicted a significant proportion of the variance when entered in the first step of the hierarchical analyses, this variable did not reach significance when its unique predictive contribution was considered. The interaction did, however, predict a marginally significant proportion of unique variance in condom use in the past month.

ANCOVA provided mixed support for the hypothesis that the public performance x condom use variability interaction would be a significant predictor of the link between attitudes toward condom use and condom use behaviour. The analysis of covariance examining condom use in the past month revealed that those who report low public performance scores are more likely to have higher correspondence between their attitudes toward condom use and their actual condom use behaviours than those who scored high
on this measure. Analysis of condom use in the past year revealed that participants who report less variability in their condom use are more likely to behave in accordance with their condom use attitudes than those who report being more variable in the past. This result was also marginally significant for condom use in the past month.

The success of the public performance factor in predicting attitude behaviour correspondence was only partial. These results do, however, demonstrate some consistency with past research. DeBono and Omoto (1993), for example, found that the prediction of intention to write a letter about drinking legislation from the participant's attitudes toward that behaviour was most accurate for those who scored as low self-monitors. Koestner et al. (1992) observed similar finding when examining the correspondence between self-reported beliefs about personal traits, and subsequent behaviour related to those traits. Furthermore, Zanna et al. (1980) examined religion oriented behaviours and reported greater attitude-behaviour consistency for low self-monitors than high-self monitors. Each of these studies supports the conclusion of this study that those who score low on the public performance sub-scale demonstrate greater consistency between their attitudes toward condom use and their actual condom use behaviour. The obvious limitation of this conclusion, however, is that only a sub-scale of the self-monitoring measure was used. The reviewed studies, therefore, may not be comparable to the present investigation.
The conclusion that past condom use variability proves to be a significant predictor of the association between attitudes toward condom use and actual condom use is consistent with other studies (Kashima, Gallois, & McCamish, 1993; Zanna et al., 1980). The study of behaviours associated with religion conducted by Zanna and his colleagues (1980) demonstrated that past variability in those behaviours predicts the link between one's attitudes toward them, and his or her actual behaviour in the future (i.e., whether there will be consistency between their attitudes toward that behaviour and actual performance). Boyd and Wandersman (1991) also reported that past condom use variability is a strong predictor of future condom use. Similarly, Kashima et al. (1993) found that participants who had used condoms in the past and had a positive attitude toward using condoms were more likely to use condoms in the future.

The interaction between the two variables, however, did not reach significance in either analysis. Zanna et al. (1980) assert that participants who do not meet both of the criteria for high predictability (i.e., those who are low self-monitors and are behaviourally consistent) will typically attain attitude-behaviour correlations of approximately .30. The present study refutes that result, as the correlation between attitude and actual condom use was high (correlations equalling .53 and .50 for the past year and the past month, respectively). Furthermore, since the ANCOVA analyzing attitude-behaviour discrepancy scores demonstrated no interaction effects, the mean
discrepancy scores for low public performers who are consistent in their past condom use would not demonstrate any differences (from the other groups) that could not be accounted for by the main effects for variability and public performance. Rather, the main effects for the public performance factor and past condom use variability predict attitude-behaviour correspondence.

**Gender, age, and relationship variables.** The variables, gender, age and length of current relationship were unsuccessful predictors of condom use behaviour. Although age proved to be a significant covariate, it did not account for a significant proportion of unique variance in condom use.

One unexpected result was the significant prediction of condom use behaviour from the length of one's most recent past relationship (i.e., one that has ended). This result is especially interesting since it predicted a significant unique portion of the variance in condom use over the past month, and a marginally significant portion of the variance in condom use over the past year, while length of current relationship predicted virtually no unique variance. It might be expected that the longer two people are together, the less likely they are to use condoms (as they learn about each other's sexual history). This does not explain the non-significant result for length of current relationship. Participants who are currently in long term relationships use condoms just as frequently (or infrequently) as those in shorter, casual relationships.
Implications for Intervention

Each of the variables examined above has implications for condom use among university students. Future research should focus on implementing strategies to target the variables suggested here in order to find effective ways to convince sexually active young adults to use condoms in relationships.

Several studies have begun to do this. Calsyn et al. (1992), for example, examined the effect of a condom give-away program in increasing condom use among patients undergoing methadone treatment. The researchers placed free condoms in various parts of the clinic, and later asked participants about their condom use. The report indicated a significant increase in condom use for vaginal intercourse. This result has implications, particularly for perceived control over condom use. Control oriented items in the present study identified by participants included unavailability, inconvenience, and expense. These factors can be overcome by making condoms more accessible to populations at risk. This is a strategy that has been undertaken by some organizations, including AIDS prevention agencies.

Other studies have looked at changing condom use by changing the attitude toward using condoms and the normative beliefs of the target audience. McCarty (1981), for example, in a study conducted before the AIDS epidemic, presented college students with a message designed to change their attitudes toward contraception use, to change their normative beliefs about
contraception, or one not designed to change their beliefs (control). The participants were also placed in groups where the message advocated male condom use, male reliance on their partners' oral contraception use, or female use of oral contraceptives. The study found that attitudes toward contraception were most positive when the message focused on changing attitudes, or on changing normative beliefs, while control group attitudes remained low. The study also found that the attitude message and the normative belief message were both more likely to change contraception oriented behavioural intent than being in the control group.

In a more recent study, Bryan, Aiken and West (1996) examined the effect of a condom promotion program on unmarried female undergraduate students. The program consisted of components addressing perceptions of sexuality (focusing on preparedness for sexual activity, and increasing control over the encounter), beliefs about sexually transmitted diseases, and self-efficacy for condom use. Participants were either placed in the condom promotion program or a stress management program. At the six-week follow-up, those in the condom program reported increases in carrying condoms, practising how they would tell a partner to use a condom, intending to use, and actually using condoms. Even at the six-month follow-up, more participants in the condom program than the stress management program reported having used condoms.

These studies are all related to the present investigation
in that they use measures which have implications for TRA and TPB. Specifically, research has demonstrated that programs designed to change attitudes, subjective norms, perceived behavioural control and intention aspects of condom use are fairly effective in changing condom use. Not enough research has been done in this area, however. Future studies should examine intervention programs more closely, especially with the looming threat of AIDS, HIV, and other sexually transmitted diseases.

**Implications**

Most of the theoretical and some of the personal variables examined in this investigation proved to be important predictors of condom use. Theory of reasoned action (TRA) variables - attitude toward condom use, subjective norm and intention to use condoms - each demonstrated their ability to predict condom use. Intention to use condoms predicted condom use directly while the predictive ability of attitude and subjective norm was mediated by intention.

Addition of the theory of planned behaviour (TPB) variable, perceived behavioural control, did not improve prediction of condom use over attitude and subjective norm. Perceived behavioural control did, however, demonstrate significant unique prediction of condom use when attitude and subjective norm measures did not. This result demonstrates that while perceived control may not add to the predictive ability of TRA for condom use with these participants, this variable is important for use in condom promotion programs. Correlations indicated that
participants who felt they had more control over their condom use were more likely to use condoms than those who did not.

Results of ANCOVA indicated that past condom use variability and public performance are significant predictors of the relationship between attitudes toward using condoms and actual condom use behaviour. Participants who reported low scores on either of these measures generally demonstrate greater consistency between their attitudes and behaviours. Specifically, in this study, those who reported low scores on either of these measures, and who held positive attitudes toward condom use, were more likely to use condoms consistently than those who scored higher on either of these measures. Future research should examine ways to use these variables in condom promotion programs. One way may be to focus attitude changing interventions at low public performers, and socially oriented interventions at high public performers.

One personal variable, length of recent past relationship, also demonstrated significant predictive ability. This result was interesting because length of current relationship did not produce significant results.

This study does, however, have limitations. For example, the focus of this study was primarily young adults, and the wide range in participants' ages was not expected. Also, the difficulty in recruiting male participants made gender comparisons impossible. Furthermore, participants were not asked whether they had ever had sex; they were only asked about the
past year. If an item requesting this information had been included, the scores of some of the 37 participants who were excluded from the analyses may have been useful for the reliability analyses.

Another potential criticism is that this study took a retrospective, rather than longitudinal approach. In spite of the fact that other studies have examined condom use in ways similar to the present investigation (e.g., Morrison et al., 1995; White, Terry, & Hogg, 1994; Wilson et al., 1993) conclusions about the causal direction of the variables included can not be made. That is, we cannot conclude that attitudes toward condom use, subjective norm, and the other variables examined caused participants' condom use behaviour. It is possible that participants inferred their attitudes, subjective norms, and perceived control from their reported condom use behaviour.

This study is an important one, however. It demonstrated variables which can be used to predict an important health behaviour. Replication of this study with a larger sample of college students, or with samples taken from other populations (e.g., intravenous drug users), will provide even more conclusive evidence that these variables predict condom use.

Taken together, these variables provide important information for condom promotion programs. They not only predict who will and will not use condoms, but they also can be used as points to intervene in condom use programs. Condom promotion
programs should focus, especially, on improving attitudes toward using condoms, increasing self-efficacy regarding condom use (for example, by role playing discussing condoms with a partner), and increasing intention to use condoms. Programs that include attitude change and self-efficacy/condom use skill components may be the most effective weapon in reducing AIDS and STDs in young adults.
References


APPENDIX A

Consent Form

The purpose of this study is to study various aspects of university student condom use. You will be asked to fill out a questionnaire which should take no longer than 20 minutes.

Your participation in this study is completely voluntary. You have the right to withdraw from participation in the study, or to refrain from answering any questions at any point without penalty.

You will be awarded one experimental bonus point for participating.

If you wish to see a final report of this study, a copy will be available from the Secretary to the Department Head of the University of Windsor Department of Psychology by September 1997.

This study has been approved by the Ethics Committee of the Department of Psychology, University of Windsor. If you have any questions, please contact:

David Ledgerwood (Principal Investigator) 253-4232 ext. 2216
Shelagh Towson (Research Advisor) 253-4232 ext. 2250
Sylvia Voelker (Ethics Committee) 253-4232 ext. 2249

Thank you for participating.

Tear here and keep the top portion. Return the bottom portion to the researcher.

--------------------------------------------------------------------------------------------------

Please read the following. Sign and date below if you wish to participate.

I understand that the information obtained from me will be kept completely confidential, and that I may withdraw at any time from participation.

__________________________________________________________________________  __________
Signature                                      Date
APPENDIX B: Pilot Measure

Background Information

Please respond to the following items by circling the letter of the answer you choose or writing the relevant information on the appropriate line.

1) I am
   a) female
   b) male

2) What is your age? __________________

3) At what level are most of your university courses this semester?
   a) 1st year
   b) 2nd year
   c) 3rd year
   d) 4th year

4) What is your religion?
   a) Jewish
   b) Catholic
   c) Protestant
   d) Other
   e) No religion

5) What is your racial/ethnic identification (e.g., South Asian, African-Canadian, etc.)
   ____________________________

6) What is your primary sexual orientation (e.g., gay, lesbian, bisexual, heterosexual, etc.)
   ____________________________

7) I am currently
   a) in a sexually active relationship
   b) sexually active, but not in a relationship
   c) not sexually active

8) Currently, I have
   a) more than one sexual partner
   b) one sexual partner
   c) no sexual partner
9) How long have you been in your present relationship (if currently in a relationship)?

__________________________

10) a) How long was your most recent past relationship (i.e., your most recent relationship which has ended)?

__________________________

b) How long ago did that relationship end?

__________________________
Snyder's Self-Monitoring Scale

The statements on the following pages concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. If a statement is TRUE or MOSTLY TRUE as applied to you, blacken the 'A' on the red scoring sheet. If a statement is FALSE or NOT USUALLY TRUE as applied to you, blacken the 'B' on the red scoring sheet. Do not put your answers on the questionnaire itself.

1. I find it hard to imitate the behaviour of other people.
   T    F

2. My behaviour is usually an expression of my true inner feelings, attitudes, and beliefs.
   T    F

3. At parties and social gatherings, I do not attempt to do or say things that others will like.
   T    F

4. I can only argue for ideas which I already believe.
   T    F

5. I can make impromptu speeches even on topics about which I have almost no information.
   T    F

6. I guess I put on a show to impress or entertain people.
   T    F

7. When I am uncertain how to act in a social situation, I look to the behaviour of others for cues.
   T    F

8. I would probably make a good actor.
   T    F

9. I rarely need the advice of my friends to choose movies, books, or music.
   T    F
10. I sometimes appear to others to be experiencing deeper emotions than I actually am.
   T       F

11. I laugh more when I watch a comedy with others than when alone.
   T       F

12. In a group of people I am rarely the centre of attention.
   T       F

13. In different situations and with different people, I often act like very different persons.
   T       F

14. I am not particularly good at making other people like me.
   T       F

15. Even if I am not enjoying myself, I often pretend to be having a good time.
   T       F

16. I'm not always the person I appear to be.
   T       F

17. I would not change my opinions (or the way I do things) in order to please someone else or win their favour.
   T       F

18. I have considered being an entertainer.
   T       F

19. In order to get along and be liked, I tend to be what people expect me to be rather than anything else.
   T       F

20. I have never been good at games like charades or improvisational acting.
   T       F
21. I have trouble changing my behaviour to suit different people and different situations.

T        F

22. At a party I let others keep the jokes and stories going.

T        F

23. I feel a bit awkward in company and do not show up quite so well as I should.

T        F

24. I can look anyone in the eye and tell a lie with a straight face (if for a right end).

T        F

25. I may deceive people by being friendly when I really dislike them.

T        F
The purpose of this survey is to measure the value of condom use behaviour. In taking this survey, please make judgements on the basis of your beliefs. It is extremely important for the purposes of this study that you think about each of your responses and give the most honest and accurate answer you can. For each question, you will be asked to choose a number to represent your opinion ranging from 1 to 7. If you are not sure of a response or feel neutral about the item, score the item as a 4 (i.e., the middle of the scale).

Please respond to each of the items on one of the blue response sheets provided.

My using a condom is

1) Pleasant  Unpleasant
   1   2   3   4   5   6   7
   |____|_____|_____|_____|_____|_____|_____|

2) Good  Bad
   1   2   3   4   5   6   7
   |____|_____|_____|_____|_____|_____|_____|

3) Valuable  Worthless
   1   2   3   4   5   6   7
   |____|_____|_____|_____|_____|_____|_____|

4) Healthy  Unhealthy
   1   2   3   4   5   6   7
   |____|_____|_____|_____|_____|_____|_____|

5) Positive  Negative
   1   2   3   4   5   6   7
   |____|_____|_____|_____|_____|_____|_____|

6) Wise  Foolish
   1   2   3   4   5   6   7
   |____|_____|_____|_____|_____|_____|_____|
My using a condom is

7) Important

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

8) Beneficial

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

9) Comfortable

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

10) Useful

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

11) Intelligent

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
Below, list as many factors you can think of which would prevent you from using condoms.
The following portion of the survey asks further questions of you regarding condom use. No two questions are exactly alike and each has a particular meaning. Again, it is extremely important for the purposes of this study that you think about each of your responses and give the most honest and accurate answer you can. You are asked to answer items by using a number from '1' to '7'.

Please answer the items on one of the blue answer sheets provided.

1) Generally speaking, how much do you want to do what your closest friends think you should do?

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<tr>
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<tbody>
<tr>
<td>Not at all</td>
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<td></td>
<td></td>
<td></td>
<td>Very much degree</td>
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</tbody>
</table>

2) Generally speaking, how much do you want to do what your partner(s) think(s) you should do?

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<tr>
<th>1</th>
<th>2</th>
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<th>4</th>
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<th>6</th>
<th>7</th>
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<td>Very much degree</td>
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3) Generally speaking, how much do you want to do what your peers think you should do?

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<td></td>
<td></td>
<td></td>
<td></td>
<td>Very much degree</td>
</tr>
</tbody>
</table>

4) My closest friends think I should use a condom every time I have sex.

<table>
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<tr>
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<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
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<tbody>
<tr>
<td>Extremely unlikely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extremely likely</td>
</tr>
</tbody>
</table>

5) My partner(s) think(s) I should use a condom every time we have sex.

<table>
<thead>
<tr>
<th>1</th>
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<th>4</th>
<th>5</th>
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<th>7</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Extremely likely</td>
</tr>
</tbody>
</table>
6) My peers think I should use a condom every time I have sex.

1 2 3 4 5 6 7

Extremely unlikely

7) How much control do you have over whether you use a condom every time you have sex?

1 2 3 4 5 6 7

Very little control Moderate control Complete control

8) For me to use a condom every time I have sex is _______.

1 2 3 4 5 6 7

Very Difficult Very Easy

9) If I wanted to, I could easily use a condom every time I have sex.

1 2 3 4 5 6 7

Extremely unlikely

10) I intend to use a condom every time I have sex.

1 2 3 4 5 6 7

Extremely unlikely

11) I will try to use a condom every time I have sex.

1 2 3 4 5 6 7

Extremely unlikely

12) How regularly do you intend to use a condom during sex?

1 2 3 4 5 6 7

Rarely About half of the time Every time
13) How much do you vary from one situation to another in whether or not you use a condom?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>
Not at all | | | | | | Extremely |

14) How many times have you engaged in sexual intercourse in the last month?

____________________

15) In approximately how many of those instances did you use a condom?

____________________

16) How many times would you estimate that you have had sex in the last year?

____________________

17) In approximately how many of those instances did you use a condom?

____________________
APPENDIX C

Debriefing and Information Sheet

Dear Participant:

Thank you very much for your participation in this study. Your time is valuable, and I hope that you have come away from this experience with a sense that you have contributed something of significance.

The World Health Organization has noted that, as of 1992, ten million people have been infected with HIV, and 5000 more cases appear each day. They also point out that, for people who engage in sexual intercourse, condoms reduce the risk of spreading the disease. The study you have just participated in involves examining factors which predict whether people would use condoms in dating relationships. In other words, can we predict whether people will use condoms or not, and how?

A number of factors are examined in this study, including attitudes toward condom use, perceived control over condom use, past condom use, and others. It is hypothesized that each of these factors would help to predict whether an individual would use condoms.

I would like to remind you, however, that in the survey you have just filled out, there are no right or wrong answers. If you have any questions or concerns about the survey you have just participated in, please feel free to talk to me after the survey session, or contact my research advisor, Dr. Towson, the Chairperson of the Psychology Department Ethics Committee, Dr. Voelker, or myself.

Sincerely,

David M. Ledgerwood
APPENDIX D: Main Study Measure

Background Information

Please respond to the following items by circling the letter of the answer you choose or writing the relevant information on the appropriate line.

1) I am
   a) female
   b) male

2) What is your age? _________________

3) At what level are most of your university courses this semester?
   a) 1st year
   b) 2nd year
   c) 3rd year
   d) 4th year

4) What is your religion?
   a) Jewish
   b) Catholic
   c) Protestant
   d) Other
   e) No religion

5) What is your racial/ethnic identification (e.g., South Asian, African-Canadian, etc.)
   _________________

6) What is your primary sexual orientation (e.g., gay, lesbian, bisexual, heterosexual, etc.)
   _________________

7) I am currently
   a) in a sexually active relationship
   b) sexually active, but not in a relationship
   c) not sexually active

8) Currently, I have
   a) more than one sexual partner
   b) one sexual partner
   c) no sexual partner
9) How long have you been in your present relationship (if currently in a relationship)?

10) a) How long was your most recent past relationship (i.e., your most recent relationship which has ended)?

b) How long ago did that relationship end?
Snyder's Self-Monitoring Scale

The statements on the following pages concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. If a statement is TRUE or MOSTLY TRUE as applied to you, blacken the 'A' on the red scoring sheet. If a statement is FALSE or NOT USUALLY TRUE as applied to you, blacken the 'B' on the red scoring sheet. Do not put your answers on the questionnaire itself.

1. I find it hard to imitate the behaviour of other people.
   T       F

2. My behaviour is usually an expression of my true inner feelings, attitudes, and beliefs.
   T       F

3. At parties and social gatherings, I do not attempt to do or say things that others will like.
   T       F

4. I can only argue for ideas which I already believe.
   T       F

5. I can make impromptu speeches even on topics about which I have almost no information.
   T       F

6. I guess I put on a show to impress or entertain people.
   T       F

7. When I am uncertain how to act in a social situation, I look to the behaviour of others for cues.
   T       F

8. I would probably make a good actor.
   T       F

9. I rarely need the advice of my friends to choose movies, books, or music.
   T       F
10. I sometimes appear to others to be experiencing deeper emotions than I actually am.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

11. I laugh more when I watch a comedy with others than when alone.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

12. In a group of people I am rarely the centre of attention.

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\begin{array}{ll}
T & F \\
\end{array}
\]

13. In different situations and with different people, I often act like very different persons.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

14. I am not particularly good at making other people like me.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

15. Even if I am not enjoying myself, I often pretend to be having a good time.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

16. I'm not always the person I appear to be.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

17. I would not change my opinions (or the way I do things) in order to please someone else or win their favour.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

18. I have considered being an entertainer.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

19. In order to get along and be liked, I tend to be what people expect me to be rather than anything else.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]

20. I have never been good at games like charades or improvisational acting.

\[
\begin{array}{ll}
T & F \\
\end{array}
\]
21. I have trouble changing my behaviour to suit different people and different situations.

T       F

22. At a party I let others keep the jokes and stories going.

T       F

23. I feel a bit awkward in company and do not show up quite so well as I should.

T       F

24. I can look anyone in the eye and tell a lie with a straight face (if for a right end).

T       F

25. I may deceive people by being friendly when I really dislike them.

T       F
The purpose of this survey is to measure the value of condom use behaviour. In taking this survey, please make judgements on the basis of your beliefs. It is extremely important for the purposes of this study that you think about each of your responses and give the most honest and accurate answer you can. For each question, you will be asked to choose a number to represent your opinion ranging from 1 to 7. If you are not sure of a response or feel neutral about the item, score the item as a 4 (i.e., the middle of the scale).

Please respond to each of the items on one of the blue response sheets provided.

My using a condom is

1) Pleasant
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

2) Good
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

3) Valuable
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

4) Healthy
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

5) Positive
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

6) Wise
   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
My using a condom is

7) Important
   Unimportant
   1  2  3  4  5  6  7
   |____|______|______|______|______|______|____

8) Beneficial
   Harmful
   1  2  3  4  5  6  7
   |____|______|______|______|______|______|____

9) Comfortable
   Uncomfortable
   1  2  3  4  5  6  7
   |____|______|______|______|______|______|____

10) Useful
    Useless
    1  2  3  4  5  6  7
    |____|______|______|______|______|______|____

11) Intelligent
    Unintelligent
    1  2  3  4  5  6  7
    |____|______|______|______|______|______|____

******************************************************************************

12) How negative or positive are your attitudes toward using condoms if you have sex?
    1  2  3  4  5  6  7
    |____|______|______|______|______|______|____
    Very negative  Very positive

13) Condoms cost too much money.
    1  2  3  4  5  6  7
    |____|______|______|______|______|______|____
    Disagree  Agree
    Strongly  Strongly

14) Sex does not feel as good when you use a condom.
    1  2  3  4  5  6  7
    |____|______|______|______|______|______|____
    Disagree  Agree
    Strongly  Strongly
15) Sex is more fun when a condom is used.

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   |   |   |   |   |   |   |   |
Disagree  Strongly  Agree  Strongly

16) Most men do not want to use condoms.

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   |   |   |   |   |   |   |   |
Disagree  Strongly  Agree  Strongly

17) Most women do not want to use condoms.

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   |   |   |   |   |   |   |   |
Disagree  Strongly  Agree  Strongly

18) I would feel funny saying to my partner 'let's use a condom.'

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   |   |   |   |   |   |   |   |
Disagree  Strongly  Agree  Strongly

******************************************************************************

Below, list as many factors you can think of which would prevent you from using condoms.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
The following portion of the survey asks further questions of you regarding condom use. No two questions are exactly alike and each has a particular meaning. Again, it is extremely important for the purposes of this study that you think about each of your responses and give the most honest and accurate answer you can. You are asked to answer items by using a number from '1' to '7'.

Please answer the items on one of the blue answer sheets provided.

1) Generally speaking, how much do you want to do what your closest friends think you should do?

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<tr>
<td>Not at all</td>
<td></td>
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2) Generally speaking, how much do you want to do what your partner(s) think(s) you should do?

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3) Generally speaking, how much do you want to do what your peers think you should do?

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</table>

4) My closest friends think I should use a condom every time I have sex.

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<tbody>
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</table>

5) My partner(s) think(s) I should use a condom every time we have sex.

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6) My peers think I should use a condom every time I have sex.

1 2 3 4 5 6 7
Extremely unlikely Extremely likely

7) How much control do you have over whether you use a condom every time you have sex?

1 2 3 4 5 6 7
Very little control Moderate control Complete control

8) For me to use a condom every time I have sex is ______.

1 2 3 4 5 6 7
Very Difficult Very Easy

9) If I wanted to, I could easily use a condom every time I have sex.

1 2 3 4 5 6 7
Extremely unlikely Extremely likely

10) I intend to use a condom every time I have sex.

1 2 3 4 5 6 7
Extremely unlikely Extremely likely

11) I will try to use a condom every time I have sex.

1 2 3 4 5 6 7
Extremely unlikely Extremely likely

12) How regularly do you intend to use a condom during sex?

1 2 3 4 5 6 7
Rarely About half of the time Every time
13) How much do you vary from one situation to another in whether or not you use a condom?

1 2 3 4 5 6 7
Not at all |________|________|________|________|________|________|________|
Extremely

14) Does discomfort or pain influence your ability to use condoms?

1 2 3 4 5 6 7
Not at all |________|________|________|________|________|________|________|
Extremely

15) Does availability of condoms influence your ability to use condoms?

1 2 3 4 5 6 7
Not at all |________|________|________|________|________|________|________|
Extremely

16) Does your partner's attitudes toward condoms influence your ability to use condoms?

1 2 3 4 5 6 7
Not at all |________|________|________|________|________|________|________|
Extremely

17) Does getting caught up in the moment influence your ability to use condoms?

1 2 3 4 5 6 7
Not at all |________|________|________|________|________|________|________|
Extremely

18) Does convenience influence your ability to use condoms?

1 2 3 4 5 6 7
Not at all |________|________|________|________|________|________|________|
Extremely

19) Does a decrease or increase in pleasure influence your ability to use condoms?

1 2 3 4 5 6 7
Not at all |________|________|________|________|________|________|________|
Extremely
20) How many times have you engaged in sexual intercourse in the last month?

21) In approximately how many of those instances did you use a condom?

22) How many times would you estimate that you have had sex in the last year?

23) In approximately how many of those instances did you use a condom?
Appendix E: Excluded Attitude Items

**Items excluded from the attitude toward condom use measure**

<table>
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<tr>
<th>Item Number</th>
<th>Item</th>
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<tr>
<td>13</td>
<td>Condoms cost too much money</td>
</tr>
<tr>
<td>16</td>
<td>Most men do not want to use condoms</td>
</tr>
<tr>
<td>17</td>
<td>Most women do not want to use condoms</td>
</tr>
<tr>
<td>18</td>
<td>I would feel funny saying to my partner &quot;let's use a condom&quot;</td>
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</tbody>
</table>
Appendix F: Factor Loadings of the Self-Monitoring Scale

**Varimax rotated matrix for a two factor solution of the Self-Monitoring Scale**

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* Items correspond to the Self-Monitoring Scale (see Appendix B)*
Appendix G: Analysis of Female Participants

Regression analyses examining female participants only.

**Hierarchical multiple regression analysis for the condom to sexual encounter ratio for the past month for female participants.**

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Hierarchical multiple regression analysis for the condom to sexual encounter ratio for the past year for female participants.

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Hierarchical multiple regression analysis for intention to use condoms for female participants.

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VITA AUCTORIS

NAME: David M. Ledgerwood

PLACE OF BIRTH: North York, Ontario, Canada

YEAR OF BIRTH: 1971

EDUCATION:
Markham District Secondary School
1985-1990

University of Windsor, Windsor, Ontario
1990-1995 BA