

Predicting Science Teachers' Intention to Teach about HIV/AIDS in Botswana

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ABSTRACT This study investigates, using the Theory of Planned Behaviour, factors that determine teachers' intention to teach about HIV/AIDS in secondary schools in Botswana. The data used were obtained from a survey of 144 science teachers. The findings produce several interesting revelations. The findings are somewhat contrary to empirical findings in advanced countries where attitude generally plays a larger role in explaining behaviour. In this study, it appears that subjective control performs best in predicting intention, followed by subjective norm. Attitude was the poorest predictor. These findings can be explained in two ways. First, the relatively undeveloped economic environment in Botswana might impose behavioural constraints on teachers. Second, because of the extended family culture in Botswana, behavioural intention may be generally determined not only by personal attitudes, but more so by the attitudes of important others (for example, family, friends and community). It follows that a study of behavioural intentions in Botswana-type societies which places greater emphasis on measuring attitudinal factors may be misleading because of under specification of the causal environmental (perceived control, perceived norms) factors.

1. INTRODUCTION

The Human Immunodeficiency Virus (HIV) and the Acquired Immunodeficiency Syndrome (AIDS) cases were first recognized in 1981. About 30 years now the epidemic is still with us. It appears that it will continue to challenge us for many years to come (UNAIDS 2004). In the absence of a vaccine or medical cure, prevention of new infections is the key to reducing the spread of the virus. Promoting behavioural change through preventive education remains the best weapon against the spread of HIV/AIDS (Annan 2004). Children provide the best hope in the fight against epidemic. Investment in the well-being of young people promises greater pay-off than investment in adults for a number of reasons. First, children below the age of 14 have the lowest HIV prevalence rate of all population age groups, since they are generally not yet sexually active. Second, early adolescence, from the ages of 10 to 14 are still in the formative stages of their lives, a time when their attitude towards certain behaviours can be influenced, including postponing the onset of sexual activity, which can quell the spread of HIV/AIDS (UNICEF 2002). Establishing safe behaviour from the start is easier than changing risky behaviours already entrenched.

Children thus constitute the "window of hope" (IBRD/World Bank 2002) because educating young people about HIV improves their ability to make informed choices. The education system offers a ready-made infrastructure for delivering HIV/AIDS prevention efforts to a large number of the uninfected population (World Bank 2002). The schools, parents, extended families, communities, religious organisations and peers are critical in guiding and supporting children to make safe choices about their behaviour. The education system provides a privileged opportunity for working with this age group, since most children spend a good number of years in school. The responsibility of educating children through the education system falls on the shoulders of teachers.

Although Botswana's policy is to provide HIV/AIDS education at secondary school level, this does not guarantee that students will receive information about HIV/AIDS from their teachers. The task for teachers is daunting from various perspectives. Some teachers may not intend to teach about HIV/AIDS because of a number of reasons. One possible reason is that this topic deals with sensitive issues related to sexuality and may be against their moral convictions (Burak 1992). Other teachers often lack the curricular time and orientation to adequately address

the issue within schools (Kelly 2002). In addition, studies have also shown that most teachers routinely do not even get the information, training or support that they need in order to be able to implement their work (Malambo 2000; Boler et al. 2003). Furthermore, teaching children about HIV/AIDS goes against the predominant view in most societies in which sex is a taboo topic that should not be discussed at any cost. Teaching about sex can also work against some of the children who may be sensitised into practicing early sex by exploiting the knowledge that they may never think of on their own at that tender age.

It has been reported that the life sciences and particularly biology teachers are in a key position to accomplish the task of preparing the youth to face the problem of HIV/AIDS (Vener and Krupka 1988, 1990; Speece 1992). Science teachers usually have a deeper understanding of the immune system and the nature of viruses than other teachers and this can serve as a starting point for HIV/AIDS education. However, in the secondary school curricula in Botswana, HIV/AIDS appears as a tiny fraction of the biology syllabus tackled as subtopic within the topic “discuss the control of the spread of sexually transmitted diseases (for example, gonorrhoea, syphilis, and HIV/AIDS)”. Therefore, even biology teachers have to be motivated to intend to provide more information about HIV/AIDS than is called for by the syllabus.

1.1 Status of the Epidemic Globally

Table 1 shows that the global magnitude of the AIDS epidemic was estimated at 33.4 million people living with HIV/AIDS in 2008 and the majority of these (22 million or 67%) live in sub-Saharan Africa. New infections in 2008 were estimated at 2.7 million and the majority (1.9 million or 70%) of these occurred in sub-Saharan Africa. Deaths in 2008 were estimated at 2.0 million and of these 1.4 million (70%) occurred in sub-Saharan Africa.

Table 1: Summary of the epidemic in 2008

	<i>People living with HIV</i>	<i>Newly infected</i>	<i>Prevalence %</i>	<i>Deaths</i>
Sub-Saharan Africa	22,400,000 (67%)	1,900,000 (70%)	5.2%	1,400,000 (70%)
Rest of the world	11,000,000 (33%)	800,000 (30%)	0.5%	600,000 (30%)
Total	33,400,000(100%)	2,700,000(100%)	0.8%	2,000,000(100%)

Source: Adapted from UNAIDS (2010: 6)

1.2 Status of the Epidemic in Botswana

Botswana is one of the nine Southern African countries that continue to bear the global burden of HIV and AIDS, with each of the countries having an adult prevalence of more than 10 percent. Southern Africa is home to more than half the worlds' population of people living with HIV; it is the epicentre of the global epidemic (The SAFAIDS Cultural 2010).

Botswana with a national prevalence rate of 17.6 percent (CSO and NACA 2009) is the second highest (after Swaziland) in the world; gender disparity disfavours females with 20.4 percent while males had 14.2 percent. The corresponding prevalence figure in the 2004 was 17.1 percent. It is therefore evident that HIV prevalence in the country is stabilizing at around 17 percent (NACA 2010).

The stabilization of the HIV prevalence is also evident when results of the 2009 HIV and AIDS Sentinel Surveillance are examined. Figure 1 shows that the prevalence among pregnant women aged 15-49 years coming to a clinic for the first visit for their current pregnancy has been hovering at around 33 percent since 2005.

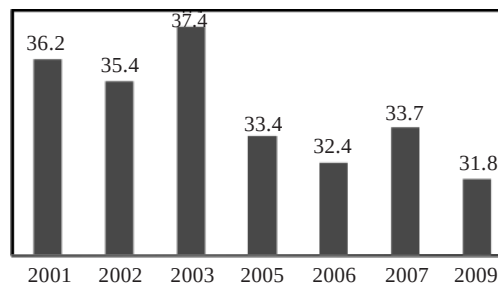


Fig. 1. Prevalence among pregnant women aged 15-49

There was an estimated combined single and double-orphans of 111,567 making 16.2 percent of all children aged 0-17 years (CSO and NACA 2009). Nearly 40 percent of all orphans live with their grandparents. Many young children have been left without parents denying them a chance to grow up in a balanced loving social structure.

The high level of infection is a major cause for concern especially given the fact that Botswana has great potential. Botswana has been singled out as the only country in sub-Saharan Africa that has graduated from being a Least Developed Country and is now classified as a Developing Country. The high level of AIDS is threatening to reverse this trend. If Botswana is to protect this rare achievement the spread of HIV has to be halted.

In recognition of this the government launched a series of campaigns aimed at curbing the spread of the disease. The climax of these efforts was the establishment of the National AIDS Coordinating Agency (NACA) to coordinate government AIDS fighting programmes. Despite these efforts and those of Non-Governmental Organizations (NGOs) as well as international bodies such as WHO, AIDS continues to spread at an alarming rate. In 2008 the incidence rate for the country was 2.9 percent, and that of males and females were 2.3 and 3.5 percent, respectively (CSO and NACA 2009).

2. CONCEPTUAL FRAMEWORK

According to Lin and Wilson (1998), teaching is a human social behaviour and teachers' decision making is a result of intra and inter-per-

sonal processes. Thus, it seems appropriate to use a behavioural theory to examine this behaviour.

The Theory of Planned Behaviour is an extension of the Theory of Reasoned Action. As the names implies, the Theory of Reasoned Action and the Theory of Planned Behaviour are based on the assumption that human beings, usually, behave in a sensible manner; that is, they take account of available information and implicitly or explicitly consider the implications of their actions (Overview of Surveys ... 2003). According to the Theory of Reasoned Action *attitude* and *subjective norms* combine to influence *intention*, which in turn induces *behaviour* (Fishbein and Ajzen 1975; Ajzen and Fishbein 1980). One major weakness of the Theory of Reasoned Action is that it implicitly assumes that the behaviour under study is volitional; that is, the individual can at will perform or not perform the behaviour. Recognizing that this may not always be the case, the Theory of Planned Behaviour (Ajzen 1988) has included perceived behavioural control at par with attitude and subjective norm as determinants of behavioural intentions. Thus, the Theory of Planned Behaviour proposes that *behavioural intention* is a function of three factors, namely, *attitude*, *subjective norm* and *subjective control* (Fig. 2).

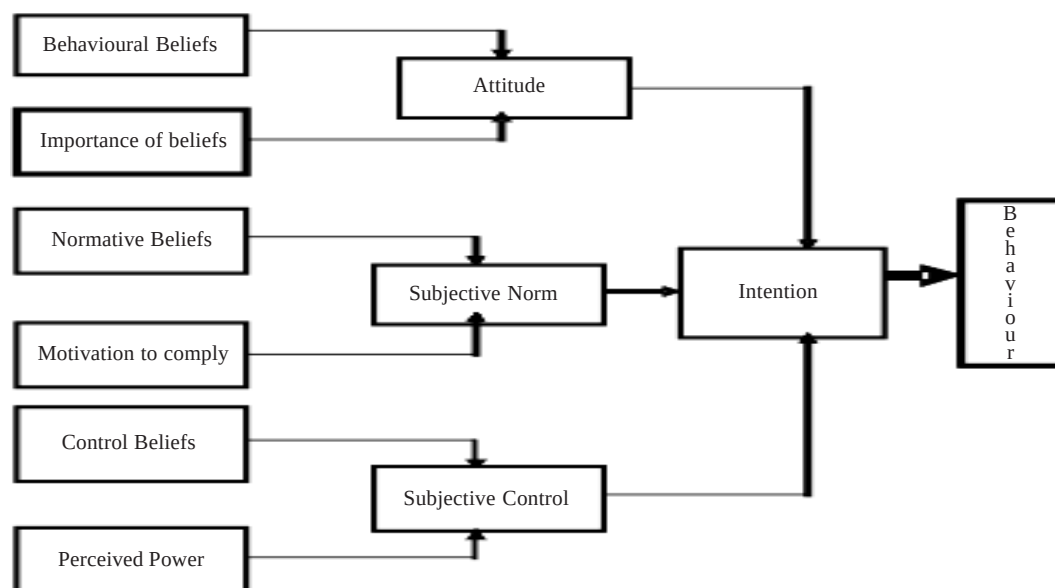


Fig. 2. Theory of planned behaviour

Source: Adapted with permission from Terry et al. 1993: 25

A person's *attitude* towards performing behaviour is an individual's positive or negative evaluation of the consequences of a specific behaviour. If a person perceives that the outcome from performing behaviour is positive, she/he will have a positive attitude toward performing that behaviour. The opposite can also be stated if the outcome is thought to be negative.

Subjective norms are a person's perception of the social pressure exerted upon him or her to perform or not perform the behaviour. If a person perceives that these significant others (such as partner, relatives, friends) see performing the behaviour as positive, then a positive norm might be expected, and vice versa.

Subjective behavioural control refers to the degree to which an individual feels that performance or non-performance of the behaviour in question is under his or her control. People are not likely to form a strong intention to perform behaviour if they believe that they do not have the requisite resources or opportunity to do so even if they hold positive attitudes toward the behaviour and believe that important others would approve of the behaviour (subjective norm).

In turn, the three predictors are made up of behavioural, normative and control beliefs. *Attitude* is a function of behavioural belief which is the perceived likelihood that performing the particular behaviour will lead to certain outcomes, weighted by the extent to which these outcomes are valued. *Subjective norm* is a function of normative belief which is the perceived pressure from specified referents to perform the target behaviour, weighted by the motivation of the individual to comply with these people one cares about. *Perceived behavioural control* is influenced by control belief which is the perceived access to the necessary resources and opportunities to perform a behaviour successfully weighted by the perceived power to perform the behaviour. *Intention* is the cognitive representation of a person's readiness to perform a given behaviour and is considered to be the immediate antecedent of behaviour. *Behaviour* is the translation of intention to action.

The main hypothesis of the Theory of Planned Behaviour is that there is one immediate determinant of behaviour, namely the person's intention to perform or not perform it. This intention is itself is, in turn, viewed as determined by three factors: attitude, subjective norms and subjective

control toward the specific behaviour. More specifically, the theory of planned behaviour, attempts to provide an account of the way in which *attitude, subjective norms, subjective control* and *intentions* combine to predict behaviour. Because of its strong relationship to behaviour, many studies measure behavioural intentions and forego the more difficult measurement of behaviour.

2.1 Empirical Overview of the Theory of Planned Behaviour

In empirical studies the theories of reasoned action and planned behaviour have been applied successfully in predicting a range of behaviours in Western societies. These include intention to lose weight and actual weight loss (Schifter and Ajzen 1985; Ajzen and Maden 1986), intention to participate in sports activities (Hagger et al. 2001), intention and actual use of the pill for contraceptive purposes (Davidson and Jaccard 1975), HIV preventive behaviours (Terry 1993) and intention to use condoms among students (Baldwin and Baldwin 1988; DiClemente 1990; Richard and van der Pligt 1991; Boyd and Wandersman 1991; Ratliff-Crain et al. 1999; Lugoe and Rise 1999). With regard to intention to teach about HIV/AIDS, in a study of science teachers' intentions in Iowa, U.S.A. (Lin and Wilson 1998), the Theory of Planned Behaviour could explain 74% of the variance in science teachers' intentions and attitude was the most powerful factor in the prediction.

What is the relative importance of the two predictors which derive from reasoned action theory (attitude, subjective norm), and of the additional predictor (perceived behavioural control)? Findings from the above empirical studies suggest that in general attitude exerts more powerful influence than subjective norm in predicting intention and the addition of perceived behavioural control (Theory of Planned Behaviour) improves performance of the model. Where inconsistencies have been found they have been explained in terms of low or high involvement behaviour (Thompson and Thompson 1996), whether indirect (belief-based) or direct measures of the various components were used (Manstead and Parker 1995) and improper identification of the behaviour in question, whether or not salient beliefs were elicited.

Despite the predictive success of the Theory of Planned Behaviour in a wide range of social

behaviours in Western societies, not much has been done to test the relative importance of the predictors in different social-economic environments. The founders of the theory (Fishbein and Ajzen 1975) themselves said that the relative importance of the predictors in predicting behavioural intentions is an empirical question, varying with the target behaviour and population in question. This implies that health education policy makers should try to understand the social and economic contexts in which teachers are likely to teach about HIV infection. For example, although the need for teaching adolescents about HIV/AIDS in Africa is well known, there may be many obstacles to teaching about it. Socially determined attitudes about sex education may pose a barrier. On the economic aspect of the issue, given the relatively underdeveloped infrastructure, even if a teacher has a positive attitude about teaching about HIV/AIDS, the teaching materials (such as recent literature and internet resources) may not be readily available; suggesting that the Theory of Planned Behaviour's subjective control concept might be more applicable in such situations.

In order to design successful HIV infection reduction strategies, health policy makers need to understand the factors that determine intention to teach about HIV/AIDS within the social-economic context of Botswana. This study aims at making a contribution toward that end by focusing on investigating whether the theory of planned behaviour will add significantly to the prediction of the intention to teach about HIV/AIDS beyond the components of the Theory of Reasoned Action.

3. METHODOLOGY

3.1 The Preliminary Survey

It is a requirement by the Theory of Planned Behaviour that investigators must ensure that the predictors of intention and behaviour must be relevant to the behaviour and group under investigation (Ajzen and Fishbein 1980). It was thus important to conduct a preliminary study intended to ensure that the questionnaire to be developed would contain behavioural, normative and control beliefs relevant to HIV education and science teachers in a secondary school setting. An open-ended interview with ten experienced teachers was undertaken to discover the most

common behavioural beliefs on teaching about HIV, the relevant significant others who would approve or disapprove of HIV education to secondary school pupils and the factors that would facilitate or inhibit teaching of HIV/AIDS. Based on the responses in the interviews, a content analysis of responses was performed, in which similar responses were grouped together and items to be included in the main questionnaire were determined. In addition, items salient in past research but absent in the preliminary study were also included in the questionnaire. For example, fathers were not mentioned as pertinent social referents in the preliminary sample. This may be explained by the fact that in Botswana single-parent families constitute a good majority, about 64 per cent of the households (Republic of Botswana 2009) and a vast majority of these, about 90 per cent, are headed by females (Gaisie 2000). As a result of growing with the mother most children tend to refer to their mother rather than their father.

3.2 The Main Survey

As discussed in the Literature Review Section, the conceptual framework involves three broad factors: namely, attitudes, subjective norms and subjective control that influence intention. The variables and their measurement are presented below, and are divided into predictor and predicted variables.

3.2.1 Predictor Variables

Attitude: Measures were taken for each of six salient outcome belief statements identified in the preliminary study against a bi-polar Likert scale ranging from Strongly Disagree (-2) to Strongly Agree (+2) regarding their agreement with the particular behavioural belief. This is in keeping with the notion that attitude has a bipolar affective dimensions (Fishbein and Ajzen 1975). The evaluation or weighting of these outcomes was done on a similar, but unipolar scale ranging from Very Unimportant (1) to Very Important (4).

Subjective Norm: A list of five pertinent social referents regarding teaching about HIV/AIDS was drawn up as suggested by the preliminary study. Normative belief was measured on a 4-point Likert-type scale, ranging from Strongly Disagree (1) to Strongly Agree (4). Motivation

to comply regarding each of social referents was measured on a similar 4-point scale, but running from Strongly Disapprove to Strongly Approve.

Behavioural Control: Behavioural Control was gauged by using four statements that were measured once, using a 4-point Likert scale ranging from Strong Disagree to Strongly Agree. The statements were designed to capture a respondent's overall feeling about the extent of access to the necessary resources and opportunities to teach about HIV/AIDS successfully. The reader should note that the measurement of behavioural control employed here is not belief-based. Thus an alternative belief-based measure would have required two measurements for each statement: the *control belief* as well as the *perceived power or effect* of the particular control belief.

3.2.2 Predicted Variable

Intention: The respondent teacher's strength of intent to teach about HIV/AIDS, in the near future was measured on a 4-point scale ranging from Strongly Disagree to Strongly Agree.

3.2.3 Questionnaire Design

The questionnaire used was highly structured, using mainly Likert-type scales, incorporating fill-ins. The high structure provided comparable responses, which facilitated coding and analysis. The draft questionnaire was pre-tested on a few respondents in Gaborone that resulted in a discovery of a few mistakes of editorial, typographical errors and readability nature.

3.2.4 Data Collection

144 science teachers in Secondary Schools in Gaborone were personally visited and the questionnaire filled in one-to-one interview mode in the presence of the authors. This approach ensured 100% return on those who were contacted and agreed to participate in the study. Four teachers with strong religious beliefs refused to participate in the survey.

3.2.5 Data Preparation

Data preparation involved three main steps: coding the responses, data transformation into new grouped variables and testing the new variables for multicollinearity.

3.2.6 Coding the Responses

All 144 questionnaires were coded and entered into computer ready for analysis, using the Statistical Package for Social Sciences (SPSS) version 12 software. Coding of most responses ranged from 1 to 4. If a statement was written in positive terms, a strong disagreement with this favourable item was given a score of 1, and a strong agreement was given a score of 4. If a statement was written in negative terms, the responses were reversed with strongly disagree as 4 and strongly agree as 1.

3.2.7 Data Transformation

Data transformation was undertaken in order to create predictor and predicted variables. All constructs assessed by more than one item were consolidated into a single variable by taking the sum of the items within each scale. A summary of the grouping variables appears in Table 2.

Table 2: Grouping of variables

New variable	Number of items grouped	Grouping statistic	Type of variable
Attitude	6	Sum of (behavioural beliefs x importance)	Predictor
Perceived norms	5	Sum of (normative beliefs x motivation to comply)	Predictor
Perceived control	3	Sum of control beliefs	Predictor
Intention	1	Raw data (one item, need no grouping)	Predicted

Belief-based Attitude: As defined by the Theory of Planned Behaviour, belief-based attitude is calculated as the sum of the products of the strength of each outcome belief (b_i) and the corresponding outcome importance evaluation (e_i). For example, if the outcome belief "teaching about HIV/AIDS will encourage students to practice safe sex" is "disagree" (-1) and if this outcome is valued as "important" (+3), by a respondent it would lead to a product of -3. This was done for each of the 6 outcome beliefs and then the products were summed to assess the overall valence (positivity versus negativity) of the attitude for each teacher. The newly created attitude variable could potentially take a value from -48 to +48. The central equation of the theory can be expressed as follows:

$$A = \sum_{i=1}^n b_i e_i$$

Where

A = Attitude,

b_i = the belief i about the outcome behaviour,

e_i = the evaluation or importance of the outcome belief i , and

n = the number of beliefs.

Subjective Norm: Subjective norm was calculated as the sum of the products of the strength of each of the five normative beliefs (n_i) and the individual's motivation to comply (c_i). The equation for subjective norm can be expressed as follows:

$$SN = \sum_{i=1}^n n_i c_i$$

Where

SN = Subjective Norm,

n_i = normative belief i about the behaviour

c_i = motivation to comply with the normative belief i , and

n = the number of normative beliefs.

Behavioural Control: The measure of behavioural control was not belief-based, it was a direct measure. The three *direct* measures used to measure behavioural control were grouped into a single variable by taking their sum.

3.2.8 Testing for Multicollinearity

One of the assumptions of the linear regression model is that there is no multicollinearity among the predictor variables included in the model. Multicollinearity refers to a situation in which some or all of the predictor variables are highly intercorrelated. If this happens, it would mean that attitudes, subjective norms and subjective behaviour control (or whatever causes each of them) affect each other. What are the consequences of multicollinearity? The problem with multicollinearity is that when some or all variables are highly collinear one cannot isolate their individual influence on the predicted variable.

Collinearity is often suspected when correlation is high, say, between 0.7 and 1.0 (Gujarat 1978). The spearman correlation coefficients among the three predictor factors show that the inter-correlations between any two factors is low, ranging from 0.122 to 0.408, suggesting that the collinearity is not a problem in this data (Table 3). After these data preparation steps, we now turn to the bi-variate and multi-variate analyses.

Table 3: Pearson correlation coefficient

	<i>Attitude</i>	<i>Norms</i>	<i>Control</i>
Attitude	1		
Norms	0.276	1	
Control	0.122	0.408	1

3.3 Data Analysis

To examine the Theory of Reasoned Action and Theory of Planned Behaviour a series of analyses were performed that followed one another on a chain of increasing analytical complexity, with bi-variate analysis giving way to multivariate analyses. The bi-variate analysis or the relationship between two variables consisted of a series of simple regressions of each predictor variable on intention; that is taking one predictor variable a time. The multivariate analysis was basically similar to the bi-variate analysis but this time the multiple regression equations included two or more independent variables simultaneously to predict intention. The multiple regressions produced an assessment of the relative importance of the factors in explaining intention.

4. FINDINGS

This section presents, interprets and discusses findings relating to factors in the Theory of Planned Behaviour that are presumed to determine intention. The aim was to perform analyses that contribute towards answering our broad research question: "What role attitudes, subjective norms and subjective control play in influencing intention to teach about HIV/AIDS to secondary school children?"

4.1 Findings from the Bi-variate Analysis

The bi-variate analysis employed simple regression (predictor variables entered one at a time) to evaluate the predictive power of each variable on intention. The predicted variable, intention, was regressed on attitude, subjective norms and subjective behavioural control.

The simple regression coefficients indicate the direction and strength of influence of the variables in predicting intention to teach about HIV/AIDS. The findings (Table 4) reveal that the coefficients are all positive suggesting that attitude, subjective norms and subjective control contributed positively to the prediction of inten-

tion. However, the results show that the simple regression equation for attitude was not statistically significant, but those for subjective norm and subjective control were.

Table 4: Simple regression – predicting intention

Predictor	Constant	Beta coef- ficient	t-Value	Probability
Attitude	3.311	0.087	1.039	0.300 (not sig.)
Subjective Norms	2.525	0.238	2.926	0.004 (sig.)
Subjective Control	0.644	0.510	7.064	0.000 (sig.)

The beta coefficients of the significant constructs show that while subjective norms explained 23% of the variation in intention, subjective control was better, explaining 51% of the variation. On the basis of these results, it seems that of the three variables used in the above analysis, two (norms, control) were positively and significantly associated with intention, when the effect of each of them and other factors are not controlled.

4.2 Findings from the Multi-variate Analysis

This section is concerned with seeking answers to the question: Of the three factors investigated in the bi-variate analysis, what is the relative importance of each in predicting intention? To answer this question, multiple regression analyses were conducted, using the Theory of Reasoned Action, Theory of Planned Behaviour as the basis for variable inclusion.

4.2.1 Prediction Using the Theory of Reasoned Action

The first multiple regression analysis was conducted using variables in the Theory of Reasoned Action. Intention was regressed on attitude and subjective norm with both variables entered simultaneously into the analysis. A multiple R of 0.239, an R^2 of 0.057 and an adjusted R^2 of 0.044 were obtained in this model (Table 5). The R^2 tells that both attitude and subjective norm accounted for only 5.7% of the variance in intention.

The multiple regression equation showed that, contrary to the Theory of Reasoned Action, attitude did not contribute significantly to the pre-

Table 5: Predicting intention using Theory of Reasoned Action

	Constant	Beta coef- ficient	t-Value	Probability
	2.517			
Attitude		0.023	0.268	0.789 (not sig.)
Subjective Norms		0.232	2.729	0.007 (sig.)

Multiple R = 0.239, R^2 = 0.057, Adjusted R^2 = 0.044

diction of intention, nevertheless, the coefficient was positive, the expected direction. Consistent with the predictions of Theory of Reasoned Action subjective norm contributed significantly to the prediction of intention. Furthermore, the t statistics provides some clue regarding the relative importance of each variable in the multiple regression (SPSS 1998); this means that subjective norm contributed 10.18 times more than attitude to the prediction of intention.

4.2.2 Prediction Using the Theory of Planned Behaviour

The second multiple regression equation involved testing the Theory of Planned Behaviour by adding perceived behavioural control into the Theory of Reasoned Action model. The findings (Table 6) show that the Theory of Planned Behaviour was a better predictor than Theory of Reasoned Action in the sense that it accounted for 26% of the variance in intention, compared with only 5.7% by the Theory of Reasoned Action. Only subjective control emerged statistically significant. The direction of influence of all Theory of Planned Behaviour factors (attitude, subjective norms and subjective behavioural control) was, nevertheless, in the expected direction, positive. The t statistics associated with each variable shows that subjective behavioural control was much better in explaining intention for it contributed 26.6 times than attitude and 16 times than subjective norm to the prediction of intention.

5. DISCUSSION

On the basis of the above analyses, it appears that subjective control performs best in predicting intention to teach about HIV-AIDS in secondary schools in Botswana, followed by subjective norm. Attitude towards the teaching about HIV/AIDS is the poorest predictor.

Table 6: Predicting intention using Theory of Planned Behaviour

Predictor	Constant	Beta coef- ficient	t-Value	Probability
	0.582			
Attitude		0.018	0.234	0.815 (not sig.)
Subjective Norms		0.032	0.386	0.700 (not sig.)
Perceived Behavioural Control		0.495	6.220	0.000 (sig.)

$R = 0.511$, $R^2 = 0.261$, Adjusted $R^2 = 0.246$

The finding that subjective control and norm perform better than attitude in explaining intention did not lend support to previous studies (Fishbein and Ajzen 1975; Farley et al. 1981; Trafimow and Fishbein 1994). Specifically, these studies found that most multiple regression studies resulted in larger attitude beta weights than the subjective normative ones, although the normative ones were often also statistically significant. These earlier studies led to the obvious conclusion that most people are primarily under attitudinal control and only a minority of people is under normative control.

One explanation may help reconcile our findings with those of the dominant literature. Two studies (Triandis et al. 1990; Trafimow et al. 1991) classify people as individualistic or collectivist and show that terms such as "I am" are more likely to be used by individualistic people and the reverse is true concerning collectivist individuals. These studies have led to the proposition that the human mind has a "private self" where private self-cognitions are stored and a "collective self" where collective cognitions are stored, and culture affects the relative accessibility of these locations.

In some collectivist cultures gaining rewards or avoiding punishments is contingent on knowing what is expected and complying with those expectations. In such cultures children will develop the collective self (Trafimow 2000) because it is constantly accessed. The implication of this concept for the behavioural intention model is that the model may apply differently in different cultures. In the individualistic Western culture, behavioural intention would generally be determined by personal attitudes. In the collectivist Eastern cultures, behavioural intention would be determined not only by personal attitudes, but by the attitudes of important others

as well. The African extended family culture is closer to the collectivist culture and thus behavioural intention would be determined not only by personal attitudes, but also by the attitudes of important others (for example, family, friends and community). This partly explains the dominance of the perceived norms in the determination of behavioural intentions in our study of Botswana.

The finding that the explanatory power of the Theory of Planned Behaviour specific factor (perceived control) was relatively better is consistent with expectations of application of the theory in a developing context. In developing environments behaviour may not be completely under an individual's control, because teachers may lack appropriate resources (for example, availability of the teaching material). This means that the relatively undeveloped infrastructure means that teaching facilities among Botswana schools may be less readily available. It follows that a study of behavioural intentions in less developed situations which places great emphasis on measuring attitudinal factors may be misleading because of under specification of the social-environmental (norms and control) causal factors.

6. CONCLUSION

These findings have a number of implications for public policy makers and NGOs working on HIV infection prevention and reduction action strategies. Successful teaching communications intended to change teachers intention to teach about HIV/AIDS should not only be geared on changing attitudes of teachers, but also pay attention on factors emanating from the social-cultural and economic environment in Botswana. The environment (social and economic) appears more important than attitude in affecting intention to teach about HIV/AIDS in Botswana. Attention should focus on attitudes of the community and improving teaching facilities, and not on the individual or aggregates of individuals and their individual actions.

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