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The Impact of Individual Differences on the Willingness of Teachers in Mozambique to Communicate About HIV/AIDS in Schools and Communities

By

Muriel Visser

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ABSTRACT

The overall purpose of this study was to understand what factors contribute to teachers' willingness to communicate about HIV/AIDS in the broad educational setting (schools and communities). The study sought to fill the gap in the research on teachers and HIV/AIDS which has typically focused on cataloguing teachers' knowledge and attitudes, but without relating them directly to practice. The assumption of this study was that a better understanding of the personal and contextual variables that influence teachers' willingness to communicate about HIV/AIDS provides a key input into policy decisions and into the design of practical interventions that will strengthen the teachers' role as communicators about HIV/AIDS. The data were collected in Gaza Province in Southern Mozambique among primary and secondary school teachers by administering surveys to a stratified sample of 606 primary and secondary school teachers in five districts of Gaza province. Multinomial logistic regression was used to analyze the data.

This study found that age, personal experience with HIV/AIDS, level taught, and value expressive attitude functions toward talking about HIV/AIDS have a consistent impact on teachers' intentions to talk about HIV/AIDS and on their past behavior of talking about HIV/AIDS in schools and communities. Thus younger teachers, teachers who know someone who is sick/has died of HIV/AIDS, teachers who teach upper primary, and teachers who hold weak value expressive attitude functions are more likely to talk about HIV/AIDS across all three behaviors. Future intentions to talk about HIV/AIDS are also influenced by high perceived behavioral control. With respect to school behavior, it was found that teachers who had a high consistent record of talking about HIV/AIDS in schools had a high overall perception of personal risk, a high positive overall attitude toward talking about HIV/AIDS. Finally, with respect to past behavior of talking in the community it was found that in addition to the influence of age, personal experience, level taught, and value expressive attitude, teachers who were more likely to talk about HIV/AIDS if they consistently used condoms, had a high perception of personal risk, and a high positive overall attitude toward talking about HIV/AIDS.

CHAPTER 1: INTRODUCTION

This dissertation reports on the results of a cross-sectional survey carried out among primary and secondary school teachers in Mozambique. The purpose of the study was to identify key individual difference variables that impact on teachers' decisions to address HIV/AIDS in the classroom, outside the classroom and in the community at large[1]. This first chapter of the dissertation presents the problem statement, outlines the purpose of the study, and provides information on the context of the problem.

Problem Statement

Seventy percent of all new HIV infections take place in Africa (UNAIDS, 2003) and there can be no doubt that HIV/AIDS is no longer only a public health challenge, and it is having a devastating impact on the continent. Poverty, lack of adequate medical facilities, inadequate education, cultural/social barriers and political inertia are but a few of the complex factors that facilitate the spread of this disease which is undermining the hard-won economic and social gains that many African countries were able to make in the last two to three decades (IBRD/World Bank, 2000). The impact of HIV/AIDS is pervasive and far-reaching, affecting individuals and communities not only psychologically but also economically and socially[2]. Families lose their most productive members to this disease, leaving children and elderly people without means of support. The high cost of the disease wreaks havoc within communities where the already fragile structures are not capable of absorbing further strain.

By now startling statistics are driving home the reality of this disease[3] and most of the countries that are affected by HIV/AIDS have – although often with significant delay – put in place programs and activities aimed at combating the spread of HIV/AIDS. Such action plans frequently include a combination of the following elements: mass media campaigns, improved health

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[1] The three domains of discussion (the classroom, informally in school and in the community) will henceforth be referred to as the "educational setting". The educational setting is thus interpreted in the broad sense as the various physical spaces in which teachers play a role in communicating and creating awareness of HIV/AIDS.

[2] UNAIDS estimates that HIV/AIDS will result in a loss of more than 20% of gross domestic product in countries most affected by the disease by the year 2020 (IBRD/World Bank, 2002).

[3] In 2003 there were 26.6 million adults and children living with HIV/AIDS in Sub Saharan Africa and the adult prevalence rate was estimated at 8.8%. HIV affects women disproportionately, who are 2.5 times more likely than men to contract the disease (UNAIDS, 2003).

services for early detection and treatment of sexually transmitted diseases that facilitate HIV infection, voluntary HIV testing, peer education, counseling and awareness activities within the schools, community level awareness building, etc.

Initially, the focus of HIV/AIDS interventions was on specific traditionally risk-laden population groups, such as sex workers, truck drivers, and pregnant women. More recently, this approach has shifted to include prevention efforts targeted at larger community groups (Verma, Sureender Guruswamy, 1997), and in particular at children between the ages of 5-14, the so-called "window of hope" (IBRD/World Bank, 2002) for the countries in Southern Africa that have been so severely affected by HIV/AIDS. These children have escaped infection at birth[4] and are assumed not yet to be sexually active[5]. In addition, at this stage children are still developing attitudes and behavioral patterns and are therefore more easily compared to adults (UNAIDS, 1997).

One of the easiest and most direct ways of reaching this large target group is through the school system. In a number of countries in Africa – but certainly not all – a majority of children in this age group go to school at least for some years. And so, by focusing on schools - and particularly on the primary level and lower secondary level - it is hoped that it will be possible to reach children before they drop out from school and before they become sexually active (UNAIDS, 1997). Arguments for the importance of focusing on education are based not only on "the window of hope" but also on a consistently demonstrated strong inverse association between incidence of the disease and level of education (c.f. Pinckney, 1996; Weir & Knight, 2000) – an association that also exists for other diseases such as malaria and cholera (Vandemoortele & Delamonica, 2000). In addition, HIV/AIDS affects young girls and women disproportionately and since they are often easier taken out of school, it becomes important to catch them before they leave (in countries with high levels of infection, such as Botswana, Malawi, Swaziland, and Zimbabwe for every 15-19 year old boy infected there are five to six girls infected in the same age group).

Within this strategy of reaching children in schools and in their communities, teachers are expected to play a very important role as educators about the risk of HIV/AIDS and as facilitators of key knowledge, skills and attitudes. The focus on education as a vehicle for change in HIV/AIDS has generated an increasing volume of research. However, the focus of these studies

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[4] There is a 35% chance of transmission of HIV from mother to child during delivery or through breast milk if no preventive action is taken (UNICEF, www.unicef.org/aids/index_preventionMTICT accessed 03/27/04).

[5] 60% of all new HIV infections are among those in the age-group of 15-24 (UNAIDS, 2003).

has generally been on the attitudes, knowledge and behavioral intentions and change among *students and young people* (cf. Venier, Ross & Akande, 1997; Nwokocha & Nwakoby, 2002; Brook, 1999, Sikand, Fisher & Friedman, 1996, Davis, Noel, Chan & Wing, 1998; Mkumba & Edwards, 1992). Only very few studies have examined the current and potential role of teachers in this context of HIV/AIDS (c.f. Lin & Wilson, 1998; Action Aid, 2003).

Purpose

This study seeks to identify and further understand key factors that may contribute to teachers' willingness/intent to communicate about HIV/AIDS in the educational setting. The term "willingness to communicate about HIV/AIDS in the educational setting" is used deliberately to reflect the broad scope of knowledge, attitudes, and skills that teachers are expected to advocate in the overall educational setting. The educational setting is interpreted as the broad set of physical spaces within which teachers interact with students, in other words, formally in the classroom, informally in school, and on formal and informal occasions in the community.

The literature review presented in Chapter 2 highlights a number of limitations to the research as it has been conducted to date. Specifically, as was mentioned above, research on HIV/AIDS education has been largely restricted to studying the students. In addition, most research on HIV/AIDS education in African countries (as opposed to western settings) has neglected to test key models and theories that may provide useful indications as to how to plan or further refine communication and education interventions (Kelly, 1999). Furthermore research in HIV/AIDS education as a whole has mostly neglected to examine how teachers' attitudes and perceptions of the disease affect the crucial role that they are expected to play as mediators of the learning process for their students. As a consequence, no research has been done in the African context to understand individual and contextual factors that may contribute to the interpretation teachers have of their role in combating HIV/AIDS and how this affects their practice as teachers. In much of the literature there appears to be an implicit assumption that given the right conditions – time, training, curricular "space" and materials (cf. UNAIDS, 1997) teachers will – regardless of their individual characteristics - be the right vehicles to deliver the message and to ensure that students acquire the knowledge and develop the attitudes and skills that they need to effectively address the threat of HIV. This stands in contrast with what we know today about how variables such as attitudes, experience, social norms, among others, can influence behavioral intent and on behavior.

This study addresses some of the limitations of HIV/AIDS research by using a theoretical framework as the basis for the initial inquiry of these contributing factors and by studying a target group that has traditionally been neglected in HIV/AIDS education research. A combination of

two theoretical frameworks which in other behavioral research have been relatively stable and consistent predictors of behavior and behavioral intent are used. Specifically, this study combines Attitude Function Theory (Katz, 1960) and key elements of the Theory of Planned Behavior (Azjen, 1985) to examine how the attitudes, perceptions of social norms and perceived behavioral control of primary and secondary school teachers in Mozambique impact on their willingness to communicate about HIV/AIDS in the broad educational context (formally and informally in schools and in communities). In addition, the study examines how a number of other individual characteristics of teachers (such as their level of experience with HIV/AIDS) impact on willingness to communicate about HIV/AIDS. In summary, the study is intended to:

- Examine to which extent the three "traditional predictors" of behavioral intent in the Theory of Planned Behavior (Azjen, 1988) – attitudes, perceived social norms, and perceived behavioral control - predict teachers' willingness to communicate about HIV/AIDS.
- Establish whether a number of additional variables that have been linked to behavioral intent in HIV/AIDS research affect this complex relationship, such as: the impact of personal experience with HIV/AIDS, the impact of personal behavior, the role of HIV/AIDS knowledge, age, and gender.
- Assess whether attitude functions (Fazio, 1986) provides a plausible explanation for differences in teachers' willingness to communicate about HIV/AIDS in the classroom.
- Inform selected conclusions about the individual difference variables in this study with qualitative accounts of the individual experiences of teachers regarding their confrontation with the HIV/AIDS pandemic in schools and communities.
- Draw conclusions and formulating recommendations from the study for policies and practices in education.

The results of this study constitute an initial step in identifying personal and contextual variables that impact on teachers' willingness to communicate about HIV/AIDS in the broad educational setting (school and community). Understanding how such individual and environmental differences influence teachers' approach can provide a key input into designing interventions that will strengthen teachers' role in addressing HIV/AIDS within schools and communities.

Context of the Problem

Mozambique

Mozambique has the dubious distinction of being one of the countries in Southern Africa that has been severely affected by the HIV/AIDS pandemic. Present HIV prevalence rates[6] are estimated to be 13% (UNAIDS, 2003) of the adult population (15 – 49 years) which puts Mozambique in a somewhat better position than other countries in the region, such as Botswana (with 38.8% prevalence, the highest rate in the world), Zimbabwe (33.7%), Swaziland (33.4%) and South Africa (20%) (UNAIDS, 2003).

HIV prevalence in Mozambique is higher in areas bordering other seriously affected countries (such as Malawi, South Africa and Zimbabwe) and along the three main transport corridors of Maputo, Beira, and Nacala (Verde Azul Consult Lda, 2000). For the southern and central provinces where the HIV prevalence is between 13 and 21% (Arndt, 2003), and which are both economically very important regions, the impact of HIV/AIDS is expected to reduce life expectancy from 50 years in the absence of HIV/AIDS to 36 years in the next 10 years (Ministry of Health et al., 2001). Because HIV/AIDS affects the economically active population, the economic impact of the pandemic is expected to be severe, with the economy declining by up to 23% by the year 2010, resulting in a 1% annual expected decline of the GDP (Arndt, 2002).

Mozambique has been slow to react to the threat of HIV/AIDS. There are many explanations for this. To some extent this delay echoes trends in other countries where it seems that a critical mass of infections needs to be achieved – the pandemic has to become "visible" - before governments and organizations are spurred into action (ADF 2000). In the case of Mozambique, HIV/AIDS is also a relatively recent phenomenon. The extreme poverty of the country – it is the sixth poorest country in the world (UNDP, 2000) – has meant that people often simply die of something else before they die of AIDS. Also, it was only at the end of the 16-year civil war in 1992 that formerly isolated population groups could resume their migratory activities, which have contributed to the spread of the disease. In addition, with the end of the war, large groups of refugees returned from neighboring (and much more severely affected countries) which further contributed to spreading the disease.

[6] Prevalence refers to the estimated percentage of the adult population living with HIV at a specific time, regardless of when infection occurred, whereas incidence reflects only the number of new cases of a disease in a defined time period.

However, alarming statistics have been driving home the message. Mozambicans, and particularly the young, are increasingly dying of AIDS. In a population of 16 million there are currently 400,000 AIDS orphans and this number is expected to grow to 1,000,000 by the year 2010 (Verde Azul Consult, Lda, 2000). Since 1998, the Government has accorded the status of "key priority" (MINED, 2003) to the issue of HIV/AIDS and has operationalized this by establishing a National HIV/AIDS Council that responds directly to the Prime Minister. A considerable amount of effort has been spent on preparing a national approach to fighting HIV/AIDS and on developing sectoral strategies in the areas of health, education, social action, and others, and concrete activities on the ground to deal with HIV/AIDS, both in terms of prevention and mitigation, are gradually emerging.

Impact on Education

A number of ministries play a key role in the implementation of the national HIV/AIDS strategy. One of these is the Ministry of Education. Since teachers are found even in the most remote areas of the country where no other government staff can be found[7], it makes sense that they should therefore play a key role in enhancing awareness and in providing children and the community at large with vital information and skills in combating HIV/AIDS.

As in other countries of the region, however, the education system in Mozambique itself is in crisis as a direct result of HIV/AIDS. The projected statistics are startling. It is estimated that there will be 13% fewer children in primary education by 2010 and that 17% of the teachers will die in the same period (Verde Azul Consult Lda, 2000). The current rate of teacher training and deployment will not be sufficient to make up for the loss of teachers due to HIV/AIDS (Arndt, 2003). Once again, girls in the system are expected to be disproportionately affected since they are more vulnerable to becoming infected with the disease and since families need their labor to take care of the sick which means they will be under pressure to leave school. As teachers and pupils get infected, the quality of education is expected to decline further. As in other countries in the region, HIV/AIDS will affect enrollments in education demographically (Gachuhi, 1999). One of the foreseen impacts is the reduction in the size and changing the characteristics of the student and teacher population. Thus it is projected that by 2010 18% of children in lower primary education (which is known as *Ensino Primário do Primeiro Grau* or EP1 and covers Grades 1 through 5) and 25% of children in upper primary will have lost one or both parents (MOZ ESSP,

[7] Teachers comprise 55% of the total civil service in Mozambique.

2003). Currently 10% of EP1 pupils and 12% of EP2 (*Ensino Primário do Segundo Grau*, Grades 6 and 7) children have lost either one or both parents. The teaching force will also slowly decline as teachers die as a result of HIV/AIDS and cannot be replaced. Projections of teacher deaths predict that 9,600 teachers will die by 2015 (the total workforce is currently around 45,000 teachers). The pandemic is also expected to have a socio-economic impact by affecting the household arrangements and the very social fabric of society, as well as a psychological price, through its impact on the emotional state of both students and teachers (ADF, 2000). In financial terms, the conservative estimate is that the Ministry of Education will need to budget at least US$ 110 million in additional funds for the next 5 years to cover for losses as a result of HIV/AIDS (Carr Hill et al., 2001).

The Role of Teachers

The Ministry of Education has identified four strategic areas for addressing HIV/AIDS, which focus on: a) the Ministry of Education as an employer; b) the Ministry of Education as a provider of education with responsibilities toward children and communities; c) the Ministry of Education as a system; and d) the Ministry of Education as part of a broader national response (MINED, 2002). As a provider of education the Ministry of Education's strategy and action plan for addressing HIV/AIDS defines the training of teachers as a key activity. The aim is to ensure that all 45,000 primary and secondary school teachers in the system are provided with basic training in HIV/AIDS prevention so that they know what the pandemic is, how it is caused, how it can be avoided, and what support is available to both teachers and students who are affected. Teachers are expected to use their knowledge and skills to integrate HIV/AIDS related activities in the extended educational context (classroom, extra-curricular activities, and in contacts/dialogue with communities). They are expected to cover a wide variety of HIV/AIDS related topics and issues ranging from origin, symptoms and prevention of HIV/AIDS to the social and economic impact of the disease, stigmatization and living positively with HIV/AIDS (MINED, 2002; IAP, 2002). The new curriculum that will be implemented in 2004 progressively integrates this content into the different Grades and also offers the possibility of including locally relevant materials (the so-called "local curriculum" which is the 10% of the curriculum over which provinces can decide). In addition, the Ministry of Education is in the process of developing a Communication Strategy (MINED, 2003) which outlines in some detail the communication approach for different levels of target groups (adults, adolescents over 15 years of age, adolescents between 12 and 15 years old, and children under 12). One of the main differences between the different groups is the level of explicitness with which issues such as condoms and sexuality are discussed.

Gaza Province

The specific context in which this study took place is Gaza province. This province is located in the south of the country, has an area of approximately 75.000 $km^{2,}$ and a population of just over 1,061,000 (around 8% of the total population in Mozambique), of which 57% are women. Gaza has 12 administrative districts, however, over 85% of the population in the province is concentrated in the southern six districts of the province which comprises only 15% of its total surface area. Much of the income in the province comes from emigration of labor to the mines and other activities in South Africa (the emigration rate for Gaza is the highest in the country), but agriculture and cattle production also provide significant sources of income.

Gaza province has the fourth highest HIV/AIDS prevalence rate in Mozambique and is the most affected province in the south of the country (Arndt, 2003). In 2003 alone, it was expected that 19,500 children would become orphaned as a result of the pandemic. The relatively high prevalence is related to the migratory activity, but also to the transport corridor between the south and the north which cuts through the province, and the fact that large contingents of soldiers from countries with very high levels of HIV/AIDS prevalence (such as Malawi and Zimbabwe) were stationed in the province in the mid-1990's as part of the peace keeping efforts of the United Nations.

Various initiatives have been put in place in this province to combat the spread of HIV/AIDS and to address its impact. A Provincial Office for HIV/AIDS was created in 2001 and coordinates the initiatives of the Government in the various sectors, such as health, education, social work, labor, etc. Communication and awareness campaigns are being run by various national and international organizations of which the most prominent are the Jeito program which uses social marketing to advocate the use of condoms, FDC (which is run by the widow of the first president of Mozambique), and the BIZ program. These campaigns use a combination of posters, radio programs, theatre groups, and peer support activities among others. The most visible part of these campaigns is the posters, many of which have a predominantly pessimistic message about the consequences of HIV/AIDS. The messages are mostly kept simple given the high percentage of illiterate people in the province.

HIV testing has only been available in the province in the past two years and facilities for voluntary testing are only available in three of the largest cities in the province. Pre and post-test counseling is available at each of the testing sites. Two of the sites that were visited in the course of this study, however, are in highly visible locations (next to the hospital in the main street of the town) which do little to guarantee the anonymity of the people that seek to use the services.

There are approximately 110,000 students in primary education in Gaza province, most of whom study in the densely populated southern area of the province. A total of just over 3,000 teachers teach classes from Grades 1 through 12. Working conditions for teachers are hard, with many teachers working double or triple shifts to cover the high need for education, particularly in the densely populated urban areas of the province. As a result the number of contact hours between teachers and students is very small (an average of 2 hours and 50 minutes per day) and teachers are hard pressed to find time to deal with the full requirements of the curriculum. Class sizes are high (with an average of 71 students per teacher) and pose a considerable challenge to teachers. Most teachers simply lecture to their pupils and assume that they learn by endlessly repeating out loud the phrases that are recited to them.

There is considerable variation in the extent to which teachers are aware of the impact of HIV/AIDS. As will be discussed later on, some teachers are acutely aware of the impact of the disease and talk forlornly of the numerous funerals that they have to attend, and of the people that they know have been affected by the disease. Other teachers have only heard of examples through the mass media. HIV/AIDS training for teachers is still in its infancy and usually takes the form of an extra hour or two in an existing training course. The Ministry of Education does not have a data base to monitor the impact of HIV/AIDS or even to keep track of the deaths of teachers. Support for teachers that are affected by HIV/AIDS is practically non-existent and efforts to recruit teachers as HIV/AIDS activists have met with mixed success. As the provincial coordinator for one of the communication campaigns noted, it is hard to find people who are willing to volunteer for such a complex and demanding activity given that teachers face both at work and at home complex and stressful situations.

Summary

The continued spread of HIV/AIDS is a major threat to Sub-Saharan Africa. In Mozambique, teachers have been given a major role in providing information, improving awareness and contributing to attitude and behavior change in schools and community. However, very little research has been done to examine teachers' perceptions of this disease and their approach to addressing this challenge.

This study aims at addressing this shortcoming in the literature by systematically examining various factors that may impact on the willingness of teachers to address HIV/AIDS in their schools and communities. The identification of these factors is of importance in identifying teachers that show particular potential in addressing HIV/AIDS and should provide a basis for fine-tuning training and other support interventions to the specific characteristics and needs of teachers. Two theoretical frameworks, namely the Theory of Planned Behavior and Attitude

Function Theory are used as a basis for the inquiry into the individual difference variables of teachers that impact on their willingness to communicate about HIV/AIDS. Finally, the study covers both primary and secondary level teachers but is limited to the southern province of Gaza.

CHAPTER 2: LITERATURE REVIEW

In the two decades since HIV/AIDS was first identified, the body of research into the disease has been steadily growing. Today this research covers a wide range of topics ranging from strictly medical studies to the social and demographic implications of the study as well as to research into interventions and best practices that may help to halt the spread of the disease. This chapter will provide an overview of the impact of HIV and AIDS in Africa, discuss various strategies that have been used to address HIV/AIDS, reviews assumptions and key findings with regard to using teachers as tools for change, provides an overview of variables that have been associated with HIV/AIDS behavior, and briefly reviews two key theories that are used as the basis for this study (namely the Theory of Planned Behavior and Attitude Functions). The chapter concludes with a description of the research questions and hypotheses for this study.

The Impact of HIV/AIDS in Africa

The statistics about the impact of HIV/AIDS world-wide are overwhelming. Estimates of the United Nations Agency for AIDS (UNAIDS) indicate that over 40 million people were living with HIV/AIDS in 2001, that nearly 25 million people have died of AIDS since the disease was first discovered in the early 1980's, and that more than 15.6 million children under 15, have lost either their mother, their father, or both parents as a direct result of AIDS (UNAIDS, 2001).

While every nation has in some way been affected by this pandemic, it is in Africa that the grip of HIV and AIDS has been, by far, the deadliest. Twenty-eight million people in Africa are living with HIV/AIDS and Southern Africa has the highest HIV adult prevalence in the world. Well over two thirds of the HIV/AIDS related deaths (18 million, or 72%) are from Africa (World Bank, 2002) and almost one in every ten adults in sub-Saharan Africa are HIV positive (UNESCO, 2002), although infection rates in individual countries such as South Africa, Botswana, Malawi, and Swaziland are much higher.

The magnitude of the problem becomes clear when one considers that well over one third (39 percent) of adults in Botswana, and one in every five (20 percent) adults in South Africa, are estimated to be HIV positive (NIC, 2002).

At a human level, the financial burden of HIV/AIDS is at least 30% greater than deaths from other causes, because it affects the most productive age group (young adults), and because the costs of medication and caring for the sick are staggering and can be prolonged (Coombe,

2002). HIV/AIDS leads to financial, resource and income impoverishment (Barnett & Whiteside, 2002), and puts severe strain on individuals and households. The psychological stress that is a direct consequence of the impact of HIV/AIDS on individuals and families can compromise school and work performance, family relationships, and the capacity to take care of children, and may also culminate in risk behavior such as alcohol and drug abuse and in unsafe sexual behavior (Coombe 2002).

The HIV/AIDS pandemic disproportionately affects women who already carry a very hard burden in many African countries. From a physiological and medical perspective women are at a greater risk of getting infected. In addition, they are often solely responsible for the household and the children, and have less financial and material reserves to fall back on. Women also face the risk of abandonment or abuse at the hands of their partners when HIV/AIDS strikes. And when family members fall sick as a result of HIV, it is most often the girls who will be removed from schools to take care of those who are sick (Barnett & Whiteside, 2002). This increases their susceptibility to poverty and to the disease because they will probably marry younger and will not have the benefits of an education.

HIV/AIDS represents not only a tragedy at a human level but also heavily affects the economic development of countries, many of which are already severely strained for resources. The weight on the health system is tremendous and the loss of productive workforce has implications for the economy. Cross country analyses conducted by the World Bank suggest that the region of Southern Africa is losing an estimated 0.7 to 1.0 percent per capita growth per year as a direct result of HIV and AIDS and that by the year 2010 it may have reduced the aggregate output by between 15 to 20 percent (World Bank, 2002). By some estimates between 50 and 80 percent of hospital beds in Southern Africa are occupied by people with HIV related infections (UNAIDS Press Release, 2001).

UNAIDS (2003) warns that unless drastic action is taken, the damage that has already taken place is very likely to be minor compared to what is still to come. In fact, as Kelly (2003) notes, all predictions to date have proven to be conservative at best with dire projections about the progression of the pandemic needing to be revised every year because they are inevitably short of the mark.

Changing Strategies in Addressing HIV/AIDS

In Africa, HIV/AIDS has - since it was first discovered - been a predominantly heterosexually transmitted disease which affects men, women and children, although in varying proportions. Because the pandemic poses such enormous challenges, governments and health

planners have been hard pressed to find adequate ways of containing its spread and the last two decades have seen a multiplicity of different approaches develop, some which have since been discarded. In Africa, as in other continents, HIV/AIDS was initially seen mainly as a health concern, and it was widely assumed that preventive and supportive interventions which directly targeted vulnerable segments of the population (truck drivers, sex workers, drug users, etc.) would succeed in containing the pandemic. However, as the dimension of the problem started to become increasingly evident, the woeful inadequacy of this approach became apparent and the disease quickly spread over to other segments of the population (World Bank, 2002).

Over the past five to seven years the focus has shifted from approaches targeted very specifically to segments of the population from a health perspective to multi-sectoral plans and strategies, which seek to involve a wide variety of government and non-governmental agencies (Coombe, 2002). The rationale for a multi-sectoral approach arises from the recognition that HIV/AIDS requires an integrated response to break the cycle of poverty and gender inequality that is at the center of its spread (UNESCO, 2002). The education sector figures prominently within this newly emerging multi-sectoral approach (Coombe, 2002; UNESCO 2002). There are various reasons for this. Firstly, children between the ages of 5 and 14 have the lowest HIV prevalence rate of all population age groups, since they did not get infected at birth and are generally not yet sexually active. This means that focusing on forming/changing the attitudes, skills and behavior of these children can have a potential pay-off. Secondly, children in this age group are still in the formative stages of their lives, which means that their health and social behavior can still be influenced (UNAIDS, 1997).

School-age children thus constitute the “window of hope” (IBRD/WB, 2002) for many countries, and the education system provides a privileged opportunity for working with this age group since, in many of the countries, most children spend at least a few years of their lives in school. As the World Bank notes: “education offers a ready made infrastructure for delivering HIV/AIDS prevention efforts to large number of uninfected population” (IBRD/WB, 2002, p. xv). The focus on the education system also makes sense from a cost-benefit perspective. It is widely recognized that basic education is one of the most effective means of making a difference in economic terms since it becomes possible to reach large numbers of children at a time. And finally, there is ample evidence that: “a good basic education ranks among the most effective – and cost-effective – means of HIV/AIDS prevention” (IBRD/WB, 2002, p. xv), because there is a strong inverse relationship between vulnerability to diseases such as HIV, malaria and others, and level of education (Vandemoortele and Delamonica, 2000).

Education and Teachers as Tools for Change – Assumptions and Key Findings

The focus on education makes sense objectively and intuitively when one considers that the education system reaches the majority of people in most countries and that almost every prevention effort depends on education and communication in some way or another (Kelly, 2003; UNAIDS, 1997; UNESCO 2002). Education is also necessary to combat the culture of silence, the stigmatization, and the discrimination that is associated with HIV/AIDS (UNESCO 2002). From a gender specific perspective, there is an additional benefit to be gained, since research has shown that girls who stay in school longer will start sexual activity later, as well as being more likely to require male partners to use condoms later on in life (World Bank, 2002).

The responsibility of promoting change through the education system falls on the shoulders of teachers. Policy and program documents analyzed for the purpose of this study consistently suggest that the role of teachers in combating HIV/AIDS should involve at least the following three key elements:

- Creating preventive awareness of the disease by generating knowledge/understanding;
- Promoting attitude development and change; and,
- Ensuring that children develop skills that will allow them to be competent and assertive in managing relationships and sexual issues (UNESCO, 2002).

Knowledge about HIV and AIDS is centered on disseminating information about the modes of transmission, means of prevention, and behaviors that enhance susceptibility. Attitudes typically concern not only the overall attitude toward the disease, but also encourage tolerance and understanding of those that have been affected by HIV. The skills that children will need are frequently formulated very broadly (and are therefore often termed life skills) in terms of communication, critical thinking, self-efficacy, among others. In practice, however, a lot of the teaching about HIV/AIDS in schools still focuses only on the knowledge dimension of HIV/AIDS (Action Aid, 2003).

The task for teachers is, however, daunting from various perspectives. 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; Kelly, 2003; Action Aid 2003). Teachers often rely on rote learning, which promotes an academic/overly scientific interpretation of the subject (Kelly 2003; UNESCO 2002; Action Aid 2003) without ensuring that students have a true understanding of the factors that

affect transmission of the disease and which still leaves them relatively unequipped to prevent becoming infected. An additional complicating factor is that 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. Kelly notes that although educators are usually aware of the knowledge and information gap that exists between the home and the school, they are very often - because of the reasons mentioned above –unable to make provision for it. A tension arises between how disease is interpreted in terms of values attitudes and beliefs in the home environment and the scientific way in which it is presented in the schools (Kelly, 2003). At the same time, the nature of the disease is such that open discussion is tremendously important (Kelly, 2003; Macintyre, Brown, Sosler, 2001) since it is the silence about the disease and its effects that facilitates its spread and leads to stigmatization. Some researchers therefore argue that education about HIV/AIDS and related areas should therefore not be seen as an "optional extra ... (but as) …a matter of life and death" (Kelly, 2002, p. 11).

An additional complicating factor is that teachers are feeling the strain of the pandemic too, and according to some sources are being disproportionately affected by it (Coombe & Kelly, 2001). The World Bank (2002) sums up the current situation by stressing that HIV/AIDS has a heavy impact on the education system from three perspectives. The first of these is the demand for education, since children are getting sick, leading to absenteeism and dropping out of school. The second impact is on supply of education as a result of sickness, death and psychological and economic strain on teachers. And finally, the combined effect of the impact on supply and demand is having a considerable impact on the costs of education, as sick days go up and new teachers have to be trained to substitute for those that are falling sick and dying. In many countries teachers seem to be dying at a much higher rate than similar age groups – quite possibly as a result of contracting HIV[8]. As a result, Kelly (2003) notes that the education system will need to establish programs and activities that run on a continuum from prevention to care, so as to be able to prevent the spread of the pandemic among both children and teachers, and to provide effective care and support for those among these two groups that are already affected by the pandemic. The World Bank estimates that an additional 550 million dollars per year will be needed for the low income countries to achieve the objectives of Education for All.

There is some (gradually increasing) recognition for the fact that teachers probably lack many of the key 'ingredients' that they need (because of the constraints mentioned above) to effectively address the three vertices of an integrated education approach to combating HIV/AIDS

[8] Teachers in Africa often spend large periods of time away from their family which makes it more difficult for them to maintain a monogamous relationship. Also, in many countries there is simply not a culture of monogamy (Kesby, 2000).

(UNESCO, 2002, Kelly 2003). Yet, governments and strategic plans in Eastern and Southern Africa generally continue to ignore or fail to address the need to focus on HIV/AIDS education and support for teachers in pre- and in-service training as well as in schools (Coombe, 2002) even though there is evidence that such training can contribute to better understanding and more positive attitudes toward that disease by teachers (Chifunyse, Benoy, Mukiibi, 2002). There is a serious concern about the capacity or willingness of many teachers to engage in life skills programs or to provide the complementary care and counseling support (Coombe 2002). So, as Coombe notes: "it is assumed that teachers will be at the HIV/AIDS battlefront, but they are generally unarmed" (2002, p.30).

In addition, most of the research on HIV/AIDS education in schools has focused on assessing the change in the target group (i.e. the children in the schools) in terms of knowledge, attitudes, and intended or actual behavior (cf. Horizons, 2001; Venier, Ross & Akande, 1997; Nwokocha & Nwakoby, 2002; Brook, 1999, Sikand, Fisher & Friedman, 1996, Davis, Noel, Chan & Wing, 1998; Mkumba & Edwards, 1992). Far fewer studies have specifically and systematically examined: i) teachers' knowledge, attitudes and behavior with regard to HIV/AIDS education; 2) how teachers are juggling this complicated task of contributing towards the fight against HIV and AIDS in their schools and communities; and 3) how they are perceiving the impact of the disease (or how the disease will have an impact on them). As is noted in a recent report by Action Aid: "very limited research has been devoted to the implementation of HIV/AIDS in the classroom" (2003, p. 31), and most of what is known about what happens in school is based on anecdotal evidence (Kelly, 2000). There appears to be an implicit assumption that once teachers are given the right training and support (curriculum and materials), they will necessarily become effective vehicles for contributing to promoting the envisioned change in the "window of hope" target group.

The limited research that has looked at teachers in the context of HIV/AIDS has thus focused heavily on determining what teachers know, and on identifying possible misconceptions, and on whether they have been teaching the content that they are required to teach. A brief overview of a selection of studies is interesting for the present inquiry, not only because it illustrates the point that was just made, but also because these studies reveal something of the complexity that characterizes the situation under which teachers have to carry out their role of teachers and facilitators of HIV/AIDS knowledge, skills and awareness.

Two separate qualitative studies by Chiwela and Mwape (1999) and Molambwe (2000) of Zambian teachers and HIV/AIDS clearly reveal that most teachers in that country have neither been trained to deal with HIV/AIDS nor have they been provided with teaching/learning materials. As a result, teachers are not sufficiently knowledgeable on the topic to be able to pass on correct and complete information to students. Teachers were also not aware of the need to use extra-

curricular activities to teach HIV/AIDS instruction and when questioned about this they generally indicated that they did not see extra-curricular activities as a viable channel for teaching about HIV. The study also highlighted a lack of openness towards communicating about HIV and AIDS, with teachers declaring they felt uncomfortable talking about matters related to sex with their pupils, and thus engaging in selective teaching of topics. Chiwela and Siamwiza (1999) reported that teachers believe that young people who are exposed to sexual information will be more likely to engage in sexually permissive behavior later on in life and thus argued against providing this information.

A study of science teacher's intentions to teach about HIV/AIDS in the United States (Lin & Wilson, 1998) found that teachers' attitudes toward teaching about HIV/AIDS was the most significant of various factors examined in predicting intentions. Other important predictors were teachers' knowledge of HIV/AIDS, more positive attitudes towards teaching about HIV/AIDS, less negative social influence from principals and other managers, and availability of resources. Teachers with higher intentions were also found to be less embarrassed talking about sexual subject matter.

A qualitative study in India (Verma, Sureender, and Guruswamy, 1997) which examined children and teachers' perceptions of AIDS and sex found a similar relationship between science teachers and less inhibition in talking about HIV and AIDS. This perception was shared by non-science teachers who declared that this was a topic that should be dealt with in science class rather than throughout the curriculum. A study in Massachusetts, United States, demonstrated a clear ink between knowledge and subject taught (Dawson et al., 2001) with health teachers having a significantly better knowledge of HIV/AIDS. The same study also found a direct relationship between teachers' knowledge of HIV/AIDS and positive or supportive attitudes toward HIV, and also found that female teachers hold more positive attitudes toward teaching about HIV/AIDS than male teachers.

One of the most relevant of these studies is a recent study by Action Aid (2003) on the difficulties of communicating about HIV/AIDS in schools in Kenya and India. This study established that many teachers engage in selective teaching of HIV/AIDS topics, leaving out sensitive and sexually explicit material and presenting the content in an overly-scientific manner. Selective teaching appeared to be a particular problem in rural areas with teachers appearing to be "teaching some lessons on HIV, but exercising their own judgment in which messages should be taught or not" (p. 32). The report highlights as possible reasons for this situation lack of training, lack of confidence and responsibility, gender issues, low priority in the curriculum to these lessons, and the wider crises in education which is perpetuated by poor conditions in schools, low salaries and other factors. The study concluded that this selective and abstract

teaching approach was contributing to the culture of silence and to the perception that HIV/AIDS is linked to immorality and perpetuating the belief that HIV/AIDS is a “them, not us” (Action Aid, 2003, p.7) issue which, as has been well documented, perpetuates the culture of silence, and leads to further stigmatization and denial. In addition, a significant number of students (23 percent in Kenya and 13% in India) reported that they felt teachers were probably not the best role models for teaching about HIV/AIDS since their own sexual behavior contradicted with what they were supposed to advocate. The study argues for a focus on developing locally-driven materials in teaching about HIV and AIDS, and that these materials should include local testimonies, statistics and case studies. It also emphasizes the importance of training teachers to use the life skills that they are supposed to convey to their students.

To this I add my own study (Visser, 2002) which examined teachers’ perceptions of the impact of HIV/AIDS on schools and communities in Mozambique. This qualitative study clearly highlighted the multidimensional interpretation that teachers have of the factors that influence the continued propagation of the disease – factors which lie very much beyond the boundaries of that which is the responsibility of the school system, to include issues such as poverty, human rights, the after effects of the war, cultural and social norms, among other issues. In this study, teachers clearly emerge as individuals, with their own experience and personal stories about the manner in which the HIV/AIDS pandemic is affecting their schools and communities. The findings of this study also underscored the potentially significant impact that knowing someone who is affected by HIV/AIDS can have. The findings of this study concur with those of Action Aid (2003) and of Chiwela and Mwape (1999) and Molambwe (2000), in highlighting the very narrow and academic interpretation that many teachers appear to have of their role by focusing on the scientific dimensions of the disease, in detriment of the holistic approach that, as was seen above, is being advocated by health communication experts and development workers.

What lessons can we learn from this brief overview? In the first place there is an obvious inconsistency between the level of responsibility that is being given to teachers and the amount of research that is being devoted to teachers as key players in the fight against HIV and AIDS. In the second place, the review clearly shows that very few of the studies examined teachers as individuals, as distinct personalities, within their teaching context. Specifically, there appears to have been very little consideration of how individual difference variables which in other HIV/AIDS related studies have shown to be crucial - such as knowledge about HIV/AIDS, knowing someone who is affected by HIV/AIDS, perceived self-efficacy, and attitudes toward particular aspects of the disease - impact on teachers’ approach to dealing with this pandemic. Finally, most of the quantitative studies have used convenience samples and can therefore not be generalized beyond the group of teachers studied.

Given the pervasive impact of HIV and AIDS on communities in Africa and the dire predictions of what is still to come there is no doubt that all resources, human and otherwise, will need to be mobilized to fight the disease. With respect to teachers, the present study will seeks to identify whether such specific individual difference variables affect their teaching intentions and actual behavior, and provide in-depth accounts of how teachers are being affected by HIV/AIDS and how they are addressing the pandemic in their schools and communities.

Before turning to the details of the present inquiry it will be necessary to consider two further issues. The first will be a succinct review of variables that in other studies have been shown to influence HIV/AIDS related behavior and which are relevant to the present study. The second necessary detour will argue for the pertinence of using both the Theory of Planned Behavior and Attitude Functions as the basis for understanding teachers' intentions.

Variables Associated with HIV/AIDS Behavior

Quantitative and qualitative studies over the past decade and a half have contributed to our understanding of factors that influence HIV/AIDS related behavior and it is important, for the purpose of this study, to briefly review here some of the variables for which strong and persistent links have been found. The results of these studies clearly highlight how behavior is an outcome of a complex interaction of a variety of factors including knowledge, perceived threat, perceived self-efficacy, proximity to people who have been affected by HIV/AIDS, among other factors.

A first important aspect is the strong and consistent link that has been found in a number of studies between the *level of knowledge of HIV/AIDS* and sexual activity (Magnani, 2002). People with a higher level of knowledge appear to be more likely to abstain from high-risk sexual activity and to consistently use a condom (Magnani, 2002, Volk 2001). A second important dimension appears to be the link between level of sexual activity and school attendance plus knowledge of HIV. Those who attended school to a later age are more likely to initiate sex later and to use a condom than those who dropped out (Mangnani, 2002).

A further important aspect of the pandemic is the potential implications of the silence that surrounds the disease. Various studies have pointed out the important relationship between *talking about HIV/AIDS* and strategies for coping and addressing the consequences of the virus. In a study of the effectiveness of peer education and sexuality in Germany, Appel and Kleiber (1997) found that communication skills were an important intervening variable in adolescents' capacity to manage personal relations. Communication also extends to people with HIV/AIDS. The results of a study by Simon-Meyer and Dellalo (2002), in South Africa, highlighted the importance of involving people with HIV/AIDS in creating awareness in the workplace since it

makes others more willing to discuss the problem. Similarly, Macintyre et al. (2001) found that *knowing someone who died of AIDS* was consistently associated with lower levels of denial and a more consistent pattern of condom use among men in three African countries. Denial was also found to be relevant in a study of Israeli adolescents which found that high levels of denial and low perception of personal relevance were associated with irregular condom use by adolescents in that country (Ben-Zur, Breznitz, Wardi, & Blerzon, 2000). *Disclosure of HIV status* is a further aspect of communication which may also have a very important influence on the quality of life in the context of HIV infection in India (Chandra, Deepthivarma, Jairam, & Thomas, 2003).

Related to communication is the aspect of *emotional expression and depth of processing* which appears to have a distinct relationship with overall well-being of people with HIV/AIDS and is also related to their long term survival (O'Cleirigh, 2003). A study in Nigeria, Kenya and Zimbabwe, found that social anxiety about HIV/AIDS is a multi-dimensional concept which is related to condom interactions, refusal of risk, confiding in significant others, contact with people with HIV/AIDS and general assertiveness (Venier, Ross, & Akande, 1997).

There is some support also for a relationship between *fatalism* and HIV/AIDS attitude and knowledge variables and subsequent behavior. This link has not been very consistently studied, and should be seen as an open area for further research, but the limited studies done in this field do indicate that that fatalism can be strongly associated with negative attitudes towards the disease and with negative perceptions of other groups such as people living with HIV/AIDS (Ramirez, Crano, Quist, Burgoon, Alvaro and Grandpre, 2002).

Mass media exposure has also been linked to behavioral intent and behavior. MacIntyre et al. (2001), in their study of condom use among men in Uganda, Kenya and Zambia, found that men in Kenya and Uganda who listened to the radio on a daily basis were significantly more likely to report behavior change than those who did not listen (this relationship was not significant, however, for Zambia). Karlyn (2001) found a similar relationship in a study of radio exposure in Mozambique, where adults who recalled the campaign messages were almost twice as likely (odds ration 1.9) to try to change their behavior as those who did not recall these same messages. Interestingly, this study included a measure of self-efficacy to measure intent to carry out the targeted behavior after exposure to a certain message.

The Theory of Planned Behavior

Prevention efforts have with some frequency included an element of how attitudes may affect the perceptions of this disease and how these attitudes influence behavior or behavioral

intent (Bruce & Walker, 2001). However, as was noted above, very few studies have examined teachers' attitudes in the context of HIV/AIDS.

Not all prevention efforts are based on theory, but those that are theoretically based and that focus on individuals and their behavior (King, 1999) have commonly been based on one or more of the following theories/models: the health belief model (Rosenstock et al., 1994), the AIDS risk reduction model (Catania et al., 1990), stages of change model (Prochaska, DiClemente, 1992), protection motivation theory (Rogers, 1983), the theory of reasoned action (Fishbein & Middlestadt, 1989) and the theory of planned behavior (Azjen, 1985). As Bruce and Walker (2001) note, these models generally have certain constructs in common, including saliency of the problem, perceived threat or personal susceptibility, and often some element of social norm and beliefs about severity of the disease.

Recognizing the Factors that Influence Planned Behavior

The theoretical basis for present inquiry lies for a significant part in the various dimensions of decision making that are inherent to the Theory of Planned Behavior (TPB) which was developed by Azjen in 1985. This theory is a modification of Azjen and Fishbein's 1975 Theory of Reasoned Action (TRA). The TRA assumes that a person's behavior is a function of his/her attitudes toward the behavior as well as subjective norms. The TPB extends this idea and takes into account performance of behaviors which are not entirely under the individual's control, by including the concept of perceived behavioral control. In the specific case of HIV/AIDS therefore, the TPB would argue that an individual's behavioral intent is a function of that individual's attitude, which reflects his/her evaluation of the HIV/AIDS associated behavior (in this case disclosure about HIV), of the subjective norm, which refers to the social pressure that the individual perceives is being exercised by important referents in favor or against this behavior, and finally perceived behavioral control which reflects the perceived ease or difficulty of actually engaging in this behavior.

The TPB thus applies in situations where a person can rationally weigh different alternative actions but where there may be external factors influencing the final outcome of the behavior. I will argue that this typically applies to teachers in schools for the following reasons. Firstly, in general it has been shown that teachers' decision making is the result of both intrapersonal and interpersonal processes (Lin & Wilson, 1998). Secondly, although curricula outline general content to be taught, they still allow sufficient room for teachers to decide on how they will present and address the material. At the same time, it would appear logical that the extent to which they do this will be a function of conditions that are at their disposal in terms of

materials, policy, support by other teachers, etc. And finally, because in the Mozambican context very little specific instruction and training has been given to teachers as to how to address the issue of HIV/AIDS, there is therefore considerable room for teachers to contemplate a multitude of different routes.

It is the contention of this study that in line with what is foreseen by the Theory of Planned Behavior, this process of contemplation and decision-making regarding teaching of HIV/AIDS content will be guided by the attitudes that teachers hold, by their assessment of social norms and by perceived behavioral control (or barriers to implementation). As was discussed above, various studies have provided individual pointers to the importance of each of these variables. In a comparative study of teachers in India and Kenya (Action Aid, 2003), it was found that teachers have specific perceptions of how communities perceive their role, which do not necessarily coincide with what communities themselves say about teachers' roles. This same study also found that the teachers actually made a more negative assessment of the community reaction (fearing that the community was against their role) than was really the case (Action Aid, 2003). In the same study teachers highlighted various barriers to implementation, citing especially lack of materials, and lack of supportive environment from superiors as a limiting factor.

Support for the Theory of Planned Behavior

The TPB has been used as a frame of reference either by itself, or in combination with other behavioral theories in various studies related to HIV/AIDS. The most relevant study in the context of the present inquiry was done by Lin & Wilson (1998). This study used the TRA to examine the intentions of science teachers in the United States to teach their students about HIV/AIDS. This study found that the three variables in the TRA explained science teachers' intentions to teach this subject. It was also found that teachers with higher intentions scored better on the HIV/AIDS knowledge scale, generally had prior experience in teaching the topic, and expressed more positive feelings toward teaching about HIV/AIDS. Godin, Gagon, Alary, Noel and Morisette (2001) used the TPB in a slightly different HIV/AIDS related context to explain correctional officers' intentions to accept or refuse to make available HIV/AIDS preventive tools such as condoms, bleach, and syringes to inmates in prisons and also found support for all three elements of the model. The TPB has also been used to predict intended condom use in a variety of studies, most of which took place in western countries. A study among Tanzanian students by Lugoe and Rise (1999) is the only African study in this field. In this study again all three of the variables were significant in predicting behavioral intent. Appel and Kleiber (1997) used the TPB to examine a peer education program in Germany. Their findings are interesting in particular, because they included a variable of communication skills in their research. Their findings

supported only the perceived barriers component of the model and found in particular that the lack of communication skills can be a barrier to action.

There is thus considerable support for the relevance and pertinence of using the TPB when examining deliberate individual actions in the field of HIV/AIDS in general, and in the teaching of HIV/AIDS content in particular. However, none of these studies considered attitude function theory, preferring rather to consider attitudes in a far more general and abstract manner. In fact, Ressler and Toledo (1997) are the only researchers who appear to have linked the Theory of Reasoned Action (a predecessor of the TPB) with attitude functions in a study that examined Israel's bicycle helmet campaign. At the same time, the present literature review has highlighted that in addition to attitudes, perceived social norms and perceived barriers and behavioral intent, there are a number of other variables that may influence behavior and which could possibly improve the predictive capacity of the model (a similar approach was the basis of a study of adolescents' intent to consume alcohol - Laster & Heald, 1996).

In addition, and as will be argued below, attitude functions may also provide a useful and very specific handle on the individual reasons why people think about a behavior or object in a particular manner.

Attitudes and Their Link to Behavior

One of the aspects that this study will examine is whether attitudes, and specifically attitude functions, influence teachers' willingness to communicate about HIV/AIDS. Research on attitudes dates almost 100 years back and continues to be a widely debated and somewhat contested topic in the literature (cf. Greenwald, 1989), with researchers variously finding strong support the assertion that attitudes guide behavior, and others arguing that no such link can be found.

The persistent question has thus been: "Do attitudes guide behavior?" This apparently simple question generated a significant and increasing volume of research starting in the early 1920's. And, in parallel with the growth in the volume of research, the answer to what is now seen as a deceptively simple question, has grown in complexity.

The first generation of researchers to examine the link between attitudes and behavior departed from the assumption that attitudes had a "directive or dynamic influence on individual response to all objects and situations" (Allport, 1935). According to Fazio (1989) the question of whether there really was a link between attitudes and behavior was initially considered only by few researchers, there was simply the assumption that the link existed. A first landmark study that

looked at the relationship between attitudes and behavior was done by La Piere. In 1934, he examined whether there was a link between the behavior of restaurant personnel when asked to serve a Chinese couple and the attitude as expressed in the response to a later mailed out survey to the same restaurants. La Piere found that whilst the large majority of restaurants across the US were willing to seat the Chinese couple, very few respondents to the survey expressed a similarly favorable attitude. He concluded therefore that attitudes had very little to do with behavior.

The study by La Piere stimulated a great deal of response and led to various other studies over the next three decades. These studies, however, found inconsistent support for attitudes as predictors of behavior, and generated disillusionment with this type of questioning and research which was reflected in pessimistic reviews of the state of attitude research by Festinger in 1964 and by Wicker in 1969. The reason, it is now known, that many of these studies failed to find consistent finding is because they were plagued by many of the problems that also characterized the study that was done by La Piere. In this study, the people who attended to the Chinese couple and those that responded to the questionnaire were not necessarily the same. In addition, the couple was accompanied by the researcher who was white. Also the questionnaire did not address behavior, but rather behavioral intent but the study purported to report on the behavior itself.

Aided by improved measurement techniques, the research into attitudes and their link with behavior entered a second generation from the 1960's onward. The question turned from "is there a link?" to "when and under what conditions is there a link?" in recognition of the fact that it was not always possible to find a clear relationship between attitudes and behavior. Guided by the pessimistic reviews of Wicker and Festinger, researchers critically examined both the manner in which attitudes had been defined and the methodologies by which they were being operationalized.

The second generation of research yielded a wealth of information in answer to the "when and under what conditions question?" Taken together, it was found that the attitude-behavior relationship is influenced by situational issues (Warner & DeFleur, 1969), individual differences (Snyder & DeBono, 1985), and classes of attitudes (Fazio, 1990).

With regard to situational issues, it was found that roles, norms and the desire for acceptance moderate the relationship. Warner and DeFleur (1969) conducted revealing research with white college students and found that only highly prejudiced individuals were willing to disclose their opinion. Less prejudiced individuals were only willing to do so if they were guaranteed anonymity. It was Abelson in 1982 who summarized the results of the various studies

into situational conditions into a categorization of situational factors. In a nutshell he concluded that attitudes will only guide behavior in highly individuated situations where individuals are in a heightened state of self-awareness and turn inwards to consider their attitudes. In situations that are de-individuated – where the individual can, as it were, hide behind the group – attitudes and behaviors are highly inconsistent, one only has to look at the behavior of cults and other out-groups to see a real-life example of this. In scripted situations, the third category developed by Abelson, attitude-behavior consistency is also low because individuals behave according to what is "scripted" for them in the situation and do not reflect on their attitudes. Differences exist, however, even within these categories, and so low self-monitors (Snyder & DeBono, 1985) are more likely to show a high A-B consistency because they do not define their perception of self on the basis of others, are more consistent in their link between attitudes and behavior, and therefore have more accessible attitudes.

Individual differences were also found to moderate the attitude-behavior relationship. As was mentioned previously low self-monitors are more likely to be consistent. Snyder and DeBono (1985) developed a scale for measuring self-monitoring which has shown a high degree of validity and reliability in numerous research studies and has had good predictive power. As Zanna, Olson and Fazio (1980) have pointed out, however, there is not always the guarantee that low self monitors will be consistent, it will depend on the amount of previous experience and on the extent to which previous behavior has been consistent. A second individual difference variable that has been found to be important is the degree of direct experience that the individual has with the situation at hand. Fazio and Zanna (1981) through a study with college students who either had or did not have previous experience with psychological experiments, found that attitudes that are based on direct experience are more stable, more clearly defined, more resistant to change and more durable. The college students that had previous experience with psychological experiments were more likely to show a high degree of attitude behavior consistency than those who did not. In contrast, attitudes that are based on indirect experience will rarely predict behavior. Further research has found other personality variables that are important including level of moral reasoning (Rholes & Bailey, 1983) and autonomous-control behavioral self-regulation (Sheier, Buss & Buss, 1978).

Classes of attitudes also influence the attitude-behavior relationship. Thus various attitudinal qualities such as the manner in which the attitude is formed (Fazio, 1990), its stability, and how clearly it is defined in terms of latitude of rejection and acceptance will reflect itself in the consistency between attitudes and behavior.

Although it is impossible to do justice in this short overview to all the research that took place during the three decades since the Wicker and Festinger reviews, it will be clear from the

above that this second generation of research yielded a wealth of information about when and under what conditions attitudes may predict behavior. At the same time, however, as Fazio (1989) points out, this research was mainly empirical in nature, with very little theory development. Theory development is what has, to some extent, characterized recent developments (although at the same time research into the when and under what conditions question still continues) and it is to this third generation, the one that is currently on-going, that this reflection will now turn. As the title above indicates, the central question for these researchers has been: "how do attitudes guide behavior?"

A first answer to how attitudes guide behavior was given by the Theory of Reasoned Action or TRA (Fishbein &Azjen, 1975). This theory assumes that people rationally calculate the costs and benefits of engaging in action and that behavioral intention is a better predictor of behavior than attitudes. The theory assumes that behavioral intent is influenced by the attitude that the individual holds toward the behavior and the subjective norm. Attitude toward the behavior is, in turn, a function of the belief that the behavior will lead to a specific outcome and the evaluation of these outcomes. The subjective norm, on the other hand, is a function of the evaluation and normative beliefs of what others will think about this behavior and the motivation to comply with what others think. This theory provides a good explanation why under some conditions people show behavior that is not consistent with their attitude, for example, when the subjective norm component weighs more heavily. This theory has been substantiated by a lot of research, a considerable amount of which by Fishbein and Azjen themselves. The model has held up well in much of this research, especially when the behavioral intention is formulated in very specific terms. A refinement of this theory was later developed by Azjen through the Theory of Planned Behavior or the TPB (Azjen,1988) which in addition to the attitude towards the behavior and the subjective norm component also includes the concept of perceived behavioral control, i.e. the extent to which the individual believes that the presence of certain factors may hinder or promote the performance of the behavior in terms of the resources and opportunities that are available for implementing the behavior. These two theories together have spurred the development of theories in areas such as the health sciences and the findings of these studies will serve as a basis for the present study.

Some criticism has been leveled, however, against this conception of how the link between attitudes and behavior works since it only accounts for the rational decision-making. It is, as Fazio (1989) has pointed out, a "data driven" theory, which expects people to rationally and consistently engage in a thinking and reflection process. Many day-to-day decisions are not taken in this manner, and life would be very complicated if for every decision such an amount of computation had to be done.

Fazio (1990) therefore proposed a model that takes into account how such a spontaneous process may work. This spontaneous processing model is "theory driven" and accessibility of the attitude is a key component of the theory. In short, it is assumed that attitudes guide behavior through a process of attitude activation. Once that attitude is activated this will lead to a process of selective perception (a type of biasing) where the immediate perception of the attitude object is a function of the attitude that was activated and may therefore have a predominantly positive or negative valence depending on the attitude. The immediate perception of the attitude object will, together with a definition of the situation in normative terms (this is seen as a separate process), lead to the definition of the event and determine what behavior to undertake. Various steps must occur before the behavior towards the object is influenced automatically by the attitude. Firstly the attitude must be activated. The likelihood of activation will depend on the chronic accessibility of the attitude (which in turn is a function of the strength of the attitude). In a series of experiments Fazio found that if the attitude is not accessible then the definition of the event will follow not from the attitude but rather from other salient features of the situation. Once the attitude is activated it will, as was already mentioned above, act as a filter. The attitude may still not be consistent with the behavior, however, if the normative component is not congruent with the attitude. In this case, attitudinally incongruent behavior will result.

One current perspective is therefore that the relationship of how attitudes guides behaviors needs to take into account that processing between the attitude and behavior may be spontaneous or deliberate. At the same time, however, it is now also recognized that, in fact, it is possible to envision that the link between attitudes and behaviors is a combination of spontaneous and deliberate processing with each carrying a different weight depending on the situation. Fazio (1990) has conceptualized this in terms of the MODE model, which basically asserts that the conditions of the situation will determine whether an individual will have the **M**otivation and the **O**pportunity to engage in deliberative or spontaneous processing. Fazio relates motivation to Kruglansky & Thompson's (1999) concept of fear of invalidity, i.e. an individual will engage in cognitive processing when he/she has a high fear of failure or when there are consequences attached to the failure. So in these situations individuals will carefully consider the consequence of their actions and rely on deliberate rather than heuristic processing. Opportunity refers to whether the context makes it possible to engage in deliberative thinking. For example, in a situation in which an immediate decision is required this will not be possibly. Therefore, the MODE model suggests that the deliberate process of retrieving and construction attitudes towards a behavior and deciding on the behavioral intent will only take place when both the motivation and opportunity exist to do so.

As can be seen, the simple initial assumption by researchers at the beginning of the twentieth century that attitudes guide behavior has evolved into a much more complex matrix of

questions which has yielded complex and not always complete responses. Nevertheless, research has supported that for certain types of attitudes and under certain conditions, there is a link between attitudes and behavioral intent/behavior. Given that the literature on HIV/AIDS in general, and on teachers and HIV/AIDS in particular suggest that attitudes are a relevant factor in determining behavioral intent/behavior, it seems plausible that a more detailed understanding of the attitudes of teachers can enhance the understanding of factors that guide their decision to discuss this issue with their students. This study used functional theory as a basis for examining the attitudes of teachers. The background to functional theory is explained in the next section of this chapter.

The Contribution of Functional Theory to the Understanding of Attitudes

Functional theory addresses the motivations that underlie attitudes that people hold (Katz, 1960). The main assumption of functional theory is that people hold attitudes for a reason, i.e. that they serve a specific psychological function.

One of the main appeals of understanding different attitude functions is that if messages and interventions are tailored to the specific attitude functions that people hold, then it becomes much easier to address and manipulate those attitudes. By the same token, gaining insight into the attitude functions that teachers hold toward addressing HIV/AIDS offers an intuitive and practical appeal. Assuming that there is some support for a link between at least certain attitude functions and teacher behavior, it then becomes possible to tailor training, communication messages and support interventions to specific attitude functions and to possibly select from among the pool of teachers those who are more likely to effectively implement their role as teachers. The functional approach to attitudes therefore allows us to consider teachers as individuals, many of whom are probably profoundly marked in their thinking by what they know and have experienced in life, rather than as a homogenous group of people who will blindly follow central instructions on what content to teach and will do so effectively if they have the right conditions.

A number of issues associated with attitude functions need to be highlighted here. A first step in the use of attitude functions consists of distinguishing between the different motivations that underlie those attitudes. Various forms of categorization continue to exist in the literature and research in this field and a definitive catalog will probably never be drawn up. For the purpose of this study I will distinguish between the diversified approach to attitude functions and the dichotomous approach – also termed the “neo-functional approach” in Ressler and Toledo (1997). The diversified approach acknowledges the existence of a larger set of attitude functions,

including: *utilitarian* attitudes that help people organize perceptions of environment in a manner that allows them to obtain rewards and avoid punishment; *social-adjustive* attitudes that help mediate interpersonal relations; *value-expressive* attitudes that express values important to the self-concept; *ego-defensive* attitudes that protect the self from anxiety and attacks on self-esteem; and finally attitudes that serve a *knowledge* function by satisfying the individual's need for cognitive learning (Herek, 2000).

The dichotomous approach, on the other hand, emphasizes two broad categories of attitude functions, namely the evaluative and expressive function (Herek, 1986; Herek & Capitanio, 1998; Herek, 2000). Expressive functions are served by symbolic attitudes and are "broadly defined as being related to affirmation of identify and enhancement of self esteem" (Herek & Capitanio, 1998, p.231). In this case the object of the attitude serves primarily as a symbol. The evaluative functions, on the other hand, are seen as "reflecting an underlying need to understand the social world and are based primarily on self-interested appraisals of the attitude object" (Herek & Capitanio, 1998, p.231).

Applications of Attitude Function Research

Although attitude function theory enjoyed popularity in the 1960's, it is only in the last ten years or so that the development of precise measurement techniques has led to the exploration of the usefulness of this concept in a variety of contexts. More recently attitude functions have been used in the study of a variety of social issues. Wyman and Snyder (1997), for example, examined attitudes towards the lifting of the ban on homosexuals in the military and found that respondents who felt the ban should be lifted, rejected ego-defensive reasons for keeping it and endorsed value-expressive reasons to eliminate the ban.

A central argument for the functional approach to attitudes – which also forms the basis for the present study - is that a better understanding of attitude functions may make it possible to tailor communication campaigns to the specific attitude functions of the audience. From the perspective of the present study that would mean treating teachers not as a homogenous group, but taking into account that different attitude functions may require different approaches in terms of training and support, much as would be the case for a communication campaign.

A key concept in attitude research is that of the attitude object. Greenwald (1989) points out that the concept of an attitude object has been widely interpreted in the realm of attitude research, relating to such aspects as "sensory qualities" (colors, texture), "concrete objects", "abstract concepts" (such as personality traits), "verbal statements", "systems of thought" (such

as ideologies), and "actions" (1989, p.4). In the realm of communication, various studies (Petty, Wheeler, & Bizer; 2000) have found support for the fact that if a message has a strong link with the function an attitude serves for a particular segment of the audience, then the message will be more persuasive and, therefore, more likely to influence behavior or behavioral intent (cf: Snyder & DeBono, 1985).

Not only does functional matching appear to increase the persuasiveness of a message, it also affects perceptions of its validity, as attitude functions may determine for individuals which types of evidence they consider relevant when they are exposed to persuasive information (Thompson, Kruglanski, & Spiegel, 2000). The theoretical underpinnings for this process of linking attitude functions and cognitive/message processing have been based on the Elaboration Likelihood Model (ELM). Indeed, functional matching of a message with relevant attitude functions can enhance message processing through both the peripheral or central route - in the former case by serving as a cue and in the latter case by serving as a motivation for biased processing (Petty, Wheeler, & Bizer; 2000).

Experiments conducted by various researchers (cf: Petty & Wegener; 1998; Marsh & Julka, 2000) have shown that messages that have a strong match with the attitude function, even on sensitive issues such as, for instance, organ donation, will receive more scrutiny, and that the manner in which the message is manipulated is important. For example, it appears motivational inductions lead to stronger matching effects and stronger changes in attitudes than do priming manipulations (Marsh & Julka, 2000). In this manner, for example, people who are provided with a strong value-based and tailored message about organ donation followed by an exercise in which they have to rank these values, will shower stronger value expressive attitudes than those who received a simple priming message (Marsh & Julka, 200). Further research (Petty, Wheeler, & Bizer; 2000) has found preliminary support for a link between certain attitude functions (e.g. social-adjustive) and personality types (high self-monitors).

The attitude function approach has provided interesting insights into other areas of social interest and in health promotion. In the realm of smoking a number of recent studies have looked at attitudes as important predictors of smoking (Piko, 2001; Ragon, 1999; Visser, Arpan & Heald, 2003). The field of HIV/AIDS has also provided interesting insights. At least two studies have found support for the fact that individuals hold attitudes towards persons with AIDS for a variety of reasons (Reeder & Pryor, 2000; Herek, 2000). Herek and Capitanio (1998) examined stigmatization of individuals with HIV/AIDS from the perspective of the dominant psychological function served by the attitude – i.e. either an evaluative attitude based on concerns for personal risk, or an expressive attitude based on the need to affirm one's self concept by expressing personal values – and discuss the implications of these findings for AIDS education. Consumer

marketing too, has made use of attitude functions, for example in examining attitudes towards cars (Ennis & Zanna, 1993) and in advertising (Shavitt, 1990).

Relevance of these Findings to the Present Study

The nature of the findings with regard to teachers that were reviewed above suggests that attitude functions may constitute a relevant route to understanding teachers' attitude toward HIV/AIDS and toward communicating about this topic. In the Action Aid study (2003) teachers' arguments for how they deal with the disease could be interpreted as reflecting a variety of attitude functions. Arguments of morality and religion were used which reflect value-expressive functions, i.e. functions that allow people to express their underlying beliefs and values (Katz, 1960). Teachers' arguments were also related to perceptions about that which is permissible within the context of the community and these could be argued to be indicative of a socio-adjustive attitude, where the individual defines his/her identity on the basis of identification or pressure from reference groups. Similarly arguments related to the knowledge and utilitarian functions could be found in these teachers' accounts. Given the evidence of the utility of using attitude functions to examine various constructs and behaviors related to social issues in general and to HIV/AIDS in particular, and in view of these accounts by teachers, it would appear that a functional approach to teachers' attitudes toward talking about HIV/AIDS and the relationship of these attitudes to their interpretation of their role as teachers, can offer potentially revealing insights that may guide future interventions which seek to use teachers as pivotal points in addressing HIV/AIDS within the classroom and the community.

Rationale and Summary

The above literature review outlined the main strengths and limitations of the research that has been conducted to date. The Theory of Planned Behavior and Attitude Functions were identified as theoretical models that could possibly provide insight into teachers' willingness to communicate about HIV/AIDS.

The following characteristics of this study aim at addressing some of the concerns of the research to date:

- The study will focus on a target group that has been given an enormous responsibility in the field of HIV/AIDS awareness, but concerning which very little research has been done. In this manner, the study will highlight teachers as individuals, who make rational decisions on the basis of individual and contextual difference, rather than as a homogenous group.

- The study will apply an existing theoretical framework (the TPB) to teachers' willingness to communicate about HIV/AIDS, to attempt to verify whether variables that are traditionally believed to impact on behavioral intent and behavior contribute to teachers' decisions about addressing HIV/AIDS.
- The study will integrate the TPB and attitude function theory in an effort to examine whether attitude functions provide a logical explanation for teaches' willingness to communicate about HIV/AIDS.
- The study will also seek to establish whether additional variables that are not typically included in the TPB framework, and that have not been addressed with respect to this target group, improve the explanatory value of the model. Such variables include HIV/AIDS knowledge, personal behavior, experience with HIV/AIDS and certain demographic variables.
- The study will control for two key demographic variables (age and sex) which in medical research are frequently used when examining the link between the predictor and predicted variables.
- The study will use a predominantly quantitative technique (supplemented by qualitative findings) to gain a comprehensive understanding of the factors that influence teachers' reported practice, and to highlight issues that may have been neglected to date. By involving a relatively large number of teachers, the study aims to get some insight into causality between the different variables. Furthermore, the design aims at gaining access to teachers' direct experience with HIV/AIDS in their personal and professional lives. Analyzing this material will not only serve as a means of confirming (or refuting) the quantitative findings, but is also expected to highlight the diversity of interpretations and experience that these teachers have.
- The study will examine differences among teachers at different levels of the education system, something which other studies have not looked at.

Research Questions and Hypotheses

The central question that this study seeks to address is:

What factors predict teachers' willingness to communicate about HIV/AIDS in school and community settings?

The specific elements of the research question will be explored through component research questions and accompanying research hypotheses. These are presented below and are also summarized in Table 1.

Research question # 1

To what extent do personal characteristics of teachers affect their willingness to communicate about HIV/AIDS in school and community settings?

Hypothesis 1: Younger teachers and female teachers will be more willing to communicate about HIV/AIDS in school and community settings.

Hypothesis 2: Controlling for age and sex, teachers with a high level of personal experience with HIV/AIDS and a high level of knowledge about the disease will be more willing to communicate about HIV/AIDS in school and community settings.

Hypothesis 3: Controlling for age and sex, teachers with a personal conviction that they can do more to address the threat of HIV/AIDS and teachers who consistently protect themselves against HIV/AIDS will be more willing to communicate about HIV/AIDS in school and community settings.

Research question #2

To what extent do "traditional predictors" of the Theory of Planned Behavior explain teachers' willingness to communicate about HIV/AIDS in school and community settings?

Hypothesis 4: Controlling for age and sex, attitudes, social norms and perceived behavioral control will all be significant positive predictors of teachers' willingness to communicate about HIV/AIDS in school and community settings.

Research question #3

To what extent does the level at which teachers teach influence their willingness to communicate about HIV/AIDS in school and community settings?

Hypothesis 5: Controlling for age and sex, teachers lecturing in upper primary (Grades 6 and 7) and secondary (Grades 8 through 12) will be more willing to communicate about HIV/AIDS in school and community settings than teachers in lower primary (Grades 1 through 5).

Research question # 4

To what extent do attitude functions affect teachers' willingness to communicate about HIV/AIDS in school and community settings?

Hypothesis 6: Controlling for age and sex, teachers who hold weak value-expressive attitudes toward addressing HIV/AIDS will be more willing to communicate HIV/AIDS in school and community settings.

Table 1: Overview of Research Questions and Hypotheses

Predicted Variables	Predictor Variables	Research Question(s)	Research Hypotheses
Teachers willingness to communicate about HIV/AIDS in school and community settings	Age and Sex	**Research question 1:** To what extent do personal characteristics of teachers affect their willingness to communicate about HIV/AIDS in school and community settings?	**Hypothesis 1:** Younger teachers and female teachers will be more willing to communicate about HIV/AIDS in school and community settings. **Hypothesis 2:** Controlling for age and sex, teachers with a high level of personal experience with HIV/AIDS and a high level of knowledge about the disease will be more willing to communicate about HIV/AIDS in school and community settings. **Hypothesis 3:** Controlling for age and sex, teachers with a personal conviction that they can do more to address the threat of HIV/AIDS and teachers who consistently protect themselves against HIV/AIDS will be more willing to communicate about HIV/AIDS in school and community settings.
Teachers willingness to communicate about HIV/AIDS in school and community settings	Attitude towards talking about HIV/AIDS, social norms and perceived behavioral control	**Research question 2:** To what extent do "traditional predictors" of the Theory of Planned Behavior explain teachers' willingness to communicate about HIV/AIDS in school and community settings?	**Hypothesis 4:** Controlling for age and sex, attitudes, social norms and perceived behavioral control will all be significant positive predictors of teachers' willingness to communicate about HIV/AIDS in school and community settings.
Teachers willingness to communicate about HIV/AIDS in school and community settings	Level taught	**Research question 3:** To what extent does the level at which teachers teach influence their willingness to communicate about HIV/AIDS in school and community settings?	**Hypothesis 5:** Controlling for age and sex, teachers lecturing in upper primary (Grades 6 and 7) and secondary (Grades 8 through 12) will be more willing to communicate about HIV/AIDS in school and community settings than teachers in lower primary (Grades 1 through 5).

Predicted Variables	Predictor Variables	Research Question(s)	Research Hypotheses
Teachers willingness to communicate about HIV/AIDS in school and community settings	Value expressive attitude function	**Research question 4:** To what extent do attitude functions affect teachers' willingness to communicate about HIV/AIDS in school and community settings?	**Hypothesis 6:** Controlling for age and sex, teachers who hold weak value-expressive attitudes toward addressing HIV/AIDS will be more willing to communicate HIV/AIDS in school and community settings.

CHAPTER 3: METHODOLOGY

This chapter explains the various research methods used to generate the data in this study. A substantial part of the chapter is devoted to an overview of the procedures and outcomes of the pilot study. This is followed by details about the procedures during the data collection phase as well as a discussion of the predicted and predictor variables in the study. The chapter concludes with an overview of the research design and data analysis.

Overview

A non-experimental research design was used for this study. Qualitative techniques were used to inform the study during the design phase and to aid conceptual and instrument development. Data were obtained by administering surveys containing predominantly structured questions to a cross-section of teachers in five districts of Gaza province (Mozambique). In addition, qualitative data were gathered through individual interviews with teachers, to assist in the interpretation and clarification of selected variables in the study.

The study was conducted in two phases. The first - pilot - phase took place over a period of seven weeks in the months of June and July, 2003. The second phase took place in September 2003, and covered a three-week period. This phase is referred to as the data collection phase. The present chapter outlines the objectives, data collection instruments, participants, and procedures for the pilot and for the data-collection phases of the study.

The Pilot Phase

Location and Participants

The pilot phase of the study was conducted in the southern provinces of Gaza and Maputo. These two provinces were selected because of easy access from the capital city and facilities in terms of transport and communication and because in many respects the characteristics of these provinces are similar to that of the other three southern provinces. An overview of socio-economic, demographic, and educational characteristics of Gaza province can be found in Chapter 1.

A total of 449 teachers and teacher trainees and 153 primary and secondary school students in Grades 6 through 12 participated in the pilot phase. Participants were recruited in schools and teacher training colleges. Selection procedures were based on convenience, but care was taken to ensure that the participants were selected to represent the various dimensions that are important to the study in terms of age, gender, professional experience, qualifications, and geographical location.

Objectives

The purpose of the pilot phase was fourfold, namely:

- To gain an in-depth understanding of factors influencing teachers' willingness to communicate about HIV/AIDS and, in particular, of locally/culturally specific issues that impact HIV/AIDS awareness and education;
- To use the information above to identify key variables impacting on teachers willingness to communicate about HIV/AIDS;
- To develop instruments for measuring these key variables, and
- To pilot test the different data collection instruments.

The preliminary hypotheses that had been developed on the basis of the literature review for the study were refined as a result of the information and insight gained during the pilot phase. The revised hypotheses are presented in Chapter 4. These hypotheses were subsequently tested on a representative sample of teachers from five districts in the province of Gaza in the data collection phase of the study.

Pilot Procedures and Activities

Various techniques were used in the pilot phase to gain a more in-depth understanding of teachers' perceptions and experience with HIV/AIDS. This included conducting interviews with key informants, reviewing studies as well as key policy and training documents on HIV/AIDS in Mozambique, conducting focus groups with teachers, administering attitude solicitation surveys, and conducting various open and close-response questionnaires with both teachers and students. The rationale, the participants and procedures for each of these techniques are described below.

Interviews

Interviews were initially conducted with Government staff in Mozambique who have key responsibilities in the area of teacher education/upgrading, curriculum reform, and HIV/AIDS awareness and education. Interviews took place, among others, with the Executive Director of the National Aids Commission, the National Director for Planning in the Ministry of Education, the Director of the National Institute for Educational Research, key advisors to the Ministry of Education and Provincial Directorates in the field of HIV/AIDS, bilateral and multilateral partners in the field of HIV/AIDS, the Provincial Director for Education in Gaza province, District Directors, and heads of the Departments of Planning and Pedagogical Supervision of the Provincial Directorate for Education. A detailed list of persons consulted can be found in Appendix A. These interviews yielded essential background and contextual information on on-going initiatives, major policy decisions, and on the perception that decision-makers and education/health specialists have of the role that teachers can play in the fight against HIV/AIDS.

Secondary data collection

Reports detailing key policies, research studies, projects, training techniques, and procedures in the area of HIV/AIS were collected from various sources including from the Ministries of Health and Education, the National and Provincial AIDS Commissions, as well as from major development cooperation partners. These references can be found in the bibliography and are cited in the literature review and in other parts of this study.

A particularly detailed review was done of materials used by the Ministry of Education in the training of teachers in the field of sexual and reproductive health and HIV/AIDS in order to better understand key knowledge, skills and abilities that teachers are expected to transmit and to gain a detailed understanding of policy directives. References to these documents can also be found in the bibliography. This information was used to generate a profile of best/ideal practices for teachers when addressing HIV/AIDS and served as a guideline for coding the nature/quality of teachers' willingness to communicate about HIV/AIDS.

Focus group discussions

Eleven focus groups, involving a total of 52 male and female participants, were organized in a number of urban and rural locations, in the five districts covered by the study, with primary and secondary school teachers. These areas were selected to reflect urban and rural differences as well as variations in terms of HIV prevalence.

Focus group discussions took between one and two hours and were held in empty classrooms or in an open space outside. The focus groups typically involved between three and

six teachers. Participants for the focus group were selected by the schools on the basis of a prior specification of the desired demographic characteristics (age, gender, experience level, and level of training). In this manner it was possible to obtain and verify responses from teachers with different backgrounds and characteristics. The groups were deliberately kept small so as to facilitate open discussion.

The purpose of the focus groups was to explore a variety of issues, among which teachers' current practices with regard to HIV education, level of knowledge about HIV/AIDS, culturally specific issues, misconceptions, cultural and social barriers to fully implementing their role, teachers own exposure to and experience with HIV/AIDS, and their understanding of the impact of HIV/AIDS on schools and communities. The information generated during the focus groups was essential in developing questionnaire items for key variables in the data collection phase of the study. In addition, the insights gained during the focus group discussions are, at various points in the discussion of the results of the study, contrasted with the results from the survey. Apparent differences and contradictions, as well as similarities, are highlighted.

Participants were told at the outset of the focus group discussion that the purpose of the focus groups was to gain an in-depth understanding of the reality of HIV/AIDS in schools and communities, that the information provided would be confidential and that they should feel free to discuss any personal experience that they had. In terms of procedures, the focus group discussion normally started out with the question: "Is HIV a reality in your schools and communities?" A topic guide was used for the subsequent line of questioning (see Appendix B), but its use and the sequence of questioning varied from group to group depending on the initial responses from the focus group participants and the nature of the subsequent discussion.

Attitude solicitation surveys

The results of the focus groups resulted in the identification of two classes of attitudes that are particularly important to teachers, namely: "talking about sexuality and relationships" and "promoting/talking about condoms". Since attitude functions have been shown to have best predictive power with very specific attitudes (Herek, 2000) it was considered important to narrow the broad concept of attitude/willingness to communicate about HIV/AIDS down to more specific issues that were identified as crucial to teachers' attitudes to discussing HIV/AIDS with their students. Following procedures suggested by Herek (1987) and used by other researchers (c.f. Visser, Arpan & Heald, 2003), attitude solicitation surveys were developed and administered to primary and secondary school teachers to generate items for attitudes related to HIV/AIDS.

Attitude statements on both of these classes of attitudes were collected by asking teachers to fill out one of two open-ended attitude solicitation questionnaires (Appendix C). A total

of 161 current and future teachers at two teacher training colleges in Maputo and Gaza provinces of various ages and backgrounds, and divided into two groups of 82 and 79 participants, respectively, participated in this activity. One group received a questionnaire asking them to generate as many statements as they could think of "why it may be ok" and "why it may not be ok" to talk about condoms in schools. The second group received a similar questionnaire which focused on generating items as to "why it is ok" or "why it may not be ok" to talk about sexuality and relationships in schools.

For the purpose of further validating the items, the solicitation surveys were also sent to a total of 10 specialists working in the area of HIV/AIDS in government and non-governmental sectors in the country (Appendix D). Six completed responses were received. Similar to the procedure for teachers, each specialist was asked to generate positive and negative reasons for both types of attitudes, namely promoting/talking about condoms and talking about relationships and sexuality. The specialists, however, completed the solicitation survey for both types of attitudes. For validation purposes the items generated by specialists were contrasted with those generated through the attitude solicitation surveys by teachers. A reasonable level of agreement was found between the group of teachers and the group of specialists. In addition, based on this analysis it was concluded that the initial separation of the two classes of attitudes was redundant since many of the reasons listed were in fact similar. In the final questionnaire, therefore, the questions were reformulated to read "why it is ok" and "why it may not be ok" to promote the use of condoms/talk about sexuality in school.

Over 400 statements were generated by the group of 161 respondents who completed the attitude solicitation questionnaires. Each of these statements was coded by two coders to reflect one of the six main attitude-function categories: utilitarian, social-adjustive, value-expressive, socio-defensive, ego-defensive and knowledge. In order to develop these coding categories 20 attitude solicitation surveys were initially randomly selected from the pool of 161. These attitude solicitation surveys were analyzed by both coders and the results were summarized into the following coding scheme which was subsequently used to code the remaining responses.

- Items were coded as representing a *utilitarian attitude* toward disclosure if they referred to individual health concerns (particularly those that ensure protection against disease) and to other personal perceived benefits, such as those related to personal professional responsibilities (e.g. the benefit of complying with requirements from the Ministry of Education or of participating in an HIV/AIDS course).

- Items were coded as representing a *socio-adjustive attitude* toward addressing HIV/AIDS when they reflected a concern about fitting in with the beliefs/attitudes of society at large, parents, other teachers, and significant community members.
- Items were coded as representing a *value-expressive attitude* toward disclosure about HIV/AIDS if they allowed people to establish self-identify and referred to moral, religious and other beliefs.
- Items were coded as representing an *ego-defensive attitude* toward addressing HIV/AIDS when they reflected defense mechanisms and fear for self or fear of condemnation by other people (Katz, 1960). This attitude function also included items that reflect a preoccupation with protecting oneself from the psychological distress associated with the threat posed by other groups of people, e.g. people with HIV/AIDS.
- Items were coded as representing a *socio-defensive attitude* function toward addressing HIV/AIDS if they reflected a concern with defending others and a fear for the community and society at large. In general these items were reflective of a preoccupation (in the form of the presence of social consciousness) with minimizing the impact of the disease for others.
- Items were coded as pertaining to a *knowledge function* if they reflected a new learning experience and allowed teachers to apply structure and cognitive understanding to the world around them.

With the exception of the socio-defensive function which was specifically identified and operationalized during the course of this study and has not been previously mentioned in the literature, these are all categories that have been used in prior research on attitude functions (c.f. Herek, 2000; Snyder & DeBono, 1985).

After all items related to attitude functions were coded and inter-coder reliability was calculated (The inter-coder reliability was calculated as a Kappa coefficient which ranged from 0.68 for the ego-defensive function and 0.87 for the socio-defensive attitude function) and considered acceptable[9], the items (or arguments/themes) that appeared most frequently in each category were selected for the final questionnaire. At least four items were chosen for each category, with half of the items in each category representing arguments for "why it is ok" to promote condoms/communicate about sexuality in schools and half representing arguments for

[9] In new developing areas such as this one it is often especially difficult to attain high inter coder reliability since coding schemes are still being developed. In addition, the statements that were being coded were lengthy and required a certain amount of interpretation which typically lowers reliability estimates (Wimmer & Dominick, 2003).

"why it may not be ok" to do so. In this manner, the questionnaire that was administered in the data collection phase contained a total of 64 items related to attitude functions.

Surveys of teachers' perceptions and experience

To complement the information from the focus groups and to collect further information on teachers' perceptions and experience, a questionnaire on HIV/AIDS was administered to a total of 75 teachers and teacher trainees at two teacher training colleges (Appendix E). The questionnaire contained a substantial number of open and closed ended items to gain understanding of teachers' perceptions of HIV/AIDS, and their intended and current approach to addressing HIV/AIDS in the classroom. This questionnaire asked teachers to reflect and report in-depth on the following: key topics that in their opinion need to be addressed when communicating about HIV/AIDS; key activities that teachers would need to carry out; topics that would be particularly difficult to address when communicating about HIV/AIDS; constraints they believed would affect the intention of teachers in general to address HIV/AIDS; constraints that would affect their personal intention to address HIV/AIDS; personal exposure/experience with HIV/AIDS; assessment of their personal likelihood of getting infected with HIV; and frequency of condom use. The responses on this questionnaire were used to generate/test both open and closed response questions for the questionnaire that was used in the data collection phase.

Surveys of primary and secondary school students' perceptions and experience

Although none of the hypotheses of the study specifically addresses students' perceptions about HIV/AIDS , it was considered important to collect information from students about how their teachers address HIV/AIDS and to, where relevant, contrast teachers' responses about their communication practices on HIV/AIDS with those of their students (a similar approach was used by Action Aid in their 2002 study of difficulties that teachers in India and Kenya face in talking about HIV/AIDS in schools where substantial differences were found between the responses of students and those of teachers). A questionnaire with open and closed ended items was thus developed and tested with a group of 153 students in two schools (Appendix F). This questionnaire asked students to report the frequency with which teachers communicate about HIV/AIDS, the occasions (in-class, outside of class, etc.) that they discuss this topic, their understanding of why teachers may not want to communicate about HIV/AIDS, their perception of the role of teachers in fighting against HIV/AIDS, their personal exposure to the disease, their perceptions of HIV/AIDS, and their assessment of teachers' willingness to communicate about this issue. The questionnaire also asked students to chose from a list of 22 different sources of information about HIV/AIDS, the five sources that were to them most important and to list key questions with regard to HIV/AIDS that they would like to have an answer to.

Item development for key variables

The final part of the pilot phase consisted of developing/selecting items for each of the variables in the study. These variables are listed below.

- Willingness to communicate about HIV/AIDS – predicted variable
- Overall attitude toward communicating about condoms and sexuality in schools – predictor variable
- Perceived social norms – predictor variable
- Perceived behavioral control – predictor variable
- Attitude functions towards promoting condoms/ talking about sexuality in schools – predictor variable
- Knowledge of HIV/AIDS – predictor variable
- Exposure/ personal experience with HIV/AIDS – predictor variable
- HIV/AIDS related behavior – predictor variable.

For most of the variables - with the exception of the willingness to communicate about HIV/AIDS, HIV/AIDS related behavior, and personal experience with HIV/AIDS - items were generated by combining questions from existing scales with the items generated on the basis of the focus group discussions. Items were tested in one of the questionnaires mentioned above, and a selection of items to be included in the final questionnaire which was administered in the data collection phase was made, on the basis of an assessment of internal consistency and reliability.

The Data Collection Phase

The main purpose of the data collection phase was to administer the questionnaires that were developed during the pilot phase to a representative sample of primary and secondary school teachers and students in five districts of the province of Gaza. In addition, in-depth interviews were conducted with a total of 38 teachers to supplement the information provided in the questionnaires. The next section outlines the sampling procedures, data collection instruments, predicted and predictor variables, and the procedures for the data collection phase.

Sampling Procedures

Cluster sampling was used to select the participants in this study. The choice to use cluster sampling was made because this technique is suited to situations where a complete list of

subjects is not easily obtained and likely to be inaccurate (Sapsford & Jupp, 1996) as was the case for this study. In this particular case cluster sampling also offered the additional advantage of making it possible to cover a relatively large geographical area in a representative manner.

At the outset five districts which were selected based on HIV prevalence rates. In this manner two districts with high prevalence rates (n=159 in Chókwe and Bilene, with estimated prevalence rates of 20% and 19%, respectively), one medium prevalence district (n= 128 in Mandlkazi, estimated prevalence rate of 16%) and two relatively low prevalence districts (n= 119 in Xai-Xai District and Xai-Xai city, both with 11% estimated prevalence rates) were selected for this study.

Within these districts participating schools were selected through a process of cluster sampling. Schools in Mozambique are divided into Zones of Pedagogical Influence (*Zonas de Influência Pedagógica* or ZIPs) with each ZIP comprising between 4-6 schools. Using this principle, in each district three ZIPs were randomly selected (districts have between 8 and 15 ZIPs) and all of the teachers in each ZIP were requested to participate in the study by filling out the questionnaire. Between 18 and 50 teachers participated from each of the ZIPs. Teachers who were unable to participate were mostly absent because of other concurrent responsibilities or due to difficulties in finding transportation. Those that were absent did not, therefore, differ significantly from the teachers that did participate. Of the 441 primary and secondary school teachers who were selected through a process of cluster sampling, 406 participated completed the survey (corresponding to a response rate of 92%).

An additional 210 primary and secondary school teachers were randomly selected from the teacher training college of Inhamissa in the provincial capital, Xai-Xai. The response rate at this location was 95% (equivalent to 200 teachers). This teacher training college has a total of 685 students who come from all 12 districts in the province. Students at the college are divided into two groups, new teachers who are doing a three-year pre-service training course (approximately two thirds) who are generally between the ages of 18 and 25 and most of whom have no teaching experience, and experienced teachers who are participating in a two-year upgrading course (just over one quarter, or 176 in total). Sampling using a list of students and a table of random numbers was used to select participants from the teacher training college.

In addition, a questionnaire was also administered to 106 primary and secondary school students. Data collection among primary and secondary school students took place at one rural and one urban primary school and one rural and one urban secondary school, respectively. Results should be interpreted with caution for this group since the sample is only representative of the participating schools.

Finally, teachers who completed the survey were asked to volunteer to participate in individual interviews. Twenty-eight teachers volunteered, all of whom were interviewed.

Data Collection Instruments

Questionnaire for primary and secondary school teachers

Data were collected by administering a questionnaire containing a total of 146 items to primary and secondary school teachers. The questionnaire for primary and secondary school teachers (see Appendix G) included the following items to measure each of the key predicted and predictor variables in the study:

- 9 items to address the predicted variable “willingness to communicate about HIV/AIDS”, of which three were open response items and which were coded for the purpose of data analysis
- 6 closed response items to measure overall attitude toward talking about condoms and sexuality in schools
- 4 closed response items to measure perceived social norms
- 4 closed response items to measure perceived behavioral control
- 64 closed response items to measure attitude functions towards promoting condoms/ talking about sexuality in schools
- 14 closed response items to address knowledge of HIV/AIDS
- 5 closed response items to measure personal exposure/experience with HIV/AIDS
- 3 closed response items to address HIV/AIDS related behavior and perceptions of risk
- 8 closed response items to measure demographic characteristics of respondents namely: gender, age, years of teaching experience, formal training level, level taught, date and duration of HIV training course, and area of residence;

A further 29 items covering a variety of topics related to willingness to communicate about HIV/AIDS were included in the questionnaire for exploratory purposes.

Questionnaire for primary and secondary school students

The questionnaire for primary and secondary school students consisted of 20 questions (Appendix H). The purpose of this questionnaire was to contrast the information obtained from teachers with the information that was is provided by the students. The questionnaire contained a combination of open and closed answer items asking students to report on:

- The frequency with which teachers communicate about HIV/AIDS (closed items response)
- The occasions (in-class, outside of class, etc.) that they discuss this topic (closed item response)
- Students' understanding/opinion of why teachers may not want to communicate about HIV/AIDS (open item response)
- Their perception of the role of teachers in fighting against HIV/AIDS (open item response)
- Students personal exposure to HIV/AIDS (4 closed item responses)
- Students' assessment of teachers' willingness to communicate about HIV/AIDS (open item response)
- Most important sources of information about HIV/AIDS for these students (closed item response)
- Questions about HIV/AIDS that students have and that they do not have an answer to (open item response).

Personal interviews with selected primary and secondary school teachers

Interviews were conducted with 28 primary and secondary school teachers who volunteered for this activity. During the interviews teachers were asked to provide further information on their willingness and approach to communicating about HIV/AIDS with their students, and to provide examples of the kind of activities they had carried out. A copy of the interview guideline can be found in Appendix I.

Predicted and Predictor Variables

The predicted and predictor variables for the study are listed below. For each variable an operational definition is provided. In addition, specifications are provided of the items used to measure the variable and of the manner in which effects and component indices were generated. An overview of the predicted and predictor measures in this study (including operational definition, number of items used, type of index, hypotheses to which each measure relates, manner in which data was used, and level of reliability - where relevant) is found in Table 2.

Predicted outcomes: Willingness to communicate about HIV/AIDS

As noted by Action Aid (2002), very limited research has been conducted to examine factors that influence whether teachers communicate about HIV/AIDS. In general, the few studies that exist and that have looked at developing countries are mainly qualitative in nature (c.f. Kinsman, 1999; and Chifunyise, Benoy & Mukiibi, 2002). Whilst these studies have contributed to the field by providing some insight into teachers' perceptions and approach to HIV/AIDS these

Table 2: Specification of Predicted and Predictor Variables

Variable	Type	Number of items used	Type index	Hypotheses	Transformation	Reliability
Age	Predictor	1 item	Single measure	1	Three groups of equal size	n/a
Sex	Predictor	1 item	Single measure	1	Three groups of equal size	n/a
Personal experience with HIV	Predictor	4 items	Component	2	Three groups of equal size	n/a
HIV/AIDS knowledge	Predictor	14 items	Effects	2	Three groups of equal size	0.72 on part 1 & 0.66 on part 2
Conviction about addressing personal threat of HIV/AIDS	Predictor	1 item	Single measure	3	Three groups of equal size	n/a
Personal protection against HIV/AIDS	Predictor	1 item	Single measure	3	Three groups of equal size	n/a
Overall attitude toward talking about condoms and sexuality in schools	Predictor	3 items	Effects	1	Three groups of equal size	0.68
Perceived social norms in addressing HIV/AIDS	Predictor	4 items	Effects	1	Three groups of equal size	0.73
Perceived behavioral control in addressing HIV/AIDS	Predictor	4 items	Effects	1	Three groups of equal size	0.81
Level taught	Predictor	1 item	Single measure	2	Two groups (EP1 versus EP2/ESG, excluding those teachers are still in training)	n/a
Atittude functions toward talking about condoms and sexuality in schools	Predictor	25 items	6 attitude functions	3	Respondents for each factor divided into three groups of equal size	
Future behavior	*Predicted*	*1 item*	*Single measure*	*ALL*	*Three groups of equal size*	*n/a*
Past behavior in school	*Predicted*	*3 items*	*Component*	*ALL*	*Three groups of equal size*	*r > 0.33*
Past behavior in community	*Predicted*	*2 items*	*Component*	*ALL*	*Three groups of equal size*	

results are difficult to generalize to other populations. Those studies that have attempted to provide a quantitative measure of teachers' willingness (or behavioral intent) have most often done so using a single question asking teachers to indicate to what extent they believe they will (be able to) talk about HIV/AIDS (c.f. Lin & Wilson, 1998).

This study took a different approach. During the pilot phase of the study it became clear that the predicted variable could be operationalized in a variety of ways. Thus willingness to communicate about HIV/AIDS could refer to both past and future behavior i.e. some teachers expressed the intention to talk about HIV/AIDS even if they were not currently doing so, others indicated that neither in the present nor in the future would they talk about HIV/AIDS, etc. In addition, it became clear that willingness to communicate about HIV/AIDS consisted of both school related behavior and community related behavior. In other words, that educational context should be broadly interpreted since teachers have both a role in school and within their communities, and that a willingness to communicate in one setting does not necessarily transfer into willingness to communicate about HIV/AIDS in the other setting. And finally, it became clear that willingness to communicate about HIV/AIDS also referred to the specific topics that teachers are willing to discuss, e.g. some teachers indicated that they were willing to discuss HIV/AIDS but that they were not willing to communicate about certain sensitive issues such as condoms or sexuality. The predicted variable in this study was defined as teachers' willingness to communicate about HIV/AIDS in the educational context (school and community). This predicted variable was operationalized to refer to the extent to which teachers have in the past month, or intend in the coming month, to address HIV/AIDS in the educational context. In operationalizing "willingness to communicate about HIV/AIDS" teachers were therefore asked the following questions: a) how often they intended to talk about HIV/AIDS with their students in the coming four weeks; and b) how often in the last four weeks (on a scale covering "Never", "One time", "Two times", "Three times", "Four times" and "Five times or more") they had talked about HIV/AIDS "before class", "during class", "informally in school", "informally in the community", and "during mobilization/awareness activities in the community". These predictor measures were all component indices for which alpha reliabilities are not relevant. The item to total correlations between the items on the past school behavior ranged from 0.34 to 0.41 and on the items for past community behavior from 0.30 to 0.38.

The data used for the predicted measures were ordinal in nature. Preliminary analyses of the data revealed consistent highly skewed distributions. Various transformations of the data were attempted to improve the distribution but none of these provided a better solution. In view of this, a data analysis technique was selected (multinomial logistic regression) which is not sensitive to violations of this nature.

For the purpose of data analysis, teachers' responses to the question concerning future intent to communicate about HIV/AIDS were collapsed into two measures, as follows:

- A first predicted measure for future intent to address HIV/AIDS (labeled "future behavior – two levels" in Table 3 below) contrasts those teachers who indicated that they had no intention of talking about HIV/AIDS (labeled as "no behavior" in the same table) with those teachers who filled out any response greater than zero, which was labeled as "variable behavior".
- The second measure with three levels – labeled "future behavior – three levels" - contrasting teachers who responded "never" (and who were again given the designation of "no behavior"), with those who indicated they would communicate between one and three times (labeled as having "limited[10] behavioral consistency") and with those who indicated they would communicate four or more times (labeled "high behavioral consistency"). The main rationale for distinguishing between limited behavioral consistency and high behavioral consistency was that in the later case the behavior is weekly and therefore part of a consistent approach.

Table 3: Operationalization of 2 level Predicted Measures

Variable/ type of behavior	"No behavior"	"Variable level of behavior"
Future behavior – two levels	No intention to talk about HIV/AIDS in the coming four weeks.	Intention to talk about HIV/AIDS one or more times in the next four weeks.
Past community behavior – two levels	Did not talk about HIV/AIDS informally in the community or at awareness campaigns in the past four weeks	Talked about HIV/AIDS one or more times informally in the community or during mobilization/awareness activities in the community in the past four weeks
Past social behavior – two levels	Did not talk about HIV/AIDS in class or informally or before class in the past four weeks	Talked about HIV/AIDS one or more times in class and one or more times informally in school or before class in the past four weeks

[10] Limited behavior in this case can imply different situations. It may mean that a respondent scores relatively high on one of the items that measures the behavior but very low on one or more other items. It may also mean a moderate level of behavior on the different items. In view of this "limited behavior" can also be interpreted as mixed behavior.

Two measures each with two and three levels – labeled as "past community behavior – two levels" and "past community behavior – three levels", respectively, were created for community past behavior, as follows:

- A first predictor measure for past community behavior contrasting those teachers who did not talk about HIV/AIDS informally in the community and/or at awareness campaigns in the past four weeks, with those that talked at least once on both occasions.
- A second predictor measure with three levels. Respondents were coded as exhibiting "no behavior" when they responded that they had not talked on one or on both behaviors (informally or at awareness campaigns). The category of "limited behavioral consistency" was assigned to teachers who indicated having talked one or two times on both or either type of occasion. Finally, "high behavioral consistency" with regard to past community behavior if s/he indicated having talked about HIV/AIDS three or more times either "informally in the community" or "during mobilization/awareness activities in the community".

Table 4: Operationalization of 3 level Predictor Measures

Variable/ behavior	"No behavior"	"Limited behavioral consistency"	"High behavioral consistency"
Future behavior – three levels	"Zero" intention to talk about HIV/AIDS in the coming four weeks	Intention to talk between one and three times in the next four weeks	Intention to talk four or more times in the next four weeks
Past community behavior – three levels	Did not talk informally in the community or at awareness campaigns in the past four weeks	Talked one or two times informally in the community or during mobilization/awareness activities in the community in the past four weeks	Talked three or more times informally in the community or during mobilization/awareness activities in the community in the past four weeks
Past social behavior – three levels	Did not talk in class or informally or before class in the past four weeks	Talked one or two times informally in school or before class and one time in class in the past four weeks	Talked three or more times informally in school or before class and two or more times in class in the past four weeks

A similar procedure was used for past school behavior, as follows:

- Similarly to both future behavior and past community behavior, the first predictor of past school behavior had two levels. "No behavior" was assigned to teachers who did not talk in class on either of the two informal behaviors which was contrasted with "variable levels of behavior". Teachers were placed in this category if they reported talking about HIV/AIDS once or more on either of the two informal behaviors (before class and on other informal occasions at school) and once in class.

- A second predictor with three levels. For this measure “no behavior” was defined in the same manner as for the other two level predictor measures. The category of “Limited behavioral consistency” was assigned to teachers who indicated talking one or two times on either of the two informal behaviors as well as once about HIV/AIDS in class in the past month. For “High behavioral consistency” teachers needed to indicate talking three times or more on either of the informal behaviors as well as two times or more in class.

It should be clear from the above that the predicted variables were operationalized in terms of frequency of a particular behavior, and not in terms of the specific content that teachers were discussing. Whilst data related to the content that teachers were covering were collected in the open response section of the questionnaire, it was beyond the scope of the present study to analyze these results. This data will be used in a follow-up study to the present one.

Predictor measure: Age

A single question asked teachers to indicate their date and year of birth. The year of birth was subsequently converted into age (mean age: 30.91, standard deviation: 8.89). Similar to the procedure for other variables this recoded variable was used to create three groups. The age breakdown of the groups corresponded to 16 through 24, 25 through 35 and 36 and over (mean age: 30.91, standard deviation: 8.89).

Predictor measure: Sex

A single question asked teachers to indicate their sex as being either “male” or “female.

Predictor measure: Personal experience with HIV/AIDS

There is some evidence for a link between personal exposure to the impact of HIV/AIDS and personal behavior (c.f. Macintyre, Brown, & Sosler, 2001). In this study personal experience with HIV/AIDS was defined as closely knowing someone (friend, family or colleague) who is (or is believed to be) HIV positive/sick with AIDS or who has died of the disease. Prior research by Macintyre, Brown and Sosler (2001) had indicated that personal experience of HIV/AIDS was a strong predictor of the decision to change sexual behavior and to start using a condom. In their study a single question was asked of their all-male sample namely “Do you know someone who has AIDS or who has died of AIDS” (Macintyre, Brown, & Sosler, 2001, p.166). For the purpose of this study it was decided to create a more discriminating measure that would be capable of distinguishing different types of exposure as a function of the relationship with the people involved. Therefore, based on the focus group discussions in the pilot phase, a set of five questions was developed to measure this variable by asking respondents to indicate whether

they: (a) “personally know someone who has died of AIDS”; (b) “have any sick family members living in the same house”; (c) “have any family that has died of AIDS”; (d) “have one or more friends who are either HIV positive or may have died of AIDS”; and (e) know one or more teachers who are HIV positive or have died of AIDS. The response set for these items was (1) “yes”, and (2) “no” which were later recoded to a “0” for no and a “1” for yes. The responses to b) through e) were summed to create an overall component index of personal experience with HIV/AIDS (range of response was from 0 to 4, with a mean of 0.92 and a standard deviation of 1.02). Based on summed responses, teachers were subsequently categorized into three groups of reflecting those that knew no person who was sick or had died of HIV/AIDS (labeled as “no experience”), those that knew one person who was either sick or had died, and those who knew two or more people who were sick or had died of HIV/AIDS.

Predictor measure: HIV/AIDS knowledge

HIV/AIDS knowledge refers to knowledge about transmission and prevention of HIV infection. Items for this variable were developed by translating, pilot testing and shortening Koch & Singers’ (1998) HIV-Knowledge and Attitude Scale for Teachers, from a 35 item scale to a 10-item scale. In addition, four items reflecting local myths and misconceptions - which were generated from the focus groups - were also included. These local misconceptions were associated with condoms (i.e. that condoms contain various diseases and that condoms spread HIV/AIDS), with the belief by some that it is possible to identify whether a person has HIV/AIDS simply by looking at them, and the belief that HIV/AIDS can be transmitted by sneezing and coughing[11].

All items were tested and found to be reliable measures during the pilot phase of the study (alpha reliability 0.72 on the first part and 0.68 on the second part). In this manner, the final shortened HIV/AIDS knowledge scale contained items referring to HIV/AIDS disease processes, such as causes, symptoms, diagnosis, effect, treatment, as well as to possible modes of transmission. Two types of response mode are used in these questions, namely options of (1)“true”, (2)“false”, and (3)“not sure” for the six statements concerning causes, symptoms, diagnosis, effect and treatment, and a response mode of (1)“very likely”, (2)“somewhat likely”, (3)“very unlikely”, (4)“definitely not possible”, and (5)“don’t know” for eight items concerning possible modes of transmission. In a fashion similar to the procedure recommended by Koch & Singer (2001) one point was given for every correct answer to the general knowledge part of the

[11] The belief about sneezing and coughing appears to come from the close association between tuberculosis (for which one of the main symptoms is a persistent cough and the production of excessive mucus in the lungs) and HIV/AIDS.

questionnaire, with the highest possible score being a six. All "not sure" answers were coded as incorrect. The highest possible score on the likelihood of transmission part of the questionnaire was an eight and similar to the first part of the measure "don't know" was coded as a wrong answer. The alpha reliability of the parts of the questionnaire was 0.64 and 0.72, respectively for the group of 606 teachers which was considered sufficient given that the measure included items that had not been previously used[12].

The responses on the full scale were summed for all responses to create a summed index with a minimum score of zero and a maximum score of 14. Using percentiles three knowledge groups of equal size were created for the purpose of subsequent statistical analysis. In this manner, the first group included those 33.3% of the respondents who scored lowest on the HIV/AIDS knowledge scale and who were coded as having a "relatively low level of knowledge". The second group (including 33.3% of the respondents in the middle range of the knowledge scale) was coded as having a "moderate level of knowledge". Finally, the highest group included the 33.3% of the respondents who scored highest on the knowledge scale and who were labeled as having a "high level of knowledge".

Predictor measure: Conviction about addressing personal threat of HIV/AIDS

Personal conviction about HIV/AIDS referred to whether teachers expressed the belief that it is possible to do more to protect themselves against HIV/AIDS. A single question was formulated asking teachers to indicate their level of agreement with the following statement: "I believe that I personally could do more to reduce my chances of being contaminated by HIV?" The response set to this question was: (1)"strongly agree"; (2)"agree"; (3)"not sure", (4)"disagree", (5)"strongly disagree". For the purpose of analysis the responses on this question were collapsed to contrast respondents who responded "strongly agree" and "agree" with those in the other three categories.

Predictor measure: Personal protection against HIV/AIDS

Personal approach to HIV/AIDS was interpreted as referring to the respondent's use of preventive means to avoid being contaminated by the HIV virus. Since transmission via sexual intercourse is by far the most important form of contamination in Africa a single question was formulated asking teachers to indicate their current use of condoms (with responses of: (1)"always"; (2)"frequently but not always"; (3)"sometimes depending on the situation", (4)"never",

[12] The alpha reliability of the two parts of the knowledge and attitudes scale by Koch and Singer (2001) on which this one was based was 0.76 and 0.83 respectively.

(5)"I don't need to because I trust my partner", and (6)"I am abstaining from having sex"). For the purpose of analysis the responses on this question were collapsed to contrast respondents who always use condoms with the remaining categories. In this manner two categories were obtained, corresponding to "always users" and "variable level of condom use". Respondents who reported they were abstaining were coded as system missing[13].

Predictor measure: Overall attitude toward talking about condoms and sexuality in schools

Various attitude scales for HIV/AIDS exist. For the purpose of this study the HIV/AIDS Knowledge and Attitudes Scale for Teachers (Koch & Singer, 1998) was considered to be the most relevant which has been used with success in a number of studies (c.f. Costin et al., 2002) but was not specifically designed for developing contexts. In this study, therefore the topics in the Koch & Singer attitude scale were used as a basis for the discussion in the focus groups during the pilot phase to identify a more specific measure of an overall attitude toward talking about HIV/AIDS for the Mozambican context.

The most important overall attitudes that were identified on the basis of the focus groups as having an impact on the willingness to communicate about HIV/AIDS was the attitude toward talking about condoms and sexuality in schools. Teachers indicated various levels of apprehension with regard to this issue. Six questions were therefore formulated and tested in the pilot phase to assess this attitude. These questions asked teachers to indicate on a five-point scale with responses "strongly agree", "agree", "not sure", "disagree" and "strongly disagree" whether they believed that talking about condoms and sexuality in schools would: a) contribute to increasing the level of knowledge of children about the disease; b) would lead them to be more sexually responsible; c) would make them start practicing sex at an early age; d) would make them nervous and afraid; e) would lead to problems in the community; and f) would make them more responsible members of their community. Analysis of the responses of the 606 teachers to these six questions indicated the presence of two factors. The factor with the highest reliability (alpha = 0.68) was subsequently selected to created a summed weighted measure of the attitude based on the responses to items a), b) and e) above. For the purpose of data analysis the summed weighted measure was divided into three groups of equal size using percentiles where the lowest 33.3% had "relatively unsupportive attitudes" toward talking about HIV/AIDS, the

[13] During the data collection it became clear that some of the respondents who indicated they were abstaining from sex were in fact nuns. Given the small number teachers in this category, and the fact that some teachers who were nuns, it was subsequently decided to eliminate this category from the data analysis.

middle 33.3% had “moderately supportive attitudes”, and the highest 33.3% had “highly supportive attitudes” toward talking about HIV/AIDS

Predictor measure: Perceived social norms in addressing HIV/AIDS

This measure aimed at assessing teachers’ subjective norms (Azjen & Fishbein, 1980) or generalized perceptions of social support for their role as communicators about HIV/AIDS. Based on the focus group discussions, four categories of people were identified as being particularly important to teachers in their decision to talk about HIV/AIDS, namely parents/guardians, religious leaders, traditional and community leaders and colleagues/management of the school. Therefore, in order to assess perceived social norms, teachers were asked to indicate in a series of four questions on a five-point scale ranging from “strongly agree” to “strongly disagree” to what extent they believed that these four groups would agree if they talked “in detail about issues related to sexuality and the use of condoms with their students”. Similar to the above, a summed measure (alpha reliability 0.73) was created based on these four questions, and for the purpose of further statistical analysis participants were divided into three groups of equal size using percentiles.

Predictor measure: Perceived behavioral control in addressing HIV/AIDS

This measure aimed at assessing perceived barriers (Azjen, 1991; Trianeti, 1980) of teachers in addressing HIV/AIDS in the educational setting and was developed on the basis of the 9-item Perceived Behavioral Control Scale on HIV/AIDS education (Burak, 1994). Items from that scale were contrasted with the discussions with teachers in the focus groups as well as with responses to open-ended items on the questionnaires. From these sources, the following aspects were identified as being crucial to teachers: a) training on HIV/AIDS, b) explicit support by colleagues/ school management; c) support and behavior of other teachers; and d) availability of information on HIV/AIDS. Four items were developed/adapted and pilot tested for this measure. In these questions teachers were asked to indicate their agreement with four statements specifying that they believed that they needed “more training”, “more support from the school”, “more information”, and “more support from teachers” in order to be able to effectively discuss HIV/AIDS with their students. Response options for this variable were on the same five-point scale used for the other predictor measures discussed above. The alpha reliability for this measure was 0.81. A summed index was created based on these four questions, and for the purpose of further statistical analysis participants were divided into three groups of equal size using percentiles. In this manner the 33.3% of respondents who scored lowest on the measure of perceived behavior al control were labeled as having “relatively low perceived behavioral control”, the next 33.3% were labeled as having a “moderate perceived behavioral control”, and the remaining highest group was labeled as having a “high perceived behavioral control”.

Predictor measure: Level taught

One question was formulated to ask teachers what level they taught. The following response options were available on this question,: “don’t teach” (for the future teachers), “EP1” (Grades 1 to 5 known as lower primary level), “EP2” (Grades 6 and 7 known as upper primary level), “ESG (Grades 8 to 12 known as secondary level) and “other level, please specify”. For the purpose of data analysis, three groups were created by recoding the “other” category as missing, and keeping EP1 and EP2 and ESG as three distinct categories[14].

Predictor measure: Attitude functions toward talking about condoms and sexuality in schools

This refers to the predominant type of attitude function (utilitarian, socio-adjustive, socio-defensive, ego-defensive, value-expressive and knowledge) that respondents hold towards promoting the use of condoms and discussing sexuality in schools. A total of 64 items, with four positive and four negative items for each attitude function were developed during the pilot phase to measure attitude functions. Each question asked respondents to indicate to what extent they agreed with a series of statements which started either with “it is ok to”, and “it is not always ok to”. The response set for each statement covered the following options: (1) “strongly agree”; (2) “somewhat agree”; (3) “neither agree nor disagree”; (4) “disagree partially”; (5) “don’t agree at all”.

An initial factor analysis using PCA with all 64 items revealed the presence of 14 factors, explaining 58% of the variance. However a large number of the items used for the factor analysis showed almost no variance in the response and were highly skewed. Since this solution did not provide an adequate reflection of what was expected from theory and prior studies (and given the problems identified with the items) it was decided to retain the 25 items from with communalities greater than 0.6 for subsequent analysis.

A second factor analysis with the 25 selected items resulted in a six factor solution explaining 54% of the variance. It was decided to retain the six factor solution (see Table 5). This decision was based various considerations. First all six factors had an eigenvalue greater than one, suggesting six factors according to the Kaiser rule. Furthermore examination of the scree

[14] The rationale for this classification relates back to the hypothesis which states that teachers in the lower primary grades will have a lower level of willingness to communicate about HIV/AIDS in the educational context that teachers in upper primary and secondary. It is commonly thought that teachers in the lower grades will not discuss HIV/AIDS because the children are too young.

Table 5: Final PCA Solution for Attitude Functions

Factor Pattern Matrix[a]

	Factors					
	Socio Adjustive	Utilitarian	Value Expressive	Ego Defensive	Socio Defensive	Knowledge
AVOIDDTS						.691
AVOIDPRE						.736
HAVEMICR		.710				
MAYTEAR		.759				
PANIC				-.718		
SPREADMO				-.775		
KIDNAUGH	.656					
SUICIDE		.550				
NERVOUS				-.526		
CONDDIS		.715				
KIDFEAR						-.490
ABSTAIN			.691			
POLYGAMY			.713			
MORALED	.719					
PROSTNOL	.563					
REDPROST			.693			
SEXABUSE			.747			
ONPURPOS					-.681	
PARPROST	.620					
IMORALTY					-.586	
REDWRKRS					-.769	
REDECNMY					-.845	
SOSCONS	.703					
IMPACT	.672					
TEACHOTH	.732					

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a. Values smaller than 2.0 were ommitted from the table

plot suggested the possibility of five through seven factors but experimentation with different solutions still indicated that the six factor solution was acceptable. A final consideration was that the six factors could be meaningfully interpreted after rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.88, and the Bartlett's test of sphericity yielded a X2 of 4173 with df = 325 and $p < 0.001$).

In order to aid interpretation of the factors various rotations were attempted. Since it was believed that the factors in this domain would tend to be correlated, an Oblique rotation was

retained which exhibited some degree of simple structure with most variables loading on only one factor. The table below summarizes the final PCA solution, a brief discussion of the characteristics of each factor follows.

The first factor measured a socio-adjustive attitude and had an alpha reliability of 0.77. Seven items loaded on this factor at a value of 0.56 or greater. This factor had an eigenvalue of 4.6 and explained 24% of the variance. All items related to the reactions of parents (for example: "in my opinion it is not good to talk about condoms/sexuality in schools because parents will say we are teaching children to be promiscuous"), community ("in my opinion it is not good to talk about condoms/sexuality in school because the community will say we are teaching kids to be naughty"), and other social groups ("in my opinion it is not good to talk about condoms/sexuality in school because members of the community will say we are being a bad influence on girls") to talking about HIV/AIDS in schools.

The second factor was clearly related to a utilitarian attitude and had an alpha reliability of 0.73. Four items loaded on this factor, three of these with values of 0.71 or above and one with a value of 0.55. The eigenvalue of this factor is 2.794 which explained 11% of the variance. The items on this factor related to questions concerning whether condoms effectively protect against AIDS and other diseases ("in my opinion it is not good to talk about condoms/sexuality in school because some condoms spread disease", "in my opinion it is not good to talk about condoms/sexuality in school because some condoms are contaminated"), that condoms may tear ("in my opinion it is not good to talk about condoms/sexuality in school because sometimes condoms may be badly made or may tear"), and that they may create discomfort ("in my opinion it is not good to talk about condoms/sexuality in school because sometimes condoms may get lost inside a woman").

The third factor related to a value expressive function with an alpha reliability of 0.72. Four items loaded on this factor, all with values of 0.69 and above. The factor had an eigenvalue of 1.672 and contributed to 6.4% of the variance. Items that loaded on this factor were related to agreement with the fact that "it is good to talk about condoms/sexuality in schools because "it stops the spread of polygamy", "it promotes abstinence from sexual activity", "reduces prostitution among young people", and "reduces promiscuity and sexual abuse".

The fourth factor was related to the ego-defensive function with an alpha reliability of 0.69. Three items loaded on this factor, two with a high 0.72 or above, and one at 0.53. This factor has an eigenvalue of 1.3 and contributes to 4.9 % of the variance. Items included "in my opinion it is not good to talk about condoms/sexuality in school because some people will become very nervous", "in my opinion it is not good to talk about condoms/sexuality in school because it

creates anxiety and panic in communities", and "in my opinion it is not good to talk about condoms/sexuality in school because people who hear the disease exists may want to commit suicide"

The fifth factor illustrates the presence of a socio-defensive function with an alpha reliability of 0.74. This function emerged clearly from the analysis of the attitude solicitation surveys but is the only one in the list that is not otherwise discussed in the attitude function literature. Four items contribute to this factor two of which have values of 0.58 and 0.59 respectively, and the other two of which have values greater than 0.7. All items relate to the perceived consequences from a broad social perspective of the spread of HIV/AIDS ("in my opinion it is not okay to talk about condoms/sexuality in school because there are people who will spread the disease on purpose", "in my opinion it is not okay to talk about condoms/sexuality in school because it has a negative impact on society and public places", "in my opinion it is not okay to talk about condoms/sexuality in school because it stops the economy from growing", and "in my opinion it is not okay to talk about condoms/sexuality in school because it reduces the number of workers"). This factor has an eigenvalue of 1.2 and explains 4.4% of the variance.

The sixth and final factor illustrates the presence of a knowledge function. Three items loaded on this function with a value of 0.6 and above. This factor has an eigenvalue of 1.1 and explains 4.2% of the variance of the model. The items loading on this factor related to the knowledge that condoms "stop the spread of HIV/AIDS" and "avoids unwanted pregnancies". The third item that loaded on this factor was related to reducing the fear of children of being contaminated with HIV/AIDS.

Overall the alpha reliabilities for each factor were acceptable given that this is an emerging area of research. Factor correlations among the six factors in the oblique solution were weak to moderate as shown in Table 6.

The six factors were saved as factor scores for subsequent data analysis. For the purpose of data analysis each factor was categorized into three groups of equal size. For the purpose of hypothesis testing only the value-expressive attitude function was used. Similar to procedures for earlier variables, the lowest 33.3% of respondents were labeled as believing value expressive attitude functions were "relatively unimportant", the middle 33.3% as "moderately important", and the highest group as "highly important".

Table 6: Correlations Between Attitude Functions in Final Solution

Factor Correlations

Factor	Socio Adjustive	Utilitarian	Value Expressive	Ego Defensive	Socio Defensive	Knowledge
Socio Adjustive	1.000	.196	.344	-.135	-.278	.121
Utilitarian	.196	1.000	.145	-.255	-.388	-.112
Value Expressive	.344	.145	1.000	-.165	-.153	.800
Ego Defensive	-.135	-.255	-.165	1.000	.223	-.239
Socio Defensive	-.278	-.388	-.153	.223	1.000	.537
Knowledge	.121	-.112	.800	-.239	.537	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Survey Procedures

Primary and secondary school teachers in the five participating districts were asked to convene in groups at previously selected locations. The meetings with teachers took place on three consecutive Saturdays and/or Sundays to ensure that regular classes were not disrupted. Survey application to future teachers at teacher training colleges took place at the end of the regular class session during three consecutive weekdays. The questionnaire for students was administered in four different schools during class time on four consecutive days and took approximately one hour to complete.

Each session started with a brief introduction by the researcher in which the purpose and procedures of the data collection were carefully explained. Subjects were told that the study aimed at gaining an understanding of factors that influence teachers' willingness to communicate about HIV/AIDS in the educational setting, as well as their teaching practices. They were told that answers to all their questions would be kept strictly confidential. Subjects were asked to direct any questions concerning the survey or any of its items directly to the researcher and to refrain from comparing answers. A brief overview of the main sections of the questionnaire was provided by the researcher as well as instructions for how to complete it. Also, participants were asked to get in touch with the researcher after the session if they were willing to participate in a short individual interview on a voluntary basis.

Subjects were then asked to sign a consent form which was kept separate from the questionnaire, and to return this at the start of the session. For the students parental permission

was obtained through the schools involved in the study. All participants were told that they could withdraw from participation at any time without any penalty or consequence.

Sessions took place in primary or secondary school classrooms where teachers/students were seated at school benches either individually or in pairs. Questions raised by the respondents were clarified throughout the session, taking care to ensure that the clarification did not bias the response.

In order to avoid excessive fatigue of the teachers and also to separate questions with very different response sets from one another[15], the questionnaire for teachers was administered in two parts with approximately 70 questions each. The first part of the questionnaire was labeled "1"and the second part with a "2". Responses to both parts of the questionnaire were obtained during a single sitting with a break in between the two parts. Light refreshments were served to the participants in between the two sessions. Participants were permitted to take the break when they completed the first part without having to wait for their colleagues. Sessions for teachers typically took about two hours, excluding the time for a 30-minute break. For students the questionnaire was shorter and therefore was administered in a single sitting of approximately 45 minutes without a break or refreshment.

Upon handing in the questionnaires at the end of the session a quick check was done to ensure that all pages of the questionnaire had been completed. Respondents who had skipped pages were asked whether they had any questions and, once possible questions were clarified, were asked to complete the missing section of the questionnaire. All participants were thanked individually for their participation.

Participation in the data collection was voluntary and no specific monetary incentive for participation was given. Instead all respondents who completed the survey received a set of pens. In addition, all participating teachers (with the exception of the future teachers who were in boarding at the teacher training college) were provided with a modest compensation for transportation proportional to the distance traveled[16]

A total of 28 teachers volunteered for individual in-depth interviews. Participants were recruited on a voluntary basis and received a modest monetary incentive to take part in the

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[15] One of the things that became clear during the pilot testing is that switching of the type of responses (response options) – particularly when switching from the use of statements describing feelings or attitudes in the first person which have to be rated according to a Likert scale to other types of responses – can cause confusion. The questionnaire was therefore divided into two parts to minimize this problem.

[16] Funds for the sets of pens and for the reimbursement of transportation costs were made available by the UDEBA project in Gaza.

individual interview. Volunteers were told that their responses would be kept confidential. All interviews were conducted at local primary and secondary schools and took place in between, or after class time so as not to disrupt the normal activities in the schools.

Research Design and Data Analysis

The study examined three different predicted measures: a) future behavior (or behavioral intent) with regard to talking about HIV/AIDS in the educational setting; b) past behavior in the community with regard to talking about HIV/AIDS; and c) past behavior in school with regard to talking about HIV/AIDS. The research study consisted of research questions and accompanying research hypotheses.

Data for the study were collected through a survey of a stratified sample of teachers in five districts of one of Mozambique's southern provinces. The survey, although predominantly quantitative in nature, included both structured and unstructured questions and was supplemented by individual interviews with teachers.

In all six hypotheses, multinomial logistic regression was used to examine the relationship between the proposed predictors and the past and future communication behavior of teachers with respect to HIV/AIDS. Multinomial logistic regression is used frequently in health and health related research and is similar to binary logistic regression but allows for the existence of a predicted measure with more than two levels of response, which was the case for all present analysis. Similar to other regression techniques it is possible to consider multiple predictor variables simultaneously. Multinomial logistic regression breaks the regression up into a series of binary regressions and compares each group to a baseline group. One advantage of multinomial regression is that it does not require the assumptions associated with many other tests (such as normality and homogeneity of variance) to be met. It is therefore particularly suited to the present situation where the data are highly skewed and have mixed reliability levels. The technique does assume, however, the existence of well populated tables, an adequate sample size, the absence of significant outliers, and independence of observations, all of which were met in the present study.

For the purpose of conducting the regression each predictor measure was recoded into three levels based on percentile values. Respondents in the first group were considered to be "relatively low" on the measure, respondents in the second groups were considered to be "relatively moderate" and respondents in the last category were classified as "relatively high". The data was ordinal in nature with low unstandardized utility, with mixed reliability, and highly skewed. Various attempts were made at transformations but the data were not responsive.

In all hypothesis tests, the reference category for the dependent variables was "no behavior". For each of the three predictor measures the analyses first consider the contrast between "no behavior" and "variable behavior" (in other words any level of talking about HIV/AIDS) and then between "no behavior", "limited behavioral consistency", and "high behavioral consistency". Details on how each of these levels was operationalized can be found in this chapter. Therefore, the results of six multinomial regressions are discussed for each of the hypotheses in this study. For each multinomial regression odds ratios (with the accompanying p-values, standard error and confidence intervals) of the relationship are reported. Odds ratios indicate for each relationship how much more likely it is that a particular characteristic/trait is present among one group of people as compared to the baseline group, and are commonly used in medical and epidemiological studies, but also increasingly in other areas of research.

Sapsford and Jupp's (1996) technique for iterative analysis of unstructured data was used to analyze the interviews with teachers. This technique involves a process of analytic induction (Bulmer, 1979) where meaning is inferred from the data that are collected. An initial sample of six interviews that looked most promising were selected from the batch of 28. A careful reading of this sample generated a tentative list of themes, topics and issues which were subsequently classified into overall categories and sub-categories. The category system was then applied to the same sample in order to ensure that this data was properly assigned to the category system that had been developed. This process consists of a process of constant comparison which Glaser and Strauss (1967) refer to as the constant comparative method. In this process a number of small changes were made to the category system, particularly to get rid of areas of overlap. The final step of the data analysis was to apply the category grid to the remaining 22 questionnaires using a constant process of comparison. In this manner a stable set of categories/sub-categories was developed to which all the data was applied. Seven overall categories were generated through this process with a varying number of sub-categories for each. These categories are outlined in detail in Appendix J and used in the results section to support and contrast the conclusions from the various hypothesis tests.

CHAPTER 4: RESULTS

As stated in Chapter 1, this study aimed at identifying factors that impact on teachers' willingness to communicate about HIV/AIDS. Willingness to communicate about HIV/AIDS has been operationalized using multiple measures in terms of three distinct behaviors, namely: future intention to talk about HIV/AIDS, past behavior of talking about HIV/AIDS in schools, and past behavior of talking about HIV/AIDS in the community. This chapter starts with a summary of the characteristics of the respondents and of the data collected. This discussion is followed by a detailed presentation of results relating to each of the six hypotheses in turn. Each hypothesis focuses on the three types of behavior identified (future intentions, past school behavior, and past community behavior). A summary of the main findings follows each hypothesis. In addition and where relevant, selected findings from the personal interviews with teachers are used to inform and contrast the findings for some of the hypotheses. The final section of the chapter provides an overview of incidental findings relating to attitude functions.

Characteristics of the Respondents

A total of 606 current or future primary and secondary school teachers for Grades one through twelve[17] in the province of Gaza in southern Mozambique participated in this study. Of this total 46.8% (corresponding to 271 teachers) were female. Teachers ranged in age from a very young 16 years to 57 years of age. Just over one third of the teachers (35.5%) came from urban areas, a quarter (24.9%) from semi-urban areas, and the remaining teachers were residing in rural areas.

The large majority of teachers (415 in total or 68.8%) who participated in the study were primary school teachers with the responsibility of lecturing Grades one through seven. An additional 109 teachers (a further 18%) were still in the process of completing their professional training as primary school teachers. The remaining teachers (13.2%) were secondary school teachers lecturing Grades 8 through 12.

Well over one third of the teachers (39.8%) had no professional qualifications, in other words, they were recruited straight out of school to become teachers without receiving a formal

[17] The education system in Mozambique consists of grades 1-5 (known as Ensino Primário 1), 6 and 7 (Ensino Primário 2), grades 8-10 (Ensino Secundário Geral), grades 11-12 (Ensino Pré-Universitário), and university degrees (Bachelors and Masters Level).

teacher training degree or were still completing their degree at the time the study took place. Just over one quarter (25.9%) had completed seventh Grade and had done three years of teacher training at a teacher training college. 51 teachers (8.7%) held the equivalent of higher education degrees. The remaining teachers had academic qualifications ranging from Grade 7 to Grade 10 with between one to two years of professional training.

Teaching experience varied greatly among the teachers. Approximately one third of the teachers (33.8%) had very little professional experience, i.e. two years or less. A further one third had between 3 and 8 years of experience, and the remaining teachers had anywhere between 9 and 37 years of teaching experience.

In terms of HIV/AIDS training, less than one third (28.1%) reported receiving some form of HIV training in the past two years. The reported duration of these HIV/AIDS courses ranged from several hours to a week. Reported participation in HIV/AIDS courses was markedly lower among future and current primary school teachers (25.7% and 26.6% respectively) than for the group of secondary school teachers (38.9%).

At each school teachers were asked to volunteer for in-depth interviews. A total of 28 teachers from all five districts volunteered in this manner. Their profile did not differ appreciably from that the overall group of teachers, with the exception that a slightly higher percentage of female teachers volunteered (50%) as compared to the 46.7% female teachers who completed the questionnaire.

In addition to the work done with teachers, questionnaires were administered to 106 primary and secondary school students randomly selected in Grades 6 through 12 in two rural and two urban schools in three districts. Forty-six percent of the respondents were male and the respondents ranged in age from 11 to 21 years old (mean age: 16). Since the schools were selected on the basis of convenience, care should be taken in interpreting the results for this group.

Description of the Data

Tables 6 and 7 provide an overview of the predicted and predictor measures in this study, providing frequencies for the subcategories of each measure as well as the total number of valid responses for each measure. It should be noted that although 606 teachers participated in the study, 109 of these were excluded from the hypothesis testing since these they were still in training and therefore did not have experience of talking about HIV/AIDS.

Table 7: Predictor Measures in the Study

PREDICTOR MEASURES				
AGE (n=489)	In %		**ATTITUDE ABOUT HIV/AIDS** (n=477)	In %
Under 25	25.6		Relatively unsupportive	31.4
26 – 35	37.6		Moderately supportive	22.6
Over 35	36.8		Highly supportive	45.9
SEX (n=468)			**PERCEPTION OF PERSONAL RISK** (n=484)	
Male	44.9		Can do more to reduce personal risk	70.7
Female	55.1		Do not need to do more to reduce risk	28.3
PERSONAL EXPERIENCE WITH HIV/AIDS (n=478)			**SOCIAL NORMS** (n=490)	
No experience	43.4		Relatively unimportant	31.8
Knows 1 person who is sick/died	29.9		Moderately important	33.1
Knows 2 or more people sick/died	26.8		Highly important	35.1
KNOWLEDGE OF HIV/AIDS (n=494)			**PERCEIVED BEHAVIORAL CONTROL** (n=494)	
Relatively low level of knowledge	32.2		Relatively low perceived behavioral control	40.3
Moderate knowledge level	43.9		Moderate perceived behavioral control	26.5
High level of knowledge	23.9		High perceived behavioral control	33.2
LEVEL TAUGHT (n=494)			**VALUE EXPRESSIVE ATTITUDE FUNCTION** (n=494)	
Lower primary	68.2		Values relatively unimportant	34.6
Upper primary	15.8		Values moderately important	32.2
Secondary level	16.0		Values highly important	33.8
CONDOM USE (n=494)				
Always use	26.5			
Sometimes/never use	73.5			

Table 8: Frequencies of Predicted measures in the study

PREDICTED MEASURES				
FUTURE INTENTIONS TO DISCUSS HIV/AIDS – 2 LEVEL (n=474)	In %		**FUTURE INTENTIONS TO DISCUSS HIV/AIDS – 3 LEVEL** (n=474)	In %
Intends to talk about HIV/AIDS	65.3		High consistent intentions	37.8
Does not intend to talk about HIV/AIDS	34.7		Limited intentions	28.7
			No intentions	33.5
PAST BEHAVIOR IN SCHOOL – 2 LEVELS (n=494)			**PAST BEHAVIOR IN SCHOOL – 3 LEVELS** (n=494)	
Talked about HIV/AIDS	48.6		High consistent behaviors	24.1
Did not talk about HIV/AIDS	51.4		Limited behaviors	24.5
			No behaviors	51.4
PAST BEHAVIOR IN COMMUNITY – 2 LEVELS (n=494)			**PAST BEHAVIOR IN COMMUNITY – 3 LEVELS** (n=494)	
Talked about HIV/AIDS	43.7		High consistent behaviors	17.6
Did not talk about HIV/AIDS	56.3		Limited behaviors	26.1
			No behaviors	56.3

Results for all Study Hypotheses

The predicted variables for all six hypotheses fall under the overall designation of teachers' "willingness to openly communicate about HIV/AIDS in distinct times and settings". As was explained in Chapter 3, willingness to communicate about HIV/AIDS refers to: a) future behavior; b) past behavior in school; and c) past behavior in the community. For each of these three behaviors two levels of analysis are presented, a first one which contrasts no behavior against any behavior, and a second one which contrast no behavior with limited behavior and high consistent behavior.

The presentation of the results of this study will therefore consist of a set of six tables for each hypothesis[18], as follows:

- Results for **future behavior (2 levels)**, contrasting those who have no intention to talk about HIV/AIDS with those who do intend to talk
- Results for **future behavior (3 levels)**, contrasting those who have no intention to talk about HIV/AIDS with those who expressed a limited intention and those who have a high consistent intention
- Results for **past school behavior (2 levels)**, contrasting those respondents who did not talk about HIV/AIDS in school with those who did
- Results for **past school behavior (3 levels)**, contrasting those respondents who did not talk about HIV/AIDS in school with those who did so to a limited extent and with those who did so consistently
- Results for **past community behavior (2 levels)**, contrasting those respondents who did not talk about HIV/AIDS in the community with those who did; and finally
- Results for **past community behavior (3 levels)**, contrasting those respondents who did not talk about HIV/AIDS in the community with the same two categories namely, with those who did so to a limited extent and those who did so consistently.

For future behavior the reference category is "No, do not intend to talk about HIV/AIDS". For past community and school behavior the reference category is consistently "no, did not talk about HIV/AIDS" .

[18] Full tables will not be presented for non-significant results.

Preliminary analysis

Before proceeding to the tests of the hypotheses, the presence of a possible interaction between age and sex was tested to determine whether the level of either of these was being influenced by the other. However, no interaction was found. The hypothesis tests therefore only report on main effects, controlling for both sex and gender[19].

Hypothesis 1: Using Sex and Age to Predict Willingness to Communicate about HIV/AIDS

The first hypothesis argued that younger teachers and female teachers would be more willing to address HIV/AIDS than their older and male counterparts, based on preliminary indications from the focus group discussions in the pilot phase of the study. Teachers were asked to indicate how many times they intended to talk about HIV/AIDS in the coming month, and how many times they had done so in the past month for various behaviors related to talking about HIV/AIDS in school and in the community. The results for the multinomial regression analyses are presented below for future intentions (Tables 9a and 9b), past school behavior (Tables 9c and 9d) and past community behavior (Tables 9e and 9f), contrasting first those teachers that intend to talk with those who have no intention (2 levels) and then those teachers that have high consistent intentions and those that have limited intentions with those that have no intentions (3 levels).

Future intentions to discuss HIV/AIDS

Tables 9a and 9b examine the relationship between age and sex and teachers' intentions to communicate about HIV/AIDS. Table 9a identifies whether relationships exist, and Table 9b focuses on the extent to which the variables predict consistent future intentions. The overall models in Tables 9a and 9b are statistically significant (log likelihood 28.125, $X^2 = 27.147$, df = 3, $p \leq 0.001$ and (log likelihood 54.740, $X^2 = 30.315$, df = 6, $p \leq 0.001$, respectively).

[19] Controlling for demographic variables is a common procedure, especially in the medical literature.

Controlling for sex (Table 9a), teachers who are in the youngest age group are 3.7 times (95% C. I., ORs = 2.2-6.4, p ≤ 0.001) more likely to talk about HIV/AIDS than their older (over 35) counterparts, whilst the second youngest group of teachers is 2.2 (95% C.I., OR = 1.4-3.4, p ≤ 0.001) times more likely to talk about HIV/AIDS.

More specifically, when contrasting high behavioral intent with no behavior (Table 9b), teachers in the youngest age group are 4.5 times (95% C. I., ORs = 2.4 -8.2, p ≤ 0.001) more likely, and teachers in the second age group are 2.6 times more likely (95% C. I., ORs = 1.6 – 4.3, p ≤ 0.001) to have high consistent intentions to talk about HIV/AIDS.

Table 9a: MLR Analysis: Using Sex and Age to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	55.272			
Final	28.125	27.147	3	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		1.001	.668	1.499
	Male	0				
	Age 25 and under	1	***	3.740	2.177	6.424
	Age 26 - 35	1	***	2.153	1.377	3.365
	Age over 35	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

Similarly, age is also a statistically significant predictor when comparing those with limited intentions with those that do not intend to talk about HIV/AIDS. These odds ratios, however, are consistently smaller.

Contrary to what was hypothesized, however, sex was not a statistically significant predictor of future intention to talk about HIV/AIDS.

Table 9b: MLR Analysis: Using Sex and Age to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	85.055			
Final	54.740	30.315	6	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 Levels) to Talk About HIV/AIDS in the Coming Month		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent intentions	Intercept	1				
	Female	1		.999	.638	1.566
	Male	0				
	Age 25 and under	1	***	4.534	2.495	8.241
	Age 26 - 35	1	***	2.589	1.555	4.311
	Age over 35	0				
Limited intentions	Intercept	1				
	Female	1		1.035	.645	1.662
	Male	0				
	Age 25 and under	1	***	2.924	1.562	5.473
	Age 26 - 35	1	*	1.768	1.037	3.013
	Age over 35	0				

a. The reference category is: No, do not intend to talk

Past behavior in school

The second type of behavior examined was past behavior in schools. Teachers were asked to indicate whether they had talked about HIV/AIDS in the classroom, before class with their students, and on other informal occasions in school in the past month.

Tables 9c and 9d provide an overview of the relationships between age and sex and teachers' past behavior of talking about HIV/AIDS in school. As in the previous analysis, Table 9c examines whether the relationship exists and Table 9d illustrates to what extent the variables predict high consistent past behavior.

The overall models using sex and age to predict past behavior in school are statistically significant (log likelihood 29.210, $X^2 = 14.975$, df = 3, $p \leq 0.01$ and log likelihood 53.789, $X^2 = 17.935$, df = 6, $p \leq 0.01$, respectively). Comparing teachers who declared having talked about HIV/AIDS in school in the past month with those who did not (and controlling for sex), teachers in the youngest age group are 2.4 times (95% C. I., ORs = 1.5 – 3.9, $p \leq 0.01$) more likely to have talked about HIV/AIDS in school than their colleagues in the over 35 age group.

Table 9c: MLR Analysis: Using Sex and Age to Predict Teachers' Talking (2 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	44.185			
Final	29.210	14.975	3	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in Past Month (2 Levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		1.119	.776	1.612
	Male	0				
	Age 25 and under	1	***	2.429	1.522	3.876
	Age 26 - 35	1		1.235	.813	1.877
	Age over 35	0				

a. The reference category is: No, did not talk about HIV/AIDS.

Table 9d: Multinomial Logistic Regression Analysis: Using Sex and Age to Predict Teachers' Talking (3 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	71.725			
Final	53.789	17.935	6	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in Past Month (3 Levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		.938	.592	1.485
	Male	0				
	Age 25 and under	1	***	2.673	1.517	4.710
	Age 26 - 35	1		1.148	.668	1.976
	Age over 35	0				
Limited behavior	Intercept	1				
	Female	1		1.311	.843	2.038
	Male	0				
	Age 25 and under	1	**	2.199	1.242	3.893
	Age 26 - 35	1		1.314	.787	2.193
	Age over 35	0				

a. The reference category is: No, did not talk about HIV/AIDS

More specifically (Table 9d) when contrasting teachers with high consistent past school behavior with those who declared they had not talked about HIV/AIDS in school , teachers 25 and under are 2.7 times ($p \leq 0.001$: 95% C. I., ORs = 1.6 – 4.7) more likely to have talked about HIV/AIDS. Age is also a statistically significant predictor when comparing those with limited past school behavior with those that did not talk about HIV/AIDS in school but the odds ratios are appreciably smaller.

Respondents' sex is not a statistically significant predictor of talking about HIV/AIDS in the school.

Past behavior in the community

Talking about HIV/AIDS in the community in the past month was the third predicted measure in this study. Teachers were asked to indicate how many times in the past month they had talked about HIV/AIDS informally in the community and at community awareness raising events. Similarly to the above analyses two comparisons were done, first between any behavior and no behavior and then between highly consistent behavior, limited behavior and no behavior.

The overall model is statistically significant in both cases (for the 2 level model: log likelihood 29.411, $X^2 = 10.806$, df = 3, $p \leq 0.05$, and for the 3 level model: log likelihood 58.421, $X^2 = 18.551$, df = 6, $p \leq 0.01$). The pattern in both models is similar to that found for the earlier predicted variables. Thus controlling for sex (Table 9e) when comparing those who declared having talked about HIV/AIDS in the community in the past month with those who reported not having talked about HIV/AIDS, teachers in the two youngest age groups are, respectively, 2.0 times ($p \leq 0.01$: 95% C. I., ORs = 1.3 – 3.2) and 1.44 times ($p \leq 0.05$: 95% C. I., ORs = 0.9 – 2.2) more likely to have talked about HIV/AIDS. More specifically (Table 9f), comparing teachers with high consistent behavior against those with no behavior in the community, teachers in the two youngest age groups are 2.6 ($p \leq 0.01$: 95% C. I., ORs = 1.4 – 5.0) and 2.1 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 3.9) more likely, respectively, to have talked about HIV/AIDS in the community.

Once again, respondents' sex is not a significant predictor of past community behavior about HIV/AIDS.

Table 9e: MLR Analysis: Using Sex and Age to Predict Teachers' Talking (2 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	40.217			
Final	29.411	10.806	3	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in Community in Past Month (2 Levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		.790	.547	1.141
	Male	0				
	Age 25 and under	1	**	2.021	1.269	3.220
	Age 26 - 35	1	*	1.439	.941	2.203
	Age over 35	0				

a. The reference category is: No, did not talk about HIV/AIDS

Table 9f: MLR Analysis: Using Sex and Age to Predict Teachers' Talking (3 levels) About HIV/AIDS in Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	76.972			
Final	58.421	18.551	6	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in Community in Past Month (3 Levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1	*	.548	.329	.912
	Male	0				
	Age 25 and under	1	**	2.632	1.381	5.019
	Age 26 - 35	1	**	2.151	1.181	3.920
	Age over 35	0				
Limited behavior	Intercept	1				
	Female	1		1.014	.658	1.564
	Male	0				
	Age 25 and under	1	*	1.719	1.001	2.952
	Age 26 - 35	1		1.097	.661	1.820
	Age over 35	0				

a. The reference category is: No, did not talk about HIV/AIDS

Summary conclusions for hypothesis 1

The first hypothesis was partially supported. For this hypothesis, in which age and sex were used to predict willingness to communicate about HIV/AIDS, the results highlight the consistent importance of age (controlling for sex) as a predictor of willingness to talk about HIV/AIDS, with younger teachers being more willing to talk about HIV/AIDS across all three behaviors. Of particular interest is that overall the relationship tends to be stronger when contrasting high consistent behavior with no behavior (the 3 level analysis), than when simply considering variable behavior (the 2 level analysis).

Sex (controlling for age), on the other hand, was not a predictor of any of the three behaviors. This finding is contrary to the hypothesis that female teachers would be more willing than male teachers to communicate about HIV/AIDS.

Hypothesis 2: Using Personal Experience and Knowledge to Predict Willingness to Communicate about HIV/AIDS

Hypothesis 2 contended that teachers with a high level of knowledge of HIV/AIDS and teachers who had a close personal experience with the disease would be more willing to talk about HIV/AIDS. Teachers' knowledge levels were determined on the basis of their score on a HIV/AIDS knowledge scale. In addition, teachers' personal experience with HIV/AIDS was determined on the basis of the number of people (family, friends, and colleagues that they reported knowing who were either sick or had died of HIV/AIDS).

Multinomial Logistic Regression, controlling for age and sex, was used to test this hypothesis for future behavior (Tables 10a and 10b), past behavior in school (Tables 10c and 10d) and past behavior in the community (Tables 10e and 10f).

Future intentions to discuss HIV/AIDS

As can be seen from Tables 10a and 10b below, the models using personal experience and knowledge to predict teachers' future intentions to talk about HIV/AIDS (controlling for age and sex) are statistically significant (2 level comparison: log likelihood 145.352, $X^2 = 50.667$, df = 7, $p \leq 0.001$, and 3 level comparison: log likelihood 307.518, $X^2 = 67.580$, df = 14, $p \leq 0.001$). Table 10a below identifies whether relationships exist, and Table 10b indicates the extent to which the variables predict high consistent future intentions.

Within both models personal experience with HIV/AIDS emerged as a statistically significant predictor of intentions to talk about HIV/AIDS. Controlling for age, sex and knowledge

of HIV/AIDS, when contrasting those who intended to talk about HIV/AIDS with those who had no intention, teachers who declared knowing two or more people who were either sick or had died of HIV/AIDS (i.e. those with substantial personal experience) are 3.3 times ($p \leq 0.001$: 95% C. I., ORs = 1.9 – 5.6) more likely than those with no personal experience to plan to talk about HIV/AIDS in the coming month. In a similar fashion teachers who know 1 person who was sick or had died of HIV/AIDS (i.e. those with moderate experience) are 2.5 times ($p \leq 0.001$: 95% C. I., ORs = 1.5 – 4.0) more likely to intend to talk about HIV/AIDS than their colleagues without this experience.

Table 10a: MLR Analysis: Using Personal Experience and Knowledge to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	196.019			
Final	145.352	50.667	7	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 Levels) to Talk About HIV/AIDS in the Coming Month		df	Sig. 1-tail[b]	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
YES, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		1.043	.680	1.601
	Male	0				
	Age 25 and under	1	***	4.058	2.290	7.191
	Age 26 - 35	1	**	2.015	1.259	3.225
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		1.187	.675	2.089
	Intermediate knowledge of HIV/AIDS	1		1.152	.707	1.879
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	***	3.264	1.895	5.621
	Knows 1 person sick/died of HIV/AIDS	1	***	2.450	1.491	4.024
	No personal experience with HIV/AIDS	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

b. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

More specifically (Table 10b), when comparing high consistent intentions with no intentions both teachers who have substantial experience with HIV/AIDS, and those that have moderate experience are more likely to intend to talk about HIV/AIDS - 4.6 times ($p \leq 0.001$: 95% C. I., ORs = 2.6 – 8.4) for teachers with substantial experience and 2.2 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 3.8) for those with moderate experience. Similarly personal experience is also a

statistically significant predictor when comparing teachers with limited intentions with those that do not intend to talk about HIV/AIDS. These odds ratios are however appreciably smaller.

Table 10b - MLR Analysis: Using Personal Experience and Knowledge to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	375.098			
Final	307.518	67.580	14	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 Levels) to Talk About HIV/AIDS in the Coming Month		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
High consistent intentions	Intercept	1				
	Female	1		1.040	.646	1.675
	Male	0				
	Age 25 and under	1	***	5.447	2.880	10.301
	Age 26 - 35	1	***	2.600	1.513	4.469
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		1.306	.698	2.443
	Intermediate knowledge of HIV/AIDS	1		1.108	.641	1.914
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	***	4.638	2.567	8.380
	Knows 1 person sick/died of HIV/AIDS	1	**	2.180	1.241	3.829
	No personal experience with HIV/AIDS	0				
Limited intentions	Intercept	1				
	Female	1		1.027	.626	1.685
	Male	0				
	Age 25 and under	1	***	2.942	1.530	5.657
	Age 26 - 35	1		1.572	.903	2.736
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		.887	.452	1.741
	Intermediate knowledge of HIV/AIDS	1		1.164	.666	2.034
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	**	2.232	1.166	4.271
	Knows 1 person sick/died of HIV/AIDS	1	***	2.640	1.503	4.638
	No personal experience with HIV/AIDS	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

Contrary to what was hypothesized, knowledge of HIV/AIDS failed to emerge as a statistically significant predictor of intention to talk about HIV/AIDS in the coming month.

Past behavior in school

Past behavior in schools was the second predicted variable considered in this analysis of the impact of knowledge of HIV/AIDS and personal experience of HIV/AIDS on intention to talk about HIV/AIDS (controlling for sex and age). Table 10c identifies whether the relationship exists and Table 10d focuses on the extent to which the variables predict strong consistent intentions. The overall models in Tables 10c and 10d are statistically significant (log likelihood 171.950, X^2 = 22.550, df=7, $p \leq 0.01$, and log likelihood 294.567, X^2 = 39.190, df = 14, $p \leq 0.001$, respectively).

Controlling for the other variables in the model (Table 10c), when contrasting teachers who declared having talked about HIV/AIDS in school with those who had not, those teachers who know two or more people who are sick or have died from HIV/AIDS are 1.9 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 2.9) more likely to have talked about HIV/AIDS.

Table 10c: MLR Analysis - Using Personal Experience and Knowledge Predict Teachers' Talking (2 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	194.500			
Final	171.950	22.550	7	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in Past Month (2-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		1.077	.740	1.569
	Male	0				
	Age 25 and under	1	***	2.507	1.548	4.058
	Age 26 - 35	1		1.175	.763	1.810
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		1.110	.671	1.836
	Intermediate knowledge of HIV/AIDS	1		1.286	.834	1.982
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	**	1.872	1.186	2.956
	Knows 1 person sick/died of HIV/AIDS	1		1.268	.815	1.973
	No personal experience with HIV/AIDS	0				

a. The reference category is: No, did not talk about HIV/AIDS

More specifically, when comparing teachers with high consistent behavior in school with those who had not talked about HIV/AIDS, teachers with substantial personal experience are 2.2 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 3.8) more likely to demonstrate high consistent behavior

than those with no personal experience. Similarly personal experience is also a statistically significant predictor when comparing those with limited behavior with those who did not talk about HIV/AIDS in schools. This odds ratio was, however, notably smaller.

Table 10d: MLR Analysis - Using Personal Experience and Knowledge Predict Teachers' Talking (3 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	333.758			
Final	294.567	39.190	14	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in Past Month (3-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		.958	.597	1.536
	Male	0				
	Age 25 and under	1	***	2.765	1.536	4.976
	Age 26 - 35	1		1.083	.621	1.886
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1	**	2.288	1.191	4.396
	Intermediate knowledge of HIV/AIDS	1	**	2.213	1.223	4.005
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	**	2.167	1.230	3.817
	Knows 1 person sick/died of HIV/AIDS	1		1.397	.800	2.440
	No personal experience with HIV/AIDS	0				
Limited behavior	Intercept	1				
	Female	1		1.194	.757	1.884
	Male	0				
	Age 25 and under	1	**	2.283	1.270	4.104
	Age 26 - 35	1		1.264	.742	2.155
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		.587	.310	1.110
	Intermediate knowledge of HIV/AIDS	1		.877	.531	1.451
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	*	1.635	.941	2.841
	Knows 1 person sick/died of HIV/AIDS	1		1.144	.665	1.967
	No personal experience with HIV/AIDS	0				.

a. The reference category is: No, did not talk about HIV/AIDS

HIV/AIDS knowledge is a statistically significant predictor only when comparing teachers with high consistent behavior with those who have not talked about HIV/AIDS in schools. Thus

teachers with a high level of knowledge of HIV/AIDS and those with an intermediate level of knowledge of HIV/AIDS are 2.3 ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 4.3) and 2.2 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 4.0) more likely, respectively, to have talked about HIV/AIDS in school in the past month than teachers with a low knowledge level (controlling for age, sex and personal experience).

Past behavior in the community

The overall models using knowledge and personal experience to predict both 2 levels and 3 level comparison of community behavior, and controlling for age and sex, are statistically significant (2 level comparison: log likelihood 171.043, $X^2 = 17.-42$, df=7, $p \leq 0.05$, and 3 level comparison: log likelihood 294.663, $X^2 = 35.351$, df = 14, $p \leq 0.001$). Table 10e examines whether the relationship exists, and Table 10f determines to what extent the variables predict consistent future intentions.

Table 10e: MLR Analysis - Using Personal Experience and Knowledge Predict Teachers' Talking (2 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	188.085			
Final	171.043	17.042	7	*

Talked about HIV/AIDS in the Community in Past Month (2 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		.768	.527	1.120
	Male	0				
	Age 25 and under	1	**	2.066	1.281	3.332
	Age 26 - 35	1		1.388	.897	2.148
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		1.043	.629	1.728
	Intermediate knowledge of HIV/AIDS	1		1.306	.847	2.015
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	*	1.696	1.076	2.672
	Knows 1 person sick/died of HIV/AIDS	1		1.079	.692	1.681
	No personal experience with HIV/AIDS	0				

a. The reference category is: No, did not talk about HIV/AIDS

Table 10f: MLR Analysis - Using Personal Experience and Knowledge Predict Teachers' Talking (3 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	330.014			
Final	294.663	35.351	14	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in the Community in Past Month (3 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1	**	.515	.304	.874
	Male	0				
	Age 25 and under	1	***	2.911	1.497	5.660
	Age 26 - 35	1	**	2.130	1.147	3.953
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		1.216	.627	2.359
	Intermediate knowledge of HIV/AIDS	1		1.140	.628	2.069
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1	***	2.535	1.414	4.547
	Knows 1 person sick/died of HIV/AIDS	1		.874	.458	1.667
	No personal experience with HIV/AIDS	0				
Limited behavior	Intercept	1				
	Female	1		.993	.640	1.542
	Male	0				
	Age 25 and under	1	**	1.680	.968	2.916
	Age 26 - 35	1		1.051	.628	1.760
	Age over 35	0				
	HIgh knowledge of HIV/AIDS	1		.924	.500	1.710
	Intermediate knowledge of HIV/AIDS	1		1.416	.855	2.345
	Low knowledge of HIV/AIDS	0				
	Knows 2 or more people sick/died of HIV/AIDS	1		1.220	.701	2.125
	Knows 1 person sick/died of HIV/AIDS	1		1.218	.734	2.022
	No personal experience with HIV/AIDS	0				

a. The reference category is: No, did not talk about HIV/AIDS

Comparing teachers who talked about HIV/AIDS in the community in the past month with those who did not (Table 10e) and controlling for age, sex and knowledge, teachers who know two or more people who are sick/have died of HIV/AIDS are 1.7 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 2.7) more likely to have talked about HIV/AIDS than those who have no personal experience with the disease. More specifically, when comparing teachers with high consistent behavior with those who did not talk about HIV/AIDS in the community, teachers with substantial

personal experience are 2.5 times ($p \leq 0.001$: 95% C. I., ORs = 1.4-4.6,) more likely to talk about HIV/AIDS in the community than those without personal experience.

Contrary to what was hypothesized, knowledge of HIV/AIDS is not a predictor of community behavior.

Summary conclusions for hypothesis 2

Hypothesis 2, using personal experience with HIV/AIDS and knowledge of HIV/AIDS to predict willingness to communicate about HIV/AIDS was partially supported. Controlling for age, sex, and knowledge of HIV/AIDS, substantial personal experience of HIV/AIDS (defined as knowing two or more people who are sick/have died of HIV/AIDS) is shown to be a strong and consistent predictor across all three behaviors. Moderate personal experience with HIV/AIDS (defined as knowing one person who is sick/has died of HIV/AIDS) emerges as a predictor only of teachers' future intentions to discuss HIV/AIDS in the coming month.

Controlling for the other three variables in the model, knowledge of HIV/AIDS was statistically significant only in predicting a consistently high behavior of talking about HIV/AIDS in schools in the last month and is not a determining factor for future intentions to talk about HIV/AIDS or for community behavior.

Hypothesis 3: Using Condom Use and Perception of Personal Risk to Predict Willingness to Communicate about HIV/AIDS

The expectation in this study was that those teachers who regularly used condoms and those that with a high perception of personal risk of becoming infected with HIV/AIDS would be more willing to address HIV/AIDS in the broad educational context (school and community) across all three types of behavior. Teachers were asked to report how often they used condoms and only those teachers who always use condoms were categorized as "always users". In addition, teachers' perception of personal risk was measured by asking them whether they believed that they could do more to prevent themselves from becoming infected with HIV/AIDS.

Multinomial Logistic Regression, controlling for age and sex, was used to test this hypothesis for future behavior (Tables 11a and 11b), past behavior in school (Tables 11c and 11d) and past behavior in the community (Tables 11e and 11f).

Future intentions to discuss HIV/AIDS

Tables 11a and 11b examine the relationships between condoms use, personal risk and intentions to discuss HIV/AIDS. Table 11a identifies whether the relationships are present, and Table 11b establishes the extent to which the variables predict consistent future intentions. The overall models are statistically significant (2 level comparison: log likelihood 84.222, $X^2 = 30.645$, df=5, $p \leq 0.001$, and 3 level comparison: log likelihood 163.277, $X^2 = 36.943$, df = 10, $p \leq 0.001$).

Table 11a: MLR Analysis: Using Condom Use and Perception of Personal Risk to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	114.866			
Final	84.222	30.645	5	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		1.079	.713	1.634
	Male	0				
	Age 25 and under	1	***	3.837	2.207	6.672
	Age 26 - 35	1	***	2.164	1.374	3.409
	Age over 35	0				
	Always use condom	1		1.259	.786	2.016
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1		1.282	.831	1.977
	Do not need to do more to reduce personal risk	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

However, as can be seen from Tables 11a and 11b below, in both the 2 level and 3 level comparison neither condoms use (controlling for age, sex, and personal risk) nor personal risk (controlling for the other three variables in the model) are statistically significant predictors of future intentions to talk about HIV/AIDS. In other words, the model's statistical significance was entirely the result of the influence of age on future intention, and not of the two variables under consideration in this hypothesis.

Table 11b: MLR Analysis: Using Condom Use and Perception of Personal Risk to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	200.220			
Final	163.277	36.943	10	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		1.091	.688	1.733
	Male	0				
	Age 25 and under	1	***	4.776	2.582	8.836
	Age 26 - 35	1	***	2.738	1.622	4.620
	Age over 35	0				
	Always use condom	1		1.444	.864	2.412
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1		1.371	.840	2.236
	Do not need to do more to reduce personal risk	0				
Limited behavior	Intercept	1				
	Female	1		1.090	.673	1.765
	Male	0				
	Age 25 and under	1	***	2.895	1.533	5.469
	Age 26 - 35	1	*	1.684	.983	2.885
	Age over 35	0				
	Always use condom	1		1.190	.688	2.057
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1		1.041	.632	1.716
	Do not need to do more to reduce personal risk	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

Past behavior in school

The same analysis was done to examine the potential impact of condom use and personal risk (controlling for age and sex) on teachers' behavior in school over the past month. The results for this analysis are presented in Table 11c which establishes whether the relationship exists, and in Table 11d which identifies the extent to which the variables predict consistent past behavior in school. The overall models of past school behavior are statistically significant (2 level comparison: log likelihood 102.056, X^2 = 18.891, df=5, $p \leq 0.01$, and 3 level comparison: log likelihood 167.635, X^2 = 22.574, df = 10, $p \leq 0.05$).

Table 11c: MLR Analysis - Using Condom Use and Perception of Personal Risk to Predict Teachers' Talking (2 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	121.037			
Final	102.056	18.981	5	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in School in Past Month (2-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		1.163	.801	1.689
	Male	0				
	Age 25 and under	1	***	2.257	1.403	3.631
	Age 26 - 35	1		1.206	.787	1.848
	Age over 35	0				
	Always use condom	1		1.289	.856	1.940
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1	*	1.460	.979	2.178
	Do not need to do more to reduce personal risk	0				

a. The reference category is: No, did not talk about HIV/AIDS

Comparing teachers who declared talking about HIV/AIDS in school in the past month (Table 11c) with teachers who did not talk, and controlling for the other three variables in the model, teachers who believe that they can do more to reduce their personal risk of becoming infected with HIV/AIDS are 1.5 times ($p \leq 0.05$: 95% C. I., ORs = 1.0-2.2) more likely to have talked about HIV/AIDS than teachers who believe they don't need to do more to reduce risk. More specifically (Table 11d), when comparing teachers with high consistent behavior in school with those who exhibited no behavior, teachers who believe they can do more to reduce personal risk are 1.7 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 - 2.8) more likely to have talked about HIV/AIDS in school in the past month than those who do not believe they need to address their personal risk.

Contrary to what was hypothesized, however, condom use was not a statistically significant predictor of past school behavior of talking about HIV/AIDS.

Table 11d: MLR Analysis - Using Condom Use and Perception of Personal Risk to Predict Teachers' Talking (3 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	190.209			
Final	167.635	22.574	10	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in School in Past Month (3-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
HIgh consistent behavior	Intercept	1				
	Female	1		.979	.612	1.565
	Male	0				
	Age 25 and under	1	***	2.460	1.380	4.385
	Age 26 - 35	1		1.136	.655	1.970
	Age over 35	0				
	Always use condom	1		1.219	.734	2.024
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1	*	1.687	1.003	2.837
	Do not need to do more to reduce personal risk	0				
Limited behavior	Intercept	1				
	Female	1		1.356	.865	2.126
	Male	0				
	Age 25 and under	1	**	2.066	1.158	3.685
	Age 26 - 35	1		1.268	.753	2.135
	Age over 35	0				
	Always use condom	1		1.358	.833	2.212
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1		1.291	.798	2.088
	Do not need to do more to reduce personal risk	0				.

a. The reference category is: No, did not talk about HIV/AIDS

Past behavior in the community

The overall models using condoms use and risk perception (controlling for age and sex) to predict community behavior are statistically significant (2 level comparison: log likelihood 100.582, X^2 = 20.451, df=5, $p \leq 0.001$, and 3 level comparison: log likelihood 172.618, X^2 = 28.463, df = 10, $p \leq 0.01$).

Table 11e: MLR Analysis - Using Condom Use and Perception of Personal Risk to Predict Teachers' Talking (2 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	121.033			
Final	100.582	20.451	5	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in Community in Past Month (2-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		.842	.578	1.227
	Male	0				
	Age 25 and under	1	**	1.857	1.154	2.990
	Age 26 - 35	1		1.397	.905	2.158
	Age over 35	0				
	Always use condom	1	**	1.629	1.083	2.451
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1	*	1.537	1.023	2.308
	Do not need to do more to reduce personal risk	0				

a. The reference category is: No, did not talk about HIV/AIDS

Controlling for the other three variables in the model, when comparing teachers who talked about HIV/AIDS in the community in the past month with those who did not (Table 11e), teachers who declared always using a condom are 1.6 times ($p \leq 0.01$: 95% C. I., ORs = 1.1 – 2.5) more likely to have talked about HIV/AIDS than those who had sometimes/never used condoms. Furthermore, when contrasting teachers with high consistent community behavior with those who did not talk about HIV/AIDS in the community (Table 11f), teachers who consistently use a condom are 1.7 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 2.6) more likely to have talked about HIV/AIDS in the community in the past month than those who used condoms irregularly or never. Condom use was also a statistically significant predictor when comparing teachers with limited intentions with those that do not intend to talk about HIV/AIDS. These odds ratios are only slightly lower.

Table 11f: MLR Analysis - Using Condom Use and Perception of Personal Risk to Predict Teachers' Talking (2 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	201.081			
Final	172.618	28.463	10	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in Community in Past Month (3-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1	*	.587	.350	.985
	Male	0				
	Age 25 and under	1	**	2.359	1.226	4.538
	Age 26 - 35	1	*	2.043	1.114	3.748
	Age over 35	0				
	Always use condom	1	*	1.698	1.000	2.884
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1	*	1.723	.976	3.042
	Do not need to do more to reduce personal risk	0				
Limited behavior	Intercept	1				
	Female	1		1.077	.693	1.674
	Male	0				
	Age 25 and under	1	*	1.604	.924	2.782
	Age 26 - 35	1		1.079	.645	1.806
	Age over 35	0				
	Always use condom	1	*	1.578	.977	2.546
	Sometimes/never use condom	0				
	Can do more to reduce personal risk	1		1.421	.881	2.293
	Do not need to do more to reduce personal risk	0				

a. The reference category is: No, did not talk about HIV/AIDS

As was hypothesized, assessment of personal risk is also a statistically significant predictor. Comparing teachers who talked about HIV/AIDS in the community with those who did not (Table 11e), teachers who believe they can do more to reduce their personal risk of becoming infected with HIV/AIDS (controlling for the other variables in the model) are 1.5 times ($p \leq 0.01$: 95% C. I., ORs = 1.0 – 2.3,) more likely to have talked about HIV/AIDS in the community than those who do not believe they need can do more to address their personal risk. More specifically (Table 11f), when comparing teachers with high community behavior to those who did not talk about HIV/AIDS in the community, teachers who believe they can do more to reduce their risk are

1.7 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 3.0) more likely to have high consistent intentions than teachers who don't believe they need to address personal risk.

Summary conclusions for hypothesis 3

The hypothesis that condom use and perception of personal risk would influence willingness to communicate about HIV/AIDS in the broad educational setting (school and community) was partially supported. With respect to community behavior (and controlling for the other variables in the model) teachers who declared always using a condom, and teachers who believed they could do more to reduce their personal risk, are consistently more likely to have talked about HIV/AIDS in the community in the past month than those who sometimes/never use a condom and did not believe they were at risk. With respect to school behavior it is the perception of personal risk rather than condom use that is the determining factor for past school behavior. Controlling for age, sex and condom use, teachers who declared that they believe they can do more to reduce their personal risk of becoming infected with HIV/AIDS are more likely to have talked about HIV/AIDS in school than those who declared they do not need to do more.

No relationship was found between the two predictor variables (condom use and perception of risk) and future intentions to talk about HIV/AIDS.

Hypothesis 4: Using Attitudes, Social Norms and Perceived Behavioral Control to Predict Willingness to Communicate about HIV/AIDS

Hypothesis 4 aimed at examining how traditional predictors of behavior/behavioral intent in the Theory of Planned Behavior (TPB) impact on future intentions of teachers to address HIV/AIDS, on past school behavior and on past community behavior. The expectation was that teachers with highly supportive attitudes of talking about HIV/AIDS, teachers who do not believe social norms are important, and teachers who have a high level of perceived behavioral control would be more willing to address HIV/AIDS across all three types of behavior.

Analysis procedures for this hypothesis were similar to those used in the earlier hypotheses. For each variable under consideration in the hypothesis, the analysis controlled for the other variables in the hypothesis as well as for age and sex. Results for future intentions (Tables 12a and 12b), for school behavior (Tables 12c and 12d) and for community behavior (Tables 12e and 12f) are presented below.

Future intentions to discuss HIV/AIDS

Tables 12a and 12b examine the relationship between attitudes, social norms and perceived behavioral control and teachers intentions to discuss HIV/AIDS in the future. Table 12a identifies whether the relationship exists, and Table 12b indicates the extent to which the variables predict consistent future intentions to talk about HIV/AIDS. The overall models for using attitudes, social norms and perceived behavioral control to predict future intentions to talk about HIV/AIDS are statistically significant (2 level comparison: log likelihood 282.758, $X^2 = 35.271$, df=9, $p \leq 0.001$, and 3 level comparison: log likelihood 510.798, $X^2 = 53.833$, df = 18, $p \leq 0.001$).

Table 12a: MLR Analysis: Using Attitudes, Social Norms and Perceived Behavioral Control to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	318.029			
Final	282.758	35.271	9	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 levels) to talk about HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
Yes, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		1.113	.729	1.699
	Male	0				
	Age 25 and under	1	***	4.269	2.410	7.561
	Age 26 - 35	1	***	2.243	1.408	3.575
	Age over 35	0				
	Very supportive attiude	1		1.415	.852	2.351
	Moderately supportive attitude	1		1.080	.618	1.888
	Not supportive attitude	0				
	Social norm not important	1		1.105	.629	1.942
	Social norm moderately important	1		.815	.487	1.363
	Social norm highly important	0				
	High perceived behavioral control	1	*	1.561	.930	2.619
	Moderate perceived behavioral control	1		1.419	.826	2.437
	Low perceived behavioral control	0				

a. The reference category is: No, do not intend to talk

The results show that comparing teachers who intend to talk about HIV/AIDS in the coming month with those who do not intend to talk about HIV/AIDS (Table 12a), and controlling for all the other variables in the model, those teachers who have a high level of perceived behavioral control are 1.6 times ($p \leq 0.05$: 95% C. I., ORs = 0.9 – 2.6) more likely to intend to talk about HIV/AIDS than those who have a low level of perceived behavioral control.

Table 12b: MLR Analysis: Using Attitudes, Social Norms and Perceived Behavioral Control to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	564.632			
Final	510.798	53.833	18	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 levels) to talk about HIV/AIDS in the Coming Month		df	Sig. 1-tail[a]	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		1.209	.754	1.940
	Male	0				
	Age 25 and under	1	***	5.524	2.932	10.408
	Age 26 - 35	1	***	2.776	1.623	4.749
	Age over 35	0				
	Very supportive attiude	1	*	1.926	1.079	3.439
	Moderately supportive attitude	1		1.417	.751	2.672
	Not supportive attitude	0				
	Social norm not important	1		1.238	.657	2.334
	Social norm moderately important	1		1.084	.609	1.930
	Social norm highly important	0				
	High perceived behavioral control	1		1.461	.816	2.615
	Moderate perceived behavioral control	1	*	1.656	.908	3.018
	Low perceived behavioral control	0				
Limited behavior	Intercept	1				
	Female	1		1.058	.645	1.736
	Male	0				
	Age 25 and under	1	***	3.023	1.567	5.833
	Age 26 - 35	1	*	1.796	1.034	3.120
	Age over 35	0				
	Very supportive attiude	1		1.000	.556	1.799
	Moderately supportive attitude	1		.771	.401	1.483
	Not supportive attitude	0				
	Social norm not important	1		.853	.444	1.640
	Social norm moderately important	1		.574	.313	1.052
	Social norm highly important	0				
	High perceived behavioral control	1		1.553	.855	2.824
	Moderate perceived behavioral control	1		1.024	.537	1.953
	Low perceived behavioral control	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

More specifically (Table 12b), when comparing teachers with high consistent intentions with those who do not intend to talk about HIV/AIDS in the coming month, it is teachers with a moderate level of perceived behavioral control who are 1.7 times ($p \leq 0.05$: 95% C. I., ORs = 0.9

– 3.0) more likely to demonstrate high consistent intentions to talk about HIV/AIDS in the coming month. One would expect that this would be the case for teachers with high perceived behavioral control. The result therefore indicates the possible presence of a non-ordinal phenomenon.

Attitudes emerge only as a statistically significant predictor when comparing teachers with high consistent future intentions with teachers who have no intention to talk about HIV/AIDS. Teachers with very strong supportive attitudes are 1.9 times ($p \leq 0.05$: 95% C. I., ORs = 1.1 – 3.4) more likely to intend to talk about HIV/AIDS.

Contrary to what was hypothesized, social norms are not a statistically significant predictor of future intentions to talk about HIV/AIDS.

Past behavior in school

Contrary to what was hypothesized, none of the three predictors are statistically significant predictors of past school behavior by teachers. Therefore only the portion of the table relating to the overall test of both models is reproduced below.

Table 12c: MLR Analysis - Using Attitudes, Social Norms and Perceived Behavioral Control to Predict Teachers' Talking (2 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	332.243			
Final	317.239	15.004	9	NOT SIGNIFICANT

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Table 12d: MLR Analysis - Using Attitudes, Social Norms and Perceived Behavioral Control to Predict Teachers' Talking (3 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	537.983			
Final	512.720	25.263	18	NOT SIGNIFICANT

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Past behavior in the community

Similar to the earlier analyses, the first table (Table 12e) demonstrates whether relationships exist, and the second table (Table 12f) focuses on the extent to which the variables predict high consistent past community behavior. The overall models using attitudes, social norms and perceived behavioral control (while controlling for age and sex) to predict past

community behavior are statistically significant (2 level comparison: log likelihood 308.592, X^2 = 18.544, df=9, $p \leq 0.05$, and 3 level comparison: log likelihood 481.702, X^2 = 34.660, df = 18, $p \leq 0.01$).

Table 12e: MLR Analysis - Using Attitudes, Social Norms and Perceived Behavioral Control to Predict Teachers' Talking (2 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	327.135			
Final	308.592	18.544	9	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in the Community in Past Month (2 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		.813	.554	1.193
	Male	0				
	Age 25 and under	1	***	2.124	1.304	3.460
	Age 26 - 35	1	*	1.469	.942	2.291
	Age over 35	0				
	Very supportive attiude	1	*	1.473	.923	2.352
	Moderately supportive attitude	1	*	1.655	.982	2.787
	Not supportive attitude	0				
	Social norm not important	1		1.168	.704	1.937
	Social norm moderately important	1		1.276	.795	2.049
	Social norm highly important	0				
	High perceived behavioral control	1		1.069	.669	1.707
	Moderate perceived behavioral control	1		1.367	.835	2.239
	Low perceived behavioral control	0				

a. The reference category is: No, did not talk about HIV/AIDS

Controlling for the other variables in the model (Table 12e), when comparing teachers who talked about HIV/AIDS in the community in the past month with those who did not, teachers with very supportive attitudes and teachers with moderately supportive attitudes are 1.5 times ($p \leq 0.05$: 95% C. I., ORs = 0.9 – 2.4) and 1.7 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 2.8), respectively, more likely to talk about HIV/AIDS than those holding an unsupportive attitude. More concretely (Table 12f) teachers with a very supportive attitude and teachers with a moderately supportive attitude are 2.7 ($p \leq 0.01$: 95% C. I., ORs = 1.3 – 5.2) and 2.6 times ($p \leq 0.05$: 95% C. I., ORs = 1.2 – 5.5) more likely to have high consistent intentions to talk about HIV/AIDS in the community.

Table 12f: MLR Analysis - Using Attitudes, Social Norms and Perceived Behavioral Control to Predict Teachers' Talking (3 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	516.362			
Final	481.702	34.660	18	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in the Community in Past Month (3 levels)		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1	*	.532	.312	.909
	Male	0				
	Age 25 and under	1	**	2.805	1.422	5.532
	Age 26 - 35	1	*	2.193	1.162	4.137
	Age over 35	0				
	Very supportive attiude	1	**	2.656	1.343	5.256
	Moderately supportive attitude	1	*	2.602	1.234	5.488
	Not supportive attitude	0				
	Social norm not important	1		.753	.381	1.487
	Social norm moderately important	1		.898	.475	1.696
	Social norm highly important	0				
	High perceived behavioral control	1		1.076	.575	2.013
	Moderate perceived behavioral control	1		1.224	.630	2.377
	Low perceived behavioral control	0				
Limited behavior	Intercept	1				
	Female	1		1.065	.679	1.671
	Male	0				
	Age 25 and under	1	*	1.823	1.035	3.212
	Age 26 - 35	1		1.149	.679	1.942
	Age over 35	0				
	Very supportive attiude	1		1.031	.596	1.783
	Moderately supportive attitude	1		1.295	.708	2.366
	Not supportive attitude	0				
	Social norm not important	1		1.567	.855	2.872
	Social norm moderately important	1		1.604	.911	2.824
	Social norm highly important	0				
	High perceived behavioral control	1		1.091	.623	1.911
	Moderate perceived behavioral control	1		1.487	.832	2.656
	Low perceived behavioral control	0				

a. The reference category is: No, did not talk about HIV/AIDS

Contrary to what was predicted, social norms and perceived behavioral control were not significant predictors of past community behavior of talking about HIV/AIDS.

Summary conclusions for hypothesis 4

The hypothesis that attitudes, social norms, and perceived behavioral control would predict future intentions was partly supported. Attitudes and perceived behavioral control emerged as factors contributing to future intentions to talk about HIV/AIDS, with teachers who have highly supportive attitudes being more likely to have consistent intentions of addressing HIV/AIDS in the future and with teachers with both high and moderate levels of perceived behavioral control being more likely to intend to talk about HIV/AIDS in the coming month. The study failed to find support for a link between the three variables and past school behavior. In past community behavior only attitudes toward talking about HIV/AIDS emerges as a consistent predictor. In summary, of the three variables, strongest support was found for the importance of attitudes which are determining factors of two of the three behaviors (future intent and past community behavior) when contrasting high consistent behavior with no behavior.

Hypothesis 5: Using Level Taught to Predict Willingness to Communicate about HIV/AIDS

This study hypothesized that those teachers who are teaching Grades 6 through 12 (upper primary and secondary level) would be more willing to communicate about HIV/AIDS in their educational setting than lower primary school teachers. Multinomial logistic regression, controlling for age and sex in each analysis, was used to contrast teachers' responses about the level that they teach at with their future intention (Tables 13a and 13b), past school behavior (Tables 13c and 13d) and past community behavior (Tables 13e and 13f). Results for both levels of each of these behaviors are discussed below for each type of behavior.

Future intentions to discuss HIV/AIDS

Tables 13a and 13b examine the relationship between level taught and future intentions to discuss HIV/AIDS, with the first table identifying whether the relationship exists and the second table establishing to what extent the variables predict strong consistent behavior by teachers.

Table 13a: MLR Analysis: Using Level Taught to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	91.825			
Final	64.969	26.856	5	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 Levels to Talk About HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		.943	.604	1.472
	Male	0				
	Age 25 and under	1	***	3.242	1.856	5.664
	Age 26 - 35	1	***	2.112	1.321	3.377
	Age over 35	0				
	Secondary level teacher	1		.755	.424	1.343
	Upper primary teacher	1	*	1.824	.975	3.413
	Lower primary teacher	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

The overall models in these two tables are statistically significant (2 level comparison: log likelihood 64.969, X^2 = 26.856, df=5, $p \leq 0.001$, and 3 level comparison: log likelihood 128.592, X^2 = 29.063, df = 10, $p \leq 0.001$).

Controlling for sex and age (Table 13a), when comparing teachers who intend to talk about HIV/AIDS with those who have no intention, teachers who teach at upper primary are 1.8 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 3.4) more likely to talk about HIV/AIDS than their colleagues in the lower primary grades. More specifically, when comparing teachers with high consistent intentions with those that have no intention of talking about HIV/AIDS (controlling for age and sex) teachers working at upper primary level are 1.9 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 3.7) more likely to talk about HIV/AIDS than their colleagues in lower primary.

However, contrary to what was expected, no relationship was found between future intentions and teachers lecturing at secondary level. In other words at secondary level teachers are not more likely to intend to talk about HIV/AIDS than their colleagues in lower primary education.

Table 13b: MLR Analysis: Using Level Taught to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	157.655			
Final	128.592	29.063	10	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 Levels to Talk About HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent intentions	Intercept	1				
	Female	1		.933	.569	1.529
	Male	0				
	Age 25 and under	1	***	3.807	2.062	7.032
	Age 26 - 35	1	***	2.466	1.448	4.200
	Age over 35	0				
	Secondary level teacher	1		.717	.375	1.373
	Upper primary teacher	1	*	1.903	.970	3.733
	Lower primary teacher	0				
Limited intentions	Intercept	1				
	Female	1		.993	.589	1.674
	Male	0				
	Age 25 and under	1	**	2.630	1.378	5.019
	Age 26 - 35	1	*	1.802	1.031	3.148
	Age over 35	0				
	Secondary level teacher	1		.857	.436	1.683
	Upper primary teacher	1		1.501	.723	3.115
	Lower primary teacher	0				

a. The reference category is: No intention to talk about HIV/AIDS

Past behavior in school

The same comparison of two tables, where the first table (Table 13c) examines whether the relationship exists, and the second table (Table 13d) determines to what extent the variable predicts high consistent past school behavior, was used for this analysis.

The analysis found that the overall models for past behavior in school are both statistically significant (2 level comparison: log likelihood 67.305, $X^2 = 19.490$, df=5, $p < 0.01$, and 3 level comparison: log likelihood 120.068, $X^2 = 28.034$, df = 10, $p < 0.01$).

Table 13c: MLR Analysis - Using Level Taught to Predict Teachers' Talking (2 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	86.795			
Final	67.305	19.490	5	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in School in Past Month (2-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		1.062	.710	1.587
	Male	0				
	Age 25 and under	1	***	2.364	1.455	3.843
	Age 26 - 35	1		1.213	.785	1.876
	Age over 35	0				
	Secondary level teacher	1		.675	.390	1.166
	Upper primary teacher	1		1.508	.885	2.569
	Lower primary teacher	0				

a. The reference category is: No, did not talk about HIV/AIDS

However, controlling age and sex, examining the difference between teachers who talked about HIV/AIDS and those who did not (Table 13c) fails to reveal a statistically significant difference between teachers at any of the educational levels. The relationship did emerge when comparing teachers with high consistent behavior with those who did not talk about HIV/AIDS (Table 13d) in school in the past month. In the analysis, teachers in upper primary are 2.1 times ($p \leq 0.05$: 95% C. I., ORs = 1.1 – 3.8) more likely to have talked about HIV/AIDS during this time period than those in lower primary.

Table 13d: MLR Analysis - Using Level Taught to Predict Teachers' Talking (3 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	148.101			
Final	120.068	28.034	10	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in School in Past Month (3-levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		1.003	.607	1.655
	Male	0				
	Age 25 and under	1	**	2.418	1.349	4.335
	Age 26 - 35	1		1.058	.605	1.849
	Age over 35	0				
	Secondary level teacher	1		1.008	.527	1.928
	Upper primary teacher	1	*	2.056	1.105	3.827
	Lower primary teacher	0				
Limited behavior	Intercept	1				
	Female	1		1.108	.684	1.796
	Male	0				
	Age 25 and under	1	**	2.294	1.267	4.150
	Age 26 - 35	1		1.370	.802	2.340
	Age over 35	0				
	Secondary level teacher	1		.424	.200	.895
	Upper primary teacher	1		1.096	.567	2.116
	Lower primary teacher	0				

a. The reference category is: No, did not talk about HIV/AIDS.

Past behavior in the community

The overall model using level taught to predict past community behavior is not statistically significant , when comparing teachers who talked about HIV/AIDS in the community with those who did not.(Table 13e). However, when comparing teachers with high consistent past community behavior with those who declared not having talked about HIV/AIDS in the community, the overall model is statistically significant (log likelihood 131.197, X2 = 21.198, df=10, $p \leq 0.05$), with teachers in upper primary being 1.8 times ($p < 0.05$: 95% C. I., ORs = 1.0 – 3.5) more likely to declare having talked about HIV/AIDS in the community than teachers in lower primary.

Table 13e: MLR Analysis - Using Level Taught to Predict Teachers' Talking (2 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	79.659			
Final	69.425	10.234	5	NOT SIGNIFICANT

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Table 13f: MLR Analysis - Using Level Taught to Predict Teachers' Talking (3 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	152.396			
Final	131.197	21.198	10	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in the Community in Past Month (3 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1	*	.574	.325	1.014
	Male	0				
	Age 25 and under	1	*	2.175	1.109	4.266
	Age 26 - 35	1	*	2.001	1.070	3.740
	Age over 35	0				
	Secondary level teacher	1		1.516	.768	2.992
	Upper primary teacher	1	*	1.791	.921	3.484
	Lower primary teacher	0				
Limited behavior	Intercept	1				
	Female	1		.967	.605	1.545
	Male	0				
	Age 25 and under	1	*	1.657	.952	2.886
	Age 26 - 35	1		1.139	.677	1.916
	Age over 35	0				
	Secondary level teacher	1		.940	.489	1.807
	Upper primary teacher	1		.954	.502	1.812
	Lower primary teacher	0				

a. The reference category is: No, did not talk about HIV/AIDS

Summary conclusions for hypothesis 5

The hypothesis that teachers in upper primary and secondary would be more willing to address HIV/AIDS was consistently supported across all three types of behaviors (future intentions, past school behavior and past community behavior) for teachers in upper primary,

when comparing teachers with high consistent behavior with those teachers with no behavior. Controlling for age and sex, teachers in upper primary were more likely than those in lower primary to demonstrate high consistent intentions to address HIV/AIDS and high consistent past school and community behavior. Support was not found for the part of the hypothesis that contended that secondary school teachers would also be more likely to exhibit all three behaviors.

Hypothesis 6: Using Attitude Functions to Predict Willingness to Communicate about HIV/AIDS

The final hypothesis in the study concerned attitude functions. It was hypothesized that teachers who hold weak value expressive attitude functions (i.e. who were less concerned with these moral issues) would be more willing to address HIV/AIDS. Multinomial logistic regression was employed for this analysis, controlling for sex and age, and the results are presented below for future intentions (Tables 14a and 14b), for past school behavior (Tables 14c and 14d), and for past community behavior (Tables14e and 14f).

Future intentions to discuss HIV/AIDS

Table 14a: MLR Analysis: Using the Value-Expressive Attitude Function to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	107.346			
Final	75.801	31.546	5	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		.970	.645	1.457
	Male	0				
	Age 25 and under	1	***	3.761	2.183	6.481
	Age 26 - 35	1	***	2.224	1.416	3.493
	Age over 35	0				
	Values not important	1	*	1.694	1.030	2.786
	Values moderately important	1		1.222	.759	1.965
	Values very important	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

Tables 14a and 14b examine the relationship between the value expressive attitude function and teachers future intentions to discuss HIV/AIDS. Table 14a determines whether the

relationship exists, and Table 14b establishes to what extent the variables predicts high consistent future intentions. The overall models are statistically significant (2 level comparison: log likelihood 75.801, X^2 = 31.546, df=5, p < 0.001, and 3 level comparison: log likelihood 139.575, X^2 = 37.548, df = 10, p < 0.001).

Table 14b: MLR Analysis: Using the Value-Expressive Attitude Function to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	177.123			
Final	139.575	37.548	10	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		.948	.602	1.492
	Male	0				
	Age 25 and under	1	***	4.572	2.503	8.352
	Age 26 - 35	1	***	2.705	1.614	4.534
	Age over 35	0				
	Values not important	1	**	2.086	1.195	3.643
	Values moderately important	1		1.430	.835	2.450
	Values very important	0				
Limited behavior	Intercept	1				
	Female	1		1.016	.631	1.636
	Male	0			.	
	Age 25 and under	1	***	2.948	1.573	5.525
	Age 26 - 35	1	*	1.806	1.057	3.085
	Age over 35	0				
	Values not important	1		1.310	.733	2.340
	Values moderately important	1		1.023	.586	1.785
	Values very important	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

Controlling for sex and age, when comparing teachers who intend to talk about HIV/AIDS in the coming month with those who do not intend to do so (Table 14a), teachers who declared that values were not an important consideration are 1.7 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 1.8,) more likely to talk about HIV/AIDS, than teachers for whom values are very important. More specifically, when examining high consistent intentions (Table 14b), teachers who said values are not important are 2.1 times ($p \leq 0.05$: 95% C. I., ORs = 1.2 – 3.6,) more likely to demonstrate high consistent behavior than teachers for whom values are very important.

Past behavior in school

Again two tables were produced examining the relationship between the variables, with Table 14c determining the presence of the relationship and Table 14d examining to what extent the value expressive attitude function predicts past school behavior.

Table 14c: MLR Analysis - Using the Value-Expressive Attitude Function to Predict Teachers' Talking (2 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	98.137			
Final	81.298	16.839	5	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in School in Past Month (2 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		1.097	.759	1.583
	Male	0				
	Age 25 and under	1	***	2.408	1.507	3.847
	Age 26 - 35	1		1.242	.815	1.891
	Age over 35	0				
	Values not important	1		1.305	.834	2.042
	Values moderately important	1		1.305	.841	2.025
	Values very important	0				

a. The reference category is: No, did not talk about HIV/AIDS

The overall models in those two tables are statistically significant (2 level comparison: log likelihood 81.298, X^2 = 18.839, df=5, $p < 0.01$, and 3 level comparison: log likelihood 139.731, X^2 = 27.862, df = 10, $p < 0.01$). However, the value expressive attitude function did not emerge as a statistically significant factor when comparing teachers with past school behavior with those who did not talk about HIV/AIDS in school in the past month (Table 14c). In other words the overall significance of the model was entirely due to the influence of age on past school behavior alone.

Table 14d: MLR Analysis - Using the Value-Expressive Attitude Function to Predict Teachers' Talking (3 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	167.592			
Final	139.731	27.862	10	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in School in Past Month (3 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		.886	.556	1.412
	Male	0				
	Age 25 and under	1	***	2.636	1.488	4.669
	Age 26 - 35	1		1.175	.679	2.034
	Age over 35	0				
	Values not important	1	**	2.163	1.206	3.880
	Values moderately important	1	**	1.913	1.068	3.427
	Values very important	0				
Limited behavior	Intercept	1				
	Female	1		1.326	.851	2.066
	Male	0				
	Age 25 and under	1	**	2.193	1.238	3.884
	Age 26 - 35	1		1.301	.778	2.175
	Age over 35	0				
	Values not important	1		.851	.494	1.468
	Values moderately important	1		.978	.581	1.646
	Values very important	0				

a. The reference category is: No, did not talk about HIV/AIDS

However, as expected, (controlling for the other variables in the model) when comparing teachers with high consistent behavior in school with those who had not talked about HIV/AIDS (Table 14d) teachers who considered values not important or only moderately important are 2.2 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 3.9) and 1.9 times ($p \leq 0.01$: 95% C. I., ORs = 1.1 – 3.4), respectively, more likely to demonstrate high consistent behavior than teachers for whom values are very important.

Past behavior in the community

A final multinomial logistic regression was run to determine the impact of the value-expressive attitude function on past community behavior.

Table 14e: MLR Analysis - Using the Value-Expressive Attitude Function to Predict Teachers' Talking (2 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	92.327			
Final	77.839	14.488	5	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in Community in Past Month (2 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		.771	.532	1.117
	Male	0				
	Age 25 and under	1	**	1.992	1.248	3.180
	Age 26 - 35	1	*	1.441	.939	2.212
	Age over 35	0				
	Values not important	1		1.364	.867	2.146
	Values moderately important	1	*	1.519	.975	2.366
	Values very important	0				

a. The reference category is: No, did not talk about HIV/AIDS

The same comparison of two tables was used in these analyses and the models for both these analysis are statistically significant (2 level comparison: log likelihood 81.298, $X^2 = 18.839$, df=5, $p < 0.01$, and 3 level comparison: log likelihood 139.731, $X^2 = 27.862$, df = 10, $p < 0.01$).

Controlling for age and sex (Table 14e), when contrasting teachers who stated having talked about HIV/AIDS in the community in the past month, teachers who did not attach importance to values are 1.5 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 2.4) more likely to have talked about HIV/AIDS than those who say that values are very important. More specifically (Table 14f), teachers who said values were either not important or who said values were only moderately important are 1.7 ($p \leq 0.05$: 95% C. I., ORs = 0.9 – 3.2,) and 1.9 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 3.4) more likely, respectively, to have shown high consistent past behavior in taking about HIV/AIDS in the community.

Table 14f: MLR Analysis – Using the Value-Expressive Attitude Function to Predict Teachers' Talking (3 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	167.402			
Final	143.709	23.694	10	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked About HIV/AIDS in Community in Past Month (3 levels)[a]		df	Sig. 1 tail	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1	**	.522	.312	.876
	Male	0				
	Age 25 and under	1	**	2.577	1.346	4.932
	Age 26 - 35	1	**	2.184	1.193	4.000
	Age over 35	0				
	Values not important	1	*	1.735	.927	3.248
	Values moderately important	1	*	1.873	1.019	3.442
	Values very important	0				
Limited behavior	Intercept	1				
	Female	1		1.001	.647	1.547
	Male	0			.	
	Age 25 and under	1	*	1.703	.991	2.927
	Age 26 - 35	1		1.093	.657	1.818
	Age over 35	0				
	Values not important	1		1.163	.682	1.985
	Values moderately important	1		1.324	.786	2.228
	Values very important	0				.

a. The reference category is: No, did not talk about HIV/AIDS

Summary conclusions for hypothesis 6

The hypothesis that low value expressive attitudes would influence willingness to communicate about HIV/AIDS is supported across all three types of behavior (controlling for age and sex) when comparing teachers with high consistent past community behavior with those who did not talk about HIV/AIDS in the community. In addition, in the analysis of past school and past community behavior, it is both teachers who believed values were not important as well as those who believed values were moderately important that demonstrate consistently higher behavior when compared with their colleagues who declared not talking about HIV/AIDS at all in the past month.

The Full Model

As a final test, all variables were included in the 3 level model simultaneously (the 2 level model is not included to facilitate discussion and presentation of the results). The resulting models were all statistically significant (log likelihood 796.176, $X^2 = 99.649$, df=38, $p < 0.001$; log likelihood 810.273, $X^2 = 68.446$, df = 38, $p < 0.001$; log likelihood 776.458, $X^2 = 62.241$, df = 38, $p < 0.001$, for future intentions, past school behavior and past community behavior respectively) and can be found in Appendix K. A summary overview of the results is provided in the table below.

Table 15: Comparison of Model Results for Individual Analyses and Model Results for Full Model

Predictor measures	Future intentions (3 levels)		Past School Behavior (3 levels)		Past Community Behavior (3 levels)	
	Individual analyses	Full model	Individual analyses	Full model	Individual analyses	Full model
Sex						
Age	*	*	*	*	*	*
Knowledge			*	*		
Personal experience	*	*	*	*	*	*
Condom use		*			*	
Personal Risk			*		*	*
Attitude	*	*			*	*
Social norms						
Perc. Behavioral Control	*	*				
Level Taught	*		*	*	*	
Value Attitude Function	*	*	*	*	*	*

The results of the full model mirror the results of the individual analyses fairly well. With respect to future intentions the impact of level taught disappears in the full model, whereas condom use appears as a significant predictor. All other variables that were statistically significant continue to be significant in the full model. For past school behavior the impact of personal risk disappears in the full model, but all other variables remain the same. And, finally, for past community behavior, the impact of condom use disappears in the full model but all other variables remain the same.

Summary for all Hypotheses

The table below summarizes, for both levels of the predicted variables, which of the predictor measures emerged as statistically significant in the analyses. Age, personal experience, level taught, and the value expressive attitude function emerge as predictors for the 2 or 3 level comparisons for each of the three types of behavior. However, there is also substantial variation across the different types of behavior. Thus, perceived behavioral control is an issue only in terms

of future behavior, but not for past school or community behavior. Sex was not a predictor of any of the behaviors.

Furthermore, there is evidence that the comparison between teachers with highly consistent intentions and those who have no intention is particularly important in terms of school behavior. Whereas only age and personal experience impact on behavior in the two level comparison in school, in the 3 level comparison a number of other predictors take on importance, such as knowledge of HIV/AIDS, assessment of personal risk, attitudes toward talking about HIV/AIDS, and the value expressive attitude function. The comparison between 2 and 3 level behaviors does not add significantly to the interpretation in the case of future intentions and past community behavior.

Table 16: Comparison of Predictor and Predicted Variables Indicating Analyses for which Statistically Significant Results were Found

	Future intentions		Past School Behavior		Past Community Behavior	
Predictor measures	2 level	3 level	2 level	3 level	2 level	3 level
Sex						
Age	*	*	*	*	*	*
Knowledge				*		
Personal experience	*	*	*	*	*	*
Condom use					*	*
Personal Risk			*	*	*	*
Attitude		*			*	*
Social norms						
Perc. Behavioral Control	*	*				
Level Taught	*	*		*		*
Value Attitude Function	*	*		*	*	*

Incidental Findings

Further Analyses Concerning Attitude Functions

Only one formal hypothesis was included in this study related to attitude functions, namely concerning the relationship between the value expressive attitude function and willingness to communicate about HIV/AIDS and this hypothesis was supported across all three types of behavior (future intentions, past school behavior and past community behavior). In general it was found that teachers who hold weak value expressive attitudes are more willing to address HIV/AIDS across all three settings.

In order to determine whether the other five attitude functions (socio-adjustive, ego-defensive, utilitarian, knowledge and socio-defensive) influence willingness to communicate about HIV/AIDS, multinomial logistic regression analyses were run for the remaining five attitude functions. Of these analyses, only the models with the utilitarian attitude function and those with a socio-defensive attitude functions were significant and are reported on below, following the same procedures used for the testing of the formal hypotheses in this study.

Incidental Findings for the Utilitarian Attitude Function

Future intentions to discuss HIV/AIDS

The overall model using the utilitarian attitude function to predict intentions to talk about HIV/AIDS in the future (controlling for age and sex) is statistically significant (2 level comparison: log likelihood 62.887, X2 = 32.669, df=5, p < 0.001, and 3 level comparison: log likelihood 136.711, X2 = 42.884, df = 10, p < 0.001).

Table 17a: MLR Analysis: Using Utilitarian Attitude Functions to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	105.556			
Final	72.887	32.669	5	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		1.076	.712	1.624
	Male	0				
	Age 25 and under	1	***	3.965	2.293	6.855
	Age 26 - 35	1	***	2.189	1.393	3.438
	Age over 35	0				
	Highly utilitarian attitude	1	*	1.681	1.015	2.784
	Moderate utilitarian attitude	1		1.013	.620	1.653
	Low utilitarian attitude	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

Table 17b: MLR Analysis: Using Utilitarian Attitude Functions to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	179.596			
Final	136.711	42.884	10	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent intentions	Intercept	1				
	Female	1		1.101	.696	1.741
	Male	0				
	Age 25 and under	1	***	4.928	2.683	9.053
	Age 26 - 35	1	***	2.636	1.572	4.419
	Age over 35	0				
	Highly utilitarian attitude	1	**	2.365	1.327	4.213
	Moderate utilitarian attitude	1		1.474	.841	2.583
	Low utilitarian attitude	0	.			
Limited intentions	Intercept	1				
	Female	1		1.068	.660	1.726
	Male	0	.			
	Age 25 and under	1	***	3.026	1.608	5.693
	Age 26 - 35	1	*	1.821	1.065	3.114
	Age over 35	0				
	Highly utilitarian attitude	1		1.132	.633	2.024
	Moderate utilitarian attitude	1		.747	.423	1.319
	Low utilitarian attitude	0				

a. The reference category is: No, do not intend to talk about HIV/AID

The results for the 2 level comparison (Table 17a) show when comparing teachers who intend to talk about HIV/AIDS with those who do not, teachers with a highly utilitarian attitude are 1.7 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 2.7) more likely to talk about HIV/AIDS than those with a low utilitarian attitude. Similar, but more striking, results are found in the 3 level analysis (Table 17b). In this analysis, teachers who hold a highly utilitarian attitude toward talking about condoms/sexuality in schools are 2.4 times ($p \leq 0.01$: 95% C. I., ORs = 1.6 – 4.2) more likely to intend to talk about HIV/AIDS in the coming month than those who hold a low utilitarian attitude.

Past behavior in school

The models using utilitarian attitude functions to predict past behavior in school are also both statistically significant (2 level comparison: log likelihood 75.954, $X2 = 17.763$, df=5, p <

0.01, and 3 level comparison: log likelihood 133.723, X2 = 27.144, df = 10, p < 0.01) and exhibit essentially the same pattern as for future behavior.

Table 17c: MLR Analysis: Using Utilitarian Attitude Functions to Predict Teachers' Talking (2 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	93.717			
Final	75.954	17.763	5	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in the Past Month (2					95% Confidence Interval for Exp(B)	
		df	Sig.	Exp(B)	Lower Bound	Upper Bound
Yes, talked about HIV/AIDS	Intercept	1				
	Female	1		1.158	.801	1.675
	Male	0				
	Age 25 and under	1	***	2.524	1.574	4.047
	Age 26 - 35	1		1.245	.817	1.897
	Age over 35	0				
	Highly utilitarian attitude	1	*	1.457	.925	2.296
	Moderate utilitarian attitude	1		1.139	.724	1.792
	Low utilitarian attitude	0		.		

a. The reference category is: No, did not talk about HIV/AIDS

In the 2 level analysis (and controlling for age and sex), teachers with a high utilitarian attitude are 1.5 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 2.3) more likely to have talked about HIV/AIDS in the past month in school then teachers with a low utilitarian attitude.

And in the 3 levels analysis, comparing teachers with high consistent behavior with those who stated they had not talked about HIV/AIDS in school in the past month, teachers with a high utilitarian attitude are 2.2 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 4.0) more likely to have talked about HIV/AIDS than their colleagues with a low attitude).

Table 17d: MLR Analysis: Using Utilitarian Attitude Functions to Predict Teachers' Talking (3 levels) About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	160.867			
Final	133.723	27.144	10	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in Past Month (3 levels)[a]		df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		.997	.626	1.589
	Male	0				
	Age 25 and under	1	***	2.926	1.643	5.211
	Age 26 - 35	1		1.170	.676	2.025
	Age over 35	0				
	Highly utilitarian attitude	1	**	2.214	1.237	3.961
	Moderate utilitarian attitude	1		1.303	.712	2.384
	Low utilitarian attitude	0				
Limited behavior	Intercept	1				
	Female	1		1.314	.843	2.050
	Male	0				
	Age 25 and under	1	**	2.197	1.237	3.901
	Age 26 - 35	1		1.308	.782	2.187
	Age over 35	0				
	Highly utilitarian attitude	1		.990	.569	1.723
	Moderate utilitarian attitude	1		1.037	.610	1.762
	Low utilitarian attitude	0				

a. The reference category is: No, did not talk about HIV/AIDS

Past behavior in the community

Only the 3 level model (see Table 17e) is statistically significant in using the utilitarian attitude function to predict past community behavior (log likelihood 75.954, $X2 = 17.763$, df=5, $p < 0.01$). However, analysis of the table reveals that the significance is based solely on the contribution of the age factor to the model, and that the utilitarian attitude function has no influence on the relationship.

Table 17e: MLR Analysis: Using Utilitarian Attitude Functions to Predict Teachers' Talking (3 levels) About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	164.221			
Final	145.175	19.046	10	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Incidental Findings for the Socio-defensive Attitude Function

A similar analysis was carried out for the socio-defensive attitude function, using this attitude function to predict the three behaviors (and controlling for age and sex). The pattern for this attitude function was almost identical to the utilitarian attitude function, with the high socio-defensive attitude function predicting both levels of future behavior (Tables 18a and 18b) and one of the levels of past school behavior Tables 18c) but not past community behavior.

Future intentions to discuss HIV/AIDS

The models for both levels of future are statistically significant. (2 level comparison: log

Table 18a: MLR Analysis: Using Socio-Defensive Attitude Functions to Predict Teachers' Future Intentions (2 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	101.579			
Final	68.617	32.961	5	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (2 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Yes, intend to talk about HIV/AIDS	Intercept	1				
	Female	1		1.058	.702	1.596
	Male	0				
	Age 25 and under	1	***	3.926	2.272	6.783
	Age 26 - 35	1	***	2.240	1.425	3.521
	Age over 35	0				
	High socio-defensive attitude	1	*	1.802	1.085	2.991
	Moderate socio-defensive attitude	1		1.149	.706	1.868
	Low socio-adjustive attitude	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

likelihood 68.617, X2 = 32.961, df=5, p < 0.001, and 3 level comparison: log likelihood 136.002, X2 = 38.127, df = 10, p < 0.001).

In the two level comparison, teachers with high socio-defensive attitudes were 1.8 times ($p \leq 0.05$: 95% C. I., ORs = 1.1 – 3.0) more likely to talk intend to talk about HIV/AIDS in the next month. In the three level comparison, comparing teachers with high consistent intention to those who do not intend to talk about HIV/AIDS, teachers with high socio-defensive attitudes are 2.1 times ($p \leq 0.01$: 95% C. I., ORs = 1.2 – 3.8) more likely to intend to talk about HIV/AIDS.

Table 18b: MLR Analysis: Using Socio-Defensive Attitude Functions to Predict Teachers' Future Intentions (3 levels) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	174.129			
Final	136.002	38.127	10	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 Levels) to Talk About HIV/AIDS in the Coming Month[a]		df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent intentions	Intercept	1				
	Female	1		1.086	.687	1.716
	Male	0				
	Age 25 and under	1	***	4.845	2.643	8.879
	Age 26 - 35	1	***	2.732	1.628	4.583
	Age over 35	0				
	High socio-defensive attitude	1	**	2.087	1.187	3.670
	Moderate socio-defensive attitude	1		1.152	.664	1.999
	Low socio-adjustive attitude	0				
Limited intentions	Intercept	1				
	Female	1		1.072	.663	1.733
	Male	0				
	Age 25 and under	1	***	3.002	1.599	5.637
	Age 26 - 35	1	*	1.802	1.054	3.082
	Age over 35	0				
	High socio-defensive attitude	1		1.390	.767	2.520
	Moderate socio-defensive attitude	1		1.098	.624	1.933
	Low socio-adjustive attitude	0				

a. The reference category is: No, do not intend to talk about HIV/AIDS

Past behavior in school

In the 2 level model for past school behavior, although statistically significant, the socio-defensive attitude function is not statistically significant, therefore only the table referring to the overall test is presented here.

Table 18c: MLR Analysis: Using Socio-Defensive Attitude Functions to Predict Teachers (2 level) Talking About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	90.536			
Final	75.107	15.429	5	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Table 18d: MLR Analysis: Using Socio-Defensive Attitude Functions to Predict Teachers (3 level) Talking About HIV/AIDS in School in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	166.711			
Final	141.158	25.553	10	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in Past Month (3 levels)[a]		df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		.990	.622	1.577
	Male	0				
	Age 25 and under	1	***	2.754	1.556	4.874
	Age 26 - 35	1		1.176	.681	2.030
	Age over 35	0		.		
	High socio-defensive attitude	1	*	1.772	1.001	3.139
	Moderate socio-defensive attitude	1		1.161	.641	2.102
	Low socio-adjustive attitude	0				
Limited behavior	Intercept	1				
	Female	1		1.281	.820	2.001
	Male	0				
	Age 25 and under	1	**	2.170	1.224	3.845
	Age 26 - 35	1		1.295	.774	2.166
	Age over 35	0				
	High socio-defensive attitude	1		.771	.441	1.349
	Moderate socio-defensive attitude	1		.978	.580	1.649
	Low socio-adjustive attitude	0				

a. The reference category is: No, did not talk about HIV/AIDS

The 3 level model is, however, statistically significant. Comparing teachers with high consistent behavior to those who did not talk about HIV/AIDS in school in the past month, teachers who have high socio-defensive attitudes are 1.8 times ($p \leq 0.05$: 95% C. I., ORs = 1.0 – 3.1,) more likely to talk about HIV/AIDS than teachers with low socio-defensive attitudes (controlling for age and sex).

Past behavior in the community

The 2 level model for past behavior in the community is not statistically significant, and in the 3 level model, although statistically significant, the socio-defensive attitude functions are not statistically significant. Therefore only tables for the overall model tests are presented here.

Table 18e: MLR Analysis: Using Socio-Defensive Attitude Functions to Predict Teachers (2 level) Talking About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	87.659			
Final	76.666	10.992	5	NOT SIGNIFICANT

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Table 18f: MLR Analysis: Using Socio-Defensive Attitude Functions to Predict Teachers (3 level) Talking About HIV/AIDS in the Community in the Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	155.513			
Final	136.469	19.044	10	*

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Conclusions Concerning the Incidental Findings of the Remaining Attitude Functions

The above incidental findings show that high utilitarian and high socio-defensive attitudes predict future intentions to discuss HIV/AIDS (controlling for age and sex) and past school behavior when comparing high behavioral consistency with limited consistency and no behavior (the 3 level analysis). In the 2 level comparison this relationship only shows up for the utilitarian attitude functions. Neither attitude function predicts community behavior.

Qualitative Support for Selected Variables

In what follows the results of the semi-structured interviews with teachers are used to provide a qualitative background for some of the findings of the study. The conversations were

very informal so that teachers would feel uninhibited in responding to the questions. While this had the advantage of generating a substantial amount of information by way of personal accounts, it had the drawback of resulting in more information on some topics than on others. As a result, findings from the interviews are used to support/inform only a selection of the variables that were tested the six hypotheses of this study. The reader will notice that it is particularly in the domain of personal experience with HIV/AIDS that a substantial amount of information was collected.

A total of 28 teachers volunteered to participate in individual interviews. Of this total 50% were female. Volunteers were recruited in all five districts of the study, and the locations where they work cover both rural and urban areas. Sixty-seven percent of the teachers who were interviewed were teaching at primary level (grades 1 through 7), and just under half were younger than 25 years old.

Age

Age was a statistically significant and consistent predictor of all three types of behavior in the quantitative part of the study, and there was some evidence of this also in the interviews. Younger teachers talked more frankly and openly about HIV/AIDS, including about the sexual issues associated with the disease. As one of young teachers pointed out, the younger generation has grown up in the era of communication campaigns and has been much more exposed to the explicit messages from the media (both through formal campaigns and through entertainment programs). As this teacher noted: “Sex is becoming banal, we don’t find it difficult to talk about this topic.” Younger teachers were also more keen to explore ways in which they could learn more about the disease and to discuss ways in which they could play an active role. This was particularly the case for teachers who were still in training at the teacher training college in the capital city. Frequently the individual interviews were used by the younger respondents to ask how they could become more involved in the fight against HIV/AIDS. Older teachers, on the other hand, expressed more reservations in talking about HIV/AIDS, as the following quote of one of the older female teachers in the City of Xai-Xai illustrates: “Children nowadays are not as they used to be. I believe that if we talk about these things (referring to sex and condoms) there will no longer be any respect and discipline in our communities”.

Personal Experience with HIV/AIDS

In the survey among teachers, personal experience emerged as a strong consistent predictor of teachers' future intentions and past school and community behavior with regard to communicating about HIV/AIDS. The qualitative data gathered during this study also consistently supports this finding. Teachers who had not been confronted with the impact of the disease expressed less conviction and confidence in their role as communicators about HIV/AIDS. On the other hand, teachers with close personal experience provided substantial anecdotal evidence of a greater engagement with the issue of HIV/AIDS, as well as evidence of a stronger commitment to making a difference to the impact of the disease.

For some teachers HIV/AIDS was not a pervasive presence in their lives. A number of teachers in the individual interviews said they were simply not sure whether the disease is really affecting the people around them. Because, in the words of a secondary school teacher in the capital city, "no-one talks about this disease, and when they do so they only whisper", and because they find it difficult to recognize the symptoms of the illness, they have a tendency to think of other explanations when they are confronted with colleagues, students and friends who are not well. As one of the older male teachers in a rural school put it: "It is difficult to see which of our colleagues are sick. Many people here have the vice of consuming alcohol. They don't look well at all, their body is not healthy, neither is their skin. But the doubt remains, is it because of what they drink or is this cursed disease going to take them, too". This type of statement was made by various teachers. Difficulties in identifying the symptoms of the disease appear to play a key role in teachers' perceptions of the reality of the disease.

The statement by this teacher stands in stark contrast to the way in which teachers with some form of experience with HIV/AIDS expressed themselves. It was evident from the interviews that personal experience can cover a wide range of issues such as living in an area with high HIV prevalence, hearing about the death of other teachers, close personal confrontation with the reality of the disease, and the experience of doing an HIV/AIDS test.

Differences in prevalence rates appear to affect teachers' perception of the proximity of the disease. A very particular case in this respect was the city of Chókwe and the surrounding area, where HIV/AIDS has become so prevalent that many teachers say it has become impossible to ignore. The presence of the hospital where tuberculosis patients are treated (the only hospital of its kind in the province) appears to have contributed substantially to the visibility of the disease. Tuberculosis is closely associated with HIV/AIDS and according to sources at the hospital 60% of the tuberculosis patients are HIV positive. Teachers interviewed at the secondary school in the city of Chókwe were much more open and frank in revealing what was

happening in their school and in their community. Although many people are sick and dying in Chókwe and the surrounding areas, these teachers expressed the conviction that they are witnessing the beginning of a gradual attitude change. They cited examples of students offering condoms to the teachers, of couples who have an AIDS test before deciding to have children, and of people commenting openly about friends and family who are HIV positive or that have died of AIDS. These teachers voiced their belief that it is the pervasive impact of the disease that has contributed to this change. As one teacher put it: "Things started changing when the Tuberculosis Hospital here in Chókwe started taking in more and more sick people. Even colleagues come here from other districts to die. It was because of this reality that we realized that living next to the cemetery should not mean that we have to die. It is better that the hospital receives guests from elsewhere than that we should end up there". These teachers were also the only ones among those interviewed in the course of this study who were clear in advocating the message that being HIV positive does not mean an immediate death, but that there are various ways of living positively with the impact of HIV/AIDS. A quote from a female primary school teacher in this same area illustrates this: "We are close to a hospital where people who have HIV are treated. Here in Chókwe there are many mineworkers who return from South Africa contaminated with the disease. It is true that we used to say that this disease is nothing, but now we can feel it to the bone. Every day we are burying more people and seeing others come to the hospital. Because of this, there is no-one in this community who does not at least know one person who is affected." It therefore appears that having personal knowledge increases the sense of proximity to the disease as well as the likelihood of teachers recognizing symptoms and the impact of the disease, which in turn may influence teachers' perceptions of the importance of talking about HIV/AIDS with their students.

Experience also takes the form of being confronted with the sickness or death of colleagues. One teacher expressed this as follows: "It is sad how we teachers are disappearing. In years gone by, teachers did not die the way they do now. Lately, we have been gradually dying off, and it is very hard to see our colleagues like this, knowing just how hard it is to train a teacher in the first place, and then seeing that same person die when in this country there are still so many problems to solve!" In the context of these kinds of examples various teachers in the interviews referred to the statistics that the Ministry of Education had just released that 17% (approximately one in every six teachers) is infected with HIV, and to how this statistic made them realize how prevalent the disease is.

Some teachers spoke very frankly about their experience of seeing how HIV/AIDS is affecting their family and related this experience to their own commitment to doing something about HIV/AIDS. A 52 year old secondary school teacher in Chókwe resorted to a drawing to explain what he had personally been through and how it had affected him: "Look, this is my

family (starts drawing), here is my niece, she died first (crosses her out), then her husband (crosses him out) and so now their three children are living with my wife and me. Then came her brother, he got sick, his wife died (another cross) before him (crosses the brother out) and they have four children. Every family has a story like this, and the only way we can get away from this disease if we recognize what is happening and we talk about it to others. Now when I draw a picture of my family I have to place crosses where people used to be, if I don't talk, soon there will be someone else placing a cross where I used to be".

Personal experience may also be brought on by the conditions that teachers live in. In rural areas teachers are frequently single (if they have families they leave them behind in the city) and therefore share accommodation with other teachers. The same happens in boarding schools, where some of the participants in the study were staying. The story of a female teacher in Mandlakazi is typical of this kind of living situation. In her case, her experience with HIV/AIDS was the direct result of living in the same room with a female colleague who was HIV positive. Her personal account shows clearly how much anxiety such close proximity to HIV/AIDS causes: "I knew she was sick, and I knew that I could not catch the disease just from living with her. I wanted to help her because I could see her suffering was terrible, but she would ask me to help her bath because the itch from the disease was unbearable and I would find many excuses not to help her, I was too scared that her misfortune would pass on to me. I kept thinking that when she would die I would be happy. But then when she died, it was as if her suffering passed on to me. Now I worry every time I cough, every time I have a small problem with my skin, and I wait for my turn to die".

Confrontation with the disease can also be in the form of doing an HIV/AIDS test. "The most significant moment of my life", a 22 year old recent graduate from the teacher training college in Inhamissa explained, "was when I got the results of my AIDS test. I was petrified because I knew very well that I had not always been cautious in my behavior, but I was so relieved to find out that I am on the right side of things, that I am safe. It completely changed me to know that I am free, that I don't have to worry any longer. My HIV status is the most precious thing that I have. It is the passport to my future."

Personal experience can even take the form of being wrongly 'accused' of having fallen victim to the disease. In this context, a teacher in rural Bilene told the following story: "A few years ago I was in Chokwe I was having a very difficult time, I had no money at all, and very little to eat. I have always been thin since I was a child, but I became even thinner. Then my problems became worse, because people started avoiding me, they were not looking me in the eye anymore. At school my colleagues were polite but distant. My girlfriend left me and when I asked

her why she would not say. It was only when a friend asked me whether I was sick that I realized that I myself had been placed between inverted commas, that people thought I had HIV".

Finally, it may also important to note that there were differences between the experience of men and women. In general it appeared that for the female teachers, the situation is more complex than for the male teachers. A number of younger female teachers spoke of their experience of trying to get their partners to use condoms and how this had resulted in scenes of anger, violence or rejection. "I have a friend, a teacher at school nearby where I teach, who asked her boyfriend to use a condom because she wanted to be sure that they would both be protected. But he refused, he accused her of sleeping with other men, and then he abandoned her. Now she is alone," said a 27 year old teacher from Xai-Xai, and she added her question: "Is it better to be alone and safe, than happy but maybe unsafe?" The difference between men and women was also mentioned as an issue when one person in a couple becomes infected with HIV. As one of the older teachers in Chokwe explained: "We women, we truly believe in 'until death us do part' and so we stay with our partners even when they get sick and in spite of their behavior. We will have sex with them even when we have doubts. But when it is a woman who gets sick, she will be abandoned, rejected by the community and left alone to die. No wonder that some prefer to commit suicide rather than to live with such disgrace." For women there is also the added complication of being expected to have children. Among a group of HIV/AIDS activists in Bilene district there were two women who had decided to abstain from sex rather than become infected, but one of them expressed her frustration in clear terms: "How to have children? We women need to have children. I don't know if this choice I have made is the best way to live."

Based on the anecdotal evidence it appears that teachers' experience may also, to some degree be a function of at least two other factors. In the first place large class sizes and multiple shifts in urban areas appear to make it more difficult for teachers to know their students well enough to realize whether they are affected. One teacher in Xai-Xai echoed the feelings of some of his colleagues in urban areas: "We don't have the capacity to know anything about our students, even in meetings we only deal with pedagogical issues, and we don't know anything about the health of their families, nor of the students themselves". In addition, urban communities are large and more disperse compared to rural environments, which makes it difficult to know people well and so HIV/AIDS cases may seem less obvious. In rural areas this is different because communities are so small. A teacher from a rural school in Bilene put things in the following terms: "In rural areas we know everyone and it becomes hard to hide what is going on. Even if people don't say that it is that thing (referring to HIV/AIDS) we still speculate, "Is she like that because the disgrace is affecting her too?'. And that makes us aware that something is happening".

Knowledge of HIV and AIDS

From the analysis of the survey data, HIV/AIDS knowledge emerged as a predictor of past school behavior. The survey data failed to demonstrate a consistent link between knowledge and the other two behaviors (future intentions and past community behavior).

During the interviews issues related to knowledge and understanding of the disease emerged quite consistently. However, from teachers' personal accounts it appears that possibly knowledge of the disease influences not so much whether they talk about HIV/AIDS, but what (i.e. the specific content) they talk about, and how accurate the information is that they provide. The following examples provided by teachers who participated in the interviews illustrate how varied teachers' approaches to talking about HIV/AIDS were:

"I emphasize that persons who carry the HIV virus should not be isolated from the society in which they live. I think that individuals with HIV/AIDS should appear in public, so that people in the community can know them, and become more aware of ways of preventing the spread of this disease to other people who are healthy."

"I inform my students that I do not want to see any of them walking about at odd hours of the night. And I tell them that if I find them doing these things then I will mention in class that this is prostitution, and point out that the person who is doing this is a thief because he/she wants to walk about late at night. And I will forbid asking for money. If anyone really wants money then they should just study so that when they grow up they can have a job and have a lot of money. Now is not the time to fool around."

"As a teacher I have tried to address these issues in an adequate manner, and have made it one of my day-to-day priorities to use examples whenever possible. One of the things that I have done is taken an object made of wood into the classroom to show students how to use a condom. It made them laugh but I think they learnt a lot from it."

"I tell my students that those who are affected by this disease have brought bad luck upon themselves, and that this will happen to them too if they don't behave. For me the problem is women, they don't have sex for love, but because they want money or goods."

"Teachers who have sex with their students are often being provoked. But by having sex with their students they are guaranteeing their future livelihood because there will be more children to teach."

"Even a drunk person can tell you not to drink and you will believe it, the same goes for teachers. I don't think it is necessary to set a good example by behaving in a particular way, the most important thing is to tell people what they need to know about HIV/AIDS".

A substantial number of teachers in the personal interviews mentioned that they urgently need more information. In general, teachers voiced many questions and doubts about various issues related to the disease. Quite often, the issues that they raised were related to condoms, and their own lack of confidence in condoms as a means of preventing the spread of the disease. Teachers asked questions such as: "Are condoms really safe?", "Have condoms been infected with disease", "Do condoms help spread HIV?"

A further issue that came up repeatedly in the discussions with teachers is that they are not able to find answers that satisfy their doubts and questions to the point that they can feel confident about what they are saying. In the words of one of the teachers: "We have questions but we never get answers, only that we will die and we will die not knowing the answers because we don't know where to ask. All we ever hear and see on the radio, in the press, is that AIDS means death. A person who has this disease ceases to exist, such a person has one foot in his grave and is no longer part of our community. We can tell our students to use condoms so they won't get the disease, but still this disease is all around us. How is it that since the Government started advocating condoms, the indices of HIV have only gone up? How can we trust condoms, when we know that some of them are infected with the disease? How can we talk positively about this disease when people die such a horrific death?" This same teacher explained, that "yes, I do talk about HIV/AIDS" but that he avoids talking about issues that he is unsure about, such as the safety of using condoms.

Condom Use

The results of this study indicate that condom use is associated with past behavior in the community. The personal interviews did not provide very detailed information about condoms use, however, some teachers – especially the younger and male ones - talked frankly about their own use of condoms. One teacher clarified his decision to frequently use condoms as follows: "If I behave adequately then I can tell others to use a condom. This community here is small, people know too much about each other for me to fool around on this matter". Other teachers referred to the inconsistency between their own behavior and the message that they are supposed to convey to their students. In the words of a male teacher in his early thirties: "Look, I have a condom here in my back pocket, but when the time comes I may use it or I may not. Maybe it will depend on the person whom I am with, on how much I trust them. Or sometimes I just don't feel like it. And

then afterwards, I will wonder, why did I put that person at risk?" Other teachers expressed a strong mistrust of condoms. The observation of this teacher in the district of Mandhlakazi was fairly typical in this respect: "If I were young, and had not yet started to have sex, I would wait, not do anything really. Not even in the condom can I trust, I don't know what it is made of, what is inside it, what medication it contains, or even if it won't just break and cause me problems".

Attitudes, Social Norms, Perceived Behavioral Control

"Kids will become promiscuous", "kids will become scared", "parents will not approve", "religious leaders are against it", "we will get disciplinary problems in our schools", "we will be accused of provoking disgrace". These are just a few of the reasons cited by some teachers why they find it difficult to communicate about HIV/AIDS. In some cases, teachers who felt this way confessed that they preferred not to talk about HIV/AIDS. In other cases, teachers explained that they adapted their teaching content and strategies to their attitudes and beliefs, by selecting topics, avoiding details, and giving preference to the lecture form.

Social norms did not emerge as a particularly strong predictor of future intentions or of past behavior. However, in the interviews, teachers provided many examples of social pressure:

"For the people in my community things are very clear, it is not the teachers who should talk about this. They have not been recommended to do so. When I try to talk about this disease the people in my area don't take to it kindly, they even comment: 'Since when did this teacher learn these things, she should be teaching, when did she ever take a health course. Are the doctors going to sell us vegetables next, and will the bricklayer be teaching our children how to read and write?' So it is clear to me, when the teacher is alone, no one will take her seriously".

"Not all teachers can talk easily about these issues. A teacher in a rural area will have much more difficulty when trying to talk to children that are between13-16 years old. People will say that that teacher is doing harm because he is introducing children to something they did not even know about and now they have become interested in it. Or they may even say that all he wants is to take advantage of his students" – female secondary school teacher in Xai-Xai.

"Teachers who talk about condoms are accused of trying to reduce the strengths of families and communities because they will have fewer children" – young teacher in Bilene.

The qualitative findings are therefore somewhat contradictory to the findings of the survey. This is an area that could benefit from further research.

With regard to perceived behavioral control training, materials, incentives and support from colleagues and school directors emerged as key issues for teachers in all the interviews and, by their own account, affect their ability and willingness to talk about HIV/AIDS. The findings on the quantitative part of the study only support this as far as future intentions are concerned but failed to find support for the hypothesized link between perceived behavioral control and past school and community behavior. However, the perception from the interviews, and the frequency with which teachers mention issues that affect their ability/willingness to talk about HIV/AIDS (both in the interviews and in the surveys), shows that concerns such as training, materials, etc. are crucial across the board. In other words, it appears that key factors that may influence perceived behavioral control (such as training, and materials) are an issue for everyone and therefore do not show up as being crucial only to teachers who decide to talk about HIV/AIDS.

An important issue mentioned by many teachers was the difficulty in finding good, convincing examples, examples that would make the issue "live for the students". Some of them said they would like to bring in someone from the community (sufficiently affected by the disease to show what was going on, but still healthy enough to walk) to show their students what happens to people who are not careful. This suggestion was offered not by one teacher but by various teachers in different locations. Many of the teachers themselves acknowledged the ethical drawbacks of this proposal, but it serves to illustrate how much of a limitation the lack of examples and explicit materials is to teachers.

Support by colleagues and management of schools was also key issue. Many teachers said that their personal efforts in talking about HIV/AIDS were hampered by lack of support from other teachers. In other words, they would still talk about the disease but would have to limit/restrict what they were talking about. As one of the female teachers in the rural areas remarked: "My male colleagues do not always set a good example. They have a lot of girlfriends, and some of those are even students from our school. For me it is difficult to tell students that they need to abstain from having sex, or at least have only one partner, when teachers here at the school are behaving this way".

Level Taught

One of the findings from the survey data was that teachers who teach at upper primary are more likely to talk about HIV/AIDS than those teaching at lower primary. There was also some indication that teachers at secondary level are even less likely to talk about HIV/AIDS than their counterparts in lower primary. The statements of teachers during the personal interviews

help to shed some light on this issue. A selection of comments and observations by teachers at these different levels are reviewed below.

For teachers in EP1 (lower primary level grades 1 – 5) one of the key constraints to talking about HIV/AIDS is the difficulty in talking about sensitive issues to young people, as well as the reaction from parents if they were to do so. Teachers are aware that the main vector of transmission is sexual, but they don't know how to talk to children about these issues. As one teacher explained: "We have tried to talk of this terrible disease with our pupils. But the problem is that we don't have ways of communicating adequately with them, we don't have the right terminology. We cannot talk about sex with them, it is not our tradition. So we talk about things that can cut them, like razors. But there is a monotony to what we are able to talk about. We are not able to talk about everything". This teacher attempted to adapt the content that he was talking about. Other teachers simply decide they will not talk at all. As one female teacher remarked: "My children are too young, I am not going to frighten them with things they will not understand".

For teachers in the higher grades (particularly at secondary level) the difficulty is related to the fact that the children are older, more experienced and often already sexually active. Especially in the urban areas, teachers noted that children and young adults know so much about sex and sexuality that they ask complex and provoking questions which embarrass the teacher or which he/she has difficulty in answering. Some of the secondary school teachers reported wanting to talk about HIV/AIDS, but finding it difficult to integrate the topic in their subject matter, lacking clear examples, and feeling frustrated with repeating the same message over and over again. As one of the teachers said: "Children nowadays are no longer children. They know about sex, they watch TV, and they know about condoms. Are we telling them something new? Are they using the condoms? Well, as long as I still see so many young girls drop out this school every year because they become pregnant, I am not sure I can be convinced." And, to a small but significant group of teachers at this level, students are actually in part to blame for the spread of the disease, they want to have money so they prostitute themselves and, in doing so, present a temptation to the teacher. As a secondary school teacher remarked when we were leaving one of the focus group discussions: "Really, I could not say it in there, but the girls, they want money so much they don't care about using condoms, they will just go with anyone to be able to buy a skirt or braid their hair."

An additional problem at secondary level appears to be that teachers lecture very specific subjects as opposed to Grades 1 through 5 where teachers are not specialized and Grades 6 and 7 where teachers are only moderately specialized along broad lines separating the sciences from the art. There was some evidence from the interviews that teachers struggle with the fact that it is not immediately apparent to them how to integrate HIV/AIDS into their teaching. As a secondary

school teacher in Mandlakhazi remarked: “I am an art teacher. What can I realistically talk about? Art is not about talking, it is about doing.”

CHAPTER 5: DISCUSSION

As an aide to the reader the final chapter of this dissertation provides a brief overview of the study, including a statement of the problem and the major methods involved. The majority of the chapter is, however, devoted to a summary and discussion of the six study hypotheses and to a discussion of the pertinence of the results for the role of teachers in HIV/AIDS awareness and prevention.

Summary of the Study Problem and Methodology

HIV/AIDS has spread hard and fast in Africa over the past two decades, over seventy percent of all new HIV infections take place in Africa (UNAIDS, 2003). Sub-Saharan Africa has been especially affected, where several countries, such as Botswana, Malawi and Swaziland, have reached adult prevalence rates of 20% and over. As the disease is increasingly impacting on the social, economic, cultural and even political fabric of these countries, urgent efforts are being made to mobilize all possible resources – human, economic, and otherwise – to halt the spread of the disease (IBRD/World Bank, 2000).

One of the resources that is increasingly being mobilized in the fight against HIV/AIDS are teachers. The assumption is that teachers are ideally situated to reach children as well as young people, and to play an important role in providing key information, in teaching essential skills and in contributing to attitude change that will allow these children to protect themselves. Children between 5 and 14 are considered the "window of hope" (IBRD/World Bank, 2002) in fighting the disease because they have escaped infection at birth, are assumed not yet to be sexually active, and are still in the process of developing attitudes and behavioral patterns and are therefore more easily influenced than adults (UNAIDS, 1997).

In spite of this important role of teachers, however, the bulk of the research on HIV/AIDS and education has focused on students and young people rather than on teachers themselves. Only very few studies have examined the current and potential role of teachers in the context of HIV/AIDS (c.f. Lin & Wilson, 1998; Action Aid, 2003). And, in general there appears to be an implicit assumption on the part of policy makers and practitioners in education that provided teachers are given the right conditions, they will - regardless of their individual characteristics - ensure that students know what they need to know in order to effectively protect themselves.

The overall purpose of this study was to identify and further understand key factors that may contribute to teachers' willingness to communicate about HIV/AIDS in the educational setting. In this manner, the study sought to fill the gap in the research on teachers and HIV/AIDS which has typically focused on cataloguing teachers' knowledge and attitudes, but without relating them directly to practice. The assumption of this study was that a better understanding of the personal and contextual variables that influence teachers' willingness to communicate about HIV/AIDS could provide a key input into policy decisions and into the design of practical interventions that will strengthen the teacher's role as communicators about HIV/AIDS.

Acknowledging that the integration of models and theories in studies of this nature in developing settings is generally lacking (Kelly, 1999), two theoretical frameworks, the Theory of Planned Behavior, and Attitude Function Theory were used as basis for the inquiry into these individual difference variables. Other important variables which could impact on past and future behavior of teachers were identified and operationalized in the course of the study itself based on an extensive review of the available literature as well as on the focus group discussions with teachers in the pilot phase of the study. In this manner the following variables were identified as possible predictors of teachers' willingness to communicate about HIV/AIDS: age, sex, knowledge of HIV/AIDS, personal experience with HIV/AIDS, condom use, perceived personal risk, attitudes toward talking about HIV/AIDS, social norms, perceived behavioral control, and attitude functions.

Previous studies have typically examined HIV/AIDS teaching from the perspective of behavioral intent only. However, discussions with teachers during the pilot phase of the study had indicated that talking about HIV/AIDS was context specific and could involve either future behavior or past behavior of a combination of both. This study thus departed from the approach taken by other studies by operationalizing the predicted behavior "willingness to communicate about HIV/AIDS" in terms of three types of behavior: future intentions to talk about HIV/AIDS with students, past behavior of talking about this topic in school, and past community behavior.

This study was conducted in the province of Gaza in Southern Mozambique among primary and secondary school teachers. A non-experimental mainly quantitative, research design was used to examine the individual difference variables that were identified as being potentially important to teachers' willingness to communicate about HIV/AIDS. Data were obtained by administering surveys containing predominantly structured questions to teachers in five districts of Gaza province. Although the study was mainly quantitative in nature, qualitative techniques were used to: inform the study during the design phase; to aid conceptual and instrument development; and to assist in the interpretation and clarification of the results of the study.

The study was conducted in two phases. The first - pilot - phase took place over a period of seven weeks in the months of June and July, 2003. During the pilot phase, key issues impacting on teachers' willingness to communicate about HIV/AIDS were identified and instruments developed, adapted and tested to measure these variables. The second phase took place in September 2003, and covered a three-week period during which questionnaires were administered to a stratified sample of 606 primary and secondary school teachers as well as to a convenience sample of 157 primary and secondary school students in five districts of the province. In addition, individual in-depth interviews were conducted with 28 teachers.

In the next section the main conclusions for each of the six hypotheses of the study are reviewed. In addition, implications for further research are discussed.

Review and Discussion of the Main Conclusions of the Study

Six hypotheses were formulated for this study. For all six hypotheses the predicted measures were: a) future intentions to talk about HIV/AIDS in the coming month; b) past school behavior (also measured over a one-month period); and c) past community behavior by teachers. In this study these three behaviors are grouped together under the heading "willingness to communicate about HIV/AIDS". Each of the three behavior types was analyzed from two perspectives. The first perspective - referred to as the 2 level comparison - contrasted no behavior (future, in school, in community) with any level of behavior in these settings. The second perspective acknowledged the existence of different degrees/levels of behavior by contrasting no behavior, with limited behavior and high consistent behavior. Details on the manner in which each of these behaviors was operationalized and measured can be found in Chapter 3.

In the following section of this chapter the main findings are reviewed for each hypothesis followed by a discussion of these finding and an analysis of the implications of these findings for future studies. Several suggestions are made concerning the relevance of these findings for policy and practice in Mozambique.

Age and Sex – Hypothesis 1

The first hypothesis argued that younger teachers and female teachers would be more willing to address HIV/AIDS across all three behaviors (future intention, past behavior in school and past behavior in the community) than their older and male counterparts.

Conclusions

The first hypothesis was fully supported for age, which was a consistent and important predictor of willingness to talk about HIV/AIDS across all three behaviors. Particularly noteworthy is that the relationship between age and the predicted measures tended to be stronger when contrasting high consistent behavior with no behavior than when simply comparing any presence of the behavior with no behavior.

Sex, on the other hand, was not a predictor of any of the behaviors. This finding was contrary to the hypothesis that females would be more likely than males to be willing to address HIV/AIDS.

Discussion and implications

None of the studies on teachers and HIV/AIDS that were identified in the context of this work examined the possible impact of age on teachers' willingness to communicate about HIV/AIDS. The strong and consistent link between age and willingness to communicate about HIV/AIDS that was identified in the course of this study suggests that future research should certainly take into account this demographic variable.

Furthermore, it should be noted that this study examined willingness to communicate about HIV/AIDS only in terms of frequency of past and future behaviors. It is possible that age not only impacts on the frequency of future and past discussions with students, but that it also impacts on the topics that teachers are willing to discuss. Thus in addition to including age as a predictor variable, it is important that future research considers the possible relationship between age and the specific topics that are discussed with students.

A final point with regard to age is that evidence from the personal interviews with teachers suggests that younger teachers may, by virtue of the fact that they have grown up in a different era (an era during which HIV/AIDS became a reality, and during which mass communication campaigns became much more pervasive and obvious) not only be more willing to address HIV/AIDS in general, but may also be more receptive to discussing certain difficult and sensitive topics. Given that HIV/AIDS is affecting particularly the younger age-group it is also possible that younger teachers have more personal experience with HIV/AIDS than older teachers do and that this impacts on their willingness to talk about HIV/AIDS. This suggests that the specific factors that are associated with different age groups should be carefully examined so lessons can be drawn for future interventions. If younger teachers are more willing to address HIV/AIDS and if these teachers are also more likely to discuss certain sensitive topics (this still

needs to be verified through further research) then this may have implications for the placement of teachers in schools, and for the training and support programs that are put in place.

Personal Experience and Knowledge – Hypothesis 2

Hypothesis 2 contended that teachers with a high level of knowledge of HIV/AIDS and teachers who had a close personal experience with the disease would be more willing to talk about HIV/AIDS.

Conclusions

This hypothesis was fully supported for the link between personal experience and willingness to communicate about HIV/AIDS. Controlling for age, sex, and knowledge of HIV/AIDS, substantial personal experience of HIV/AIDS (defined as knowing two or more people who are sick/have died of HIV/AIDS) was shown to be a strong and consistent predictor across all three behaviors. Moderate personal experience with HIV/AIDS (defined as knowing one person who is sick/has died of HIV/AIDS) emerged as a predictor only of teachers' future intentions to discuss HIV/AIDS in the coming month. For this hypothesis too, the relationship between personal experience and willingness to communicate about HIV/AIDS is particularly strong when contrasting high consistent and limited levels of behavior with no behavior.

Partial support was found for the link between the second variable in this hypothesis - knowledge of HIV/AIDS - and willingness to communicate about the disease in the broad educational context. Knowledge of HIV/AIDS was found to be statistically significant only in predicting a consistently high behavior of talking about HIV/AIDS in schools in the last month and was not a determining factor in either of the other two predicted behaviors (future intentions to talk about HIV/AIDS and community behavior).

Discussion and implications

In the HIV/AIDS literature it is only very recently that researchers have started examining the link between personal experience with the disease and HIV/AIDS related behavior. The few studies that have examined this relationship, other than my own study, have found a consistent and strong link between knowing someone who is sick/has died of HIV/AIDS and behavior change, although the exact relationship between these two variables remains somewhat unclear. For example Macintyre et al. (2001) found that knowing someone who had died of AIDS was strongly related to sexual behavior change among men in Uganda and Zambia, and to a lesser extent among men in Kenya. In a similar earlier study in Uganda, Ntozi and Kirunga (1997) found

that the number of HIV patients and AIDS deaths known to a person is significantly related to change in sexual behavior. However, the study did not examine to what extent such changes in behavior persist over time.

As far as teachers are concerned, no previous studies have looked at whether personal experience with HIV/AIDS may impact on teachers' willingness to talk about HIV/AIDS. This study makes a contribution to the field by providing strong support for such a link. This suggests that future studies should probe deeper and not only look at the relationship between these two variables, but specifically at the mechanism that is behind this relationship. Of particular interest would be to establish whether the nature of the relationship with the person who is sick/dies also impacts on teachers' behavior. As McIntyre et al. (2001) note, there are two possible avenues for people who are confronted with the impact of HIV/AIDS. One is that it reinforces their perceptions of fatalism and conviction that little can be done. The other is that it reinforces the engagement with the fight against HIV/AIDS. The reader will recall that in this study the measure of personal experience with HIV/AIDS consisted of a composite of four variables relating to whether the respondents had family living with them who were sick, had family who had died of HIV/AIDS, had friends who were sick/had died of HIV/AIDS, and/or knew a teacher who was sick or had died of HIV/AIDS. It may therefore be relevant for future studies to look not just at the composite impact of knowing someone who is HIV positive or who has died of AIDS, but also at the relationship to this particular person, and to gain understanding into the process by which personal experience influences behavior.

The strong relationship between personal experience and willingness to communicate about HIV/AIDS suggests that from a policy and practice perspective it is vital to find ways to break the culture of silence that surrounds the disease. If teachers (and other people in communities) do not share their personal experience, then the reality of the disease will continue to remain elusive to many. None of the teachers who participated in this study were willing to disclose their HIV status, and there are no known examples in Mozambique (according to the various education officials who were contacted in the course of this study at national and provincial level) of teachers who have come forward to disclose their status. From a policy perspective the results of the present study suggest that concerted efforts should be made to encourage teachers to share their personal experience with others (teachers, students, other members of the community) so that the visibility of the disease is enhanced and to provide an enabling environment that makes it possible for HIV positive teachers to disclose their status, if they should wish to do so. Other key areas of activity include: a) using examples of teachers personal experience to produce educational/awareness materials that can be used in training and in communication campaigns; b) capitalize on teachers who have personal experience by ensuring that they are given responsibilities related to HIV/AIDS education; and c) ensuring that a

more substantial involvement of teachers who have personal experience with HIV/AIDS goes hand in hand with any support they may need, since these teachers may need help in coping with their experiences and in finding effective ways to channel their commitment to addressing HIV/AIDS.

With regard to the second variable in this hypothesis (HIV/AIDS knowledge), the results from prior studies are mixed. As McIntyre et al. (2001) note, "attempts to link knowledge levels with consistent, long-term behavior change have largely failed, and most authorities would agree that knowledge of HIV transmission is a necessary, but not sufficient, factor to determine behavior change" (p. 163). HIV/AIDS knowledge has been linked to other HIV/AIDS related behaviors such as condom use (Valk & Koopman, 2001) with people being more likely to use condoms the more knowledge they have of HIV/AIDS. Lin and Wilson (1998) found that secondary school teachers with high intentions to talk about HIV/AIDS also had higher knowledge levels. The results of this study mirror the findings above regarding HIV knowledge for behavior in school. Teachers with high knowledge levels were more likely to engage in high consistent school behavior. In my study, however, knowledge of HIV/AIDS and future behavior and past community behavior were not related.

The findings of this study indicate, as other studies have also done, that the relationship between knowledge of HIV/AIDS and behavior is not necessarily a direct one. This does not mean that the importance of knowledge should be ignored. Given that higher knowledge levels are associated with high consistent talking in schools in this study, and given that this is an important behavior, all efforts should be made to ensure that teachers have good levels of knowledge. It should further be noted that both the survey and the personal interviews with teachers revealed numerous shortcomings in teachers' knowledge and understanding of HIV/AIDS, and that during the study the tables were frequently turned on the researcher with teachers trying to turn the personal interviews (and the focus groups in the pilot phase) into a question and answer session from their side about various aspects related to HIV/AIDS transmission and prevention. Thus, regardless of whether knowledge itself influences teachers' willingness to communicate about HIV/AIDS, the concern remains that if teachers' own understanding of HIV/AIDS is limited, they may be talking to their students but putting across erroneous information. This implies that support to teachers needs to include providing them with more information about HIV/AIDS and resources where they can voice their questions and concerns.

Finally, a potentially important incidental finding of this study (not reported on in this dissertation) is that teachers with higher personal experience of HIV/AIDS in this study also had more knowledge of the disease. Support for this has been found in at least one prior study

(McIntyre et al., 2001). This suggests that in terms of policy and practice enhancing and creating visibility of the disease would contribute not only to teachers' behavior of talking about HIV/AIDS (as was suggested above) but would also contribute to enhancing teachers' engagement with the issue and encouraging them to pursue answers to the questions that they have about HIV/AIDS. It goes without saying that this would have to go hand in hand with ensuring that teachers have access to resources about HIV/AIDS which they can use to answer their questions.

Condom Use and Perception of Personal Risk – Hypothesis 3

The expectation of the study was that those teachers who regularly used condoms and those that have a high perception of personal risk of becoming infected with HIV/AIDS would be more willing to address HIV/AIDS in the educational context across all three types of behavior.

Conclusions

The hypothesis was partially supported for both variables. No relationship was found between the two predictor variables (condom use and perception of risk) and future intentions to talk about HIV/AIDS. In both types of comparison (2 and 3 level) of school behavior it was the perception of personal risk that was the determining factor for past school behavior. Teachers who declared that they believe they can do more to reduce their personal risk of becoming infected with HIV/AIDS were more likely to have talked about HIV/AIDS in school than those who declared they do not need to do more to reduce their risk.

In both levels of community behavior, it was condom use and personal risk that were the predictors of behavior. Teachers who declared always using a condom were consistently more likely to have talked about HIV/AIDS in the community in the past month than those who sometimes/never use a condom.

Discussion and implications

There is considerable support in prior literature that personalization of a problem is more likely to lead to behavior change (c.f. Barnett & Whiteside, 2002). Various studies have shown that populations who believe that they are themselves at risk, are more likely to engage in protective behaviors such as using condoms (c.f. Adih & Alexander, 1999; Basen-Engquist, 1992). This study provides further support for the findings of these earlier studies.

From the perspective of this study, a key further question is whether training and other support activities to teachers can make them more aware of the problem of HIV/AIDS and lead to

a greater personalization of this issue. If this proves to be so, then training and support programs may need to be revised and tailored to encourage stronger personalization of issues. One possible avenue for further research is to examine whether there is a relationship between personal experience with HIV/AIDS and personalization of the problem. In addition, it may be that poor levels of knowledge are associated with low levels of personalization of the problem.

While condom use by teachers and students has been examined in a number of studies, no previous study has examined whether teachers' own use of condoms influences their willingness to talk about HIV/AIDS. It is interesting to note in this study that condom use influences community behavior rather than school behavior or future behavior. Possibly this is related to the fact that many teachers work and live in small communities where not much goes unnoticed so that they would only feel secure in talking about condoms if they are actually practicing what they preach. But there may be other reasons and therefore the exact link between condom use and teachers' behavior in the community needs further investigation. Meanwhile, from a policy and practice perspective the findings of this study provide strong support for continuing to inform and raise awareness about condom use, among teachers and the general public. Given that teachers cited many myths and misconceptions with regard to condoms (some of which were reported on in the qualitative part of the study). It is also of paramount importance that communication and training campaigns for teachers and the general public address these myths and that they find convincing and compelling ways to dispel them.

Attitudes, Social norms and Perceived Behavioral Control – Hypothesis 4

Hypothesis 4 examined how traditional predictors of behavior/behavioral intent in the Theory of Planned Behavior (TPB) impact on future intention of teachers to address HIV/AIDS, on past school behavior, and on past community behavior. The expectation was that teachers with highly supportive attitudes of talking about HIV/AIDS, teachers who do not believe social norms are important, and teachers who have a high level of perceived behavioral control would be more willing to address HIV/AIDS across all three types of behavior.

Conclusions

This hypothesis was partially supported by the study. Perceived behavioral control and attitude toward talking about condoms and sexuality in schools emerged as the key factors in contributing to future intentions to talk about HIV/AIDS, with teachers who have a high/moderate level of perceived behavioral control being more likely to intend to talk about HIV/AIDS in the coming month, and with teachers who have a very supportive attitude being more likely to have high consistent intentions of addressing HIV/AIDS in the future. The study failed to find support

for a link between the three predictor variables and past school behavior. With respect to community behavior, attitudes emerged as consistent predictors of past community behavior at both levels. In summary, of the three variables, strongest support was found for the importance of attitudes, which was a determining factor for two of the three behaviors (future intent and past community behavior).

Discussion and implications

As was noted in the literature review, the limited research that has taken place in developing contexts has shown that models that work well in developed/western contexts such as the Theory of Reasoned Action and the Health Beliefs Model (c.f. Lin & Wilson, 1999) do not always find support when applied to developing countries (c.f. Volk & Koopman, 2001). This study too, did not find strong consistent support for using the Theory of Planned Behavior to predict teachers' willingness to communicate about HIV/AIDS across all three behaviors (future intentions, past school behavior and past community behavior), although some of the variables of the TPB were predictors for one or two of the types of behavior. In part these models may be too rational and too "western" to accommodate the variety of irrational and mythical issues that appear to influence behavioral intent as well as behavior. Future research should therefore focus on expanding/revising existing models of behavior to accommodate a variety of factors that may be relevant from a contextual and cultural perspective, such as cultural beliefs, fear of HIV/AIDS, experience with the disease, self-esteem, degree of emotional distress, myths associated with condoms, etc. Such models should also question whether concepts such as perceived behavioral control can automatically be transferred to a developing context where the notion of control may be a very different concept.

It should also be noted that, in attitude research, theories typically perform much better in predicting behavioral intent than in predicting behavior and that the more specific the behavior, the better the predictive power of the theory. Two of the predicted behaviors in this study did not refer to behavioral intent, but rather to past behavior, which may have affected the predictive capacity of the model as far as attitudes are concerned. In addition, the overall focus of the study was on the rather general behavior "talking to students about HIV/ADIS". This may actually encompass many different kinds of activities, among which lecturing, informal discussions, awareness activities, organizing plays, etc. Replications or extensions of this kind of study may find stronger support for theories such as the TPB if the outcome behavior is more specifically defined, e.g. "how many times do you intend to lecture to your students about living positively with HIV/AIDS in the coming week?"

In spite of these limitations, the findings of this study still provide an indication of priorities in terms of designing interventions aimed at supporting teachers. One clear conclusion is that teachers require different support at different stages of their decision making about addressing HIV/AIDS. The fact that perceived behavioral control and social norms may constitute deterrents for teachers' intentions to address HIV/AIDS, makes it important to ensure that teacher training enhances their capacity to deal with social pressure, that it focuses on empowering them to take action, and on providing them with the necessary materials (or tools for producing materials that they will need).

In the case of community behavior, where attitudes are an important factor, it may be somewhat harder to use short-term interventions to generate change since attitude change is a slow and difficult process. However, it does indicate that teachers who are to work as HIV/AIDS activists in communities, will need to be selected taking into account the attitudes that they hold towards talking about HIV/AIDS.

Level Taught – Hypothesis 5

This study hypothesized that teachers in Grades 6 through 12 (upper primary and secondary level) would be more willing to address HIV/AIDS in their educational setting than lower primary school teachers.

Conclusions

The results of the study found strong and consistent support for the contention that teachers in upper primary education (Grades 6 and 7) would be more willing to address HIV/AIDS than their colleagues in lower primary education, across all three types of behaviors (future intentions, past school behavior and past community behavior) when contrasting teachers with high consistent behavior with those in the no behavior category. Teachers in upper primary were more likely than those in lower primary to demonstrate high consistent intentions to address HIV/AIDS and high consistent past school and community behavior.

Support was not found for the part of the hypothesis that contended that secondary school teachers would also be more likely to exhibit all three behaviors. In fact, in terms of future intentions and community behavior, secondary school teachers did not differ significantly from the lower primary teachers. And, contrary to what was expected, in the case of school behavior secondary school teachers were actually less likely than lower primary teachers to have limited intentions of addressing HIV/AIDS. Overall the evidence therefore suggest that there is no difference between secondary and lower primary school teachers, and that where it exists – as is

the case for past school behavior - secondary school teachers are actually less likely than their colleagues working at lower primary level to demonstrate limited behavior.

Discussion and implications

Many of the informants in the pilot phase of this study had made general statements about teachers in general being unwilling to talk about HIV/AIDS, but did not make any distinction between the level at which teachers teach. None of the studies reviewed in the context of this dissertation examined willingness to communicate about HIV/AIDS across different teaching levels. This study suggests that the level at which teachers teach most certainly impacts on their willingness to communicate about HIV/AIDS. Given the distinct difference between willingness at upper primary and the lower primary on the one hand, and secondary primary on the other, it becomes important to further examine the reasons for these differences. The personal interviews conducted with teachers in the context of this study provided some indications of reasons for differences, but there may be many other reasons. Further research is therefore needed to identify the factors that influence this difference.

This result of the present study is in itself troubling, given the priority that is being placed on the children between 6 and 14 years of age (the "window of hope") by international organizations and various governments in recognition of the fact that it is important to reach children before they have their first sexual experience and when they are still forming attitudes about HIV/AIDS and related issues. Given the high indices of repetition and drop-out in schools in Mozambique, most of this target group will be in lower primary, rather than in upper primary, and may never make it as far as upper primary therefore missing out on the opportunity of acquiring knowledge and skills that will allow them to protect themselves against HIV/AIDS later on in life. Future research should therefore also focus on identifying ways and means of integrating age-appropriate and relevant HIV/AIDS messages into lower primary education and into the messages that children get in other informal settings such as in the community.

Attitude Functions

The final hypothesis of the study concerned attitude functions. Since value expressive attitude functions reflect perceptions of moral consequences of talking about HIV/AIDS, it was hypothesized that teachers who hold weak value expressive attitude functions (i.e. who are less concerned with moral issues) would be more willing to address HIV/AIDS than those who hold strong value expressive attitude functions.

Conclusions

This hypothesis was supported across all three types of behavior. With respect to future intentions, only those teachers who believed values were not important demonstrated a consistently greater intention to discuss HIV/AIDS. In the analysis of past school and past community behavior, both teachers who believed values are not important, as well as those who believed values are moderately important demonstrated consistently higher behavior in those two settings when compared with their colleagues who declared not having talked about HIV/AIDS at all in the past month.

Of the six attitude functions identified in the pilot phase of the study, two further attitude functions emerged as predictors in the incidental findings of the study, namely utilitarian attitude functions and socio-defensive attitude functions. In both cases, teachers with high utilitarian and socio-defensive attitude functions were more likely to intend to talk about HIV/AIDS in the future, and to do so in the school setting. No link was found between these two attitude functions and past community behavior. The other attitude functions, namely socio-adjustive, ego-defensive, and knowledge functions did not influence future intentions and past school and community behavior.

Discussion and implications

Attitude function theory has been applied to HIV/AIDS only to very limited extent. Previous studies have used attitude function theory to examine attitudes that people hold with regard to people with AIDS (Herek & Capitano, 1998; Reeder & Pryor, 2000). None of the research reviewed in preparation for this study had used attitude function theory to predict teachers' willingness to talk about sex and condoms in schools.

The findings presented here suggest that attitude functions may constitute a useful avenue for gaining more detailed insight into the specific reasons why teachers may decide not to address this topic. In practical terms, the findings of the study suggest that if teachers hold different attitude functions toward talking about sexuality and condoms, then communication activities, training campaigns, and other activities may need to be tailored to these attitude functions by taking the attitude functions as a starting point for designing messages.

This study looked only at attitude functions with respect to talking about sexuality and condoms with students, since this was identified as major bottleneck for teachers during the pilot phase of this study. Future studies should continue to investigate the usefulness of attitude function theory in predicting other HIV/AIDS related behaviors, such as attitudes toward involving parents and communities, and attitudes toward talking about people with HIV/AIDS. In addition,

having identified the various attitude functions, it becomes necessary to identify interventions that make it possible to either select teachers on the basis of their predominant attitude functions, or to work on means of promoting attitude change. One useful avenue would be to examine whether attitude functions differ among teachers (and other population groups) of different ages, with different levels of training/teaching experience, and with different levels of experience with HIV/AIDS.

Various categorizations of attitude functions exist in the literature. This study hypothesized that in addition to the traditional "catalogue" of attitude functions that has found consistent support in the literature (knowledge, utilitarian, ego-expressive, socio-adjustive and value-expressive attitude functions) a sixth attitude function would be present, namely a socio-defensive function. The socio-defensive attitude function was operationalized as representing a concern with defending others and a fear for the fate of the community and society at large, if HIV/AIDS is not addressed. Support was found for the existence of this particular attitude function and for its capacity to predict teachers' willingness to communicate about HIV/AIDS in terms of future intentions and past school behavior. Future studies should seek to find further support for the existence of this attitude function and identify to what extent this attitude function is present in other population groups.

In general, the present study finds support for the usefulness of using attitude functions in examining behavior among teachers. This suggests that attitude functions may have applications beyond the areas in which it has been applied to date.

Overall Concluding Remarks and Recommendations

Teachers are expected to play a major role in fighting the impact of HIV/AIDS and in preventing the spread of this disease. Yet, studies on HIV/AIDS and teachers have given only marginal consideration to the factors that may influence teachers' willingness to communicate about HIV/AIDS with their students. Furthermore the few studies that exist have focused exclusively on teachers' behavioral intent in the classroom. This study demonstrates that individual differences among teachers influence their willingness to communicate about HIV/AIDS. Furthermore, by distinguishing between different types of behaviors in the broad educational context, this study suggests that some individual difference variables (such as personal experience with HIV/AIDS and teachers ages) consistently impact on all types of behavior studied, whereas other variables (such as knowledge of HIV/AIDS) only impact on certain behaviors.

The following general lessons can be drawn from this study for further research:

- Future research should attempt to identify other individual difference variables (such as fatalism, exposure to mass media, emotional distress and other personality characteristics) that impact on teachers' decisions to communicate about HIV/AIDS.
- Future studies in this area should examine how individual difference variables impact not only on the frequency of past and future communication, but also on the content that teachers discuss with their students. In addition, future studies should also examine the extent to which past behavior predicts future behavior.
- There is a need to adapt/develop/test theories and models of behavior change that take into account the complexity and specificity of developing contexts.
- Qualitative research efforts should focus on collecting personal accounts of teachers (and other members of the community) and on transforming these into materials/messages that can be used as part of training exercises and communication campaigns.
- This study found that an astonishing number of myths are associated with condoms and condom use. Given that condoms provide the only secure protection against the disease, it is of paramount importance that research be conducted to flesh out these myths and that HIV/AIDS awareness and training campaigns take up the challenge of addressing and dispelling them.
- This study is cross-sectional in nature. As programs and initiatives to support teachers come off the ground, future studies should attempt to study teachers' approach and commitment to communicating about HIV/AIDS over time, so that corrective actions can be taken when and as they arise.

There are also a number of potential implications for policy and practice that merit consideration. The predominant view amongst decision makers and educational planners who were contacted prior to this study was that teachers in general were not interested in talking about HIV/AIDS and that individual differences between teachers were not likely to be of great importance. This study finds strong support for the fact that these differences are, and can be, determining factors of teachers' behavior with respect to communicating about HIV/AIDS. In light of this, the following suggestions are made:

- More and better teacher training and support: The predominant approach in Mozambique and other countries has been to train as many teachers as possible. This study suggests that certain teachers may be better predisposed to the task of talking about HIV/AIDS than others and that an effective strategy would need to include investing time and resources upfront in identifying these teachers.
- Flexible and adaptable training materials: The predominant approach in training teachers has been a standard package. The results of this study suggest that training courses, materials

and support for teachers need to be developed in a flexible and modular form to take into account the individual differences between teachers. In addition, learning resources for teachers and students should be generated on the basis of local experience and local examples. This will make it possible to start breaking the silence around the disease and to convince teachers, students and the community at large that HIV/AIDS is a problem that affects "us" and not them.

- Targeted information for students at all levels of the education system: Concerted efforts need to be made to ensure that age-appropriate HIV/AIDS content is developed for lower primary education. Currently very few teachers talk about HIV/AIDS in lower primary grades, and when they do so this happens in veiled terms. Teachers need to have materials and adequate training that will allow them to address this topic in a creative and positive manner. The same needs to happen for secondary education.
- Greater involvement of teachers: This study demonstrates that teachers have much to contribute to the HIV/AIDS debate. This study is one way of making their voices heard, but other ways need to be found in order to break the culture of silence that surrounds the disease. Possible ways of doing so include organizing support groups, telling teachers' stories on community and national radio programs, generating local newsletters in which teachers can (anonymously) talk of their experience. At the same time, teachers indicated that they have a great need for more information, and for more complex information. Cost effective local resources need to be identified and put in place that will make it possible, on the one hand, for teachers' experience to become part of the HIV/AIDS campaign and, on the other hand, to allow teachers to have access to resources and information that they need.
- Rethinking of HIV/AIDS awareness campaigns: According to teachers in Mozambique, the dominant message of HIV/AIDS campaigns is one of pessimism and fatalism. Messages need to be developed that address the complexity of the situation that teachers (and other members of the community) face but also that provide practical suggestions/ solutions for the very real situations that teachers find themselves in.
- Support for teachers: This study leaves not doubt that HIV/AIDS is having a heavy impact on teachers. If teachers are to play an important role in helping to fight the disease it is also paramount that resources be made available to support teachers who are affected and possibly traumatized by their experiences. In this context it is of key importance that the Ministry of Education takes a more proactive role in reaching out to teachers and in generating an environment which guarantees that HIV positive teachers can find support and understanding for their situation.
- Optimal use of teachers' personal experience: Teachers' personal experience and the way in which some teachers analyze these experiences and integrate them into their teaching suggest that there is potential for teachers to be involved in amateur HIV/AIDS research.

Limitations of the Study

There are several limitations of this study that merit attention:

- The study considered only frequency of behavior and not the actual content that teachers were addressing. It is possible, however, that differences in the content discussed by teachers with their students in the different settings (future behavior, past school behavior and past community behavior) are also a function of individual difference variables. In this study, frequency is presented as a desirable outcome, but it should be noted that frequency of communicating about HIV/AIDS is not in itself a guarantee of quality of the content and interaction.
- While the study considered both past school and community behavior as predicted variables and used various items to create a composite for these two measures, only one item was used to generate an overall measure of future intentions. Apart from the obvious problems of reliability, this also had the disadvantage of making it impossible to draw comparisons in terms of future school and community behavior, as had been done for the past behavior.
- The study relied entirely on self-report by teachers and it was not possible to check the veracity of their declarations against other measures of their behavior in schools. Reliance on self-report can be problematic and may threaten the validity of the findings. It is possible that participants were biased in their replies, and that they may have felt uncomfortable in replying honestly to certain questions.
- The study was conducted in southern Mozambique only, where teachers tend to be better trained than teachers in the central and northern parts of the country. In addition, Gaza province is exceptional because it has a very substantial number of female teachers (almost half of the teaching force) whereas nationwide the women occupy only one quarter of the teaching positions. Because of these particularities of the province, care must be taken in generalizing the findings of this study beyond the teachers in the five districts of Gaza province that were covered by this study.

APPENDIX A – LIST OF PERSONS CONSULTED

District Director Education for District of Chókwe, Gaza Province

District Director Education for District of Macie, Gaza Province

District Director Education for District of Mandlakazi, Gaza Province

District Director Education for District of Xai-Xai, Gaza Province

District Director Education for Xai-Xai City, Gaza Province

Director of the Provincial Tuberculosis Hospital in Chokwe

Director of the Provincial HIV/AIDS Commission in Gaza

Director of the Provincial Teacher Training College in Inhamissa, Gaza Province

Director of the Provincial Teacher Training College in Chibututuine, Maputo Province

Executive Director of the National HIV/AIDS Commission in Mozambique Head of the Education Sector at UNICEF, Mozambique

Head of the Education Sector at the Netherlands Embassy, Mozambique

Head of the Education Sector at the Danish Embassy, Mozambique

Head of the National AIDS Program, Ministry of Health

National Director for Primary Education, Ministry of Education

National Director for Human Resource Development, Ministry of Education

National Director for Planning, Ministry of Education

National Director for the Institute for Educational Research and Development

APPENDIX B – TOPIC GUIDELINE FOR QUESTIONING DURING FOCUS GROUPS

Issues to be covered in focus groups with teachers

- How “real” is the presence of HIV/AIDS in schools?
- How “real” is the presence of HIV/AIDS in communities?
- How are students being affected?
- How are teachers being affected?
- Do teachers personally know anybody who is HIV positive or has AIDS?
- How frequently do they talk about HIV/AIDS?
- What kind of topics do they cover?
- What kind of examples do they use?
- How do parents react to talking about HIV/AIDS?
- How do parents’ reactions affect their own perceptions?
- Are teachers per definition good spokespersons on this issue?
- What are teachers’ beliefs about the origin of AIDS, about condoms and about how to cure the disease?
- What cultural/traditional beliefs exist at community level about HIV/AIDS?
- What do they believe the community/school will be like five years from now?
- Do they themselves feel afraid they may become affected? Why?
- Would they take an AIDS test?
- What is the most difficult thing in having to talk about AIDS?
- If they themselves were HIV positive would they disclose their status?
- How are people who have AIDS treated within the community?
- What contribution can HIV positive people still make to society?
- What do they think about the current mass media messages about HIV?

APPENDIX C – ATTITUDE SOLICITATION SURVEYS FOR TEACHERS

(Translated from Portuguese)

Study on the attitudes of teachers about condoms and HIV/AIDS

Thank you for participating in this study! This study aims at gaining a better understanding of the manner in which teachers address the issue of HIV/AIDS with their students. The study is being conducted by Muriel Visser, doctoral candidate at Florida State University in the United States.

Your participation in this study is entirely voluntary and you may withdraw from participation at any time without any penalty. Please read the questions that follow carefully. Please reply to all the questions. It should take you about half an hour to complete the questionnaire

Thank you in advance for your collaboration in this study. Your involvement will contribute to improving the intervention of teachers in Mozambique in the area of HIV/AIDS!

PART 1

Please list below all the reasons that you can think of why it may be good to talk about condoms in school:

1.

2.

3.

4.

5.

6.

7.

Please list below all the reasons that you can think of why it may not be good or convenient to talk about condoms in school:

1.

2.

3.

4.

5.

6.

7.

PART 2

Thank you for your answers to the first part of this questionnaire. For the questions that follow please mark with an "X" the reply of your choice:

1. In my opinion talking about condoms with students is:

☐ very bad ☐ bad ☐ neither good nor bad ☐ good ☐ very good

2. I think that most parents believe that talking about condoms in school with students is:

☐ very bad ☐ bad ☐ neither good nor bad ☐ good ☐ very good

3. In your opinion, which of the people listed below are the most appropriate sources of talking about condoms with children and young people (you may chose as many options as you like)

☐	Friends of the same age	☐	Other close family
☐	Older brother or sister	☐	Health worker
☐	Teachers	☐	Their parents
☐	Religious people	☐	People who are sick with HIV/AIDS
☐	Other person, please specify _____		

4. In your opinion what is the best age to talk about condoms with **boys**?

☐	before they reach 10 years	☐	13 to 14 years
☐	10 to 12 years	☐	15 years or older

5. In your opinion what is the best age to talk about condoms with **girls**?

☐	before they reach 10 years	☐	13 to 14 years
☐	10 to 12 years	☐	15 years or older

PART 3

Thank you for your response to the second part of the questionnaire. Before we end we ask you please to provide some information about yourself. These questions are completely anonymous and will not be used to identify you in any way.

6. In what year were you born?

_____

7. What is your sex?

☐ Male ☐ Female

8. What was the last training course that you completed?

☐	None	☐	6ª + 1
☐	IAP	☐	7ª + 3

9. Have you already taught?

☐ Yes ☐ No

If you replied "No" to question 9 you may skip to question 13, otherwise please continue with question 10.

10. If you have already taught, what level do you teach?

☐	1ª - 5ª	☐	8ª - 10ª
☐	6ª - 7ª	☐	other, please specify _____

11. If you have taught at upper primary or secondary level please indicate your subject (area)

_____

12. The area where my school is located is:

☐ urban ☐ semi-urban ☐ rural

13. In what district did you live or teach before you started following you current teacher training course?

District of _____

14. Do you know one or more people who have died of AIDS?

☐ Yes ☐ No

15. Do you have family living with you who is sick with HIV?

☐ Yes ☐ No

16. Do you have direct family (parents, uncles/aunts, children, grandchildren) who have already died of HIV/AIDS?

☐ Yes ☐ No

17. Do you have any friends of whom you know that they are HIV positive or have AIDS?

☐ Yes ☐ No

18. Do you have any close friends who have died of AIDS?

☐ Yes ☐ No

19. Do you know any teacher who is HIV positive?

☐ Yes ☐ No

20. Do you know any teacher who has died of AIDS?

☐ Yes ☐ No

21. Have you ever had an AIDS test?

☐ Yes ☐ No

22. How likely do you think it is that you yourself will become contaminated with HIV/AIDS?

☐ very likely ☐ likely ☐ not very likely ☐ impossible

Before handing in your questionnaire please make sure that you have replied to all the questions. Thank you very much for your collaboration!

APPENDIX D – ATTITUDE SOLICITATION SURVEY FOR HIV/AIDS SPECIALISTS

(Translated from Portuguese)

Questionnaire for HIV/AIDS Specialists

Thank you for your participation in this study! This study aims at gaining insight into the way in which teachers address the issue of HIV/AIDS and is being conducted by Muriel Visser, doctoral candidate at Florida State University, in the United States. Your participation in this study is entirely voluntary and all your answers will be kept confidential. Please do not put your name on this questionnaire. Please make sure you read each question carefully. Once again, thank you for your collaboration!

Additional explanation about the questions

For the first four questions we ask that your list include all the reasons that you have found teachers/ parents and the community in general (including, for example, representatives of various religious, political and other organizations) may have, including your own personal opinion. Don't be concerned if there is some repetition between questions 1 and 3 and 2 and 4, respectively. What we are aiming for in this phase is to identify as many reasons and factors as possible. If you need more space for your replies, you may attach additional pages to the questionnaire.

Questions 5 through 8 aim at obtaining a more detailed understanding of social norms, stigmatization and myths that influence the manner in which teachers approach HIV/AIDS.

Thank you in advance for you collaboration!

1. Please list below all the reasons why one may think it is good to teach/talk about condoms in school:

a)

b)

c)

d)

e)

f)

g)

2. Please list below all the reasons why one may think it is not good or convenient to teach/talk about condoms in school:

a)

b)

c)

d)

e)

f)

g)

3. Please list below all the reasons why one may think it is good to teach/talk about sexuality and relationships in school:

a)

b)

c)

d)

e)

f)

g)

4. Please list below all the reasons why one may think it is <u>not good or convenient</u> to teach/talk about sexuality and relationships in school:

a)

b)

c)

d)

e)

f)

5. Studies in other countries have shown that teachers do not always manage to talk about delicate issues such as sexuality and the use of condoms, even when it is part of the curriculum. In your opinion, what (individual, social, contextual and other) factors may influence the decision of teachers as to whether they will talk about this topic or not?

6. In your experience, which people will most influence whether teachers decide to talk about issues such as sexuality and the use of condoms with their students?

7. What myths and superstitions have you found that teachers hold about HIV/AIDS?

8. One of the issues that we are attempting to identify in this study is the intention that teachers have of talking about HIV/AIDS. In your opinion, what would be the best way to obtain this information and to measure teachers' intentions?

Once again my sincere thanks for your support! If you would like to make any additional observations about this study or the questionnaire than please do so in the space below.

APPENDIX E – SURVEY OF TEACHERS PERCEPTIONS AND EXPERIENCE WITH HIV/AIDS

(Translated from Portuguese)

Study of teachers perceptions about HIV/AIDS

Thank you for participating in this study! This study aims at gaining a better understanding of the manner in which teachers address the issue of HIV/AIDS with their students. The study is being conducted by Muriel Visser, doctoral candidate at Florida State University in the United States.

Your participation in this study is entirely voluntary and you may withdraw from participation at any time without any penalty. Please read the questions that follow carefully. Please reply to all the questions. It should take you about half an hour to complete the questionnaire

Thank you in advance for your collaboration in this study. Your involvement will contribute to improving the intervention of teachers in Mozambique in the area of HIV/AIDS!

----------//----------

PART 1:

Please reply to the questions that follow. There are not correct or incorrect responses to these questions. The objective of these questions is simply to obtain your opinion about these issues.

1. Please describe at least **2 beliefs/traditions** about HIV/AIDS that you have found are held by people in local communities.

_____

_____

_____

_____

_____

_____

_____

2. Why do you think that some teachers may not want to talk about HIV/AIDS?

_____

_____

_____

_____

_____

3. Please make a list of the **main themes** that, in your opinion, a teacher should address when talking about HIV/AIDS with his/her students:

a)_____

b)_____

c)_____

d)_____

e)_____

f)_____

4. Now, please describe what specific **activities** this same teacher would have to develop in order to address the themes that you identified above.

a)_____

b)_____

c)_____

d)_____

e)_____

f)_____

5. Which of the activities that you indicated above would, in your opinion, be the **most difficult** to implement and why?

_____

_____

_____

_____

_____

_____

_____

6. What **constraints** do you think that you will face as a teacher when talking about HIV/AIDS with your students?

_____

_____

_____

_____

_____

_____

_____

7. In the past four weeks how often did you discuss the issue of HIV/AIDS with your students? *(If you did not have a chance to talk about HIV/AIDS then please write "no" in the space below).*

_____

8. If you have already addressed the issue of HIV/AIDS with your students then please chose from among the following options the moments in which you did this (you may chose more than one option)

☐ At the beginning of class as a separate theme before talking about the main topic of that class

☐ In the context of the topic to be covered in class

☐ During informal conversations with students in school

☐ In conversations with students outside of the school environment

☐ During community awareness activities

☐ Other occasions, please specify which in the following space

_____

_____

9. What factors can, in your opinion, most affect the **intention that teachers in general** may have to address the issue of HIV/AIDS with their students (you may chose more than one option).

☐ Lack of time

☐ Overburdened curriculum

☐ Lack of materials

☐ Fear of talking about sensitive issues such as sexuality

☐ Fear of offending teachers/guardians

☐ Fear of negatively influencing the behavior of children and adolescents

☐ Lack of support from the management of schools

☐ Not being convinced that HIV/AIDS is a serious problem

☐ Not agreeing that it is possible to address this topic adequately within the school environment

☐ Believing that this material should only be addressed in science classes

☐ Fear of having to change own personal behavior in order to give a good example

☐ Other reason, please specify _____

10. What factors will, in your opinion, most affect **your own intention** to address the issue of HIV/AIDS with your students (you may chose more than one option).

☐ Lack of time

☐ Overburdened curriculum

☐ Lack of materials

☐ Fear of talking about sensitive issues such as sexuality

☐ Fear of offending teachers/guardians

☐ Fear of negatively influencing the behavior of children and adolescents

☐ Lack of support from the management of schools

☐ Not being convinced that HIV/AIDS is a serious problem

☐ Not agreeing that it is possible to address this topic adequately within the school environment

☐ Believing that this material should only be addressed in science classes

☐ Fear of having to change own personal behavior in order to give a good example

☐ Other reason, please specify _____

11. Please list below the three topics related with HIV/AIDS that for you would be the easiest to address with your students

a)_____

b)_____

c)_____

12. Now, please list below the three HIV/AIDS related topics that would be the most difficult to address with your students

a)_____

b)_____

c)_____

13. Do you believe that if students receive information about condoms and sexuality this will awaken their curiosity and make them decide to experiment with these things?

☐ Yes ☐ No ☐ Not sure

14. If you were given all the support you needed would you be willing to be a spokesperson for HIV/AIDS in your school and community even if you did not receive any financial compensation in return?

☐ Yes ☐ No

15. Do you intend to talk about HIV/AIDS with your students?

☐ Yes ☐ No

16. If you replied “yes”, then please describe what knowledge/skills you hope your students would acquire as a result of your intervention.

_____
_____
_____
_____
_____
_____
_____

PART 2

Thank you for your replies so far. Before finishing we ask that you provide some personal information. Your answers to all these questions are completely anonymous and will not be used in to identify you in any way.

17. In what year were you born?

_____

18. What is your sex?

☐ Male ☐ Female

19. What was the last training course that you completed?

☐	None	☐	6ª + 1
☐	7ª + 3	☐	10 + 2
☐	IAP		

9. Have you already taught?

☐ Yes ☐ No

21. In which district did you live or teach before you started your current teacher training course?

District of_____

22. Do you know one or more people who have died of AIDS?

☐ Yes ☐ No

23. Do you have family living with you who is sick with HIV?

☐ Yes ☐ No

24. Do you have direct family (parents, uncles/aunts, children, grandchildren) who have already died of HIV/AIDS?

☐ Yes ☐ No

25. Do you have any friends of whom you know that they are HIV positive or have AIDS?

☐ Yes ☐ No

26. Do you have any close friends who have died of AIDS?

☐ Yes ☐ No

27. Do you know any teacher who is HIV positive?

☐ Yes ☐ No

28. Do you know any teacher who has died of AIDS?

☐ Yes ☐ No

29. How likely do you think it is that you yourself will become contaminated with HIV/AIDS?

☐ very likely ☐ likely ☐ not very likely ☐ impossible

30. How often do you use condoms when you have sex (please select ***only one option****)*

☐ Always

☐ Very often but not always

☐ Sometimes, depending on the situation

☐ Never

☐ I don't need to use protection because I trust my partner

☐ I am abstaining from having sex

31. Have you ever had an AIDS test?

☐ Yes ☐ No

Before handing in your questionnaire please make sure that you replied to all the questions. And thank you very much for you participation in this study!

APPENDIX F – SURVEY OF PRIMARY AND SECONDARY SCHOOL STUDENTS PERCEPTIONS AND EXPERIENCE

(Translated from Portuguese)

Questionnaire for students at primary and secondary schools about HIV/AIDS

1. Over the past 4 weeks **how often** has one of your teachers talked about HIV/AIDS during class?

☐ Never ☐ Once ☐ Twice ☐ Three times

☐ Four times ☐ More than four times

2. If you replied that your teachers did talk to you about HIV/AIDS in the past four weeks, then please indicate when they did so **(you may chose more than one option)**

☐ They never talked about HIV/AIDS

☐ At the beginning of class as a separate theme and before talking about the main topic of the class

☐ In the context of the material that was covered in class

☐ During informal conversations with students in school

☐ During conversations with students outside of the school environment

☐ During community awareness activities (such as plays and lectures)

☐ On other occasions, please specify which in the space below

_____

_____

3. Make a list of the subjects during which teachers talked about HIV/AIDS in the last four weeks (if they never talked about HIV/AIDS then just write “never”)

_____

_____

_____

_____

4. What is, in your opinion, the **biggest contribution** that a teacher can make in the fight against HIV/AIDS?

_____
_____
_____
_____
_____
_____

5. In your opinion, what are reasons that teachers may have for **not** wanting to talk about HIV/AIDS?

_____
_____
_____
_____
_____
_____
_____

6. What is your sex?

☐ Male ☐ Female

7. How old are you?

_____

8. In what class are you?

_____

9. Do you know one or more people who have died of AIDS?

☐ Yes ☐ No

10. Do you have family with you who have died of HIV/AIDS?

☐ Yes ☐ No

11. Do you have direct family (parents, uncles, grandparents, cousins, etc.) who have died of HIV/AIDS?

☐ Yes ☐ No

12. Do you have any friend who is HIV positive or who has AIDS?

☐ Yes ☐ No

13. Do you think it is likely that you yourself may in the future become infected with HIV/AIDS?

☐ very likely ☐ likely ☐ not very likely ☐ impossible

Before you hand in your questionnaire please make sure you replied to all questions. And thank you very much for your collaboration!

APPENDIX G - FINAL QUESTIONNAIRE FOR TEACHERS

(Translated from Portuguese)

Date of completion _____

Name of your school _____

District where you school is located _____

PART 1 – Before replying to the questions that follow please reflect for a few moments about your planning for the current semester and then reply to the questions below.

1. Please make a list of the **main themes related to HIV/AIDS** that you plan to address with your students during this semester.

(if you did not plan to include any issues related to HIV/AIDS than please write the word "none" below):

_____

_____

_____

_____

_____

_____

_____

2. Now please describe the specific **activities** that you plan to implement in order to address these themes? **(if you did not plan any concrete activities then please just write the word "none" below):**

_____

_____

_____

_____

_____

_____

_____

_____

3. Which of the themes or activities that you listed in the previous questions do you anticipate will be the **most difficult** to implement and why?

4. What specific examples did you plan to use in talking about HIV/AIDS?

(if you did not plan to use examples then please write "none" in the space below)

5. Do you have any personal experience with HIV/AIDS that you believe will influence the way in which you will talk about this topic?

6. During the coming four weeks how often do you intend to talk about HIV/AIDS with your students?

(if you did not plan to talk about HIV/AIDS then please just write "no" in the space below).

_____

7. Which factors do you believe will most influence the **intention of teachers in general** to talk about HIV/AIDS with their students?

(You may choose more than one option)

☐ Fear of talking about sensitive issues such as sexuality and the use of condoms

☐ Fear of offending parents/guardians/members of the community

☐ Fear of negatively influencing the behavior of children and adolescents

☐ Lack of support from colleagues and the management of the school

☐ Not being convinced that HIV/AIDS is a serious problem

☐ Not agreeing that it is possible to adequately address this material in the school environment

☐ Believing that this material can better be addressed in other subjects or by other teachers

☐ Fear of having to change their own personal behavior in order to set a good example

☐ Overburdened curriculum/lack of time

☐ Lack of materials/training

☐ Other reason, please specify _____

8. Which factors do you believe will most influence **your own intention** to talk about HIV/AIDS with your students?

(You may choose more than one option)

☐ Fear of talking about sensitive issues such as sexuality and the use of condoms

☐ Fear of offending parents/guardians/members of the community

☐ Fear of negatively influencing the behavior of children and adolescents

☐ Lack of support from colleagues and the management of the school

☐ Not being convinced that HIV/AIDS is a serious problem

☐ Not agreeing that it is possible to adequately address this material in the school environment

☐ Believing that this material can better be addressed in other subjects or by other teachers

☐ Fear of having to change their own personal behavior in order to set a good example

☐ Overburdened curriculum/lack of time

☐ Lack of materials/training

☐ Other reason, please specify _____

9. In the table below please place an "X" to indicate on what occasions and how many times you have talked about HIV/AIDS with your students **during the past 4 weeks**.

	Never	1 time	2 times	3 times	4 times	5 or more times
At the beginning of class as a separate theme						
In the context of the topic addressed during class						
During informal conversations with students in school						
In conversations with students outside the school environment						
During community awareness activities (such as lectures, plays, etc.)						

10. In your opinion, does teaching children about sexuality and condoms in school contribute substantially to increasing their **level of knowledge** about HIV/AIDS?

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

11. In your opinion, does teaching children about sexuality and condoms ensure that they will demonstrate **more responsible sexual behavior**?

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

12. In your opinion, does teaching children about sexuality and condoms make children **start practicing sex at an earlier age**?

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

13. In your opinion, does teaching children about sexuality and condoms make them **very nervous and scared**?

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

14. In your opinion, can teaching children about sexuality and condoms cause **problems with the parents and the community**?

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

15. In your opinion does teaching children about sexuality and condoms make them become **more responsible members of the society/community in which they live**?

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

PART 2 – Thank you for your replies so far. For the following part of the questionnaire please indicate to what extent each statement reflects your opinion.

	Strongly agree	Agree	Don't know	Disagree	Stronly disagree
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it prevents sexually transmitted diseases	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it prevents unwanted pregnancy	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because sometimes condoms are contaminated with microbes	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because sometimes condoms may break and promote disease	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because the community may say that talking about condoms with children is teaching them to be naughty	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because the elders in the community will say that it takes away the reproductive force from the community	☐	☐	☐	☐	☐

	Strongly agree	Agree	Don't know	Disagree	Stronly disagree
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because children will not have to hide what they know	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because children will not need to be ashamed of talking about HIV/AIDS	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because sometimes condoms get lost inside the woman's vagina	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because condoms cause HIV/AIDS to spread even more	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because the use of a condom may hurt the woman	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because parents will think that it is teaching children to be prostitutes	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it contributes to reducing the spread of AIDS in the country	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it allows us to defend our society	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because those who believe in God as well as religious leaders say that it is against religion and that it takes away people's desire to be faithful	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because many people in the community may say that we are using valuable lesson time to teach irrelevant material	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because children who hear that this disease exist may want to contemplate suicide	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because parents may say the Government is teaching something bad	☐	☐	☐	☐	☐

	Strongly agree	Agree	Don't know	Disagree	Stronly disagree
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it promotes critical thinking by young people	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because girls will be able to continue studying	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it makes children curious about having many relationships	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it creates incentives for children/young people to protect themselves against STDs and AIDS	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it avoids disgrace and shame for families	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because children will not have to hide what they know	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because children as future professionals and leaders will know how to behave	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because students will feel more at ease doing an AIDS test	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it increases the lack of discipline in schools	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because condoms teach girls to practice prostitution without limits	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it calls attention to the dangers that may be associated with sexuality and relationships	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it promotes lack of respect within families	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it motivates kids to practice irresponsible sex	☐	☐	☐	☐	☐

	Strongly agree	Agree	Don't know	Disagree	Stronly disagree
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it is against African reality and its traditions	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because they say that some condoms contain disease which in this manner may spread more	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it makes students feel a lot of fear	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it promotes abstinence from sexual activity as well as fidelity	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it avoids the spread of polygamy	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school in order to comply with guidelines by the Ministry of Education	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because people will stay that we teachers are provoking a lot of disgrace	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it reduces the reproductive force of families in the country-side	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it teaches lack of respect for older people	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it promotes the moral and civic education of young people	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it teaches children to exercise restraint	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school in order to reduce prostitution among young people	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it reduces promiscuity and sexual abuse	☐	☐	☐	☐	☐

	Strongly agree	Agree	Don't know	Disagree	Stronly disagree
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because there are people who will want to spread the disease on purpose when they know they have been contaminated	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it may result in panic when students go home and say that condoms should be used	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because condoms promote a lot of "tourism"(promiscuity) in boarding facilities	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it stops the spread of HIV/AIDS	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it makes people in the community very nervous	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it creates immorality in society and in public places	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because since people started talking about and promoting condoms the disease has only spread more	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because young people can have relationships without worrying	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it reduces the birth rate in the country	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it reduces the workforce	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it results in lower economic growth	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because it provokes fear among the school community	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it makes our economy grow	☐	☐	☐	☐	☐

	Strongly agree	Agree	Don't know	Disagree	Stronly disagree
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because some children use it as a balloon and play with it in the classroom	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it creates conditions for a social conscience	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it avoids their being a lot of orphans	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because students will understand the impact that this disease may have	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because it ensure children and teachers are up to date	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because students can educate other in the society where they live about the need to exercise precautions	☐	☐	☐	☐	☐
In my opinion **it is good** to promote the use of condoms/talk about sexuality in school because knowing about HIV/AIDS is part of improving education	☐	☐	☐	☐	☐
In my opinion **it is not always good** to promote the use of condoms/talk about sexuality in school because children will become too smart	☐	☐	☐	☐	☐

Before finishing this first part please take a few minutes to make sure that you have not skipped or forgotten any of the questions. Thank you for your collaboration!

2

PART 1 – For each statement below please indicate whether, in your opinion, the statement is true, false, or whether you are not sure of the reply.

1. Condoms may sometimes be contaminated with HIV/AIDS

☐ True ☐ False ☐ Not sure

2. Condoms may sometimes be contaminated with other diseases

☐ True ☐ False ☐ Not sure

3. There is a vaccine in Europe which can protect people against HIV/AIDS

☐ True ☐ False ☐ Not sure

4. HIV/SIDA was produced in American laboratories and sent to Africa

☐ True ☐ False ☐ Not sure

5. Sometimes it is possible to catch HIV/AIDS through coughing or sneezing by someone who is infected with the virus

☐ True ☐ False ☐ Not sure

6. It is possible to identify whether someone is infected with the HIV virus just by looking at them

☐ True ☐ False ☐ Not sure

PART 2 – Now indicate up to what point you believe that the HIV virus can be transmitted through the following channels

7. HIV can be transmitted by working with someone who is infected with HIV/AIDS on a daily basis

☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

8. In some cases it is possible to catch HIV/AIDS by using a restroom that has been contaminated

☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

9. HIV can be transmitted by eating food that has been prepared by someone who is infected with the disease

☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

10. HIV can be transmitted sharing cups, plates or cutlery with someone who is infected ☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

11. HIV can be transmitted by living with someone who is infected on a with the disease (without engaging in sexual relations)

☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

12. HIV can be transmitted sharing needles or other sharp objects with someone who is infected with the disease

☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

13. HIV can be transmitted having sex with someone who is HIV positive without using a condom

☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

14. HIV can be transmitted by having anal sex with someone who is infected without using a condom

☐ very likely ☐ likely ☐ unlikely ☐ very unlikely ☐ not sure

PART 3 – Thank you for your responses so far. For each of the following statements please indicate to what extent you think the statements reflect your opinion and personal experience.

15. I believe that most parents and guardians would agree if I talked in detail about issues of sexuality and about the use of condoms with my students

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

16. I believe that most religious leaders would agree if I talked in detail about issues of sexuality and about the use of condoms with my students

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

17. I believe most traditional leaders and elders would agree if I talked in detail about issues of sexuality and about the use of condoms with my students

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

18. I believe that most of my colleagues would agree if I talked in detail about issues of sexuality and about the use of condoms with my students

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

19. I would feel more at ease talking about HIV/AIDS with my students if I did not have to demonstrate how to use condoms

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

20. I would feel more at ease in talking about HIV/AIDS with my students if I did not have to talk in detail about issues related to sexuality and sex

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

21. I believe it is easier to talk about HIV/AIDS in other subjects

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

22. In my opinion my subject does not leave much room for me to talk about HIV/AIDS

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

23. In order to feel completely capable of talking about HIV/AIDS with my students I would need to have more access to information and material

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

24. In order to feel completely capable of talking about HIV/AIDS with my students I would need to have better training in this area

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

25. In order to be able to adequately address the issue of HIV/AIDS with my students I would need to have more support from the Management of my school

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

26. In order to be able to adequately address the issue of HIV/AIDS with my students I would need to have more support from other teachers in my school

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

27. In order to be able to talk frankly and openly about HIV/AIDS I would need to change some aspects of my own personal behavior

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

28. In order to be able to talk frankly and openly about HIV/AIDS I believe that some teachers in my school would need to change their personal behavior

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

29. Even with all conditions created, I would still not feel completely at ease talking about sensitive issues such as the use of condoms and sexuality with my students

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

30. In order to be able to do my work it is very important that <u>parents/guardians</u> agree that I talk about issues such as condoms/sexuality with my students

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

31. In order to be able to do my work it is very important that the community in general agree that I talk about issues such as condoms/sexuality with my students

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

32. When talking about issues of sexuality and the use of condoms with my students I would like to be sure that parents/guardians agree with this

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

33. When talking about issues of sexuality and the use of condoms with my students I would like to be sure that religious leaders agree with this

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

34. When talking about issues of sexuality and the use of condoms with my students I would like to be sure that traditional leaders and elders agree with this

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

35. When talking about issues of sexuality and the use of condoms with my students I would like to be sure that my colleagues agree with this

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

36. I feel afraid when I think that one of my students may be infected with HIV/AIDS

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

37. Activities that facilitate the spread of HIV/AIDS, such as some sexual activities, should be forbidden

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

38. People who are infected with HIV/AIDS are responsible for having caught the disease

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

39. AIDS is a punishment with the is the result of the immoral behavior of some people

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

PART 4 – You have completed a major part of the questionnaire now. The questions that follow refer to your opinion about the impact of issues related to HIV/AIDS on young people.

40. Do you believe that it is likely that students who receive information about condoms and sexuality will become more curious and decide to practice these acts?

☐ very likely ☐ likely ☐ unlikely ☐ impossible ☐ not sure

41. In your opinion, talking about sexuality and relationships with students is:

☐ very bad ☐ bad ☐ neither good nor bad ☐ good ☐ very good

42. In your opinion, talking about condoms with students is:

☐ very bad ☐ bad ☐ neither good nor bad ☐ good ☐ very good

43. In your opinion the majority of parents/guardians believe that talking about sexuality and love relationships with students is:

☐ very bad ☐ bad ☐ neither good nor bad ☐ good ☐ very good

44. In your opinion the majority of members of the community believe that talking about sexuality and love relationships with students is:

☐ very bad ☐ bad ☐ neither good nor bad ☐ good ☐ very good

45. In your opinion, which of the people listed below are the most important sources of information for young people about issues of sexuality and the use of condoms *(you may chose more than one option)*

☐ Friends of the same age ☐ Other close family

☐ Older brothers and/or sisters ☐ Health workers

☐ Teachers ☐ Their parents

☐ Religious people ☐ People living with HIV/AIDS

☐ Other people, indicate who please _____

46. In your opinion, from what age should **boys** be taught about sexuality and the use of condoms?

☐ under 10 years of age ☐ between 10 and 11 ☐ 12 to 13 ☐ 14 and above

47. In your opinion, from what age should **girls** be taught about sexuality and the use of condoms?

☐ under 10 years of age ☐ between 10 and 11 ☐ 12 to 13 ☐ 14 and above

PART 5 – Before finishing please provide some personal information about yourself. This information is very important. Please make sure you reply all the questions without skipping any. Just as with the rest of the questionnaire, your answers to these questions will be completely confidential.

48. Date of birth

_____/_____/19_____

49. Academic qualifications

_____ grade

50. Sex

☐ Male ☐ Female

51. For how many years have you taught?

_____

52. Professional qualifications

No course	☐	6ª + 1	☐	6ª or 7ª + 3
IAP	☐	10ª + 2	☐	other_____

53. In the past 2 years have you participated in any HIV/AIDS course?

☐ Yes, during _____ days ☐ No

54. Level at which you teach

☐ I don't teach ☐ ESG1, subject _____

☐ EP1 ☐ ESG2, subject _____

☐ EP2 ☐ other level, please specify _____

55. In what area do you currently live?

☐ urban area ☐ semi-urban urban ☐ rural area

56. Do you personally know one or more people who have HIV or who have died of AIDS? ☐ Yes ☐ No

57. Do you have family living with you whom you know are sick with HIV?

☐ Yes ☐ No

58. Do you have direct family (parents, uncles, children, grandchildren) who have already died of HIV/AIDS?

☐ Yes ☐ No

59. Do you have a friend whom you think may be HIV positive or who may have died of AIDS?

☐ Yes ☐ No

60. Do you know any teacher who you believe may be HIV positive or who died of AIDS?

☐ Yes ☐ No

61. How likely do you think it is that you will become contaminated with HIV/AIDS?

☐ very likely ☐ likely ☐ unlikely ☐ impossible

62. How often have you used a condom when you practice sex? *(please chose **only one option**)*

☐ Always

☐ Many times but not always

☐ Sometimes, depending on the situation

☐ Never

☐ I don't need to take precautions because I trust my partner

☐ I am abstaining from having sex

63. Do you have a regular sexual partner?

☐ Yes ☐ No

64. How many sexual partners have you had in the past 2 years?

☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ more than 4

65. Have you ever done an HIV/AIDS test?

☐ Yes ☐ No

66. Personally I believe I could do more to reduce my possibilities of becoming contaminated with HIV?

☐ strongly agree ☐ agree ☐ not sure ☐ disagree ☐ strongly disagree

Before you hand in this questionnaire we ask that you take a few minutes to verify whether you did not skip or forget any of the questions. And thank you very much for you colaboration!

APPENDIX H – FINAL QUESTIONNAIRE FOR STUDENTS

(Translated from Portuguese)

Questionnaire for students in upper primary and secondary school

Date completed _____

Name of your school _____

1. In the course of the past 4 weeks how often have your teachers talked about HIV/AIDS?

(Please place an "X" in the appropriate box)

☐ Never ☐ 1 time ☐ 2 times ☐ 3 times

☐ 4 times ☐ more than 4 times

2. In what moments did your teachers talk about HIV/AIDS with you?

(You may choose more than one option, marking an "X" in the relevant box(es))

☐ They never talk about HIV/AIDS

☐ At the beginning of class as a separate team

☐ In the context of the material that is covered in class

☐ In informal conversations in school

☐ In conversations outside of the school environment

☐ During awareness activities (such as lectures and plays in the community)

3. In what subjects have your teachers talked about HIV/AIDS

(If they never talked then please just write "never")

_____

_____

4. Where have you learnt most about HIV/AIDS?

(You may choose more than one option by marking an "X" in the relevant boxes)

- ☐ Radio
- ☐ Posters
- ☐ Television
- ☐ Friends
- ☐ Grandparents
- ☐ Brothers/sisters
- ☐ Father
- ☐ Mother
- ☐ Uncles
- ☐ Other family
- ☐ Theatre
- ☐ Teachers
- ☐ Meetings in your community
- ☐ Traditional healer
- ☐ Hospital or health post
- ☐ Religious leaders
- ☐ Books
- ☐ Newspapers

5. In the list below please chose what your teachers did this year

(You may choose more than one option by marking an "X" in the relevant boxes)

- ☐ Talked about abstinence
- ☐ Talked about fidelity
- ☐ Talked about how to prevent HIV/AIDS
- ☐ Talked about how HIV/AIDS is transmitted
- ☐ Talked about the importance of using condoms
- ☐ Talked about the origin of HIV/AIDS
- ☐ Talked about symptoms of HIV/AIDS
- ☐ Showed how to use condoms
- ☐ Talked about discrimination of people of people with HIV/AIDS
- ☐ Explained how to live with people who have HIV/AIDS
- ☐ Explained how to live positively with HIV/AIDS
- ☐ Explained about sexuality and the masculine/feminine reproductive organs
- ☐ Talked about myths surrounding HIV/AIDS
- ☐ Talked about cultural practices that promote HIV/AIDS

☐ Gave examples about how the disease is spread

☐ Gave practical exercises to do

6. What were the most important things that your teachers taught you about HIV/AIDS?

(If there was nothing important than just write "nothing" in the space below)

_____

_____

_____

_____

_____

_____

_____

_____

7. Why do you think that some teachers **do not** want to talk about HIV/AIDS?

_____

_____

_____

_____

_____

_____

8. When you have questions about HIV/AIDS who do you talk to?

_____

9. In this space please place questions that you have about HIV/AIDS and to which you do not know the answer.

_____

_____

_____

_____

_____

_____

10. What is your sex?

☐ Male ☐ Female

11. How old are you?

_____

12. What grade are you?

_____

13. To you personally know one or more people who have died of AIDS?

☐ Yes ☐ No

14. Do you have family living with you who are sick with HIV/AIDS?

☐ Yes ☐ No

15. Do you have family that has died of HIV/AIDS?

☐ Yes ☐ No

16. Do you have any friend who is HIV positive or who may have AIDS?

☐ Yes ☐ No

17. How likely do you think it is that you will in the future become infected with HIV/AIDS?

☐ very likely ☐ likely ☐ unlikely ☐ impossible

Before you hand in your questionnaire please make sure that you have not skipped or forgotten any of the questions. Thank you so much for you collaboration!

APPENDIX I – INTERVIEW GUIDELINE FOR PERSONAL INTERVIEWS WITH TEACHERS

Thank you for participating in this interview.

- Is HIV/AIDS a reality for you in your school? If yes, in what ways?
- Is HIV/AIDS affecting your community?
- How frequently do you talk about HIV/AIDS with your students?
- What kind of topics do you cover?
- What is the most difficult thing in having to talk about AIDS?
- Are there topics that you find particularly easy to discuss? Is yes, which ones and why?
- Can you describe briefly what you discussed with your students the last time you talked about HIV/AIDS with them? What kind of examples did you use?
- How do parents react when they find out that you (or other teachers) are talking about HIV/AIDS? Have you ever had any parents come and complain?
- Do you think that teachers are, per definition, good spokespersons on this issue? Do you think that you are a good spokesperson about this issue?
- What cultural/traditional beliefs exist at community level about HIV/AIDS?
- What do you think your school and community will be like five years from now?
- Are you afraid that you may yourself be affected by HIV/AIDS some day? In what way?
- If you were able to take an HIV/AIDS test now would you take it?
- Do you think teachers who are HIV positive should disclose their status?
- How are people who have AIDS treated within the community?
- Do you think that an HIV positive person can still make a contribution to society?
- What do you think about the current mass media messages about HIV?

APPENDIX J – CATEGORIES AND SUB-CATEGORIES FOR CODING OF PERSONAL INTERVIEWS WITH TEACHERS

Personal approach to talking about HIV/AIDS

- I provide information
- I facilitate and interact with my students
- Places where I talk about HIV/AIDS
- Reasons why I talk about HIV/AIDS

Use of examples

- Examples from personal experience
- Example based on fiction
- Why I don't use examples/have difficulty using examples

Personal experience

- Direct personal experience
- Indirectly heard about someone
- Not an issue for me

Personal beliefs

- What I know about HIV/AIDS and how that affects what I talk about
- What I question (have doubts) about HIV/AIDS
- What reactions I have to other people with HIV/AIDS
- To what extent is it possible that this will affect me? How does that make me feel?

Personal behavior

- How consistent am I with what I believe about the disease (including use of condoms)?
- How consistent are others with what they believe about the disease (including other teachers)?
- Personal behavior as an issue of social justice
- What I think about having an HIV/AIDS test?

Reaction of others

- Fear
- Sadness
- Inertia
- Blame
- Don't want to know

Mass media campaigns

- Reach
- Type of message
- Impact on myself
- Impact on others

APPENDIX K – FULL MODEL RESULTS FOR THE 3 LEVEL ANALYSES

Table 19a: MLR Analysis: Full Model Results to Predict Teachers (3 level) to Talk About HIV/AIDS

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	895.825			
Final	796.176	99.649	38	***

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Intention (3 levels) to talk about HIV/AIDS in the Coming Month [b]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		1.005	.568	1.777
	Male	0		.	.	.
	Age 25 and under	1	***	5.428	2.680	10.994
	Age 26-35	1	***	2.992	1.616	5.540
	Age over 35	0		.	.	.
	High HIV/AIDS knowledge	1		.794	.387	1.628
	Intermediate HIV/AIDS knowledge	1		.951	.516	1.751
	Low knowledge level	0		.	.	.
	Knows 2 or more people sick/died of HIV/AIDS	1	***	4.894	2.528	9.477
	Knows 1 person sick/died of HIV/AIDS	1	**	2.310	1.243	4.295
	No personal experience with HIV/ADIS	0		.	.	.
	Always uses condom	1	*	1.831	1.021	3.284
	Sometimes/never uses condom	0		.	.	.
	Can do more to reduce personal risk	1		1.019	.570	1.822
	Do not need to do more to reduce risk	0		.	.	.
	Very supportive attitude	1	*	1.900	.960	3.762
	Moderately supportive attitude	1		1.631	.801	3.320
	Not supportive attitude	0		.	.	.
	Social norm not important	1		1.320	.648	2.689
	Social norm moderately important	1		.953	.497	1.826
	Social norm highly important	0		.	.	.
	High perceived behavioral control	1		1.680	.876	3.219
	Moderate perc. behavioral control	1	*	2.102	1.078	4.099
	Low perceived behavioral control	0		.	.	.
	Secondary level teacher	1		.656	.309	1.395
	Upper primary teacher	1		1.774	.830	3.793
	Lower primary teacher	0		.	.	.
	Values not important	1	*	1.791	.925	3.470
	Values moderately important	1		1.478	.786	2.781
	Values very important	0		.	.	.

Limited behavior	Intercept	1				
	Female	1		.934	.518	1.684
	Male	0		.	.	.
	Age 25 and under	1	**	2.591	1.264	5.310
	Age 26-35	1		1.657	.896	3.067
	Age over 35	0		.	.	.
	High HIV/AIDS knowledge	1		.723	.338	1.547
	Intermediate HIV/AIDS knowledge	1		1.175	.633	2.180
	Low knowledge level	0		.	.	.
	Knows 2 or more people sick/died of HIV/AIDS	1	**	2.292	1.126	4.666
	Knows 1 person sick/died of HIV/AIDS	1	***	3.130	1.696	5.778
	No personal experience with HIV/ADIS	0		.	.	.
	Always uses condom	1		1.638	.894	3.001
	Sometimes/never uses condom	0		.	.	.
	Can do more to reduce personal risk	1		.838	.469	1.498
	Do not need to do more to reduce risk	0		.	.	.
	Very supportive attitude	1		1.069	.540	2.116
	Moderately supportive attitude	1		.885	.429	1.827
	Not supportive attitude	0		.	.	.
	Social norm not important	1		.851	.412	1.762
	Social norm moderately important	1		.502	.257	.980
	Social norm highly important	0		.	.	.
	High perceived behavioral control	1	*	1.821	.948	3.499
	Moderate perc. behavioral control	1		1.215	.604	2.443
	Low perceived behavioral control	0		.	.	.
	Secondary level teacher	1		.943	.442	2.011
	Upper primary teacher	1		1.449	.648	3.241
	Lower primary teacher	0		.	.	.
	Values not important	1		1.248	.629	2.475
	Values moderately important	1		1.270	.670	2.408
	Values very important	0		.	.	.

b. The reference category is: No, do not intend to talk

Table 19b: MLR Analyses: Full Model Results to Predict Teachers (3 level) Talking About HIV/AIDS in Schools in he Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig. [a]
Intercept Only	878.719			
Final	810.273	68.446	38	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in School in the Past Month (3 levels) [a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
High consistent behavior	Intercept	1				
	Female	1		.961	.552	1.672
	Male	0		.	.	.
	Age 25 and under	1	**	2.536	1.327	4.848
	Age 26-35	1		1.122	.608	2.070
	Age over 35	0		.	.	.
	High HIV/AIDS knowledge	1	*	1.923	.919	4.027
	Intermediate HIV/AIDS knowledge	1	**	2.412	1.269	4.586
	Low knowledge level	0		.	.	.
	Knows 2 or more people sick/died of HIV/AIDS	1	*	1.797	.964	3.351
	Knows 1 person sick/died of HIV/AIDS	1		1.267	.697	2.306
	No personal experience with HIV/ADIS	0		.	.	.
	Always uses condom	1		1.327	.762	2.308
	Sometimes/never uses condom	0		.	.	.
	Can do more to reduce personal risk	1		1.369	.757	2.474
	Do not need to do more to reduce risk	0		.	.	.
	Very supportive attitude	1		.795	.409	1.543
	Moderately supportive attitude	1		1.260	.632	2.512
	Not supportive attitude	0		.	.	.
	Social norm not important	1		1.055	.524	2.122
	Social norm moderately important	1		1.406	.749	2.637
	Social norm highly important	0		.	.	.
	High perceived behavioral control	1		1.194	.630	2.265
	Moderate perc. behavioral control	1		1.140	.591	2.198
	Low perceived behavioral control	0		.	.	.
	Secondary level teacher	1		.858	.416	1.766
	Upper primary teacher	1	*	1.859	.935	3.694
	Lower primary teacher	0		.	.	.
	Values not important	1	*	2.135	1.090	4.183
	Values moderately important	1	*	2.023	1.053	3.888
	Values very important	0		.	.	.

Limited behavior	Intercept	1				
	Female	1		1.093	.644	1.855
	Male	0		.	.	.
	Age 25 and under	1	*	1.934	1.022	3.658
	Age 26-35	1		1.141	.642	2.030
	Age over 35	0		.	.	.
	High HIV/AIDS knowledge	1		.558	.277	1.124
	Intermediate HIV/AIDS knowledge	1		.884	.512	1.528
	Low knowledge level	0		.	.	.
	Knows 2 or more people sick/died of HIV/AIDS	1	*	1.717	.939	3.139
	Knows 1 person sick/died of HIV/AIDS	1		1.095	.613	1.955
	No personal experience with HIV/ADIS	0		.	.	.
	Always uses condom	1	*	1.633	.964	2.767
	Sometimes/never uses condom	0		.	.	.
	Can do more to reduce personal risk	1		1.278	.740	2.205
	Do not need to do more to reduce risk	0		.	.	.
	Very supportive attitude	1		1.053	.558	1.989
	Moderately supportive attitude	1		1.196	.611	2.342
	Not supportive attitude	0		.	.	.
	Social norm not important	1		1.258	.656	2.411
	Social norm moderately important	1		.902	.482	1.689
	Social norm highly important	0		.	.	.
	High perceived behavioral control	1		.901	.497	1.633
	Moderate perc. behavioral control	1		.826	.439	1.557
	Low perceived behavioral control	0		.	.	.
	Secondary level teacher	1	*	.402	.180	.896
	Upper primary teacher	1		1.128	.550	2.313
	Lower primary teacher	0		.	.	.
	Values not important	1		.610	.324	1.148
	Values moderately important	1		.842	.469	1.509
	Values very important	0		.	.	.

a. The reference category is: No, did not talk about HIV/AIDS

Table 19c: MLR Analyses: Full Model Results to Predict Teachers (3 level) Talking About HIV/AIDS in the Community in he Past Month

Model	-2 Log Likelihood	Chi-Square	df	Sig.[a]
Intercept Only	838.699			
Final	776.458	62.241	38	**

a. * p <= 0.05, ** p <= 0.01, *** p <= 0.001

Talked about HIV/AIDS in the Community in the Past Month (3 levels)[a]		df	Sig. 1-tail	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
HIgh consistent behavior	Intercept	1				
	Female	1	*	.524	.279	.983
	Male	0		.	.	.
	Age 25 and under	1	**	2.410	1.150	5.049
	Age 26-35	1	*	2.236	1.113	4.490
	Age over 35	0		.	.	.
	High HIV/AIDS knowledge	1		.779	.367	1.653
	Intermediate HIV/AIDS knowledge	1		.887	.460	1.709
	Low knowledge level	0		.	.	.
	Knows 2 or more people sick/died of HIV/AIDS	1	**	2.330	1.219	4.454
	Knows 1 person sick/died of HIV/AIDS	1		.767	.374	1.574
	No personal experience with HIV/ADIS	0		.	.	.
	Always uses condom	1	*	1.829	1.019	3.282
	Sometimes/never uses condom	0		.	.	.
	Can do more to reduce personal risk	1		1.556	.797	3.037
	Do not need to do more to reduce risk	0		.	.	.
	Very supportive attitude	1	*	2.226	1.024	4.838
	Moderately supportive attitude	1	*	2.437	1.087	5.465
	Not supportive attitude	0		.	.	.
	Social norm not important	1		.932	.442	1.963
	Social norm moderately important	1		.845	.420	1.699
	Social norm highly important	0		.	.	.
	High perceived behavioral control	1		1.010	.509	2.004
	Moderate perc. behavioral control	1		1.105	.538	2.273
	Low perceived behavioral control	0		.	.	.
	Secondary level teacher	1		1.426	.662	3.075
	Upper primary teacher	1		1.790	.854	3.751
	Lower primary teacher	0		.	.	.
	Values not important	1		1.274	.622	2.610
	Values moderately important	1		1.481	.742	2.955
	Values very important	0		.	.	.

Limited behavior	Intercept	1	*			
	Female	1		1.026	.615	1.710
	Male	0		.	.	.
	Age 25 and under	1	*	1.665	.912	3.039
	Age 26-35	1		1.184	.676	2.076
	Age over 35	0		.	.	.
	High HIV/AIDS knowledge	1		.850	.430	1.684
	Intermediate HIV/AIDS knowledge	1		1.371	.794	2.369
	Low knowledge level	0		.	.	.
	Knows 2 or more people sick/died of HIV/AIDS	1		1.125	.613	2.065
	Knows 1 person sick/died of HIV/AIDS	1		1.252	.732	2.141
	No personal experience with HIV/ADIS	0		.	.	.
	Always uses condom	1	*	1.597	.960	2.659
	Sometimes/never uses condom	0		.	.	.
	Can do more to reduce personal risk	1		1.170	.688	1.989
	Do not need to do more to reduce risk	0		.	.	.
	Very supportive attitude	1		.912	.497	1.672
	Moderately supportive attitude	1		1.265	.669	2.393
	Not supportive attitude	0		.	.	.
	Social norm not important	1	*	1.751	.915	3.352
	Social norm moderately important	1		1.512	.831	2.754
	Social norm highly important	0		.	.	.
	High perceived behavioral control	1		1.244	.687	2.252
	Moderate perc. behavioral control	1		1.527	.832	2.803
	Low perceived behavioral control	0		.	.	.
	Secondary level teacher	1		1.011	.500	2.047
	Upper primary teacher	1		1.042	.524	2.071
	Lower primary teacher	0		.	.	.
	Values not important	1		1.128	.616	2.064
	Values moderately important	1		1.214	.681	2.165
	Values very important	0		.	.	.

a. The reference category is: No, did not talk about HIV/AIDS

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Volk, J. E., & Koopman, C. (2001). Factors Associated With Condom Use in Kenya: A Test of the Health Belief Model. AIDS Education and Prevention, 13(6), 495-508.

Warner, L. G., & DeFleur, M. L. (1969). Attitude as an Interactional Concept: Social Constraint and Social Distance as Intervening Variables Between Attitudes and Actions. American Sociological Review, 34, 153-169.

Weir, S., & Knight, J. (2001). Education Externalities in Rural Ethiopia: Evidence from Average and Stochastic Frontier Production Functions. Oxford: Center for the Study of African Economies.

Wimmer, R. D., & Dominick, J. R. (2003). Mass Media Research. Belmont, CA: Wadsworth.

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Wyman, M., & Snyder, M. (1997). Attitudes Toward "Gays in the Military": A Functional Perspective. Journal of Applied Social Psychology, 27(4), 306-329.

Zanna, M. P., Olsen, J. M., & Fazio, R. H. (1980). Attitude-behavior Consistency: An Individual Difference Perspective. Journal of Personality and Social Psychology, 38(432-440).

BIOGRAPHICAL SKETCH

Professional Experience

2001-2003 – USA: Research and teaching in communication and health

Conducted various theoretical and applied research projects in the United States and in Mozambique related to mass communication policy and practice, perceptions and practices related to HIV/AIDS, and adolescent attitudes toward tobacco, whilst affiliated with Florida State University and with the Learning Development Institute as a graduate student and researcher, respectively. Concurrently, taught various cycles of stand-alone face-to-face and on-line upper level undergraduate mass communication courses as an instructor in research methods, leadership and group dynamics, public speaking, fundamentals of speech, and media legalities.

1997-2000 – Mozambique: Sector Manager Education, Dutch Embassy

Managed and monitored the implementation of the education sector program of the Netherlands Embassy in Mozambique (total annual budget of US $ 4 million), involving projects in distance education, basic education, integrated community development, teacher training, vocational education, curriculum reform, and higher education. Included providing support to the design and implementation of the Mozambican Ministry of Education Strategic Plan from 1996-2000, the supervision of annual review missions for the strategic plan, the preparation and monitoring of a national strategy for addressing HIV/AIDS in education, and the implementation of a gender strategy. Concurrently responsible for the supervision of 20 technical experts placed at the Eduardo Mondlane University in Maputo, under the auspices of the technical assistance program of the Netherlands Government.

1993-1995 – Mozambique: Training Specialist, Ministry of Agriculture

In the context of an agricultural development program which was financed by FAO, responsible for conducting training needs assessments, course and materials design, course delivery and follow-up, for extension workers and their supervisors in rural areas of Mozambique. Concurrently held responsibility for preparing project proposals in the field of agricultural self-employment, community participation and gender, for financing by various agencies.

1991-1992 – Mozambique: Advisor to Integrated Rural Development Project

Responsible for providing support to the implementation of an integrated rural development project financed by UNICEF in the green belt around Mozambique's second largest city, Beira. Project activities included preventive health care, agriculture and livestock management, adult literacy courses, water supply and income-generating activities. Responsibilities also involved providing training to the project team in project planning and implementation, and supporting the development of training courses and materials for groups of semi-literate women.

1989-1991 – Mozambique: Advisor to Teacher Training Program, Ministry of Education

Planning, and monitoring of the implementation of four UNICEF financed projects in teacher training, adult education, special education and basic education. Included preparation of training modules and teaching duties, and regular project support activities.

Short Term Assignments

January/February 2004: Research, design, layout and finalization of three issue papers and six case studies on the impact of HIV/AIDS on the education system in Mozambique for use as training materials for teachers, and educational planners at district and provincial level. **Client:** UNICEF.

June/September 2002: Member of a multi-disciplinary team commissioned to design a three-year integrated health development / education / water and sanitation program for the Province of Cabo Delgado (Mozambique), with specific responsibilities for the design of the health education and HIV/AIDS component of the program. **Client:** French Development Agency (AFD).

June 2002: Socio-economic study of funeral services in the capital city of Maputo as part of a program aimed at improving support to the private sector. **Client:** Irish Aid, Mozambique.

April 2002: Preparation of a provincial distance education program to provide 10.000 children and adolescents in remote areas with access to upper primary education. The project design includes intensive use of radio as a means of delivery, and integrates health and rural development issues in its programming. **Client:** UDEBA/ Netherlands Embassy, Mozambique.

August 2001: Drafting of a comprehensive implementation strategy and five-year work plan for the of a provincial $ 5 million basic education program in the southern province of Gaza. **Client:** UDEBA/ Netherlands Embassy, Mozambique.

April/May 2001: Drafting of the three-year $ 3 million Country Program for Irish Support to the Education Sector in Mozambique. **Client:** Irish Aid, Mozambique.

October/December 1996: Preparatory activities (field research, staff selection, institutional arrangements) for the implementation of two projects in teacher training and vocational education: **Client:** Netherlands Embassy, Mozambique.

July/September 1996: Research and design of a 5-year ($ 6 million) project in the area of basic education and teacher training for Tete Province, northern Mozambique. **Client:** DANIDA (Danish Development Cooperation Agency).

April/June 1996: Drafting and finalization through intensive stakeholder consultation sessions of a 2-year ($ 3 million) project for the pre- and in-service training of primary school teachers. **Client:** Netherlands Embassy, Mozambique.

October 1995/March 1996: Supervision of the research, curriculum design and institutional arrangements for the establishment of a private pilot primary school in Maputo, Mozambique.

August/September 1995: Preparation of a national two-year ($ 3 million) program to support the financing of teachers' salaries in Tete Province, Mozambique. **Client:** DANIDA.

July 1995: Support to the Mozambican Human Rights League in drafting a project proposal for institutional support to its core activities in the country. **Client:** DANIDA.

May/June 1995: Preparation of a five-year project proposal for organizational strengthening of the provincial agricultural training centers in Mozambique's 11 provinces. **Client:** DANIDA.

May/September 1994: Supervision of the design and implementation of a nation-wide literacy and vocational training program for demobilized soldiers. **Client:** UNOMOZ.

March/May 1993: Evaluation of training programs for medium level agricultural technicians at two National Training Institutes in Mozambique. **Client:** FINNIDA (Finnish Development Organization).

July/October 1992: Evaluation of training activities of six UNICEF supported projects (with specific responsibility for evaluating the programs in health and emergency support) as part of a multi-disciplinary team of four consultants. **Client**: UNICEF.

July 1990: Preparation of training modules on school community linkages for school directors. **Client:** Ministry of Education/ World Bank.

Education

2004 PhD in Mass Communication (with distinction) with minor in Measurement and Statistics, Florida State University, United States of America. **Dissertation topic**: The impact of individual differences on the willingness of teachers in Mozambique to communicate about HIV/AIDS in schools and communities.

1999 Masters in Distance Education (with distinction), University of London, United Kingdom). **Thesis topic:** Helping learners to learn: An assessment of support to teachers studying via distance education in Mozambique

1989 Bachelor in Agricultural Sociology (with distinction), Wageningen Agricultural University, The Netherlands.

Awards and Honors

- Nominated associate for the Program of Instructional Excellence at Florida State University 2002/2003.
- Recipient of the 2002 Award for Outstanding Practice as a Graduate Student in Instructional Development (for a module on HIV/AIDS prevention) of the Association of Educational Communications and Technology (AECT), Division of Instructional Development.
- Recipient of the 2002 Award for Excellent Teaching by a Graduate Student, Instructional and Developmental Division of the International Communication Association (ICA).
- Recipient of the 2002 Outstanding Doctoral Student Award, College of Communication, Florida State University.
- Elected member of the Scholastic Honor Society Phi Kappa Phi, Florida State University Campus, 2002.

Papers, Presentations and Publications

- *A Cornucopia of Problems*: Visser, J., Visser, M., Bunett, R. (2004). Publication in TechTrends in progress.
- *We Closed Our Books and Put Them Away: Learning Stories from Mozambique – A Critical Reflection on Communicating about the Reality and Future of Learning.* (Visser, M. & Visser, J.). Paper accepted by the International Division and presented at the Association for Educational Communications and Technology (AECT), Anaheim, CA, October 22-26, 2003.
- *Functions of Attitudes toward Cigarette Smoking among Adolescents: An Initial Investigation and Possible Implications for Anti-Smoking Messages.* (Visser, M. & Arpan, L.). Paper accepted by the Social Cognition Division and presented at the National Communication Association (NCA) in Miami, November 19-23, 2003.
- *The Story Behind the Headlines –HIV/AIDS in a Leading South African Newspaper.* (Visser, M. & Hsu, C.) Paper accepted by the International and Intercultural Division and presented at the National Communication Association (NCA) Conference in Miami, November 19-23, 2003.
- *Gender Patterns and Smoking Susceptibility among Adolescents Who View Actors Smoking.* (Arpan, L. Heald, G. & Visser, M.). Paper accepted by the Health Communication Division and presented at the annual conference of the International Communication Association (ICA) in San Diego, CA, May, 2003.
- *Talking about the unknown.* Visser, J. & Visser, M. (2003). TechTrends, 47(1), 5-8.
- *Where Teachers Fear to Tread – Communicating About HIV/AIDS in Mozambique.* Paper Published in the Proceedings of the 2002 Conference of the Association for Educational Communications and Technology (AECT), Dallas, TX, November 12-16, 2002 (in press).
- *The Legacy of Malcolm X in Africa: On the Relevance of Black American Rhetoric for Africa in 1964.* Paper accepted by the Division of Rhetoric and Public Address of the Southern States Communication Association (SSCA) Alabama, Georgia, April 2003.
- *Where Teachers Fear to Tread – Communicating About HIV/AIDS in Mozambique.* Paper presented at the International Conference of the Association for Educational Communications and Technology (AECT), Dallas, TX, November 12-16, 2002.
- *They Killed the Messenger: An Analysis of Media and Framing of News in Mozambique.* Paper Presented at the International Conference of the Association for Education in Journalism and Mass Communication (AEJMC), Miami, FL, August 5-9, 2002.
- *HIV/AIDS in Mozambique – A Critical Reflection on World AIDS Day.* Presentation for the Global Gatherings of the International Centre of Florida State University, November 22, 2002.
- *Motivation and Communication in Distance Education – Do we get the message?* Paper presented at the International Conference of the Association for Educational Communications and Technology (AECT), Atlanta, November 2001.

- *Distance Education in Mozambique.* Paper presented at the 18th World Conference of the International Council for Distance Education. Pennsylvania State University, University Park, PA, June 2-6, 1997.
- *A Ligação Escola –Comunidade* – um manual para directores de escolas primárias. Ministry of Education/ World Bank. Maputo, Mozambique, 1994.