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.

Figure 4 - Focus group discussion of teachers in a secondary school in an area with high HIV/AIDS prevalence

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),

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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 "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

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[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).

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)
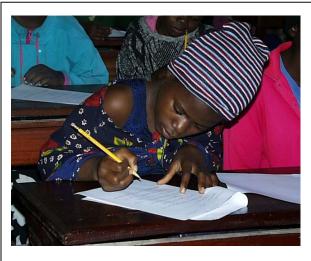

Figure 4 - Primary school student filling out one of the questionnaires that was used in this study

- 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 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).

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*	

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

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

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[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.

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 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].

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[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.

[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.

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", (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].

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[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

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

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some teachers who were nuns, it was subsequently decided to eliminate this category from the data analysis.

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 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

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[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.

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.

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

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

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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.

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.

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".

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

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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.

"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 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.

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

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.