

AN ABSTRACT OF THE DISSERTATION OF

Margaret Jo. Henning for the degree of

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Abstract approved:

Chunhuei Chi

In Zambia, there are approximately 920,000 people living with HIV/AIDS. Children are often referred to as a “window of hope” due to a low HIV/AIDS prevalence rate (UNAIDS/WHO, 2006). With growing numbers of infections and an increased strain on the social and economic structure due to HIV/AIDS there is a strong need for solutions. The school system is a sustainable community structure for HIV prevention that can be monitored for quality. However, to date, little research has been undertaken in basic schools themselves to examine the experiences of schooling of HIV/AIDS-affected children, orphaned, vulnerable children, and teachers’ attitudes as HIV educators. This study addresses individual

and contextual factors that influence teachers' attitudes in their roles as HIV prevention educators in Lusaka, Zambia. The study uses Socio-Cultural Constructionism, Theory of Reasoned Action, and Social Cognitive Theory as the theoretical framework and the basis for the initial inquiry examining how the attitudes, perceptions of social norms, school climate, and HIV knowledge impact a teacher's attitude towards teaching HIV prevention in a comparison between school types (community, government and private) in Lusaka, Zambia. The purpose of this study was to: 1) identify factors associated with schoolteachers' level of adoption and perceived need of HIV prevention education within the classroom setting in Lusaka, Zambia; 2) evaluate social-cultural variables that are suggested to influence a teacher's attitudes and dissemination of HIV education in Lusaka, Zambia. Attitudes were also examined in relation to student-related characteristics (orphan and HIV status), and the influence on a teacher's perceived need and attitude toward HIV education within and between school types in Lusaka, Zambia; 3) explore factors associated with a teacher's self-efficacy towards HIV prevention education within the school setting in Lusaka, Zambia; and 4) compare the current factors of HIV prevention education and their association with teachers' attitude among the school types in the urban school setting. The work used a combination of quantitative and narrative approaches: original cross-sectional data was collected through self-reported surveys and interviews from schoolteachers in Lusaka province Zambia in 2008. Using a list provided by the Ministry of Education, schools were stratified (grouped) according to type (private/church, community, and government) and teachers were clustered within schools. Schools were then randomly selected in proportion to their number and type. Qualitative data was also collected through in-depth interviews with teachers. Linear regression and logistic regression models were to examine the relationship between variables and a teacher's HIV prevention adoption, attitudes, and self-efficacy in their respective school settings.

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Factors Associated with School Teachers' Attitudes Toward HIV Prevention
Education in Lusaka, Zambia.

by

Margaret Jo. Henning

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APPROVED:

Major Professor, representing Public Health

Chair of the Department of Public Health

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Margaret Jo. Henning, Author

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CONTRIBUTION OF AUTHORS

Margaret J. Henning, has conceptualized, drafted, and analyzed all data analyses presented.

Dr. Chunhuei Chi, was the Principal Investigator, and guided all aspects of this research.

Dr. Sunil Khanna, guided the researches “numbers and narrative” approach to data collection, and interpretation of the findings.

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CHAPTER I INTRODUCTION

Factors Associated with School Teachers' Attitudes Toward HIV Prevention Education in Lusaka, Zambia.

Africa remains the epicentre of the global Human Immunodeficiency Virus (HIV) which leads to Acquired Immunodeficiency Syndrome (AIDS) (UNAIDS, 2006). According to the Report on the Global Epidemic (UNAIDS, 2006), Sub-Saharan Africa is home to over 70% of the global HIV-positive population. Based on morbidity and mortality rates, the evaluation of human capital (infrastructure, education, and poverty), and international human rights, Africa has been struggling to support the most fragile, innocent, and vulnerable layer of society, the children. Across Africa, children are infected and affected by the human immunodeficiency virus and auto immunodeficiency syndrome (HIV/AIDS) epidemic (UNAIDS UNICEF and USAID, 2004; UNAIDS/WHO, 2006; UNICEF, 1999). The problem has multiple layers of opposing forces and demands dynamic solutions in approach. The combination of the infection's etiology, its spread, and environmental factors makes it transmissible across international borders, and, in turn, creates a health concern of global proportions. In the wake of HIV/AIDS, the effect extends well beyond the families, community, and nation by hindering economic growth and challenging the provision of social services. These, interrelated consequences further exacerbate poverty and exert stress upon an already vulnerable population.

A quarter of the population of Zambia live in two urban areas, the capital Lusaka and the industrial towns of the Copperbelt, where the HIV/AIDS prevalence rate ranges from 34% to 40% and life expectancy has dropped to 33 years. The current, population is 1,391,329 according

to the 2000 census data (Central Statistical Office, 2003). This has led to an increase in the number of orphans and affected children and households. It is timely to explore the perceptions of educators regarding the adequacy of responses to the epidemic within the education sector and to identify the unmet needs. The United Nations and the Census Bureau agree that “the HIV/AIDS pandemic is producing orphans on a scale unrivaled in world history” (Hunter & Fall, 1998; UNICEF, 1999). With an increasing prevalence of orphans there is also an increase in child labor, child prostitution, sexual exploitation, and juvenile delinquency, and a high rate of school drop-outs (World Health Organization, 2007). If the welfare of children is not addressed, the workforce, economics, health, education, and population will continue to be negatively impacted.

Currently, by 2005 estimates, 1.2 million children in Zambia were either single or double orphans¹ of these, approximately 710,000 children were orphaned due to HIV/AIDS (UNAIDS, 2006a). “Zambia is currently experiencing one of the worst HIV/AIDS epidemics in the world, one result being that between one-third and one-quarter of the children below 15 years have lost one or both parents”(Kelly, 2000).

¹ Global AIDS Alliance’s Definition of OVC (Orphan and vulnerable children) is any child under 18 who has lost one or both parents. They also recognise different types of orphans:

Paternal orphan is a child whose father has died

Maternal orphan is a child whose mother has died

Double orphans: are children under 18 who have lost both

Background and Motivation for the Study:

Zambia's Human Development Index (a comparative measure of well-being based on life-expectancy, literacy, education and standard of living) provides a clear example of the impact that HIV/AIDS is having on the population. From 1975 to 2005, the index fell from 0.462 to 0.407, indicating that Zambia is 165th out of 177 countries for its general population's standard of living (United Nations Development Program, 2007). Such indicators provide the capacity to understand health development from an ecological perspective, which not only considers access to services or goods but also quality of life. High rates of HIV infection are a primary contributor to a population struggling to combat poverty, and economic instability (UNAIDS, 2006a; WHO, 2007). In Zambia there are approximately 920,000 people living with HIV (women 18%, men 13%) (UNAIDS, 2006a). Additionally, urban-area rates of infection are higher, with two in five women aged 25-39 infected (UNAIDS, 2006a). Over the past ten years the HIV prevention 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, 2003). This approach recognizes that HIV/AIDS prevention requires an integrated response to break the cycle of poverty and gender inequality (UNESCO, 2002). Education figures prominently within the multi-sectoral approach (Coombe, 2003; UNESCO, 2002). Children are referred to as a "window of hope" with a low HIV prevalence rate unless infected at birth and are children are also less likely to be sexually active. Children are also in the formative years of life, suggesting their behavior and belief systems can be influenced by the education system (UNAIDS, 1997). The school system is a sustainable community structure for HIV prevention that can be monitored for quality. However, to date, little

research has been undertaken in basic schools themselves to examine the experiences of schooling of HIV/AIDS-affected children, orphaned, and vulnerable children (Ainsworth & Filmer, 2002; Gilborn, Nyonyintono, Kabumbuli, & Jogwe-Wadda, 2001; Kelly, 2000).

Education as a public health response to HIV prevention in Zambia

For many years, the responses to HIV/AIDS have been similar across Africa. Typically, they have been targeted at (a) preventing HIV transmission, (b) caring for those who are infected and affected, and (c) reducing the social and economic impact of AIDS (UNAIDS, 2006). Health education² falls under the umbrella of prevention cited as a response to HIV prevention (UNAIDS/WHO, 2006) United Nations Development Program, 2007 & WHO, 2007). Statistics indicate that persons without a formal education have higher levels of HIV infection than those with education (USAID, 2007). Access to HIV prevention education is therefore important in an effort to reach the development goal for “Education for all” and the reduction of HIV cases in Sub-

²Health education: according to Griffiths (1972) health education attempts to close the gap between what is known about optimum health practice and that which is actually practiced. Health education evolved from three settings: community, schools and patient care sites. Most often understood as a broad and varied set of strategies to influence both individuals and their social environments, to improve health behavior, and to enhance health and quality of life.

Saharan Africa, (Millennium Development Goals, 2007). HIV prevention education can fall within the realm of primary health care³, a critical element in arresting the progression of HIV/AIDS in Sub-Saharan Africa (Kelly, 1999, 2000; Kelly., 2006). Millennium Development Goals (MDGs)⁴ mandate the coordination of global actions and efforts through a number of government and non-governmental agencies. Notably, education and HIV/AIDS education are a priority if the goal of “Education for all” is to be met.

The Zambian Ministry of Education (MOE) has been supportive of HIV/AIDS programming efforts adopted by the UN, USAID, and others designed to directly reach basic and high school students. Yet, to date, an HIV education policy specific to the education sector does not exist. The Zambian MOE regards HIV/AIDS as a cross cutting issue to be addressed in all subject areas. In 1993, it adopted an integrated approach to the teaching of HIV/AIDS. The policy enacted in 1992 encouraged the formation of Anti-AIDS Clubs in primary and secondary schools, teacher-training colleges and other institutions of higher learning. Extra curricular activities including drama, cultural clubs, and peer counseling were also expected to incorporate HIV/AIDS awareness messages and mandated to be offered in primary and secondary schools.

³ Primary health care: Defined in 1978 at the Alma Ata conference is a combination of curative, preventive, and promotive activities to improve overall health of the community. Includes multiple sectors including the economy, politics and socio-cultural and their affects on health and welfare.

⁴ Millennium Development Goals (MDGs): The Millennium Development Goals (MDGs) are eight goals to be achieved by 2015 that respond to the world's main development challenges. The MDGs are drawn from the actions and targets contained in the Millennium Declaration that was adopted by 189 nations-and signed by 147 heads of state and governments during the UN Millennium Summit in September 2000.

It should also be noted that although these clubs are said to contribute to the teaching of HIV/AIDS participation by both teachers and pupils is voluntary and such clubs are in a limited number of schools (Zambia Country Report Multi-sectorial AIDS Response Monitoring and Evaluation Biennial Report 2006-2007). For the education sector to respond effectively to the challenges of this pandemic; there is need to develop a policy for addressing HIV/AIDS. Such a policy would provide a framework to implement, monitor, and evaluate the impact of its HIV and AIDS interventions and the effects of HIV/AIDS on the labor force and students over time, while delineating appropriate interventions.

To date there is a lack of fieldwork to support the extent of the impact HIV has had for various sectors of education, but various indicators show that it is considerable (Kelly, 2000). Yet, the “greatest challenge remains that of management and mitigation of the impact of HIV/AIDS on the teaching staff and pupils, support workers, and education officials” (USAID, 2007a). Schoolteachers are on the frontline of the HIV prevention challenge. With an increase in workload due to absenteeism of colleagues (due to mobility and mortality), teachers are faced with the increasing burden of providing assistance to infected and affected students, many of whom are orphans (Fylkesnes, Brunborg, & Msiska, 1994; Kelly, 2000). The Ministry of Education’s 2006 data indicates that in Zambia “680 teachers died in 1996, 624 in 1997, and 1,300 in the first ten months of 1998” (Ministry of Education 2006 Data). This means that the number of teacher deaths rose from less than two per day in 1996 to more than four per day in 1998. The loss of teachers results in fewer educational opportunities for HIV prevention efforts for students.

HIV and AIDS represent a direct threat to reaching the goal of “Education for All” part of the eighth Millennium Development Goal (MDG) set forth by the United Nations to help eradicate poverty and communicable diseases in developing countries. (“Education International,” 2006, Millennium Development Goals, 2006). Being HIV positive affects school attrition, and, in turn, the lack of schooling contributes to the further spread of the epidemic (Kelly., 2006). Education levels are a strong predictor of knowledge (HIV transmission), safer sexual behavior, and reduced HIV infection rates; education is, therefore, currently “the single most effective preventive weapon against HIV and AIDS” (UNAIDS, 2006b; “World Bank,” 2002). The Global Campaign on Education (2006) has calculated that 700,000 annual cases of HIV in young people could be prevented if all children received a complete primary education. In fact, considerable evidence indicates that school-based HIV prevention programming, starting as early as primary school, is a necessary step to protect the general population from further HIV infection (Barnett, Koning, & Francis, 1995; Finger, Lapetina, & Pribila, 2002; Grunsheit, 1997; Kaaya et al., 2002; World Bank, 2000).

The role of schools

Schools are an ideal environment for an extensive and systematic response to HIV prevention (James-Trore Tijuana, Figer, Daileader, & Savariaud, 2004; Kelly, 2006; Malambo, 2002; Mathews, Boon, Flisher, & Schaalma, 2006). The educational sector is established as an existing framework within the community to reach children and young people. Schools provide an established venue to reach a target population at high risk of HIV/AIDS and are considered a permanent structure within the

community (Barnett et al., 1995). HIV education of sufficient quality (e.g. appropriateness of material and dose) influences not only the acquisition of knowledge about the transmission and consequences of HIV/AIDS, but also the attainment of attitudes, skills, and behaviors needed to develop appropriate personal and societal responses to the epidemic (Bernnell, 2003; Coombe, 2003; Coombe, 2003; Kelly, 2006; UNESCO, 2005; World Bank, 2004; World Bank, 2000). Prevention programs that utilize existing community structures support sustainability. Schools are an ideal catchments location for HIV education targeted for children. The focus on children is prevention orientated. Furthermore, the school system encourages systematic dissemination of accurate information.

Since HIV/AIDS is a major public-health, social, economic and development challenge (World Health Organization, 2007), the educational sector is uniquely positioned within the community to create a standard model of HIV prevention for young people that would be appropriate in reaching a substantial portion of the youth population and be a sustainable, community approach. Therefore, the education pedagogy is regarded as a key defense against the spread of HIV, especially for orphans, young women, and girls, who are vulnerable physically and socially to HIV infection (Skinner et al., 2006; UNAIDS UNICEF and USAID, 2004; World Food Programme, 2006).

Health education has emerged as a viable approach and tool for comprehensive and equitable health development. Health education in this study is specifically focused on examining a teachers' HIV attitude. Understanding the role of the educational sector as part of the broader system of health development supports future work in disease prevention and insight into health disparities from a perspective that is conscious of the

broader contextual influences on individuals and communities. The development of health promotion strategies that promote and support dialogue, forge sustainable systems of intervention while consensus of culture, are critical to better health. As well as the development of policies and strategies that advocate for health education and promotion to be an active and engaged part of the public health development agenda (World Health Organization, 2007).

The purpose of the study:

The purpose of this study was to address the limited availability of systematic information on the factors that influence HIV prevention education within the classroom setting. This is a limitation that suggests the need for more focused research (Kelly, 1999). The propose of this study was to examine the factors that influence teacher attitudes toward HIV/AIDS education in the urban area of Lusaka, Zambia.

The assumption of this study sought to assess potential barriers and facilitators, identified from literature and theory, which are suggested to influence a teachers' attitudes and willingness to communicate about HIV education, while contributing to the development of culturally appropriate indicators for factors that influence a teacher's delivery of HIV education.

The study aimed to: a) investigate factors associated with school teachers' level of adoption (materials and activities) and perceived need of HIV prevention education within the classroom setting (private, community, and government schools) in Lusaka, Zambia; b) identify social cultural (e.g., social/demographics, perceived school climate, HIV knowledge, stigma, teaching efficacy, status and school climate) variables that are suggested to influence a teacher's attitudes and dissemination of HIV education in

Lusaka, Zambia. Attitudes were also examined in relation to student-related characteristics (orphan and HIV status), and the influence on a teacher's perceived need and attitude toward HIV education within and between school types in Lusaka, Zambia; c) explore factors associated with a teacher's self-efficacy towards HIV prevention education within the school setting in Lusaka, Zambia; and d) compare the current factors that are associated with influence teachers' HIV prevention education within their respective schools types (community, government and private/church) in the urban school setting.

The work used a combination of quantitative and narrative approach: an original cross-sectional data was collected through self-reported survey and interviews from schoolteachers in the Lusaka province of Zambia in 2008. Using a list provided by the Ministry of Education, schools were stratified (grouped) according to type (private/church, community, and government) and teachers were clustered within schools. Schools were then randomly selected in proportion to their number and type. Qualitative data was also collected through in-depth interviews with teachers. Linear regression and logistic regression models were used to examine the relationship between variables and a teacher's HIV prevention adoption, attitudes, and self-efficacy in their respective school settings.

The research aimed to provide foundational support to factors that influence teachers and provide key support to the structure and process of strengthening adoption and practice patterns of HIV prevention in schools, and support reductions in HIV risk behavior, curricular interventions, and policy development.

1.3 Research Questions:

This section is positioned to address the research questions and key elements of support for each research question. Research questions have been divided into three different manuscripts; these research questions will be expanded into subsequent questions in subsequent chapters of this document.

Manuscript 1:

1. What are **Factors associated with schoolteachers' level of adoption and perceived need of HIV prevention education within the classroom setting in Lusaka, Zambia?**

Adoption refers to the consistency with which different intervention components are delivered over time (Glasgow, Russell; Nelson, Candace.; Strycker, Lisa; King, & Diane., 2006). For this study adoption refers to the initial use of an HIV/AIDS education program (Paulussen, Kok, & Schaalma, 1994). If the quality of adoption is highly variable across prevention activities, it will be necessary to understand the conditions that facilitate adoption and develop strategies to enhance program implementation (Gottfredson & Gottfredson, 2002). Most HIV education programs are likely to be implemented with real-world constraints and understanding of these constraints encourages identification of factors that affect implementation and elements critical to implementation quality. Implementation has been relatively neglected in the prevention research literature (Greenberg, Domitrovich, Graczyk, & Zins, 2005). Working with communities to understand current adoption or preparation for implementing potential programs and practices is seen as important in human services (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005).

Assessment of successful conditions for HIV prevention education must be generated from the community to be served. Capacity building can influence health promotion practice and improve quality of life and health. Health programs need to be examined within the context for which they exist (their natural setting) (Elliott et al., 2003). Identifying what the population considers critical to HIV curriculum development encourages education that will be relevant to the community (Minkler, 2005).

Manuscript 2:

What are factors associated with a teachers HIV prevention attitude towards orphans and vulnerable children in schools of in Lusaka, Zambia

School teachers are uniquely positioned to influence HIV education for youth in the classroom setting. While most school-based studies focus on HIV prevention/educational outcomes for students, there is a lack of research on school teachers' outcomes regarding their own knowledge, attitudes, and skills (Tijuana, 2004). The key predictors (schoolteacher's demographics, teacher's functional knowledge, HIV-related stigma, perceived school climate, teachers' self-efficacy, prior teaching experience) provided insight into the factors that influence a teacher's role as an HIV prevention educator. Unfortunately, the capacity of teachers to provide instruction about HIV/AIDS and other related health problems to students with their own level of knowledge and comfort may be limited by their own lack of HIV prevention education (Kelly, 2006). Teachers are central to addressing gender inequality related to HIV/AIDS, however, additional studies are needed in the international setting to provide opportunities to explore the factors that influence HIV education within various school based settings (Skelton, 1989). Developing a comprehensive understanding of the individual and cultural-contextual factors that influence school

teachers could lead to an efficacious, comprehensive and targeted model for HIV prevention education that could address teacher attitudes toward sexuality education and participatory techniques (Kelly., 2006).

Understanding influences on schoolteachers in relation to HIV prevention education within a school-based setting is, therefore, critical to improving the amount of, and overall delivery and quality of delivery of HIV education within the school. (Black, 1988; Kelly, 2006; Mathews et al., 2006; White & Ballard, 1993). This manuscript also considers teachers self report in relation to student-related characteristics (HIV and OVC status) and the influence on their attitude toward HIV education in Lusaka, Zambia.

Understanding a teacher's perception of students OVC⁵ and HIV status can encourage appropriate points of intervention. In just two years, from 2001 to 2003, the global number of children orphaned by AIDS increased from 11.5 million to 15 million, and by 2010, it is expected that more than 25 million children will be orphaned by this deadly virus (UNAIDS UNICEF and USAID, 2004). There has been a strong tradition in Zambia of communities mobilizing for self-help activities (done by local leaders, community development workers, health workers, religious leaders, and/or politicians to facilitate the creation of required services such as schools, clinics, and roads) (World Food Programme, December 2006). Community schools currently are an example of such mobilization. Community schools are run and managed by the community and do not require fees, whereas

⁵ Vulnerable children : A child made vulnerable is below 18 years of age and has: Lost one or both parents; has one chronically ill parent; lives in a household where one adult has died in the past year and was sick for three of the last 12 months before death; or lives outside of the family care. This definition is accepted by UNAIDS, UNICEF, USAID and Family Health International.

both private and government schools do. When considering fees suggests that the community school might be an access point for care, support, and education for OVC children. To date there is a lack of documentation as to the educational response to OVC due to HIV. It is critical to compare school types to determine the school type that is most in need of HIV education support. This information can guide funding, teacher training and policy development.

The purpose of this study is to provide information on the impact of the epidemic on basic education that has not previously been documented in Zambia. The research questions are to assist in understanding the impact of HIV/AIDS on education in a context where such issues are often not discussed. The research questions are rooted in an eclectic framework that considers human behavior as an outcome of various interactive factors within a social web. This study was informed by theory, and includes a comprehensive framework that not only examines teachers' responses in their own cultural context but also studies their responses in the context of limitations imposed by the various structural and political constraints on the teachers' ability to provide HIV prevention education in schools-including ecology, political economy, and culture. The Socio-Cultural constructionism model was selected to guide the formative research as it offers a concrete framework to account for the reciprocal interaction of behavior and environment. The model considers multiple levels of influence on behavior: individual, interpersonal, organizational, community and policy. However, specific theoretical constructs have been chosen from the Social Cognitive Theory and the Theory of Reasoned Action (TRA) to inform the study. Selected factors will be examined to identify their influence on teachers' HIV attitudes, or overall evaluation of teaching HIV as a performance associated with implementation of HIV/AIDS education,

in an effort to identify points of intervention and policy development. The variables examine the relationship between teachers' individual or independent variables and "characteristics that will predict or cause a given outcome" (Watkins, 1993) hypothesized to influence HIV prevention education implementation (please refer to conceptual framework Figure 1.1).

Manuscript 3: What are factors associated with a teacher's self-efficacy towards HIV prevention education within the school setting in Lusaka, Zambia?

Evidence from research suggests that the transformation of schools into active and effective change agents for gender equity cannot be achieved without support and cooperation of teachers (James-Trore Tijuana, 2004; Mathews, Boon, Flisher, Schaalma, 2006; Sanders, 1996). Yet, determining teachers' self-efficacy toward specific to teaching HIV prevention is unknown. Self-efficacy is a construct from the Social Cognitive Theory, which will be applied within the framework of self-determination, in relation to teaching HIV prevention. Social Cognitive Theory (SCT) is concerned with learning that occurs in a social context (Salkind, 2004). When examining the role of self-efficacy there is also a need to be critical, as self-efficacy alone cannot solely account for the role a teacher takes in teaching HIV prevention within the classroom setting. The construct needs to be applied and accounted for within the social-cultural and environmental context, such as distribution of power, wealth and resources, culture, and value. This study considers not only the individual factors that might be associated with teachers' attitude and behavior, but also the social-contextual conditions that facilitate versus forestall the natural process of

self-motivation (Ryan & Deci, 2002) for teachers to promote HIV prevention

Overview Background on Zambia

Zambia is considered one of the Sub-Saharan African countries most severely affected by the HIV/AIDS pandemic. With a total population of 10.3 million people, there are 98 thousand deaths per year due to HIV/AIDS (UNAIDS/WHO, 2006). Furthermore, Zambia is one of the most urbanized countries in Sub-Saharan Africa with an estimated population of 39 percent living within urban areas. Historically Zambia was a hunter-gather society and is a democracy divided into nine provinces with the national language being English (Bureau of African Affairs, 2007; Zambia Human Development Report, 2007). The predominant religion is a blend of traditional beliefs and Christianity; with Christianity being the official national religion.

According to the Zambian Department of Health Services (ZDHS) report from 2001-2002, 23 percent of urban residents were HIV positive, compared to 11 percent of rural residents with urban residents being more than twice as likely to be infected as rural residents. The HIV prevalence rates vary significantly by and within provinces. Nearly 80 percent of HIV transmission in Zambia is through heterosexual contact (Zambia Demographic and Health Survey, 2007). This mode of transmission is exacerbated by the high-risk sexual practices, the poor socioeconomic status of women, and high prevalence of STI's and HIV/AIDS (Epidemic in Zambia, September 2004).



Source: *World Fact Book*

Correlates of HIV infection: Economic, social, and cultural:

Economic, social, and cultural factors contribute to the spread of HIV/AIDS (USAID, 2006). Unemployment remains high and presents a serious social problem. According to the Millennium Development Goals (MDG) 2005 Status Report, 67 percent of Zambia's population lives below the poverty line. This equates to living on less than a dollar a day (Millennium Development Goals, 2007).

HIV/AIDS remains the nation's greatest challenge ravaging the Zambian economic development. As a result, chronic food insecurity and weak governance with devastating social and economic consequences (The World Factbook, 2007) persists. Once a middle-income country, Zambia began an economic decline in the 1970's when copper prices declined on world markets. This led to the closure of mines, which had a far-reaching effect on the economy. Slow progress in diversifying the economy and high levels of

borrowing and debt relief are contributing factors to the country's economic struggle (Bureau of African Affairs, 2007). The economic situation combined cultural and gender inequality creates a hospitable environment for the spread of HIV infection.

Age:

Sub-Saharan Africa is home of 63% of the global prevalence of people aged 15-24 years living with HIV/AIDS. HIV rates are intricately linked to age, with rates of infection almost doubling from 15 to 19 years of age (UNAIDS, 2006). Unfortunately within these age stratus, women are disproportionably affected with rates among young adults ages 20 to 24 years of age estimated at 16 percent for females and 4 percent for males, respectively (UNAIDS, 2006). Projections are that the population aged 15 and below will reach 5.4 million in 2010, instead of the 6.8 it might have attained if the incidence of AIDS had been less widespread (Central Statistics Office, 2008; Hunter & Fall, 1998). Ironically, with fewer than children goals to provided HIV prevention education in Zambia might be considered achievable, Zambia's task of achieving universal primary education will become easier, but at very high human costs. In Zambia, the decline in the prevalence rate for 15-to-19-yearold women in Lusaka was more marked for those with secondary and higher levels of education than for those who had not without a primary school education (Fylkesnes et al., 1994). While it is important to deal with the population in yearly adulthood, it is regrettable that comparable attention is not paid to the children in school who have not yet been infected. This segment of the population is often considered the "window of hope" those for which HIV prevention might be successful and of great value (Kelly, 1999).

Gender:

Globally, an estimated 17.3 million out of 36 million (47%) HIV-positive adults are women, and the overwhelming majority of these women, more than 13 million, live in sub-Saharan Africa (UNAIDS, 2006). It is clear that the development of the epidemic largely reflects the persistent gap in equality between the sexes. This gap is often a reflection of the social structure of a community and the gender roles within the community. Gender roles are attitudes and behaviors that a culture or society associates with each sex. Gender norms are the shared rules of behavior associated with these roles (O'Sullivan, Hoffman, Harrison, & Dolezal, 2006). These rules are shaped by factors related to culture, race, socioeconomic status, and gender (Sclafane et al., 2005). For example, boys and men are encouraged to have many sexual partners. Women and girls are expected to be passive and submissive, with limited financial and social power. Due to women's usually inferior social and economic position their exposure to unsafe and unwanted sexual relations increases. This power imbalance often presents situations in which girls trade the only thing they have that society values, sex, in exchange for food, school fees, or non-essential items such as cell phones. The HIV risk associated with gender norms and unsafe sex is only magnified by the harsh economic situation in Zambia. These norms put both males and females at risk of HIV infection (Gwaba & Namalambo., 2005; Human Rights Watch, 2002). If, as the literature suggests, gender beliefs are associated with participating in risky sexual behavior, there is a need to better understand the role of gender beliefs in order to develop even more effective HIV/STD preventive education and interventions.

School Types:

Understanding education as part of a complex social system encourages consideration of factors that influence the phenomena for teachers at an individual and contextual level.

Schools in Zambia are divided into three main types – community, private, and government. All school types are divided into primary, secondary, junior secondary and upper secondary. Primary grade levels consist of years one to seven; these years of pre-school education are optional. Primary schooling is followed by five years of secondary education at an entrance age of fourteen. Currently the Zambian government is placing emphasis on ensuring the provision of primary education. In 2005, Zambia had 6,962 basic schools with 2.8 million learners and 463 high schools with more than 136,000 learners (Zambian Ministry of Education. 2006, National ICT Policy).

In Sub-Saharan Africa, many youth leave school before completing secondary school (Chondoka, 2004). Despite the introduction of free basic education in 2002, many girls and other vulnerable groups drop out of school before they complete primary school largely due to poverty and the impact of HIV/AIDS on families. Less than twenty percent of the children are age appropriate for secondary school level (fourteen) with older children and younger children found in mixed classroom settings (Education International, 2007). Both government (basic schools) and private schools exist in Zambia with private schools operating from a Western orientation typically encompassing either British or American schooling methods but also offering curricula approved by the Examinations Council of Zambia (Chondoka, 2004). By definition, a community school is an educational institution that is community based, that is, owned and managed by the

community. Basic education is provided to children who for various reasons cannot attend government schools. Although community schools tend to follow a less formal track, the schools are recognized by the Ministry of Education (MOE). Community schools do not have uniforms and do not charge school fees. These schools provide a basic education curriculum based on grades 1-7 and this typically has been designed to reflect the needs of the community schoolchildren and, thus, is not part of a formal curriculum. The teachers in community schools are not formally trained and are selected from within the community where the school is based. Classrooms often consist of buildings where available space or open space such as under a tree, or other outdoor spaces exists. Community schools are also resource-poor (e.g., few to no books, desks, blackboards, etc.) compared to government and private schools (Chondoka, 2004).

Zambia's Open Community Schools (ZOCS) are an extension of the community school, however, typically receive support through non-profit organizations (Chondoka, 2004). ZOCS is the largest NGO⁶ working exclusively in the Community School sector in Zambia. The first ZOCS' school began in 1992 and ZOCS aim to provide education to children excluded from the Government School system (Chondoka, 2004).

Zambia's education system has a growing private-sector share in education provision, in terms of the increasing numbers of community schools and private schools, including private teacher training colleges and universities. The Ministry of Education (MOE) is responsible for giving policy guidance on the provision of education and for inspecting standards in these private educational institutions. More recently, the MOE has developed a draft policy framework for community schools which recognizes community

⁶ Non-governmental agency

schools as an integral part of the school system (USAID, 2007b).

Understanding the school system in conjunction with previous studies in HIV prevention education supports the importance and appropriateness of a focused examination of the factors that influence the HIV education sector.

School-based HIV/AIDS studies:

Several reviews have been published in recent years on the efficacy of HIV education (Kirby, 2006). The most comprehensive studies have focused exclusively on wealthy nations, particularly the United States (Kirby, 2000). 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 (Brook, 1999; Mkumba & Edwards, 1992; Narayan, Benjamin, Gregg, Norris, & Engelgau, 2004; Venier, Ross, & Adebawale, 1997). The few studies that exist and that have looked at low-income countries are mainly qualitative in nature (Chifunyse, Benoy, & Mukiibi, 2002). More rigorous studies focusing particularly with teachers should be conducted in low-income countries and with groups at highest risk (Kirby, 2006).

A study by Action Aid (2002) within the international setting collected attitudes of 3,706 teachers, pupils, parents, and other key stakeholders in the educational community through a mixture of quantitative and qualitative approaches. The report established that many teachers engage in selective teaching of HIV/AIDS topics in schools. In Kenya and India, for example teachers often excluded sensitive and sexually explicit material, or preferred to present the content in an overly scientific manner. The report highlights possible reasons for this situation as: lack of training, lack of confidence and responsibility, gender issues, low priority in the curriculum to HIV prevention lessons, and the wider crisis in education, which is perpetuated

by poor conditions in schools. The study concluded that the teaching approach was simply an element of a culture of silence towards HIV/AIDS education. In addition, a significant number of students in both Kenya and India reported that the school is viewed by the community as a trusted and important place for young people to learn about HIV. The study emphasizes developing locally-driven materials in teaching about HIV/AIDS (ActionAid, 2002).

Mathews (2006) examined factors associated with teachers' HIV/AIDS education in Cape Town, South Africa (N = 579 teachers, within 125 schools, 56% response rate) and found that teacher-related characteristics most associated with teaching HIV/AIDS were previous training, teacher's self-efficacy, student-centeredness, beliefs about controllability and the outcome of HIV/AIDS education, and responsibility. Additionally, at the school level, the existence of a school HIV/AIDS policy, a climate of equity and fairness, and good school-community relations were associated with teaching HIV/AIDS. These findings demonstrate the value of educator training and school policy formulation to improve HIV/AIDS education efforts to abate this growing epidemic (Mathews et al., 2006). This research considered not only the school environments that influence teachers but also the broader contextual factors that take a role in influencing a teacher's HIV educational pedagogy in the classroom.

A qualitative study by Molambwe (2000) of Zambian teachers conducted focus groups for both teachers and students. The study reveals that most teachers in Zambia have neither been trained to deal with HIV/AIDS, nor have they been provided with teaching/learning materials. Some pupils said that teachers ought to discuss these issues openly and be role models: "teachers are shy; they are not open when discussing issues on sex."

Chiwela and Mwape (1999) indicated that teachers feel embarrassed to deal with matters related to sex with their pupils. This is largely because in Zambian society, it is inappropriate to discuss sex with younger people (Chiwela & Mwape, 1999).

Dawson (2001) found that health teachers possessed a fairly strong understanding of HIV/AIDS, while teachers in other disciplines had significantly less knowledge. The authors note that health teachers are most likely responsible for formal HIV/AIDS education, but that students may seek advice from a trusted teacher in another discipline. The study also indicated that a direct relationship exists between teachers' knowledge of HIV/AIDS and positive or supportive attitudes toward HIV/AIDS education. Female teachers held more positive attitudes toward HIV/AIDS than did male administrators (Dawson, Chunis, Smith, & Carboni, 2000).

Studies on HIV education in international contexts have often been grounded in the theoretical frameworks of Social Cognitive Theory, (Miller & Dollard 1941; Bandura, 1997), the Health Belief Model (Rosenstock, Strecher and Becker, 1994), and the Theory of Reasoned Action (Ajzen and Fishbein 1980). These theories however are primarily of Western origin. An understanding of health is based only on a Western perspective, which may result in a superficial analysis, if taken without consideration for the cultural systems in which an individual exists (Speizer, Magnani, and Charlotte, 2003 & Albrecht, Scrimshaw 2000). When using theories grounded in Western thought there needs to be a strong understanding of theoretical constructs being used in for the constructs to be appropriate in relation to the social, cultural structures and population.

Although the theories are predominantly of Western origin, a clear limitation, if the work is cognizant of this potential for Western bias, constructs from these theories can be used to understand the range of factors and behaviors that influence HIV prevention education within the school setting in Lusaka, Zambia.

The school setting is an ideal and potentially sustainable accessible community option for orphans and other vulnerable children (Skinner et al., 2006). More research is needed to determine schoolteachers' HIV knowledge, gender, and OVC attitudes. The HIV education prevention structure and its effectiveness might be compromised if educators lack objectivity and insight into their perceptions about children and youth with HIV. Wodrich et al. (1999) suggests that teachers may become too emotionally involved with the ill child or conversely that they might be distant because of faulty beliefs about virus transmission (Wodrich, Swerdlik, Chenneville, & Landau, 1999). Other medical and mental health professionals have responded negatively and had adverse perspectives toward children and families with AIDS (Crawford, Humfleet, Ribordy, Ho, & Vickers, 1991; Kelly, Lawrence, Smith, Hood, & Cook, 1987; Wright & Yates, 1989). There is a need to examine the underlying attitudes of various educational professionals toward children who have the virus. Yet, studies on HIV/AIDS and the role of school teachers' have been given only marginal consideration (Visser., 2006). Much of the research to date has been of adults' attributions related to people with HIV/AIDS (Brucker & Hall, 1996; Dijker, Kok, & Koomen, 1996b; MacFarlan & Sgheri, 2001; Siegal, Diclemente, Durbin, Krasnovsky, & Saliba, 1995). Much less research has examined the reactions of adults toward school-age students with the virus (Wodrich et al., 1999).

The school setting is an ideal and potentially sustainable accessible community resource for orphans and other vulnerable children (Skinner et al., 2006; UNICEF, 1999). More research is needed to determine schoolteachers' stigma and HIV attitudes that impact orphans and vulnerable children (OVC). Schools are expected to play a major role in fighting the impact of HIV/AIDS and preventing the spread of this disease. Theory and literature assert that self-efficacy, environment, knowledge, stigma, and demographics influence a teachers HIV attitude. Understanding the relationship between these factors is anticipated to support HIV prevention education. Addressing teachers as agents of changes supports protecting the welfare of children. If the welfare of children is not addressed, the workforce, economics, health, education, and population will continue to be negatively affected.

GENERAL OVERVIEW OF THE METHODOLOGY AND RESEARCH METHODS

It is critical to address the methodology and theoretical underpinnings of the study before addressing the methods that are to guide the study. This study is rooted in an integrated paradigm. An integrated paradigm is a dialectic framework used to analyze social, economic, political, and cultural factors associated with health problems. A paradigm for this purpose is referred to as a pattern within a scientific discipline (Masterman, 1970), in this case a holistic approach or context to exploring health education. As a paradigm, an integrated approach offers health professionals a framework that encourages empowerment, equity, and sustainable development (Wright, 2000). The integrated paradigm approaches health as a didactical fluid process. A process that considers complex interactions of communities and their environment compared to reductionism, an approach that reduces the understanding of complex interactions to the minimal divisible parts, and if accounted for, can be reduced to explanations based on the parts and not the interactions between the communities and environment.

The limits of the application of reductionism become especially evident at the level of the community with higher amounts of complexity including culture, ecosystems, and other systems formed from assemblies of large numbers of interacting components. The alternative to reductionism recognizes the complexity of properties as a whole that are not explainable from the sum of their parts (Silberstein & McGeever, 1999). The complexity of the study demands the consideration of an integrated approach in which the study of people in an environment takes into account their influences on one another (Hawley, 1950). This further supports the need for a socio-cultural constructionism perspective when examining the

multitude of factors and interrelation transactions between social systems and political and cultural factors. The integrated initiative works within the existing efforts that rather than attempt to develop a new structure. In an effort to understand culture of health and illness and the community for which it exist, there is a need to study the inter-relationships between the individual, community, and environment. This holistic approach encourage the research to approach the topic with an understanding that individuals do not operate in an isolated manner, rather are apart of a whole system that influences their actions and behaviors. Understanding of the general systematic views among a population in regards to a given focus area to explore the influence on individual and contextual variables in supplement or/and relation to cultural influence on HIV/AIDS education. Further, living in the environment provides the opportunity to describe interactions of individuals within a social context and analysis behaviors from the subject's reality. Working within this methodology is expected to enhance validly of the study. With the holistic approach to knowledge, the researchers choose a combination of quantitative analysis and narrative method to answer research questions posed. Moreover, given that context matters, the researchers focus on contextual analysis and understanding of the phenomenon provides depth compared to simply generalizing the results.

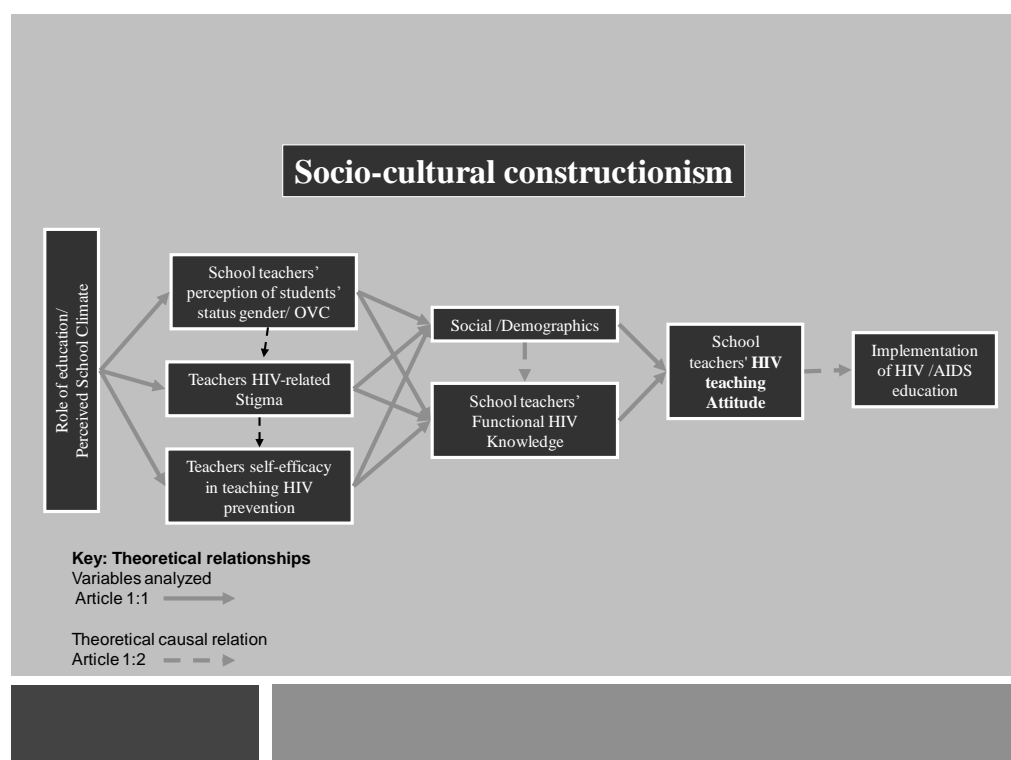
Research questions have been proposed as opposed to hypothesis testing in an effort to acknowledge the number of formidable barriers that exists with data analysis and causality in obtaining conclusive results of hypothesis testing or causal inference (King, 1998) especially from cross-sectional data. Research questions have been posed to predict the effects of an explanatory variable on the dependent variable without suggesting complete causal relationships or conclusive results (King, 1997).

Although hypotheses were not be used within this research, the researcher anticipated that a teacher's attitude toward HIV prevention education would be influenced by school type, school teacher's educational status, functional knowledge, school climate, stigma, gender norms, OVC in schools, HIV, teaching-self-efficacy and social demographics, based on the theories and literature reviewed in chapter two.

Analytical Framework

The theoretical foundation provides the justification for the research questions and an understanding into the factors that influence schoolteachers' attitudes toward HIV prevention education. The variables are derived from the Social Cognitive Theory (Bandura, 1977), and Theory of Reasoned Action (Fishbein & Ajzen, 1975). The explanatory variables include social demographic constructs (school teachers' demographics, teachers' functional knowledge, HIV-related stigma, perceived school climate and self-efficacy, teachers' HIV education attitude depending on the student's gender and with consideration for a student's orphan status). The analytical framework that provides the theoretical foundation for the research design, analysis, and interpretation of results is presented in figure 1-1.

Figure 1.1

Conceptual Framework

The social constructionist approach was the over-arching theory that guided the understanding of the didactic relationship between a person and their broader environment. Social Cognitive Theory (Bandura, 1977) examines the didactic relationship between an individual and their environment, two entities which are thought to influence each other simultaneously. The specific constructs from the Social Cognitive Theory that will be used to guide the study include self-efficacy and environment. With this in consideration, teachers' self-efficacy is focused on a teacher's instructional confidence for HIV education. A teachers' perception of the school environment and the role the school dynamic plays in a teachers' attitude toward his or her role, as an HIV educator will be studied. Understanding these perceptions are anticipated to provide a better understanding of teachers' beliefs in order to develop future effective HIV preventive interventions.

The Theory of Reasoned Action (TRA) asserts that attitude is a direct determinant of an individual's intention, in this case, a teacher's intention to teach HIV education. TRA assumes a causal chain that links behavioral beliefs and normative beliefs to behavioral intentions. Ajzen and Fishbein (1980) proposed that a person's behavior is determined by his intention to perform the behavior and that this intention is, in turn, a function of his attitude toward the behavior and his subjective norm. For the purpose of this study attitude will be the variable used to examine the relationships between factors that influence teachers HIV prevention. It was also found that teachers with higher positive or supportive HIV attitudes scored better on the HIV/AIDS knowledge scale. Generally, teachers that had prior experience in teaching the topic, tend to express more positive feelings toward teaching about HIV/AIDS (Godin, Gagnon, Alary, Noel, & Morissette, 2001). TRA includes measures of demographics while also

examining behavioral beliefs, the beliefs that teaching HIV prevention will be attributed with a given outcome. Subjective norms follow the beliefs about whether most people approve or disapprove of the behavior. Stigmatization is often considered a norm that surrounds HIV and should be examined.

A teacher's degree of adoption of school-related HIV education and their perceived needs for an HIV/AIDS curriculum is postulated to directly relate to a teacher's subjective norms or his/her perception of whether significant others think he/she should or should not perform the behavior, as well as his/her beliefs concerning whether he/she has the necessary resources and opportunities to perform that behavior (Bandura, 1997). Prior school climate research suggests that positive interpersonal relationships and optimal learning opportunities for students can reduce maladaptive behavior in students (McEvoy & Welker, 2000).

School climate includes the effort for teachers to get students to learn; and the teacher's expectations surrounding HIV education. This includes whether a teacher has received HIV/AIDS training, whether their school has an HIV/AIDS policy or was in the process of developing one, and whether a teacher perceives that there was support for HIV/AIDS education from colleagues.

The above theories guide the effort to identify the factors that can be addressed to encourage successful school-based HIV/AIDS risk reduction programs within the classroom setting in Zambia. Although theories can come together to complement one another, there are limitations to their synthesis. By definition a theory means we expect "an analytical scheme or model to be able to produce new explanatory or predicting information and

by doing so, to exclude other, concurrent explanations” (Siegrist, 2000; Siegrist & Marmot, 2004) Even if a theory expresses a complete explanation, “specialized knowledge is always constructed on the basis of incomplete information about a phenomena, it must always be seen as provisional” (Rubinstein, Scrimshaw, & Morrissey, 2000). All knowledge is culturally and socially grounded. There are assumptions about the population under study and about the phenomena and the best methods for researching the phenomena and the population. The use of theory should be understood as a guide and not a complete method in capturing the complexity of a phenomenon and scope of information.

Conceptualization and Operationalization of Research Questions:

The researcher used a mixed methods approach to data collection using both a qualitative and quantitative approach. In an effort to better understand the environment and perceptions of teachers’ social-cultural norms, qualitative methods were used. Understanding of the general systematic views among a population in regards to a given focus area allows for the exploration of the influence on individual and contextual variables in relation to cultural influence on HIV/AIDS education. Using mixed methods, both a qualitative and quantitative approaches to data collection allows for the triangulation of data collection conveying multiple vantage points (Dudwick, 2006; Watkins, 1993). Qualitative data collection provides insight into the nuances of relationships and the context these exist within. Perceptions and beliefs cannot be meaningfully reduced to numbers or adequately understood without reference to the local context in which people live. While questionnaires can accurately identify questions suited for the research, limitations still remain. Such limitations can be mitigated by qualitative methods as these are inclusive of insights from the field and yield room for unexpected findings. A qualitative methods provide an appreciation for the

respondents' context, and considers the power paradigms that may exist within a community.

According to Lupton (2000), the qualitative method that plays into an individuals' or groups discovery and creation of their perceived reality, the process by which individuals and communities develop ideas, determine experience, as well as frames of reference. Understanding health, illness and disease from a cultures perspective provides an explanation of the roots and development of individual and collective perceptions. It should be noted that this perception is not stagnant, but can change and evolve over time. Common understandings and frameworks allow people to work from a place of agreed upon truths (Lupton, 2000).

Data was collected using a servay and one-on-one interviews. Generally speaking, in qualitative methods one continues to interview individuals until a point of "concept saturation" is achieved. This means that the researcher gets repeated information/responses to the same questions. Depending upon social stratification within a community, concept satuation can be reached quickly, usually between the 10th and 15th interview. The goal of qualitative methods is to achieve the state of concept satuation and to capture the cultural context. Specifically, teachers were interviewed, from each school type (public, community and government). Teachers were still welcome to fill out the survey. The interviews were announched by the Principal and the first teachers willing were invited to particiapte. Personal names were omitted from all interview and transcripts. The researcher used a notes only method and code the underlying categories. Research question(s) had to be flexible and free enough to explore the issue in depth, and should gradually become narrower during the research process, but they should not become so narrow that they block the possibility of further

discovery. In other words, open ended responses extend the balance and expertise from the researcher to the respondents, in this case teachers, thus encouraging teachers to identify and articulate their priorities (Dudwick, Kuehnast, Nyhan, & Woolcock, 2006).

However, just as there are limitations to quantitative methods, there are also limitations to qualitative methods. It is generally harder to extrapolate findings from qualitative methods. This can make it difficult to replicate information generated with a particular population. In this case, teachers are being generalized as the voice of the broader educational community in Zambia. To address limitations of both methods, triangulation will be used to compare findings and uncover links that might provide a more comprehensive understanding of HIV education and teachers' barriers and facilitators to implantation (Dudwick, 2006; Watkins, 1993).

The written questionnaire were developed by modifying existing and validated questionnaires and assessing individual teacher-related variables and factors that theoretically influence teachers' HIV attitudes. Survey questions, although not exhaustive of all possible theoretical constructs, were aimed at identifying factors associated with effective HIV education within the classroom setting in Lusaka, Zambia.

Measurement of Key Variables:

The information solicited was related to individual and social teacher-related factors, demographics, perceived school climate, knowledge, teachers' self-efficacy specific to HIV education, HIV-related stigma, perceived gender ideologies, and OVC.

Research questions have been broken down from a broad question into

Research question #1 Title: Factors associated with schoolteachers' level of adoption and perceived need of HIV prevention education within the classroom setting in Lusaka, Zambia?

Research questions:

Research Question # 1.1: What are the factors associated with a teacher's adoption of classroom-based AIDS education among the different school types in Lusaka, Zambia?

Research Question #1.2: What are the factors that influence schoolteachers' perceived needs for an HIV/AIDS curriculum development in their respective school settings?

Research question #2 Title: Exploring factors associated with a school teachers' attitude of HIV prevention education within the classroom setting in Lusaka, Zambia?

Research questions:

2.1 Do student-related characteristics (orphan and HIV status), influence a teacher's perceived need and attitude toward HIV education within and between school types (community, government and private/church) in Lusaka, Zambia?

2.2 What specific needs do teachers perceive OVC to have, that they feel should be address within the academic setting?

specific questions to guide the inquiry of this study.

Research question #3 Title: Exploring factors associated with a teacher's self-efficacy towards HIV prevention education within the school setting in Lusaka, Zambia.

Research Questions:

3.1 What are the key predictors for schoolteachers' self-efficacy toward HIV prevention education within and between their respective school settings?

3.2 Critical analysis if the role of self-determination in understanding a teachers' HIV self-efficacy within a school based setting?

Table 1.1 Conceptualization of research questions and measurement of key variables

Key constructs	Measurement	Definition
Adoption	3 Items 0 (minimal adoption) 3 maximum adoption ¹	<ul style="list-style-type: none"> * Composite score for adoption * The processes that are the sequences of organizational and support mechanisms that account for the degree of adoption found at a given time. (Type of program, number of programs, type, and time spent). * Adapted from: Paulussen, T., Kok, G., & Schaalma, H. (1994). Antecedents to adoption of classroom-based AIDS education in secondary schools. <i>Health Education Research</i>, 9, 485-496. * Yale Child Study Centre (1999). <i>School Development Program</i>. SDP School climate surveys : Internal consistency reliabilities and variable definition
Needs	15 Items indicating teachers' perceived HIV needs for their school. Items ranged from 0 (1 no) from 0-15 (15 indicating a larger range of need)	<ul style="list-style-type: none"> * Composite score for Perceived needs * Intended to secure information about content that might be incorporated into an HIV staff development program (e.g. types of activities needed, organizational support and perceptions). * Questions adapted from Evaluating HIV Staff Development Programs (CDC) IOX Assessment Associates, handbook
Attitude towards HIV/AIDS (HIVatt)	10 items indicating teachers HIV Attitude Score ranged from 10 (supportive) to 50 (unsupportive).	<ul style="list-style-type: none"> * Composite score for Attitude * Attitude consists of beliefs about the consequences of performing a behavior multiplied by ones valuation of these consequences * Questions adapted from Nurses' Attitude About AIDS scale (Preston, D.B., Young, E.W., Koch, P.B., & Forti, E.M (1995). The Nurses' Attitude About AIDS scale (NAAS): Development and Psychometric analysis. <i>AID Education and Prevention</i>, 7, 443-454 and Ballard, D., White, D., & Glascoff, M (1990). HIV/AIDS education for persevere elementary teachers. <i>Journal of school health</i>, 60, 262-269
Gender attitude	13 items educators gender norms scale 13 (negative gendered associations) 60 (positive gendered connections toward HIV prevention).	<ul style="list-style-type: none"> * Composite score for gender attitude Gender attitudes: Attitudes and behaviors that a culture or society associates with each sex. * Questions are from "StaySafe": Reducing Risk Among Adolescents" grant number = R01 HD41735 by Dr. Laurie J. Bauman
School type	(1) Community (2) Government (3) Private ²	* This will include the types of schools that exist in Lusaka Zambia: community, public (government) and private.
Functional knowledge	11 items indicating teachers HIV knowledge scale 0 (low knowledge) 11 (high knowledge levels)	<ul style="list-style-type: none"> * Composite score for functional knowledge * Functional knowledge is information that relates directly to engagement in HIV-risk behaviors, as opposed to information indirectly related to one's HIV-risk behaviors. (transmission and prevention) * Questions adapted from (CDC) IOX Assessment Associates, handbook
Stigma	10 items indicating teachers HIV general stigma. Low stigma (10) "disagree" low stigma (1) high stigma.	<ul style="list-style-type: none"> * Composite score for stigma * Stigma is a facet of the social system is a powerful tool of social control * "Development of a Brief Scale to measure AIDS-related stigma in South Africa" Kalichman, C.S., Simbayi, C.L., Jooste, S., Toefy, Y., Cain, D., Cherry, C., and Kagee, A. (2005). Vol 9, No 2, 135-143

¹ Adoption can be transformed into a discrete categories (yes or no)² Attitude towards HIV can be transformed into a discrete categories

Table 1.1 Conceptualization of research questions and measurement of key variables

Key constructs	Measurement	Definition
HIV teaching-self-efficacy	7 items indicating scale HIV teaching Self-efficacy 7 (low self-efficacy) 28 (high self-efficacy)	*Composite score for self-efficacy * Belief that one has the capabilities to execute a specific courses of actions *Questions from ((CDC) IOX Assessment Associates, handbook *10-item instrument assesses educators' confidence in their ability to carry out a variety of activities necessary to provide HIV education.
Perceptions of OVC in school	5 items indicating acceptance of attitudes toward OVC, 0 (low stigma) 5 high stigma.	* Composite score for OVC * Attitude toward orphans and vulnerable students *Attitude toward OVC adapted from Questions adapted from Evaluating HIV Staff Development Programs (CDC) IOX Assessment Associates, handbook
Gender	Female	Gender is acknowledged as influential to learning and as a predominant influence on HIV education. Gender norms and attitudes are influenced by the perspectives and values of the reference groups used by individuals and can be changed by direct education or by experiences that expose one to the different gender norms of other reference groups (Selaiane et al., 2005).
Age	Age	Open - The teachers age at the time of survey
Religion	(1)Evangelical (2)Atheist (3)Catholic	The religion or faith that the teacher follows
Educational status (teacher's level of education)	Years of formal education	The level of formal schooling that a teachers has completed

Manuscript One

Factors Associated With Schoolteachers' Perceived Need and
Level Of Adoption of HIV Prevention Education Within the
School Setting in Lusaka, Zambia.

Objective: The purpose of this study was to evaluate the current state of HIV education in Lusaka, Zambia in an effort to identify sociocultural variables that may influence a teacher's adoption of classroom-based HIV/AIDS education; to assess teachers' perceived needs, for HIV/AIDS education within the school settings. Lastly, to compare the current state of HIV education efforts among school types in the Lusaka province.

Method: Mixed methods were used to collect data. Using semi structured interviews (n=11) and a survey (n=720), data were collected and analyzed using a sociocultural constructionist approach. An abridged version of grounded theory was used to guide the one-on-one interviews that were conducted to gain insight into the factors influencing schoolteachers' implementation levels and perceived needs for HIV/AIDS education. Using a list provided by the Ministry of Education, schools were stratified (grouped) according to type (private/church, community, and government) and then were randomly selected in proportion to their number and type. Schools were selected from the randomized list and questionnaires were administered to schoolteachers in the Lusaka Province of Zambia. Qualitative data were collected through one-on-one in-depth structured interviews with teachers examining the relationship between a teacher's level of adoption and their perceived needs regarding HIV prevention within their respective classroom settings within Lusaka, Zambia.

Results: In 2008, a sample of 720 teachers completed surveys within 123 schools, 226 (31%), from 62 community, 270 (38%), from 36 government, and 223 (31%) from 25 private/church schools, equating to a 91 percent response rate for teachers and 100 percent response rate for

schools sampled (CI=95). Three main themes emerged from this research. First, insight and evaluation into the current activities used to teach HIV prevention within each school type. Second, results suggest that structural factors (such as being in a community school) have a stronger association with HIV education adoption than individual factors. Analysis also indicated an association between HIV policy and hours teachers spent on HIV prevention in the classroom, suggesting school policy is a key influence on time committed to HIV prevention within the school setting. Lastly, the interviews brought specific teacher concerns to the forefront. Teachers expressed the need for targeted training in the areas of ARV [antiretroviral drugs] and first aid to better support those who are HIV positive students.

Conclusion: Both the survey and interviews provided insight into factors that are suggested to influence a teacher's HIV education dissemination as well as potential areas of HIV program development. Lastly, this work brings attention to areas where further study and focus are needed. The community perspective serves as a call to action in identifying and addressing gaps in HIV prevention education.

Introduction

According to the report on the global AIDS epidemic (UNAIDS, 2006b), sub-Saharan Africa is home to over 70% of the world's HIV-positive population, and 85% of all HIV-positive children live there (UNAIDS/WHO, 2006). Africa remains the epicenter of the global human immunodeficiency virus (HIV), which leads to acquired immunodeficiency syndrome (AIDS) (UNAIDS, 2006b). Across Africa, children are affected by the HIV and AIDS epidemic in their homes and their communities (Hunter & Fall, 1998; UNICEF, 1999). The problem has multiple layers of opposing forces, and demands dynamic solutions in approach.

In Zambia, there are approximately 920,000 people living with HIV (18% women and 13% men) (UNAIDS, 2006a). With the high prevalence of HIV/AIDS, Zambians have low life expectancies with the average being 38 years (Demographic and Health Survey [DHS], 2007). HIV is most prevalent in the two urban centers of Lusaka and the Copperbelt region in northern Zambia, rather than in poorer rural populations (Zambia Demographic and Health Survey, 2007; Zambia Human Development Report, 2007). Zambia's latest DHS, for 2007, indicates a slight decline in prevalence of HIV/AIDS, from 15.6% of the population in 2001–2002 to 14.3%.

Despite the enormous health and socioeconomic burden HIV/AIDS has had on Zambia, children are commonly referred to as the “window of hope,” suggesting schools, with their growing accessibility, are ideal environments for an extensive and systematic response to HIV prevention (Kelly, 2000). HIV-prevention education can fall within the realm of primary health care,⁷ a critical element in arresting the progression of HIV/AIDS in sub-Saharan Africa (Kelly, 1999; Kelly., 2006). The Millennium Development Goals (MDGs) mandate the coordination of global actions and efforts through a number of government and nongovernmental agencies; HIV/AIDS education is a priority if the goal of “education for all” is to be met. The Zambian Ministry of Education (MOE) has been supportive of HIV/AIDS programming efforts adopted by the UN, USAID, and others, designed to directly reach primary- and high-school students.

Schoolteachers are uniquely positioned to influence HIV-prevention education for youth in the classroom setting. In the words of one

⁷ Primary health care, defined in 1978 at the Alma Ata World Health Assembly of WHO, is a combination of curative, preventive, and promotive activities to improve overall community health. It includes multiple sectors—economic, political, and socio-cultural—and their effects on health and welfare.

government-school teacher, “We are the parents while these children are in school, and for others, we are simply the only parent they have.”

While most school-based studies focused on HIV-prevention educational outcomes for students, there is a lack of research on how schoolteachers' knowledge, attitudes, and skills affect HIV-prevention education (Paulussen et al., 1994; Tijuana, Figer, Daileader, & Savariaud, 2004).

The purpose of this study was to identify sociocultural variables that influence a teacher's adoption of classroom-based HIV/AIDS education, as well as to assess teachers' perceived needs for HIV/AIDS education within respective school settings in Lusaka, Zambia. This study was also meant to compare the current state of HIV efforts by school type in the Lusaka Province (including Chongwe, Kafue, Luangwa, and Lusaka). This work aims to address two areas of research: the factors associated with a teacher's adoption of classroom-based AIDS education among the different school types in Lusaka, Zambia, and factors that influence a teacher's perceived needs for an HIV/AIDS curriculum development in their school settings.

Survey questions were aimed at identifying factors associated with effective HIV education within the school setting in Lusaka. Based on literature reviewed, the researcher anticipated that factors of influence might include a teacher's: educational status, functional knowledge, perceptions of stigma, gender norms, school type, exposure to orphans and vulnerable children (OVC) in his or her school, self-efficacy (specific to teaching HIV prevention), and social demographics (e.g. age, gender, number of years taught, religion, prior education/training, and prior HIV education). Questions were selected primarily from the “Centers for Disease Control Assessment Associates Handbook” (Centers for Disease Control Assessment Associates Handbook, 2005).

Methodology and Research Methods:

As Elliot (2003) argues, an assessment of successful conditions for HIV-prevention education should be generated from the community to be served, and health programs need to be examined within the context for which they exist (their natural setting) (Minkler, 2005). Epistemology and methodology, or study of the nature of knowledge and its justification (Carter. & Little, 2007; Schwandt, 2001), are the fundamental concepts guiding the design of this work. In this case, we must gain an understanding of the culture defined not as behavior itself, but rather as knowledge used to understand behavior (Spradley & McCurdy., 1987). It has been acknowledged that formal theories of knowledge can enhance, but are not the sole determinant, of research (Mauthner & Doucet, 2003; Schwandt, 2001)—this view of knowledge sets the stage for the methodology of this study, or the “particular approach to inquiry” (Harding, 1987).

The theoretical foundation and analytical framework used for this research, sociocultural constructionism, recognizes the dynamic ways in which individuals or groups participate in the creation of their perceived social realities, examining the ways in which a social phenomenon (e.g., education) is developed and institutionalized (Lupton, 2000) relative to social contexts (Armstrong, 1984; Glasersfeld & Ernst Von., 1995).

While this approach provides an explanation of the roots and development of individual and collective perceptions, it should be noted that these perceptions are not stagnant, but can change and evolve over time—the common understandings and framework allow for people to work from a place of agreed-upon truth (Lupton, 2000).

Qualitative data collected in the study provided insight into the nuances of relationships and the contexts within which they exist, for perceptions and beliefs cannot be meaningfully reduced to numbers or adequately

understood without reference to the local context in which people live (Dudwick 2006; Watkins 1993).

Information about the schools was obtained from the Ministry of Education's Education Management Information Systems (EMIS) special data request (2006). The sample of teachers included those who worked within one of the school systems (government, private, or community)⁸ and were at least 18 years of age. This research used sampling without replacement, with schools as the stratum. Schools were chosen using a randomized list.

All teachers within the randomly selected schools were invited to participate in the study, and given consents and surveys in English. Proportionate sampling was used to reflect the equal probability of teachers being selected from any sample school, and allowed for an increase in the generalizability from the sample to the larger population of schoolteachers in Lusaka, Zambia. Due to the smaller percentage of teachers employed at community schools (12%) compared to government (60%) and private schools (28%), community schoolteachers were over-sampled to create groups that were proportionate in size to the largest group (i.e., government schools), thereby increasing power for inferences made regarding this stratum.

Of the 123 randomly selected schools, 36 were government, 62 were community, and 25 were private schools. Once headmasters and school deputies from each school type gave their consent, teachers were contacted. Teachers who verbally indicated they were willing to

⁸ Community schools are founded by the community to meet the basic needs of the community and for those children who are not in a formal school setting. Teachers receive small in-kind contributions from parents, but most receive no salary. Government schools (GRZ) are government-supported schools. Private schools are often costly in comparison to community and government ones, and are privately supported.

participate were given an informed consent document that had been approved by the Oregon State University Institutional Review Board (IRB) and the Department of Education in Zambia. Once informed consent was obtained, the questionnaires were administered; the final sample size consisted of 720 teacher surveys and 11 one-on-one in-depth interviews. The final sample for this study represent a 100% response rate at the school stratum (all 123 randomly selected schools participated in this survey), and a 91% response rate among the sample teachers selected who were surveyed.

Triangulation of both qualitative and quantitative data was used to compare findings and uncover links that might provide a more comprehensive understanding of HIV education, teachers' barriers, and facilitators to the adoption of HIV/AIDS prevention education within the classroom setting (Dudwick et al., 2006). Research questions were posed to predict the effects of an explanatory variable on the dependent variable without suggesting causal relationships or conclusive results (Dowd et. al 2002; King 1998).

Survey methods

Prior to data collection several steps were taken to assess the questionnaire's reliability and validity. An advisory board was established with Zambia's Ministry of Education, serving as an expert panel to optimize the cultural proficiency and validity of the material, as well as to maximize responsiveness to the survey. The advisory board also evaluated the survey's face validity.

To answer the first research question, what factors are associated with adoption and perceived needs of school-based HIV/AIDS education among the different school types in Lusaka, Zambia, questions were asked about teachers' experiences in conducting HIV/AIDS education at their schools, such as which topics were covered during a school year or

six-month period, and to what extent HIV-prevention activities had been adopted, and how much time had been spent on these activities. For research question two, factors that influence a schoolteacher's perceived need for HIV/AIDS prevention, the survey included questions on the assessment of needs, to obtain information about content that might be incorporated into an HIV-education/prevention staff-development program. For example, teachers were asked if they believed it was important to provide students with information on where to be tested for HIV infection, and if HIV/AIDS education was considered in their schools' policies or mission statements. Response options were "yes" or "no." Items on the questionnaire were summed together to develop composite scores. Reliability for adoption is shown to be low using all items with an alpha level of 0.150 and 0.517 for the assessment of needs.

In-depth semi structured interviews

The qualitative data were generated using concept saturation, which involves reaching the point in which gathering more data about a theme yields no further insight about the emerging theory (Guest, Arwen Bunce, & Johnson, 2006). The researcher gathered data from 11 one-on-one in-depth interviews with teachers from all three school types, using a notes-only method and coding the underlying categories. Interviews included questions like, "Do you currently teach HIV/AIDS prevention in your classroom?" and "What might your typical lesson look like?" "Are there challenges to teaching HIV education within your school?" If yes, "could you tell me more about these challenges?" Questions were followed up with, "Could you expand on that?" Teachers met with the researcher at their schools or outside of school, depending on their preferences.

While conducting the interviews, the researcher lived for a period of six months in the teachers' environment, which provided an opportunity to observe and describe individuals' interactions within a social context

and to analyze behaviors from the research participants' realities. Working within this method is expected to generate additional information and enhance a study's validity.

Results

Exploratory data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) Version 13.0 for Windows. Assumptions for the linear regression model were met, including normality, linearity, and homoscedasticity, as well as the absence of multicollinearity.

Internal consistency (Cronbach's alpha) was used to determine how well a set of items (i.e., individual teacher variables) measured a single construct (Merlo, Chaix, Yang, Lynch, & Rostam, 2005; Portney & Watkins, 2000; Tabachnick, 2001).

The summary statistics indicated the teachers' average age to be 35 years, and that they had completed an average of 12 years of formal education. Teachers in government schools generally had more years of formal education. Community school teachers tend to be younger, and have less years of education (10.5). This seems intuitive given that community schools are community based and teachers are usually paid on a donation bases and require less educational training compared to government or private schools. Males accounted for 54.6 percent of the sample; as there are more females in the school system than males, this would be considered an overrepresentation of males. In general, HIV knowledge levels (e.g. about body fluids that carry the virus) were high for both male and female teachers; this finding was consistent with the 2007 Zambian Demographic and Health Survey (DSH)'s data, which indicates that 97% of the population have accurate knowledge levels for both males and females. In comparison, teachers' HIV knowledge level may not be higher than the average population in Zambia. The most common HIV/AIDS prevention activity used to teach is drama groups

for community schools (59%), and class lecture for government (35%) and “no activities” (32%) for private schools. The most common topics addressed by all three school types are HIV/AIDS acquisition and HIV testing. Topics that teachers in all three school types expressed as “inappropriate” to discuss included where to buy a condom and common myths.

-Insert table 1 here –

However, while it was indicated that myths should not be addressed, many teachers expressed concern about how to handle child molestation that stems from the myth: “that being with [i.e. having intercourse with] a child will cure HIV/AIDS,” as one government-school teacher described it. Most teachers indicated that this practice was not common though many had worked with or knew of students who had been molested for this purpose. It should also be noted that 63 percent of teachers within all school types indicated that their school committed less than four hours to HIV/AIDS education or prevention in a six-month time period.

Schools for which surveys indicated “HIV/AIDS education [was] in the school’s policy or mission statement” reported a higher rate of implementation over a six-month period; and the chi-square test suggests that when school policy promotes HIV education, teachers report spending more time on HIV prevention. This is specific only to the amount of time spent, and does not indicate the quality of the time spent.

-Insert table 2 and 3 here –

Both logistic and linear regressions were used to address the research questions in identifying sociocultural variables that influence the

adoption and perceived needs of HIV/AIDS education. Logistic regression was used to examine variables of influence for the adoption of HIV education. Adoption variable (HIVadd) was transformed into a dichotomous variable (e.g. yes/no). Results for logistic regression indicate that a teacher's school type and self-efficacy (confidence score) influence their classroom-based HIV/AIDS education adoption. Teachers with a high level of confidence are 11% more likely to adopt HIV education within the classroom setting. Our model estimation indicated that community schools and government schools are (5.3 and 2.8 times, respectively) more likely to adopt HIV education compared to private schools, after controlling for other relevant variables. This suggests that community schools are currently more actively involved in HIV-prevention efforts, and have increased odds of adopting HIV/AIDS-prevention education. It makes sense that confidence would support teachers' adoption of HIV education, and suggests that training to increase confidence might support increased school based HIV education.

-Insert table 4 and 5 here-

Interestingly, community schools with a high rate of adoption indicate lower rates of perceived need compared to government schools. Private schools lack of overall HIV education is indicated by a low adoption rate and low perceived need score. Less attention toward HIV education could stem from the notion that private schools indicate being "removed" from the HIV epidemic in Zambia. From the interviews and based on the data the researchers surmise that private schools holds a culture that considers themselves to be insulated by a relatively higher social economic population, and access to education thus, considered to be not as vulnerable to the challenges of HIV/AIDs.

This study also used a linear regression model to investigate variables that are suggested to influence a teacher's perceived need for classroom-based HIV/AIDS education and factors that influenced the needs. Teachers from community schools' scores for perceived needs on average were 3.00 lower than government schools', while private schools had an average score of 1.84 lower than government schools' scores, after controlling for other relevant variables. This suggests that although community schools are more engaged in prevention efforts, teachers in schools with lower scores for prevention efforts also perceive a greater need for support. Community schools may also perceive they do not have HIV prevention education needs because they already indicate adoption. Again, self-efficacy is also positively associated with perceived needs.

A key theme that evolved out of the interviews was "how to involve parents in HIV education programs"; 98 percent of the 720 teachers surveyed in all school types indicated this to be an area of needed support. As one teacher said, "You know, we are the parents away from home, and we don't always have the language to teach this. We know the facts; we all know the facts..., but how to teach this is different."

Teachers also indicated the need for "ARV [antiretroviral drug] and first-aid training to better support students that are HIV positive." Another teacher said, "You know these are children, they run, they play, they get hurt, we must know how to protect them."

Interestingly, one area that teachers from all school types felt were not of importance was teaching HIV protection. The survey results indicated, the most common topics addressed by all three school types are HIV/AIDS acquisition and HIV testing. As one teacher put it, "We do not need to be telling students about the condom, for they will want to try using these and have sex." Only 1.8 percent of community-school

teachers expressed condom use as a topic that need to be covered, while 1.9 percent from government schools, and 1.3 percent from private schools did so. This suggests that HIV-prevention education is limited in scope, and topics are also limited.

Teachers also expressed the need for emotional support for students that are either affected or infected. As one community-school teacher noted, “We have anti-AIDS clubs, but the students already know of AIDS, plus these clubs are voluntary; the student with troubles at home will not have time to come to such a club.” Often teachers expressed the need to incorporate anti-AIDS clubs into the regular school programs, and include “other topics” that are often coupled with the HIV/AIDS pandemic, such as losing family, friends, and teachers, nutrition for the HIV positive, and the impact HIV has had on the students’ community. A community-school teacher said, “Students are not feeling ‘strong,’ you know,” with “strong” referring to a student’s self-confidence. As a teacher from a government school commented,

“I think we are missing an opportunity at the girls’ initiation period [at around age 14 or 15]. All the women in a girl’s life take her and tell her how to be women; you know what she must do to care for a family and her husband are her responsibilities. This is when we should be talking to the girls, to be telling them how to protect themselves, how to be tested, how to talk with their husband about past [in] discretions. We must be telling them more than just how to prepare a meal or respect one’s mother-in-law. You know many want to go wild at this stage—they need to have safety measures—they need to be told. We need to work within the systems that exist.”

Understanding the current level of HIV-education adoption and teachers’ perceived needs can lead to the development of efficacious, comprehensive, and targeted models for HIV-prevention education (Black, 1988; Kelly., 2006; Mathews et al., 2006; White & Ballard, 1993).

Discussion and Conclusion

A number of common themes emerged in this study. First, levels of adoption brought attention to the range of topics that teachers deemed inappropriate, that the majority of HIV prevention education was focused on testing and left out topics such as where to obtain a condom. Research has shown that comprehensive sex education (CSE) is necessary for behavior to change (Eisenberg, Bernat, Bearinger, & Resnick, 2008; Santelli et al., 2006). Mounting evidence demonstrates the effectiveness of CSE, which includes abstinence as the best prevention strategy, but also provides students with medically accurate information about contraceptives and condoms. This work also suggests that in an effort to support teachers, parents should also be encouraged to express their opinions on sexuality education to teachers (Eisenberg et al., 2008; Santelli et al., 2006), creating a collaboration between teachers and parents, so that teachers do not have the sole responsibility for determining what information is appropriate for students (Deevia, 2008; Exner Seal & Ehrhard, 1977).

Second, there are several areas of need as indicated by teachers that can be targeted to support teachers' effectiveness as HIV/AIDS educators. Teachers indicated a willingness to teach HIV prevention, willingness combined with high levels of HIV/AIDS knowledge, suggests, a need for capacity-building for teachers through increased training that goes beyond basic prevention education; for example, counseling skills and ARV and first-aid training need to be addressed. With increasing numbers of HIV-positive students within the school system, teachers are advocating for training in areas that will allow them to better support their students. With children, school can produce situations where students may be exposed to bodily fluids (e.g. blood). Often people do not know they are infected; therefore, it is important to have policies in place for managing accidents and injuries at school. It should be noted that such procedures are important not only for HIV but also for any

blood born infection. Considering that teachers indicated child abuse as an area of concern, it should be given attention—teachers need training to identify victims, and the skills and support to determine appropriate courses of action.

Third, the role of policy development for HIV-prevention education within the schools must be taken into account. Fourth, there is a need to gain a better understanding of the topics that teachers determine to be inappropriate, and how these might be appropriately included into the education system. Lastly, these findings need to be explored in relation to similar studies to determine if there are indeed common sociocultural variables that influence teachers' HIV prevention education (DiClemente et al., 2001).

There were several limitations within this study. As the study population for teachers was limited to Lusaka, Zambia, the results may have limited generalizability to all teachers in Zambia. It is also critical to consider that the survey results were based on self-report, and thus depended on the participants' accuracy and honesty, and that responses were limited to the voluntary actions of the participants. Lastly, there could be unknown variables that were not analyzed in this model, and the absence of published studies using the same survey limits comparison with other teacher populations.

We know that teachers are central to addressing HIV/AIDS prevention. However, additional international studies are needed to further explore the factors that influence HIV education within various school-based settings (Skelton, 1989). There is also a need to go beyond the influences on school teachers but to also explore the efficacy (amount and quality) of the HIV prevention within the classroom setting. Gaining a better understanding of the influences on schoolteachers in relation to HIV-prevention education is just one aspect to critically understanding

and improving the amount and quality of delivery of HIV education within school. The quality of delivery of HIV education, further, needs to be evaluated by its effect in preventing HIV transmission among students. For one cannot assume that knowledge will always leads to action.

Table 2.1 Summary statistics per school type†

	Government	Private	Community	Total
Age (Mean; SD)	36 (7.13)***	34.79 (8.66)	32.41 (9.13)***	34.48 (8.39)
Sex (%)				
Female	41.9	52.5**	42	45.4
Male	57.8	46.6**	58	54.6
Years of education (Mean; SD)	13.61 (4.52)***	12.95 (4.56)**	10.51 (4.09)***	12.43 (4.59)
Religion (%)				
Catholic	18.9**	21.5	32.7***	24
Evangelical	74.1***	65.5	58.8***	66.5
Others‡	7	13**	7.5	9.5

* p<0.1; p<0.05; p<0.01

† Chi-square test was run on categorical variables; t-test was run on continuous variables (age; years of education).

‡ Others include: atheist; Muslim; Baptist, etc.

Table 2.2 Cronbach's Alpha for Predictor variables

Predictor variables	Cronbach's Alpha
Needs	.517
Adoption	.150
Knowledge	.498
Confidence (self-efficacy)	.806
Attitudes	.527
Gender norms	.725
Stigma	.611
OVC Stigma	.225
Students HIV statuses	.777

Table 2.3: Summary statistics for education activities within each school type (community, government, and private)

Variables	Community School	Public/Government School (GRZ)	Private /Church Schools
<i>Total number of Teachers</i>	226 (31%)	270 (37%)	223(31%)
Techniques			
<i>Event #1- drama group</i>	134/ (59.3%)	41/ (8.4%)	41/ (18.4%)
<i>Event #2- class lecture</i>	122/ (54%)	96/ (35%)	61/ (27.4%)
<i>Event #3- outside guest lecturer</i>	57/ (25.2%)	59/ (21%)	44/ (19.7%)
<i>Event # 4 - other</i>	20/ (8.8%)	27/ (10%)	32/ (14.3%)
<i>Event # 5 – no activities</i>	15/ (6.6%)	36/ (13.3%)	73/ (32.7%)
Topics addressed			
<i>How someone can acquire HIV/AIDS</i>	88/ (8.9%)	95/ (35.2%)	72/ (32.2%)
<i>Common myths</i>	11/ (4.9%)	7/ (2.6%)	8/ (3.6%)
<i>Where to buy or obtain a condom</i>	4/ (1.8%)	5/ (1.9%)	3/ (1.3%)
<i>HIV, STD, or pregnancy prevention</i>	4/ (1.8%)	1/ (.4%)	0/ (0%)
<i>HIV testing</i>	38/ (16.8%)	44/ (16.3%)	27 (12.1%)
<i>Relationships</i>	74/ (32%)	91/ (33.7%)	47/ (21%)
<i>Have not discussed any of the above topics</i>	7/ (3.1%)	27/ (10%)	66/ (29.6%)

Table 2.4: Estimated coefficients of logistic regression model for HIV education adoption (HIVADD)

Logistic regression for HIV adoption					
Model	B	Std. Error	O.R	95% C.I.	
Constant	0.21	1.62	1.24	Lower	Upper
Public School†	0.98***	0.27	2.67	1.55	4.60
Community School†	1.68***	0.34	5.39	2.75	10.56
Age	-0.01	0.01	0.99	0.96	1.02
Female	0.28	0.21	1.33	0.87	1.02
Years of education	-0.05*	0.02	0.94	0.89	1.02
Need score	0.04	0.04	1.04	0.96	1.02
Knowledge score	-0.02	0.07	0.98	0.84	1.02
Efficacy score	0.10***	0.02	1.11	1.06	1.02
Attitude score	0.01	0.03	1.00	0.94	1.02
Gender norms score	-0.01	0.01	0.98	0.95	1.02
Stigma score	-0.06	0.09	0.94	0.79	1.02
Catholic†	-0.09	0.44	0.91	0.38	1.02
Evangelical†	0.20	0.4	1.23	0.56	1.02

Dependent Variable: HIV adoption
(N=654)

* p<0.10; ** p<0.05; *** p<0.01

† Reference categories: Private school; Other religion.

‡ Nagelkerke R²=.196

Wald= 222.53

Table 2.5: Estimated coefficients of linear regression model for perceived needs

Model	<i>Coefficients</i>		
	Beta	Std. Error	p-value
(Constant)	6.01	1.41	0.00
Community School †	-2.98	0.26	0.00
Private/Church School†	-1.84	0.26	0.00
Age	0.01	0.01	0.93
Sex	0.15	0.13	0.25
Years of education completed			
	0.05	0.02	0.02
Catholic**	-0.54	0.39	0.16
Evangelical**	-0.34	0.35	0.33
Adoption score	0.3	0.13	0.02
Knowledge score	-0.02	0.06	0.66
Gender norms score			
	0.03	0.01	0.04
Attitude score	0.03	0.02	0.24
Self-efficacy	0.09	0.02	0.00

Dependent Variable: perceived needs (N=654)

† Reference categories: Private school

**other religion

R²=.26

Manuscript Two

Exploring Factors Associated with a Teacher's HIV
Prevention Attitude Towards Orphans and Vulnerable Children
Within the School Setting in Lusaka, Zambia

Objective: The purposes of this study were to investigate first, how, if at all, student characteristics (student's HIV and orphan status) influence a teacher's attitude toward HIV education within, and between school types (community, government, and private/church). Second, the study aims to gain insight into the specific needs of orphans and vulnerable children (OVC) from the teachers' perspective in Lusaka, Zambia.

Design: Using structured interviews and a survey, data were collected and analyzed using the socioconstructionist approach as the theoretical framework. An abridged version of grounded theory was used as the foundational paradigm to understand factors that influence a schoolteacher's perceptions of orphans and vulnerable children within his or her school system.

Method: The researchers used a quantitative and narrative approach. Original cross-section data were collected through self-reported survey and in-depth interviews from schoolteachers in the Lusaka province of Zambia. Using a list provided by the Ministry of Education, schools were stratified (grouped) according to type (private/church, community, and government) and randomly selected in proportion to their number and type. Both types of data were analyzed with consideration for the theoretical underpinning, examining the extent of influence on the relationship between teachers' attitudes toward orphans and vulnerable children, and their attitudes toward HIV prevention education within their respective schools. The study was rooted in community development theory, socioconstructionist theory, and theory of reasoned action (TRA) was used to guide this inquiry.

Results: In 2008, a sample of 720 teachers completed surveys within 123 schools, 226 (31%), from 62 community, 270 (38%), from 36 government, and 223 (31%) from 25 private/church schools, equating to a 91 %response rate for teachers and 100 percent response rate for schools sampled (CI=95).

Out of the total, 85% of the surveys were fully completed, others had missing data. Teachers for all school types reported that schools and teachers are the appropriate community resource for HIV prevention education for youth. Both qualitative and quantitative data yielded insight into areas of need for teachers to better support their OVC students. Interclass correlation model indicated that there was no difference between teachers nested within schools. Years of teachers' education, gender norms, and being in a community school are associated with a teacher's attitude toward supporting HIV positive students. A teacher's attitude toward HIV positive students is negatively influenced by religion. Knowledge also appears to influence a teacher's HIV attitude.

Conclusion: The HIV epidemic in sub-Saharan Africa has given rise to a large number of orphans, a crisis that will not only affect them, but also detriment to the general population's health and economic welfare. As traditional family support networks disintegrate, there is a need for community capacity building. This study explores the factors that influence schoolteachers' attitudes toward OVC. Further, this study identifies a need for increased attention towards community schoolteachers, due to the number of orphans and vulnerable children that are in the community school system. This work suggests that schools could serve as a source or alternate mechanism of support for those that are considered most vulnerable within their community. Understanding of the factors that influence teachers' attitudes toward OVC and general HIV prevention attitudes helps policy makers to develop targeted policies to encourage successful school-based HIV/AIDS risk reduction programs.

Insight can also be useful in creating strategies to more fully understand teachers' role as HIV educators within their cultural setting and within the classroom setting.

Introduction

Based on morbidity and mortality rates and the evaluation of human capital (infrastructure, education, and poverty) (UNAIDS, 2006), Africa has been struggling to support the most fragile, innocent, and vulnerable layer of society—children. Across Africa, children are affected by the human immunodeficiency virus and auto immunodeficiency syndrome (HIV/AIDS) epidemic (UNAIDS UNICEF and USAID, 2004); sub-Saharan Africa alone accounts for 2.1 million deaths in 2006 (UNAIDS/WHO, 2006). According to the report on the global AIDS epidemic (UNAIDS, 2006b), sub-Saharan Africa is home to over 70 percent of the world's HIV-positive population.

In regions with high HIV prevalence rates such as Zambia, the education sector is forced to take responsibility and respond to the growing number of vulnerable students. Estimates in 2005 state that 1.2 million children in Zambia were either single or double orphans, according to the Global AIDS Alliance's definition of orphans and vulnerable children (OVC). The most accepted definition of an orphan is a child under eighteen who has lost one or both parents. Skinner, (2006) extends this definition to include parents who are unable or unwilling to provide care for their dependents. Poverty combined with the HIV/AIDS epidemic often places a range of children in a vulnerable place. With this consideration and for the purpose of this study OVC are defined as orphaned children under eighteen that may fall into one of the following categories: a *paternal orphan* is a child whose father has died, a *maternal orphan* is a child whose mother has died, and *double orphans* are children who have lost both parents. However, the researcher would also like to acknowledge that children may be vulnerable and still have both parents. For the purpose of this work, the term orphans and

vulnerable children (OVC) will be used, encompassing children that are HIV positive, orphans, or both (Skinner et al., 2006).

Children can be thought of as a “window of hope,” having a low HIV prevalence rate unless infected at birth, as they are less likely to be sexually active at such a young age. In just two years, from 2001 to 2003, the number of children orphaned by AIDS worldwide increased from 11.5 million to 15 million, and by 2010, it is expected that more than 25 million children will have been orphaned by this deadly virus (UNAIDS UNICEF and USAID, 2004). Zambia is currently experiencing one of the worst HIV/AIDS epidemics in the world, the result being that between one-quarter and one-third of children under fifteen years of age have lost one or both parents (Kelly 1999). The increasing prevalence of orphans is marked by an increase in child labor, child prostitution, sexual exploitation, and juvenile delinquency, as well as high rates of school dropouts (World Health Organization, 2007). OVC are more vulnerable to engage in transactional sex, thus increasing their likelihood of contracting HIV (Zambia Demographic and Health Survey 2009). It can be assumed that schoolteachers will be interacting with students that are either infected with or affected by HIV. For many OVC, teachers might be the sole consistent adult interaction in their lives. Therefore, the purpose of this study was to investigate how a student’s orphan or HIV status may influence a teacher’s attitude toward HIV-prevention education in Zambia’s schools. Children are in the formative years of life, earlier interventions suggest that children’s behavior and belief systems are still malleable, and can still be influenced by the education system (United Nations Children’s Fund, 2003; USAID, 2007a). Second, the researcher aimed to compare the differing school types to determine which are in the most need of OVC support. This information can guide funding, teacher training, and policy development.

To break the cycle of poverty, HIV/AIDS prevention requires an integrated response (UNESCO 2002), and education figures prominently within a multi-sectoral approach (Coombe & Kelly, 2001; UNAIDS/WHO, 2006). For many years, the response to HIV/AIDS has been similar across Africa. Typically it has targeted: (a) preventing HIV transmission, (b) caring for those who are infected and affected, and (c) reducing the social and economic impact of AIDS (UNAIDS 2006). Health education⁹ falls under the umbrella of prevention cited as a response to the HIV crisis (UNAIDS, 2006a; United Nations Development Program, 2007; World Health Organization, 2007), and schools are an ideal community resource and environment for an extensive and systematic method of HIV prevention (Kelly 2000). According to Walls (2009) when OVCs are viewed from an historical and development perspective the response to the OVC challenge has evolved through three stages: awareness, emergency, and structural integration. The awareness stage consists of recognizing the problem. Specifically, recognizing a challenge often translates to a need for a policy response. Currently, countries have been entering the stage of structural integration where they must try to find ways of addressing OVC that meet not only their short-term demands but their long-term developmental needs.

Schoolteachers and schools are uniquely positioned to be a part of a structural response; hence, teachers need a solid foundation of knowledge and skill to deliver the educational material and support the children. While most school-based studies focus on HIV-prevention education outcomes for students, there is a lack of research on schoolteachers' knowledge, attitudes,

⁹Health education: according to Griffiths (1972), health education attempts to close the gap between what is known about optimum health practice and that which is actually practiced. Health education evolved from three settings: communities, schools, and patient care sites. It is most often understood as a broad and varied set of strategies to influence both individuals and their social environments, to improve health behavior, and to enhance health and quality of life.

and skills regarding HIV-prevention education (Tijuana 2004). Numerous studies have focused on adults' attitudes in relation to people with HIV/AIDS (Brucker & Hall, 1996; Dijker, Kok, & Koomen, 1996a; McDonell, 1993; Ndeki, Klepp, Seha, & Leshabari, 1994; Osborne, Kistner, & Helgenmo, 1998; Siegal et al., 1995; Weinstein, 1985), but much less research has examined the reactions of adults toward school-aged students with the infection (Wodrich et al., 1999). The school system is a sustainable community structure for HIV prevention that can be monitored for quality. However, to date, little research has been undertaken in schools themselves to examine the experiences surrounding the education of HIV/AIDS-affected, orphaned, and vulnerable children (Ainsworth & Filmer, 2002; Gilborn et al., 2001; Kelly, 2000).

The educational sector is an existing framework within the community that reaches children and young people; as a permanent community structure, schools provide an established venue to reach a targeted population at high risk of HIV/AIDS (Barnett et al., 1995).

Methodology and Research Methods

Assessment of successful conditions for HIV-prevention education should be generated by the community to be served; further, health programs need to be examined within the contexts for which they exist—their natural settings (Elliott et al., 2003). Understanding what the indigenous population considers critical to HIV-curriculum development encourages the production of education that will be relevant to the community (Minkler, 2005). As Fellin (2001) states, this community approach, or social systems perspective, encourages suitability and sustainability. Too frequently HIV education is evaluated and guided not by the indigenous population, but by those outside the community (e.g., academics, nonprofits

or aid agencies). Often such evaluation are guided by assumptions of “Western” knowledge or theories reflecting the norms and values of those who generated them, which distorts community reality, which in turn undermining and disregarding the influence of culture (Cochran et al., 2008). This represents a departure from the principle of self-determination as advocated by the World Health Organization (Declaration of Alma Ata, article VI 1978). Qualitative data collection can provide insight into the nuances of relationships and the contexts in which they exist, but perceptions and beliefs cannot be meaningfully and adequately reduced to numbers or sufficiently understood without reference to the local context in which people live (Watkins. & Gray, 2006). The socioconstructionist theory (Barnard, 2006) and the theory of reasoned action (TRA) were used to guide this inquiry. TRA proposes conceptually independent determinants or predictors of intention to perform a behavior. This study specifically examined the teachers’ attitudes—defined as a favorable or unfavorable evaluation or judgment—about given behaviors (Ajzen & Fishbein, 1980).

Study Population and Sample

Information about the schools was obtained from an Education Management Information Systems (EMIS) Ministry of Education special data request (2006). The sample of teachers included those who met the inclusion/exclusion criteria: teachers who worked within a school system (government, private, or community¹⁰) and were at least eighteen years of age. This research used sampling without replacement, with schools as the chosen stratum using a randomized list. Due to the smaller percentage of

¹⁰ Community Schools are founded by the community to meet basic community needs and for those children who are not in a formal school setting. Teachers receive small in-kind contributions from parents, but most receive no salary. Public Schools (GRZ): are government-supported schools. Private Schools are often costly in comparison to community and government schools, and are privately supported.

teachers employed at community schools (12%), compared to government schools (60%), and private schools (28%), community schoolteachers were over-sampled to create groups that were proportionate to the largest group (i.e., government schools), thereby increasing the power for inferences made regarding this strata.. Of the 123 schools in the sample, 36 were government, 62 were community, and 25 were private schools. All teachers in randomly selected schools were invited to participate in the study. Surveys were in English, and were administered to government, community, and private-school teachers within the Lusaka province (Chongwe, Kafue, Luangwa, Lusaka).

A headmaster or a school deputy from each school type met with the researcher. Once they had given their consent for the surveys, a time was set for the researcher to contact teachers. Teachers who verbally indicated they were willing to participate were given a written informed consent that had been approved by Oregon State University's Institutional Review Board (IRB) and the Department of Education in Zambia. Next, the researcher distributed questionnaires.

To address limitations of both qualitative and quantitative methods, triangulation was used to compare findings and uncover links that might provide a more comprehensive understanding of HIV education in association with a teacher's attitude toward student characteristics (such as a student's OVC and HIV status) (Watkins. & Gray, 2006). The research questions, rooted in an eclectic framework considering human behavior as an outcome of various interactive factors within a social web, were posed to predict the effects of explanatory variables upon the dependent variable without suggesting causal relationships, and yet acknowledging the uncontrolled environment (King, 1997).

Survey Instrument

Survey questions were aimed at identifying a range of factors (e.g., educational status, functional knowledge, stigma, gender norms, school type, demographics, and teaching-self-efficacy [specific to teaching HIV prevention to OVC]) associated with effective HIV education within the school setting in Lusaka, Zambia. Questions were primarily selected from the Centers for Disease Control's *Assessment Associates Handbook* (Centers for Disease Control and Prevention, Collins, Rugg, Kann, & Stephen, 1996). Prior to data collection, several steps were taken to assess reliability and validity of the questionnaire. An advisory board was established with the Ministry of Education in Zambia and served as an expert panel to optimize the cultural proficiency and validity of the material, as well as to maximize the response rate of the survey. The advisory board also evaluated the face-validity of the survey.

The survey included information on demographics, such as the teacher's age, gender, number of years taught, religion, prior education or training, and prior HIV education. Questions were specifically asked about each teacher's attitudes toward students' OVC and HIV statuses. For example, a question focused on OVC status asks, "Do you feel responsible for the orphans in your school", responses included "agree" and "disagree." A question that addressed the students' HIV status was phrased as:

"Students who have AIDS should be segregated from other students."
Responses for this included "Strongly Agree," "Agree," "Not Sure," "Disagree," and "Strongly Disagree." The raw scores for the items were summed to yield a composite score.

Teachers' attitude toward HIV prevention questions were adapted from items from the National Health Interview Survey (Hardy, 1990; Koch, Preston, Young, & Wang, 1991; The National Health Interview Survey, 1990), and an instrument previously used in a study of elementary school educators (Ballard, White, & Glascoff, 1990). The attitude scale contained 10 items such as, "AIDS is a punishment for poor moral behavior", or "I believe a witch doctor can help me so that I do not become HIV positive". Educators are asked to respond to each statement using a 5-point Likert scale. Response options include (1) Strongly agree, (2) Agree, (3) Uncertain, (4) Disagree, (5) Strongly disagree. A total score for each educator adds the point values of responses. Scores can range from 10 (unsupportive) to 50 (supportive attitudes toward HIV). Each set of variables generated a composite score.

In-Depth Interviews

This research also used in-depth interviews to supplement the survey. From each school type—public, community, and government—teachers were interviewed. The qualitative data generated from these one-on-one in-depth interviews was gathered using a concept saturation method, yielding eleven interviews in total. Using a notes-only method, the researcher coded the underlying categories during the interviews. When themes started repeating, the researcher drew the process to a close (Glaser & Strauss, 1967). This process grants the researcher an understanding of the general systematic views among a population in regards to a given focus area; thus, the researcher can explore the influence of individual and contextual variables in supplement to or/and relation to cultural influence on HIV/AIDS education. The interview contained questions such as, "Do you feel responsible for the OVC in your school?" and, "What does this

responsibility look like to you?” What kinds of challenges do you face when working with OVC?”

Statistical Analysis

Exploratory data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 13.0 for Windows (SPSS, Inc., Chicago, IL). Assumptions for the linear regression model were examined and found to have been met; they showed normality, linearity, and homoscedasticity, as well as a lack of multicollinearity. A measure of internal consistency, Cronbach’s alpha, was used to examine how well a set of items (i.e., individual teacher’s variables) measured a single construct (Portney & Watkins, 2000; Tabachnick, 2001).

A linear regression model was specified based on social constructionism theory (Barnard, 2006) and the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980). The major focus of social constructionism is to uncover the ways in which individuals and groups participate in the creation of their perceived social reality (Albrecht, Fritzparick, & Scrimshaw., 2000; Barnard, 2006). In this case, variables were included that are postulated to influence a teacher’s attitude toward students that are HIV+ and/or OVC. Further, TRA asserts that a person's behavioral intention depends on the person's attitude. Explanatory variables for a teacher’s HIV attitude included school type, demographics, sum of knowledge score, sum of efficacy score, sum of gender norm score, and sum of stigma score. Explanatory variables for a teacher’s attitude toward HIV students included school type, demographics, perceived needs, sum of knowledge score, sum of efficacy score, and sum of gender norm score. Explanatory variables for a teacher’s attitude toward OVC included school type, demographics, perceived needs, sum of knowledge score, sum of efficacy score, sum of gender score, and sum of HIV attitude score. A correlation matrix was estimated to examine

the relationship among variables, and interclass correlation was used to partition the variance within and between schools; in this case, the relationship between schoolteachers nested within various schools, and the proportion of variance attributable between schools.

Results

The final sample size was 720 teachers, with an overall response rate of 91%, based on the number of teachers involved out of the total number in the schools sampled. Eighty-five percent of the surveys were fully completed, others had missing data. Further, the response rate at the school stratum was 100%; all sample schools that were randomly selected participated in this survey. The summary statistics indicated that the teachers' average age was 32 years, and they had completed an average of 12 years of formal education. Of the sampled teachers, 54% were males; this would be considered an overrepresentation of males, as there are generally more female teachers in the Zambian education system. In general, knowledge levels (e.g. bodily fluids that carry the virus) were high for both male and female teachers; this was consistent with the 2007 Zambia Demographic and Health Survey (ZDSH). HIV awareness was almost universally found to be 99%, with negligible consideration for differentials by background characteristics for both males and females.

-Insert Table 1-

The Theory of Reasoned Action (TRA) was used as the theoretical framework to guide this inquiry. TRA proposes conceptually independent determinants or predictors of intention to perform a behavior. This study specifically examines attitude, which refers to a teacher's favorable or unfavorable evaluation or judgment about a given behavior (Ajzen & Fishbein, 1980). Reasoned Action predicts that behavioral intent is created

or caused by two factors: our attitudes and our subjective norms. For this work, we have focused on attitudes as a point of behavioral intent for teaching HIV education. Results of the logistic regression model for a teachers' HIV attitude indicate that a teacher's religious affiliation factored into his or her HIV-prevention attitudes, and this in turn appeared to influence the teacher's HIV attitude. Teachers that indicated a religious affiliation indicated a lower supportive attitude, as indicated after controlling for other relevant variables. Knowledge, years of education, and being female all indicate a positive association to a teacher's HIV attitude. A teacher with more HIV knowledge is 10% more likely to have a positive HIV attitude. Females are 29% more likely to have a positive HIV attitude. Teachers in community schools also indicated an average of 32% lower supportive attitudes than teachers from government schools in their HIV attitudes. A government school teacher is 14% less likely to have a positive HIV attitude compared to a private school teacher. Interestingly, while community schools had a higher rate of adoption, however; community schoolteachers also are more likely to have a negative attitude. Community schools were also more likely to have HIV prevention in the mission statement suggesting that teachers have to adopt activities, but this does not reflect a positive attitude toward HIV education. The researcher postulate that community schoolteachers' negative attitude could be the result of overburden on teachers due to their resource poor academic setting combined with a high number of OVC in comparison to the government and private schools. The real reason behind their different attitude, however, requires further investigation.

-Insert Table 2 here-

The results of linear regression model estimation show that HIV stigma, OVC stigma, and gender norms were variables of statistical significance. The Cronbach's alpha indicated an acceptable value at 0.78; note that a reliability coefficient of 0.70 or higher is considered "acceptable" in most social science research situations. The alpha evaluates the relationship between the number of items and the variance of standard deviation when summed over the items, accounting for inter-item correlation.

-Insert Table 3 here-

Community school teachers in general had an average score of 0.12 lower support for OVC compared to government schools, while private schools had an average score of 0.11 higher than government schools, after controlling for other relevant variables. Further, results of this research suggested that there is a gap in training or support for community schools, especially in regards to OVC. This deserves consideration as community schools usually have a higher number of OVC enrolled, suggesting a need to engage community schools in efforts to support students who are considered OVC. The Cronbach's alpha for OVC stigma was 0.23; this can be interpreted as the internal consistency explained. This is considered low and may be viewed as a limitation. The correlation matrix was conceptually relevant, but distinctively different, and an interclass correlation (ICC) model on composite scores of OVC stigma was used to examine reliability coefficients and may be conceptualized as the ratio between-group variance to total variance. ICC approaches 1.0 when there is no variance within targets, so for this study, ICC was at an optimal level.

The focuses addressed thus far have been on student characteristics as an influence to a teacher's attitude toward HIV education within school

types in Lusaka, Zambia. It is also important to understand from the teachers' perspective what the pressing needs of OVC are within the school or what the teachers feel they need to support OVC students in relation to HIV prevention. Teachers in government and private schools expressed a belief that educational support was the most prevalent need for OVC (26% and 35.9%, respectively), whereas community-school teachers felt that medical support was the greatest need (38.7%). These findings are consistent with Community Health and Nutrition, Gender and Education Support-2 (CHANGES2)¹¹ findings. Teachers in CHANGES2 schools indicated that local health center staff “never” visited their schools; this lack of health care serves as a limit to critical health interventions and care for these children who are vulnerable and most likely in need of medical support.

Based on the data collected and the semi-structured in-depth interviews, teachers in community schools are on the frontlines of defense and support for the most vulnerable students—those with HIV or those who are considered OVC. From the in-depth interviews a teacher in a government school reported, “We have a mix of double and single OVC, over 213 in this school alone. How can children learn like this? We need a department just to handle the needs and yet we still cannot do this alone.” According to the researcher's interviews, a framework to assess the needs or even aid in determining if a child is OVC does not exist. Often assessment is based on the appearance of a child. This hinders consistent record keeping of OVC

¹¹ CHANGES2 is a four-year program that was developed to strengthen the professional skills of basic education teachers. The program, co-funded by the United States President's Emergency Plan for AIDS Relief (PEPFAR) and the United States Agency for International Development (USAID), places a special focus on HIV/AIDS prevention as well as support for orphans and vulnerable children.

within a school system that also potentially encouraging stigma to those that are given support. This also might suggest that educators are on their own in determining if a child is in need. Providing educators with better guidance in terms of behavior criteria might ensure that students in need receive the right support. Data analysis also suggested a need for medical support within community schools as well as developing precautions such as first aid training so that teachers can manage injuries at school. Teachers also expressed the need to find ways to include parents in their children's HIV-education process.

Another teacher said, "We need training, we need counseling skills, so we can deal with the day-to-day issues that these children are having." The similar concern was expressed by other teachers. As a Government schoolteacher said, "These children come to school, for some it is a safe place, a place for support and care. We the teachers we have to provide this, you know....but ah, I am tired, I too as a teacher need support there are many things I don't know when it comes to HIV prevention. I know the basics you know, but still there is more to know the topics beyond prevention. You know many of these children they are caring for themselves, some with family but many are on their own".

Community schools are founded by the community to meet the community's basic needs, and for those children who are not already in a formal school setting. Zambia has long had a strong tradition of communities that mobilize for self-help; local leaders, community development workers, health workers, religious leaders, and politicians have thus facilitated the creation of required services such as schools, clinics, and roads (World Food Programme, December 2006).

Community schools in Zambia are an example of this kind of community mobilization. Further, community-school teachers receive small in-kind contributions from parents, and do not receive a salary, so they are even less well equipped to help the students. One example of this is a teacher in a community school said,

“It is hard. I don’t make much money, you know, how can I support these orphans? We need to have other skills in the schools to support the children and the teachers.”

Our findings also suggested that most teachers felt that school was the best place to support OVC and HIV-positive students. Further, this research suggests that community-run schools without fees or dress codes can provide more support for OVC than government or private schools, which have dress codes, and fees.

-Insert Table 4 and 5 here-

Discussion and Conclusion

In conclusion, two key findings emerged from this study. The first major finding was the need to enhance community schools as primary community resources to support OVC. This work suggests that community schoolteachers have some negative attitudes toward OVC students. However, this work also indicates teachers with increased training and knowledge have an increased positive attitude toward OVC, which suggest the need for HIV prevention educator training for community schoolteachers. As stated, community schoolteachers have less years of formal education and are often community volunteers. Data does indicate that OVC are attending school. According to the 2009

Zambia Demographic and Health Survey, in general, OVC are only very slightly disadvantaged with respect to school attendance in comparison to other children; 88% are currently attending school, compared with 91% of children who are not considered OVC. This suggests that OVC might be

missed by the community and health services are attending school. In turn, schools could create a healthcare access point for vulnerable children. This leaves schools as a valuable and often untapped resource for supporting the most vulnerable layer of society.

There is a great need to support community schools as the traditional mechanism for the care of vulnerable children, especially when these schools have started to break down under the twin pressures of poverty and disease. The large number of orphans is responsible for destabilizing working households in sub-Saharan Africa. Historically, extended families have fostered orphaned children. According to the United Nations Children's Fund (UNICEF, 1999), an estimated 90% of orphaned children live in households with their extended families (United Nations Children's Fund, 2003). Ideally, supporting the extended family should be the preferred choice in guiding policy (Deininger, Garcia, & Subbarao, 2003; MacFarlan & Sgheri, 2001; Subbarao, Mattimore, & Plangemann, 2001; United Nations Children's Fund, 2003). However, recently families have expressed reluctance to care for additional children due to the strain on their households (Botswana Ministry of Health, AIDS/STD Unit 1998). This reluctance suggests the inadequacy of relying on the family structure to care for children, which calls for the strengthening of communities' social infrastructures to supplement families' foundation of caring. Caregivers and community-based organizations must collaborate in implementing long-term solutions. There is a strong rationale for supporting community-level work, including funding and evaluating the effectiveness of their role (Banyard & Miller, 1998; Minkler, 2005). Community schools could potentially serve as an access point for care, support, and education for OVC. Knowing this information can guide funding, training, and policy development specific to OVC care and support. This study's second major

theme was an increased understanding of what teachers perceived they needed in order to support OVC within their school systems.

There are several limitations to this study. The first is that some variables important in influencing the outcome variables might have been left out of the model. In addition, this study considered only teachers' perspectives, and not students', parents', or school administrators'. As the study population for teachers was limited to Lusaka, Zambia, the results may have limited generalizability to all teachers in Zambia. It is also critical to consider that the survey results were based on self-report, and thus depended on the participants' accuracy and honesty, and that responses were limited to the voluntary actions of the participants. Another limitation is that this study did not consider support that is given to vulnerable children outside of the school setting (e.g., by churches and nonprofits). The influences of support in nonschool settings can have an impact, and should be considered in future work. The absence of published studies using the same survey limits comparison with other teacher populations. All limitations of cross-sectional data also apply to this study.

Finally, the educational pedagogy is regarded as a key defense against the spread of HIV, especially for orphans, those who are HIV positive, and those who are physically and socially vulnerable to HIV infection (UNAIDS, 2006a). In turn, this work supports the need to develop a conceptual framework and areas of need for schools to become centers of care and support. Second, there is a need to cultivate community schools as a resource for OVC students, as they could be considered available and appropriate venues to support health care and student emotional needs as well as equip the next generation with the skills needed for development and HIV prevention. Based on the teachers' high levels of HIV/AIDS knowledge and on the teachers' responses, this study shows that there is a

need for structural integration for teachers through increased training that goes beyond basic HIV-prevention education, such as counseling skills, and support groups.

Further research is needed to examine how OVC are identified within the school setting, and care allocated. When considering giving further support to community schools, there should be special consideration regarding the means or ways in which support is provided (i.e. medical, educational or emotional). Ideally, community schools appear to be the natural fit for OVC and HIV+ students; however, this fit demands consideration for the attitudes of teachers towards students that might require increased attention or care. Future work should also consider support that is given to vulnerable children outside of the school setting (e.g., by churches and nonprofits). Participatory research and sponsorship is suggested as a means of honoring community empowerment and capacity building.

Table 3.1 Summary statistics per school type†

	Government	Private	Community	Total
Age (Mean; SD)	36 (7.13)***	34.79 (8.66)	32.41 (9.13)***	34.48 (8.39)
Sex (%)				
Female	41.9	52.5**	42	45.4
Male	57.8	46.6**	58	54.6
Years of education (Mean; SD)	13.61 (4.52)***	12.95 (4.56)**	10.51 (4.09) ***	12.43 (4.59)
Religion (%)				
Catholic	18.9**	21.5	32.7***	24
Evangelical	74.1***	65.5	58.8***	66.5
Others‡	7	13**	7.5	9.5

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

† Chi-square test was run on categorical variables; t-test was run on continuous variables (age; years of education).

‡ Others include: atheist; Muslim; Baptist, etc.

Table 3.2 Cronbach Alpha for Predictor Variables

Predictor variables	Cronbach's Alpha
Needs	0.517
Adoption	0.150
Knowledge	0.498
Confidence efficacy	0.806
Attitudes	0.527
Gender norms	0.725
Stigma	0.611
OVC stigma	0.225
Students HIV status	0.777

Table 3.4: Estimated coefficients for linear regression model of composite scores HIV student stigma

<i>Estimated Coefficients</i>			
Model	Beta	Std. Error	p-value
(Constant)	9.69	2.92	0.001
Public School**	-0.2	0.39	0.598
Private school**	-0.14	0.41	0.728
Catholic†	0.57	2.44	0.81
Evangelical	0.62	2.44	0.8
Others	-0.1	2.47	0.96
Age	-0.01	0.01	0.53
Sex	0.26	0.18	0.15
Years of formal education completed	0.09	0.03	0.00
Adoption score	0.11	0.17	0.53
Knowledge score	0.05	0.08	0.50
Efficacy Score	0.02	0.03	0.50
Gender norms score	0.17	0.01	0.00
Perceived needs score	0.05	0.05	0.29
Attitudes score	-0.02	0.03	0.46
Stigma score	-0.39	0.1	0.00
OVC stigma score	2.26	0.19	0.00

Dependent Variable: Sum of Students' HIV-Score n=617

† Reference categories: Government school

**other religion

R²=0.42

Table 3.5: Estimated coefficients from model on composite scores OVC stigma

<i>Estimated Coefficients</i>		
Model	Beta	Std. Error
(Constant)	1.02*	0.56
Community School †	-0.12*	0.07
Private/Church School†	0.11	0.07
Catholic**	0.06	0.46
Evangelical**	0.05	0.46
Others	0.22	0.46
Age	0.00	0.00
Sex	0.02	0.03
Years of formal education completed	0.00	0.00
Adoption score	0.03	0.03
Knowledge score	0.03	0.01
Efficacy score	0.00	0.00
Gender norms score	0.00	0.00
Perceived needs score	-0.01	0.01
Attitudes score	0.01*	0.00
Stigma score	-0.07***	0.02
Students HIV score	0.08***	0.00

Dependent Variable: OVC Stigma (N=720)

* p<0.10; ** p<0.05; *** p<0.01

† Reference categories: Private school

**other religion

R²=.31

Manuscript Three

Exploring Factors Associated with a Teacher's Self-Efficacy in
HIV-Prevention Education in Lusaka, Zambia

Abstract:

Background: Africa remains the epicenter of the global prevalence of Human Immunodeficiency Virus (HIV), which leads to Acquired Immunodeficiency Syndrome (AIDS). Evidence indicates school-based HIV-prevention programming is an effective step in protecting the general population from further HIV infection. The purpose of this study was to investigate the role of teachers as agents of change for HIV prevention, and to investigate key predictors of schoolteachers' self-efficacy toward HIV prevention education in a school setting in Lusaka, Zambia.

Methods: Social Cognitive Theory guided this study. The work used an integrated qualitative and quantitative approach. An original cross-section of data was collected through self-reported survey interviews from schoolteachers in the Lusaka province of Zambia. Using a list provided by the Ministry of Education, schools were stratified (grouped) according to type (private/church, community, and government) and randomly selected in proportion to their number and type. Qualitative data was collected through in-depth interviews with teachers from these schools. Both types of data were analyzed with consideration for the theoretical underpinning, studying the factors that influence schoolteachers' self-efficacy toward HIV/AIDS education within their respective classroom and school settings.

Results: In 2008, a sample of 720 teachers completed surveys within 123 schools, 226 (31%), from 62 community schools, 270 (38%), from 36 Government schools, and 223 (31%) from 25 private/church schools equating to a 91 percent response rate for teachers and 100 percent response rate for schools sampled (CI=95). Coefficients estimated from a linear

regression model indicate that years of education, religion, adoption of HIV education, attitudes toward HIV, and gender norms were associated with a teacher's self-efficacy toward HIV prevention in their respective school settings.

Conclusion: Understanding teachers' self-efficacy provides a better insight of their beliefs about their skills as HIV-prevention educators while enabling a critique of the social environments that either enhance or hinder their work. This holistic understanding helps identify factors and structure that can be addressed to promote successful school-based HIV/AIDS-risk-reduction programs. Further, the results of this study will be helpful in creating strategies to better facilitate teachers' role as HIV educators within their cultural and classroom settings.

Introduction: Sub-Saharan Africa is home to over 70% of the global HIV-positive population. Africa remains the epicenter of the global prevalence of the Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) (UNAIDS, 2006b). HIV has created a generation of child-headed households, a situation that has negatively impacted the economy and the population's future development and sustainability. Children in dire situations will seek help from their peers and in environments where they have been supported, such as the school environment. In Uganda, education programs have been successful in reducing the incidence of HIV infection in recent years. Evidence indicates that school-based HIV-prevention programming, starting as early as primary school, is a necessary step in protecting the general population from further HIV infection (Barnett et al., 1995; Finger et al., 2002; Grunsheit, 1997; Kaaya et al., 2002; World Bank, 2000). This suggests that schoolteachers are on the frontline of the HIV-prevention challenge.

As adults in daily contact with students—especially students who are considered vulnerable and who may not be accessing other community resources or adult guidance—teachers are central to addressing HIV/AIDS prevention. Teachers are often considered by their communities to be knowledgeable about HIV/AIDS. However, additional studies in the African context is needed to further explore the contextual factors influencing HIV education within various school-based settings (Skelton, 1989). 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 (Brook, 1999; Mkumba & Edwards, 1992; Nwokocha & Nwakoby, 2002; Visser., 2006). Few studies have examined HIV/AIDS education in low-income countries and are mostly qualitative in nature (Chifunyse et al., 2002; Peltzer, 2003).

The purpose of this study was to explore factors that influence a teacher's self-efficacy, in relation to teaching HIV prevention and within the framework of self-determination. Self-efficacy is a construct from Social Cognitive Theory (SCT), and concerned with learning that occurs in a social context (Miller & Dollard, 1941; Salkind, 2004) and broadly defines the acquisition of information or education to include everything from technical knowledge to behavioral norms. As a behavioral model, self-efficacy is comprised of crucial personal factors that influence cognitive variables.

The principle of self-determination involves respecting a community's decision-making about its own future. When applying this principle to

educational contexts, it means respecting the choices and professional freedoms a teacher preferred in relation to his or her perceived need and intention to prevent HIV. This needs to be considered within sociocultural and environmental contexts, such as distribution of power, wealth and resources, culture, and value. Further, for an outside researcher to follow the principle of self-determination the researcher must always be conscious, listening to the community's voice and respecting its decisions, instead of imposing a preset objective to be achieved. For this reason, the researcher is not only considering the individual factors, but also the principle of self-determination and the sociocontextual conditions that facilitate rather than forestall the natural process of self-motivation (Ryan & Deci, 2002) for teachers to teach HIV prevention.

The Zambian Ministry of Education (MOE) is the largest government sector in the country. Currently under the MOE, educational provision is guided by the education policy document, *Educating Our Future* (1996), the policies of which focus on equitable access to quality education at all levels. Since 2003, the actual implementation of the policy has been based on the *Education Sector Strategic Plan, 2003–2007*. The MOE is organized according to the following levels: headquarters, 9 Provincial Education Offices (PEOs), and 72 District Education Boards (DEBs). In order to decentralize education and facilitate the deconcentration and devolution process, the MOE has created Provincial Education Management Committees (PEMCs), and District Education Management Committees (DEMCs) at provincial and district levels respectively.

The Zambian Ministry of Education is mandated to guide education's delivery, as well as to provide education at all levels. Zambia's educational system consists of formal academic learning at the basic education (grades

one through nine), high school (grades ten through twelve), and tertiary education (university college) levels. There are also three tiers within the educational structure.

The first is private schools, often operated with religious affiliations. Private schools require fees and often parents pay for books and uniforms. The second tier is the basic public or government schools (GRZ), for grades one through nine. These arose when the Zambian government recognizing that education is a right for each individual and implementing a free basic education policy designed to eliminate school fees. In principle, government schools are free; however, students are required to buy uniforms and books.

The last tier is community schools, part of a system that evolved when communities decided to address their children's lack of education, due in part to economic restraints. As the name implies, community schools are initiated and operated by the local communities they serve, while still under the auspices of the MOE. Community schools often provide education within a reasonable distance of children's homes, and welcome all children. A community school's teachers are often community members without formal training, who will be paid through in-kind donations (chickens, food, or other goods). Teachers and students often only meet for the minimal time requirement, an average of three to four hours a day. A typical community school may consist of two or three classrooms under shelter, plus outside classrooms. Classrooms are often small and crowded, with more than 60 to 70 students; if desks are available, students often have to share with 2–3 other students. Frequently, these schools lack electricity or water.

Research shows that most orphans and vulnerable children (OVC) are attending school suggesting schools are a potential source of public health and community intervention that has not yet been fully utilized. So far, the most serious problems addressed in the Zambian education system have been increasing enrollment, classroom shortages, and inadequate teaching facilities.

At the basic education level, there is a total enrollment of 3.2 million students. Of these, 77% attend government-sponsored schools generally located in more centralized, populous regions. On the other hand, 16% of the basic education level pupils attend one of the country's 2,708 community-based schools. Zambia is considered a stable democracy. However, 68% of the population of 11 million lives on less than one dollar a day. In addition, 16% of the population is infected with HIV. Currently there are an estimated 95,000 AIDS-related deaths per year. According to the education sector reports, education is one of the sectors most affected by HIV/AIDS. Evidence suggests that teachers in Zambia (20% HIV prevalence) are dying faster than new ones can be trained (Desai, Grassly, Drake, & Bundy, 2002). The impact of HIV/AIDS can be seen to affect education, impairing national Education For All (EFA) goals (Desai et al., 2002). Unstable education can also negatively impact the economy, economic growth, and economic stability of Zambia. School-based HIV prevention programming, starting as early as primary school, has been viewed as a necessary step to protect the general population from further infection (Barnett et al., 1995; Kaaya et al., 2002; World Bank, 2000). In turn, the AIDS pandemic has encouraged teachers to become one of the most important force in HIV prevention.

Methods

Original survey data were collected from a sample of teachers in Lusaka, Zambia. Teacher selection was conducted using a randomized stratified sample. This accounted for possible variation within the sub-population of teachers, and accounts for teachers between the different school types. The sampling of teachers followed two stages. First, schools were randomly chosen from a list provided by the Education Management Information Systems (EMIS) from the Ministry of Education's special data request (2006). Approval to contact teachers within a school was obtained from each school's head administrator. If a school refused to participate, another school was randomly selected to take its place. Second, all teachers within the selected schools were invited to participate in the study. Teachers were only included in the study if they were at least 18 years of age, and the study population was not restricted to any gender. Teachers who verbally indicated they were willing to participate were given a written informed consent form approved by the Oregon State University Institutional Review Board and the Zambian Ministry of Education.

An oversampling procedure was conducted to account for differences in the percentage of teachers employed at each school type. Hence, due to the smaller overall percentage of teachers employed at community schools (12%), compared to government schools (60%), and private schools (28%), community school teachers were oversampled to create groups proportionate to the next-smallest group (i.e., private schools), thereby increasing power for inferences made regarding this stratum.

Survey Instrument

Prior to data collection, several steps were taken to assess the reliability and validity of the questionnaire given to teachers. An advisory board

established with the Ministry of Education served as an expert panel to optimize the material's cultural proficiency and validity and maximize the survey's response rate. The advisory board evaluated the face validity of the survey. Survey questions although not exhaustive of all possible variables of influence, were aimed at identifying factors associated with teachers' perceptions of HIV education within the school setting in Lusaka, Zambia. Questions used were primarily selected from the *Centers for Disease Control Assessment Associates Handbook* (Centers for Disease Control [CDC] and its contractor, IOX Assessment Associates 2005).

Providing effective HIV education requires more from educators than being knowledgeable about HIV. It also requires them to be confident in their ability to provide students with an effective instructional program. Therefore, addressing topics such as how confident the educator is, that he or she can "explain to students at appropriate ages how a condom should be used," was explored using the confidence with sensitive topics questionnaire adapted from the *Centers for Disease Control Assessment Associates Handbook* (Centers for Disease Control IOX Assessment Handbook 2005). Total scores ranged from a maximum of 28 points, indicating a high degree of confidence, to a minimum of 7 points, indicating a low degree of confidence. The following scales were given for each question, and added together to construct the cumulative score across the questionnaire: five points meant completely confident, four points meant very confident, three points meant somewhat confident, two points meant not very confident, and one point meant not at all confident.

An abbreviated version of the AIDS-Related Stigma Scale was selected for use in this study because of its use in five different African communities (Kalichman et al. 2005). The scale was modified and is comprised of eight

items derived from Stigmatization Theory (Goffman, 1963). The eight items are responded to dichotomously as either “agree” or “disagree,” with responses scored to reflect the presence of stigmas against those with AIDS (Kalichman et al., 2005).

Lastly, questionnaire items were selected and modified from Stinnett (2004) to investigate the influence of students’ HIV-positive statuses on teachers’ attitudes, resulting in an eight-item scale with questions such as, “Students who have AIDS should be segregated from other students”. Educators were asked to respond to each statement using a four-point Likert scale. Response options included (1) agree, (2) not sure, (3) disagree, and (4) strongly disagree. In an effort to address the bias that might be attributed to a four-point Likert scale, responses were re-coded as (1) agree, (2) not sure, and (3) disagree (by combining “disagree” with “strongly disagree”). A composite score was calculated for each predictor variable. Cronbach’s alpha, which measures internal consistency, was used to evaluate how well a set of items (i.g., individual teacher variables) measured a single construct (Portney & Watkins, 2000; Tabachnick, 2001).

Results:

Descriptive characteristics of teachers within each school type were compiled. General linear models with random effects were specified based on the theoretical framework, to analyze the relationships between the predictor variables for teachers’ self-efficacy toward HIV/AIDS education within their respective school settings. The model specification and selection of explanatory variables were based on the behavioral construct of self-efficacy. Included in the model as explanatory variables were sociodemographic variables (i.e., age, sex, years of formal education, and

religion), school types (government private, community), perceptions of whether or not HIV/AIDS education was needed, HIV/AIDS knowledge, attitudes toward HIV/AIDS, gender attitudes, and adoption of HIV/AIDS-prevention programs. To estimate the model, we used the Statistical Package for the Social Sciences (SPSS), version 13.0 for Windows and STATA. Assumptions for the linear regression model were met, including normality, linearity, and homoscedasticity, as well as the absence of multicollinearity. Coefficients of the linear model were estimated by the ordinary least squares (OLS) estimator. Intraclass correlation was run to account for the possible effects each school had on a teacher.

Surveys were completed by 720 teachers from 123 schools in three types (community, government, and private), equating to a 91 percent response rate for teachers (CI=95), including 36 government, 62 community, and 25 private schools. Within these, 617 out of 720 teachers completely completed surveys (85.7%). Of the 720, 226 were from community, 270 were from government, and 223 were from private schools; (only one teacher did not indicate his or her school type). At the school level of sampling, all 123 schools randomly selected participated in this survey, resulted in 100% response rate at this stratum. In addition, guided by grounded theory 11 one-on-one in-depth interviews were carried out by the researcher (Glaser & Strauss, 1967).

-Insert table 1 here-

Summary statistics indicated that the teachers' average age was 34 years, and they had completed an average of 12 years of formal education. Generally, teachers in community schools were younger and have less

formal education. Males comprised 54.6% of the sample. As there were more females teaching in the school system than males, this sample contains an overrepresentation of males. Bivariate statistics were calculated to compare the degree of relationship between two variables.

In this study, there is an association between teachers who led HIV activities in the past and higher scores of self-efficacy for teaching HIV prevention ($\beta = 1.13$). This indicates that experience with HIV teaching increases their confidence. Teachers' years of education has small positive association with higher self-efficacy.

Teachers that indicate a religious affiliation appear to have a negative association with a teachers HIV self-efficacy, especially teachers who indicate themselves to be Catholics show a strong negative association with self-efficacy. Also, knowledge scores indicate a positive relationship with HIV self-efficacy, in which an increase of 1 unit in knowledge score results in the increase of 0.22 in teaching self-efficacy score, whereas an increase of 1 unit in attitude score results in the increase of 0.08 units in teaching self-efficacy. This makes sense; generally speaking, a teacher with more knowledge will have increased self-efficacy. However, the small $R^2 = .092$ should be noted. These explanatory variables explain only 9% of the systematic variance of the HIV attitude score, suggesting that the variables do not adequately explain a teacher's self-efficacy across this sample.

-Insert table 2 and 3 here-

In comparison to those from government schools, teachers from community schools reported more self-efficacy toward HIV prevention overall (β

=0.58). This surprised the researchers, as community schoolteachers often have less training, suggesting that they might also not have the same level of efficacy in their teaching. However, it should be noted that government schools have a large number of students, and a system that follows MOE policy. The government system and teachers may value HIV education but also may be taxed in their energy and autonomy, which may not be conducive to a positive attitude toward the implementation of HIV-prevention activities. This in turn would influence teachers' opportunities to develop skills as HIV educators. To further explore the relationship between school type and teachers' self-efficacy, the researchers ran an ANOVA on these variables. Results indicated teachers in community and private schools have a statistically significant higher score of self-efficacy, as compared with government school teachers .

In an effort to understand the cultural factors that influence a teacher's self-efficacy, gender norms were explored, and found to be positively associated with self-efficacy ($\beta = .08$). Social cognitive theory may assist our understanding of the role of a teacher's environment, the way self-efficacy is related to teaching HIV prevention within the classroom setting, and the role that gender may play.

In Zambia, girls ages 15 to 19 are up to five times more likely to be infected with HIV/AIDS than boys (Ministry of Education, 2007). Gender norms within the cultural context may have led to the increase in girls' vulnerability. Adolescents in Zambia held harmful myths about the ways to protect themselves (i.e., if they were young [12 to 15], they did not need to use condoms, and if partners seemed healthy, they would be safe) (Fetters et al. 1998). Forced marriage and widow inheritance are also provided as gender-related risks for acquiring HIV/AIDS. In the present study, female teachers reported less self-efficacy in teaching HIV prevention compared to

their male counterparts ($\beta = -.40$). As Mbugua (2007) points out, teachers are products of the traditional sexual socialization that influences how they learn about sexuality, which in turn influences their teaching. It is within this realm that teachers are working and their views of HIV are being constructed (Deevia, 2007, 2008; Mbugua, 2007).

Within this research, gender can be seen as an influence on HIV education. For example, when questioned if girls should carry a condom, 42% from government schools agreed and 19% and 37% agreed from community and private schools respectively. Across school types, 54% of teachers indicated that they “strongly disagreed” with the statement, “Girls should know as much as boys about putting on a condom.” This exposes gender norms in HIV/AIDS education as being part of the social structure that influencing HIV transmission rates—and in this study, affecting a teacher’s self-efficacy.

Nearly all (95%) of the teachers across school types indicated that they disagreed with the statement, “Students who have AIDS should not play sports with other students.” Approximately 92% of the teachers indicated they “would not mind having a student with AIDS in class.” A majority of the teachers from all school types (94.7% from government, 97.3% from community, and 96.1% from private schools) did indicate that schools should take responsibility for conducting HIV/AIDS education. In other words, most teachers were supportive of an inclusive environment for their students, one that did not segregate students based on OVC or HIV statuses. However, the teachers may not have had adequate self-efficacy to teach the material themselves.

Our in-depth interviews indicated that teachers who had prior experience in teaching the topic tended to express positive attitudes toward teaching HIV/AIDS. In general, knowledge levels (e.g., about body fluids that carry the virus) were high for both male and female teachers at 97 %. As a government school teacher stated,

“I have the HIV knowledge, we here in Zambia, we live with this; it is not new but a part of every day. What I am sometimes hesitant about [is] how to present such information—these children are dealing with a lot. They just need to be children, see. We are willing to teach HIV, but we also need training, we need time during the day to teach such materials, with this time we will become better at it, this is the way, yes?”

Semi structured Interview results

To enrich the cross-sectional data collected via survey (which often lacks depth of information), researchers also conducted in-depth interviews with teachers from each school type (private, community, and government). The researchers used a notes-only method (Barnard, 2006) and coded the underlying categories. Some teachers preferred to meet with the interviewer at their schools, others preferred meeting elsewhere. One teacher indicated she felt she could “talk freely” (government school teacher, 2008) outside of the school setting, where she would not be worried about her coworkers overhearing the interview.

In examining both self-efficacy and self-determination, one must consider elements that facilitate or forestall motivation, and consider teachers’ actions within the social contexts of norms and values. In our approach to addressing self-efficacy in the spirit of self-determination, besides furthering understanding of the contextual environment, we also challenge

the notion that a teacher's HIV-prevention self-efficacy alone is indicative of whether or not he or she will teach HIV prevention. The principle of self-determination focuses on the degree to which human behaviors are volitional—that is, the degree to which people endorse their own actions and engage in them with a full sense of choice. Following this principle, we also need to support each teacher's development and personality within their social contexts (Richard, 2000). This principle suggests that teaching HIV prevention needs to be studied in terms that are meaningful to teachers.

In the interviews, teachers expressed positive attitudes and a willingness to teach HIV prevention, but acknowledged limitations in autonomy, resources, and support, all of which hinder the progression of prevention efforts. As a government school teacher expressed, “We have over 219 students that are HIV positive, and some that are OVC—I cannot even tell you how many—how can we teach like this? When we are also dealing with the parents, what will they say, how will they think of this information.”

As another community schoolteacher said, “Yes, teaching this is important, we have this in our mission statement, but if I know parents will be angry, I want to keep my job you see, what is the motivation for me? I care, but I also need to feel supported by the community, by the parents. They might be upset for what I tell their children.”

HIV/AIDS-prevention education in Zambia is often focused on the biological aspects, with little information on human sexuality (Save the Children, 2007). As a government school teacher reported, this was due to embarrassment: “To talk about sex, that it is easier to adopt a uniform approach. To focus on the moral aspects—this will allow me not to be embarrassed.”

As was the case in other studies (Pattman & Chege, 2003), this study found that many teachers know how to prevent HIV, but are not sure what to teach or how to teach the material. In our interactions with teachers prior to conducting this inquiry, some indicated that talking about HIV and AIDS challenges ideas of childhood innocence, and could possibly “encourage” sexual promiscuity. Further, some teachers also said they felt overwhelmed by what needs to be done to support students, and expressed concern for how parents would perceive them if they did teach HIV prevention. Teachers were aware of parents’ and religious leaders’ possible objections to sexuality education, as it was often considered “an encouragement of boy–girl friendships as a uniquely Western idea” (Save the Children, 2008). As one public school teacher said, “Parents do support our HIV club, but still parents will not talk to their children about such things, even if they are living with HIV in the home.”

Conclusion:

Two major themes emerged from this work. First, understanding the factors that influence teachers' self-efficacy in teaching HIV prevention is useful in creating programs or HIV-prevention educator trainings. Second, in an effort to holistically understand self-efficacy, we find there is a need to account for the contextual environment that each teacher is exposed to. Research suggests that the most important influences on behavioral change are society and cultural practices (Biglan, 2004). Thus, an understanding of a society's culture is particularly useful in public health, because it addresses the multidirectional relationship between an individual's environment and the individual. Research also supports the need to understand teachers' self-efficacy from an approach that considers self-determination and the broader scope of social context as factors for the

conceptualization of HIV/AIDS prevention (Farmer, 2003). According to the self-determination principle, HIV education will be strengthened by recognizing indigenous knowledge and values, to ensure that actions related to HIV/AIDS prevention are decided upon locally, that support is culturally appropriate, and that the community chooses a community's priorities. According to this research, teachers in Zambia have the necessary HIV knowledge, but they need support (i.e., resources, time, and continued training) to teach HIV prevention.

There are several limitations to this study. As is the case for many studies, unknown factors related to teachers' self-efficacy in HIV prevention may have been left out of our model analysis. Second, this study only considered the teachers' perspectives, and did not include those of the students. Further, this work also did not consider the factors that may influence teachers and students outside of the school setting, such as media, government policy, and regulation. Lastly, while the researchers used social cognitive theory, we suggest that future studies should consider including the construct *self-determination*. This include investigating questions such as whether teachers considered HIV/AIDS an important issue in Zambia in general, and in teaching in particular. Researchers who wish to follow the principle of self-determination would want to include these questions in their studies.

Future work might formally assess the students' perceptions of their teachers as resources for HIV prevention. Findings from this work also suggest there is a need to examine the role that parents or caregivers play in HIV-prevention education. Lastly, this work supports the notion that although a teacher's self-efficacy is critical to effective teaching, it is not an

isolated variable; the teacher needs to be considered within his or her sociocultural context.

Table 4.1 Summary statistics per school type†

	Government/Public	Private	Community	Total
Age (Mean; SD)	36 (7.13)***	34.79 (8.66)	32.41 (9.13)***	34.48 (8.39)
Sex (%)				
Female	41.9	52.5**	42	45.4
Male	57.8	46.6**	58	54.6
Years of education (Mean; SD)	13.61 (4.52)***	12.95 (4.56)**	10.51 (4.09)***	12.43 (4.59)
Religion (%)				
Catholic	18.9**	21.5	32.7***	24
Evangelical	74.1***	65.5	58.8***	66.5
Others‡	7	13**	7.5	9.5

* $p < 0.1$; $p < 0.05$; $p < 0.01$

† Chi-square test was run on categorical variables; t-test was run on continuous variables (age; years of education).

‡ Others include: atheist; Muslim; Baptist, etc.

Table 4.2: Key Variables and Measures

Key Variables/ Measures	
Needs	15 Items indicating teachers perceived HIV needs for their school. Need response (1 pt) from 0-15 (15 indicating a larger range of need)
HIV Attitudes	10 items indicating teachers HIV Attitude Score ranged from 10 (supportive) to 50 (unsupportive).
School	(1)Community (2)Government (3) Private
HIV knowledge	11 items indicating teachers HIV knowledge scale 0 (low knowledge) 11 (high knowledge levels)
Self-efficacy	7 items indicating scale HIV teaching Self-efficacy 7 (low self-efficacy) 28 (high self-efficacy)
Gender norms	13 items educators gender norms scale 13 (negative gendered associations) 60 (positive gendered connections toward HIV prevention).
Education	Years of formal education
Sex	Female
Adoption	(1) adoption (0) no adoption

Table 4.3: Bivariate Statistics Associated with Teachers' Self-Efficacy in HIV/AIDS Prevention

Variables	Community (R/ p-Value)	Private (R/ p-Value)	Government (R/ p-Value)	Summary for all schools (R/ p-Value)
Composite score for needs	.04/.516	.36/.000	.14/.020	.14/.000
Composite score for adoption	.12/.066	.18/.006	.19/.002	.20/.000
Composite score for knowledge	.23/.001	.13/.047	.09/.158	.14/.000
Composite score for attitudes	.15/.026	-.05/.485	.34/.000	.16/.000
Composite score for Gender norms	.28/.000	.05/.448	.32/.000	.21/.000
	Community	Private	Government	Summary for all schools (t/ p-Value)
Adoption	1.00/.319	(t/ p-Value) 3.08/.003	(t/p -Value) 2.51/.016	4.22/.000

Table 4.4: Estimated Coefficients of the Linear Regression Model for Variables Associated with Teachers' Self-Efficacy in HIV/AIDS Prevention

Estimated Coefficients

Model	Beta	Std. Error	p-value
(Constant)	11.77	2.32	0.00
Community School †	0.58	0.46	0.21
Private/Church School†	0.03	0.44	0.94
Age	-0.02	0.02	0.18
Sex	-0.40	0.24	0.09
Years of education completed	0.06*	0.04	0.10
Catholic**	-1.22*	0.68	0.07
Evangelical**	-1.02*	0.62	0.09
Adoption score	1.13 ***	0.22	0.00
Knowledge score	0.22**	0.11	0.04
Gender norms score	0.08***	0.02	0.00
Attitude score	0.08*	0.04	0.05

Dependent Variable: Self-efficacy (N=716)

* p<0.10; ** p<0.05; *** p<0.01

† Reference categories: Private school

**other religion

CHAPTER 5: CONCLUSIONS OF ARTICLES, SUMMARY OF KEY FINDINGS, LIMITATIONS & RECOMMENDATIONS

HIV/AIDS is a major concern for public health, education, and economic development, (WHO, 2006). The educational sector is uniquely positioned within the community to create a standard model in HIV education leading to greater prevention amongst young people. However, such a program must be appropriate in reaching youth and providing a sustainable community approach. A community-based teaching approach can contribute to the development of culturally appropriate materials and methods that influence teachers' delivery of HIV education. Determining key variables from the schoolteachers' perspectives will facilitate points of intervention and change for HIV/AIDS education within the school setting in Lusaka, Zambia.

In conclusion, teachers play a very important role in addressing HIV prevention education, with educators acting as an increasingly crucial component to HIV response measures. Education remains a necessary component to prevention by offering infrastructure as a means to reaching a vast number of children before they become infected. Therefore, examining the role of teachers as a sustainable and accessible community response to HIV prevention was the focus of this research.

Summary of Key Findings from this Study

A number of common themes evolved from the three manuscripts presented. In manuscript one, the work supports the existing literature that teachers are central to addressing HIV/AIDS prevention education. Research assumes that teachers are uniquely positioned within the community to address youth HIV prevention education needs and that there

can be a synergistic relationship between schools and HIV education /prevention thus providing a more robust approach to addressing needs of educators and school attendees. Research explores the current level of HIV education implementation as well as the perceived needs of educators for the respective school settings. As more and more school-based sex education and HIV prevention programs are introduced, there exists a need to better understand the unique environments and community culture that influences the education sector and in this case, specifically HIV education. This research also acknowledges the current efforts in HIV prevention in Zambia while calling attention to the need for increased attention towards low income settings to further explore the factors that influence HIV education within various school-based settings (Skelton, 1989). With schools already struggling to provide quality education, response measures must maintain a balance between an ideal response to the situation and what is actually possible in order to ease educational demands already in place by the Millennium Development Goals. Addressing the educators' position within the community is crucial to further understand the impact and role they play as first responders within the community.

Manuscript one presented a summary of the current efforts and levels of HIV education adoption within the school based setting, while comparing adoption between school types. The most common HIV teaching activity was drama groups. Within all three school types sixty-three percent committing less than four hours of HIV prevention within a 6-month period. The role of policy positively correlated to schools. In other words, schools that had an HIV-prevention education program within their school were more likely to be incorporating HIV prevention/education within their daily curriculum, suggesting that policy is a marker for HIV program implementation. Educators that supported activities in the past were more likely to indicate planned activities for future.

The second focus of manuscript one was to understand from a teacher's perspective the needs that would facilitate HIV prevention education. Teachers reported that there is a need for capacity-building for teachers through increased training that goes beyond basic prevention education to include counseling skills, antiretroviral therapy (ARV), how to approach parents on the topics associated with HIV, and first-aid training. Teachers also suggested that the school take a role in teaching parents and care givers HIV prevention to encourage prevention opportunities within existing community systems (e.g. girls initiation period).

Manuscript two explores community development theory in relation to teachers as dominant agents of change within their community to better understand schools as a mechanism of support within the existing community structure. Due to high numbers of Orphaned and Vulnerable Children (OVC) as part of the student population, this study further investigated the unique needs of OVC and how, if at all, student characteristics especially a student's HIV and orphan status would influence a teacher's attitude toward HIV education. Research indicates that schools, as a community-based organization, must be a part of the process in implementing long-term solutions for HIV prevention and supporting OVC. Findings suggest that most teachers felt that schools were the best place to support OVC and HIV-positive students.

In this study, researchers examined the needs of OVC from the teachers' perspective. To date, there is no framework or measure within Lusaka Zambia for assessing the needs of OVC. Often assessment is based on

the “appearance” of a child. This hinders consistent record keeping of OVC’s within a school system while also encouraging stigma and marginalization to those that are given support. Teachers in government and private schools expressed a belief that educational support was the most prevalent need for OVC (26% and 35.9%, respectively), whereas community-school teachers felt that medical support was the greatest need (38.7%). These findings are consistent with Community Health and Nutrition, Gender and Education Support-2 (CHANGES2)¹² findings. Teachers in CHANGES2 schools indicated that local health center staff “never” visited their schools suggesting that schools could be points of integrated service delivery but that such services may be hindered by outside capacity and support.

Interclass correlation model indicated that there was no difference between teachers nested within school type. Stigma, and years of teachers’ education are positively correlated with a teacher’s positive attitude toward supporting HIV positive students. Using the theory of reasoned action a teacher’s attitude toward HIV positive students is negatively influenced by religion. Private church-based schools also indicated a lower score for support than community schools for attitudes toward OVC, which suggests that community schools are currently more receptive to HIV-positive students. This research suggested training or support for community schools, especially in regards to OVC, as community schools usually have a higher

¹² CHANGES2 is a four-year program that was developed to strengthen the professional skills of basic education teachers. The program, co-funded by the United States President's Emergency Plan for AIDS Relief (PEPFAR) and the United States Agency for International Development (USAID), places a special focus on HIV/AIDS prevention as well as support for orphans and vulnerable children.

number of OVC enrolled, indicating a need to engage community schools in efforts to support students who are considered OVC.

Manuscript three focuses on a teacher's self-efficacy in HIV/AIDS education and prevention. Self-efficacy, specifically in teaching HIV prevention as a construct of the social cognitive theory was the primary focus of this manuscript. As a model, it is comprised of crucial personal factors that influence cognitive variables for a person. However, the results of this analysis are discussed within the framework of self-determination, which is about respecting choice and professional freedoms a teacher perceived in relation to his/her perceived need and intention to carry out HIV prevention. This principle was later included into the analysis, and provides reflection for a critical review of the studies emic process. As an outside researcher, following the self-determination principle needs to remain conscious of, and respect the community's voice instead of imposing preset objectives. The reality is that school systems are already taxed; this is not so much a criticism of the education system, but more of an understanding. This means that school based responses to HIV prevention need to recognize and be sympathetic to the constraints. It also cannot be assumed that all schools or communities are able or willing to respond to HIV prevention education. Schools can be mobilized but doing so means following the self-determination principle. The self-determination principle acknowledges the emic versus etic approach. An emic approach to research is an approach that encourages sensitivity to the meaning of the phenomena from the communities' framework and perspective.

Key findings for manuscript three include gender norms' association with self-efficacy ($\beta = .11$). There are specific gender-related risks for acquiring HIV/AIDS; a teacher that is aware of gendered risk as traditional sexual socialization and indicates this is an important part of sexuality often has increased self-efficacy specific to HIV education. Teacher's HIV attitude is negatively associated with self-efficacy ($\beta = -.12$). Teachers with prior HIV education or prevention activities in the last year indicated a higher score for self-efficacy to teach HIV prevention ($\beta = 1.11$).

Policy Implications

HIV/AIDS is a major concern for public health, education, and economic development, (WHO, 2006). The educational sector is uniquely positioned within the community to create a standard model in HIV education leading to greater prevention amongst young people. However, such a program must be appropriate in reaching youth and providing a sustainable community approach. Schools as an institution provide a unique gateway to opportunities for community leadership and partnership that can support educators as an integral part of the HIV response. Results of this research may open dialogue, support safe spaces for children that will acknowledge the psychosocial support they need in light of HIV/AIDS, and will serve as a support in training for teachers in identified topic areas. This research supports the relationship between schools with HIV prevention in their mission statement as a factor that influences HIV education adoption by teachers in their schools and/or classroom settings. This work also supports the need for schools to develop policies focused on identifying OVC and protocol for handling students ARV needs and psycho-social needs within

the school setting. Most importantly, for systemic social change to occur program development needs to be in consultation with those for whom the programs are intended; teachers' and students' views must be at the center of the design, implementation, and monitoring.

Limitations of this Study:

As with all studies, limitations for this study that the researchers have identified include, (1) The study population for teachers were limited to Lusaka, Zambia and as such, one needs to be cautious when generalizing to all teachers in Zambia. (2) The results of the survey are based on self-report and are dependent on the participants' recall accuracy and honesty in filling out the survey. (3) The statistical model that was specified for the analysis of this study may have left out unknown factors (variables) that might be important to this research. (4) The effect of the school environment/climate on students' health-related behavior has only been extrapolated from the teachers' perspective. Lastly, (5) Cross-sectional data and design limits inference of causality.

Recommendations for Future Studies

Future studies should include the perceptions of students' towards HIV education, their teachers as a source of HIV prevention education information, and what prevention strategies they might already be employing. A community-based teaching approach can contribute to the development of culturally appropriate materials and methods that influence teachers' delivery of HIV education. Identifying key variables from the schoolteachers' perspectives facilitated points of intervention, change, and policy development for HIV/AIDS education within the school setting in Lusaka, Zambia. As a community-based approach, future research should also investigate perceptions of community and parents towards schools and/or teachers as key HIV educators for the children in the community.

This research supports policy development in Zambia, in which the government is committed to *"providing a school environment where learners' rights are protected and their safety assured."* This commitment is embodied in the MOE's National Implementation Framework 2008-2010, the National Child Friendly School Initiative (MOE and UNICEF) and the Schools as Centers of Care and Support (SCCS) initiative whereby teachers are trained to offer protection and support to children. At the same time, it cannot be assumed that general education will lead to safer sex knowledge or behavior change. There is further need to monitor and evaluate the impact of HIV education on the prevention of HIV infection. Future studies should also focus on specific measures of self-determination for teachers as health educators within their communities.

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APPEDICES

INFORMED CONSENT

Project Title:

Factors Associated with School Teachers' Attitudes Toward HIV Prevention Education in Lusaka, Zambia.

Principal Investigator: **Dr. Chunhuei Chi – Department of Public Health**

Co-Investigator(s):
Margaret Henning - Department of Public Health

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a volunteer, and anything else that is not clear. When all of your questions have been answered, you can decide if you want to be in this study or not.

WHY AM I BEING INVITED TO TAKE PART IN THIS STUDY?

You are being invited to take part in this study because as a teacher you can offer valuable information on the current HIV education curriculum as well

as what you perceive to be needed for an HIV/AIDS program in your school type. This is an opportunity to voice your opinions in a confidential manner.

WHAT WILL HAPPEN DURING THIS STUDY AND HOW LONG WILL IT TAKE?

If you agree to take part in this study, your involvement will last for approximate 15-20 minutes.

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There will be minimal risk by filling out the survey. However, you may experience discomfort associated with answering questions on HIV.

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There will not be a direct benefit to you by filling out this survey. However, the potential benefit for future development in HIV prevention/education in Zambia might be something that you care about and would like to be a part of contributing towards by sharing your views and perceptions. The results of the surveys will be used to honor your perspectives on the educational needs in your community regarding HIV prevention and help improve HIV education in the urban area in Lusaka Zambia. You will not be paid for participating.

WHO WILL SEE THE INFORMATION I GIVE?

The information you provide during this research study will be kept confidential to the extent permitted by law. To help protect your confidentiality, we will keep all surveys collected in a locked and secure office and only the researchers will have access too. All your answers will be entered

on a computer that will be password protected by the researcher. If the results of this project are published, your identity will not be made public.

DO I HAVE A CHOICE TO BE IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You can stop at any time during the study. You are also free to skip any of the questions you would prefer not to answer. If you choose to withdraw from answering the questionnaire before it ends,

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If you have questions about your rights as a participant, please contact the Oregon State University Institutional Review Board (IRB) Human Protections Administrator, at (541) 737-4933 or by email at IRB@oregonstate.edu

Questionnaire:

THIS IS A COMPLETELY ANONYMOUS QUESTIONNAIRE (no one but the researcher will see your information). PLEASE DO NOT PUT YOUR NAME ANYWHERE ON THIS QUESTIONNAIRE.

Please tell us about your thoughts, views, and feelings about different issues related to HIV education.

(DATE: __/__/__)

Please circle the school type you currently teach at:

1 SCHOOL:

- (1) GRZ
- (2)Community
- (3)Private/Church

PLEASE CIRCLE THE APPROPRIATE LINE

2. What is your age _____?

3. What is your gender?

- (0) MALE
- (1) FEMALE

4. Have you ever attended any HIV prevention/education programs?

- (0) No
- (1) yes

5. How many years of formal education have you completed (all schooling basic to teacher training)_____?

6. What religion do you practice at home?

- (1)Catholic
- (2)Atheist
- (3)Christian
- (4)Evangelicals
- (5)Muslims
- (4)Other_____

For each topic listed below, please indicate by circling whether you think the topic should be included in the HIV staff development program.

		No	Yes
7	Basic facts about HIV and AIDS	0	1
8	How to get accurate, up-to-date information about HIV and AIDS	0	1
9	Changing students' HIV-related attitudes and behaviors	0	1
10	Drama presentations are a good way to teach the subject of HIV	0	1
11	How to develop students' HIV-related interpersonal skills (e.g., self-esteem)	0	1
12	How to teach about condom use	0	1
13	How to involve parents in HIV education programs	0	1
14	How to deal with students or staff who are infected with HIV	0	1
15	How to deal with community controversy surrounding HIV education	0	1
16	The school should take responsibility to conduct HIV/AIDS education	0	1
17	For me, when conducting HIV/AIDS education, it's important to really scare the learners to make them take HIV/AIDS seriously	0	1
18	My colleagues show a positive involvement in HIV/AIDS education development at our school.	0	1
19	In our school, there is a consensus about what needs to be done in conducting HIV/AIDS education	0	1
20	Is HIV/AIDS education considered in your schools' policy or mission statement?	0	1

These are questions about your experiences in conducting HIV/AIDS education at your school: please indicate your response by circling

21. How often do your colleagues discuss the implementation/content of HIV/AIDS education in a meeting?

- (1) More than once in 3 months
- (2) Once in 3 months
- (3) 2 or 3 times a year
- (4) Once a year
- (5) Has been spoken about incidentally
- (6) Never been spoken about

22. During this school year, have you attended any courses or workshops in HIV/AIDS education?

- (0) no
- (1) yes

23. What formal activities at your school are taking place regarding HIV/AIDS education?

- (1) Drama groups
- (3) Class lecture
- (4) Someone outside the school came to present information
- (5) Other (define).....
- (6) No formal activities

24. In total, (over all classes) for 6 months how many hours (approximately) have you given HIV/AIDS education, using the program/s?

- (1) 0-4..... hours
- (2) 5-9..... hours
- (3) 10- 14..... hours
- (4) >14 hours

25. If you have taught HIV prevention education what topics have you covered during this school year?

- (1) How someone can acquire HIV/AIDS
- (2) Common myths
- (3) How to use a condom
- (4) Where to buy or obtain a condom
- (5) HIV, STD, or pregnancy prevention topics"
- (6) HIV testing
- (7) I haven't discussed any of the above

26. Are you planning to conduct any HIV/AIDS education during the remaining months of this year (2008)?

- (1) Yes, for sure
- (2) Probably yes
- (3) Probably not
- (4) No, for sure
- (5) I don't know

KNOWLEDGE OF HIV AND AIDS

The following questions ask about how a person may get infected with HIV/AIDS.

Please answer "True" or "False" for each question.

Please mark "Not Sure" if you are not sure of the answer and "Do Not Understand" if you have difficulty understanding the question

		True	False	Note Sure	Do not Understand
27	Someone with AIDS can spread HIV by coughing and spitting.	1	2	3	4
28	There is no way to kill HIV on a drug needle.	1	2	3	4
29	Females can pass HIV on to others through their fluids from	1	2	3	4

their reproductive organs

30	There is no way a person can find out if he/she is infected with HIV?	1	2	3	4
31	A person can get infected with HIV by have sex with someone who shares drug needles.	1	2	3	4
32	Mosquitoes don't spread HIV	1	2	3	4
33	It is not dangerous to hug a person with AIDS.	1	2	3	4
34	One way to avoid getting HIV is by not having sex.	1	2	3	4
35	People infected with HIV do not necessarily look sick	1	2	3	4
36	A person can be cured of HIV if he/she is careful to take the medicine the doctor gives them?	1	2	3	4
37	The breast milk of a mother who has HIV is safe for her baby.	1	2	3	4

INSTRUCTIONAL CONFIDENCE (self-efficacy)

The following questions ask about how confident you in teaching HIV/AIDS prevention in the classroom.

Please answer "Completely Confident", "Very Confident", "Somewhat Confident" or "Not Very Confident" for each question.

		Completely Confident	Very Confident	Somewhat Confident	Not Very Confident
38	Obtain up-to-date information about HIV?	4	3	2	1
39	Present accurate information about HIV to students	4	3	2	1
40	Answer parent's questions about HIV education.	4	3	2	1
41	Discuss high-risk sexual behaviors with students	4	3	2	1
42	Help students develop skills they will need to refrain from engaging in intercourse?	4	3	2	1

43	Explain to students at appropriate ages how a condom should be used?	4	3	2	1
44	Increase students' tolerance toward people with AIDS	4	3	2	1

Teachers HIV Attitudes (Beliefs):
 The following questions ask about your HIV Attitudes in teaching HIV/AIDS prevention in the classroom.
 Please circle your answer "Strongly Agree", "Agree" "Not sure", "Disagree", "Strongly Disagree".

		strongly agree	Agree	Uncertain	Disagree	Strongly disagree
45	I believe I have enough information about HIV/AIDS to protect myself in my social life	5	4	3	2	1
46	I worry about possible casual contact with someone who is HIV positive	5	4	3	2	1
47	Persons with HIV are responsible for getting it.	5	4	3	2	1
48	I feel more time should be spent teaching future teachers about HIV in their college courses	5	4	3	2	1
		strongly agree	Agree	Uncertain	Disagree	Strongly disagree
49	I would quite my job before I would work with someone that was HIV positive	5	4	3	2	1
50	AIDS is a punishment for poor moral behavior.	5	4	3	2	1
51	I think children should be tested for HIV before entering school	5	4	3	2	1

52	In my opinion, all parents should be notified if there is a student in their child's class that is HIV positive.	5	4	3	2	1
53	I support including HIV prevention in my teaching	5	4	3	2	1
54	I believe that a witch doctor can help me so that I do not become ill from HIV/AIDS	5	4	3	2	1

Perceived gender norms: Next is a list of statements about different ways that males and females should act. Please circle your answer "Strongly Agree", "Agree", "Not sure", "Disagree", "Strongly Disagree".

		strongly agree	Agree	Disagree	Strongly disagree
55	Boys, not girls, should be the ones to make the first move	1	2	3	4
56	Girls shouldn't carry condoms	1	2	3	4
57	It's more important for boys than girls to learn about using condoms	1	2	3	4
58	Having condoms available is more a boy's than a girl's responsibility	1	2	3	4
59	It is all right for a girl to ask a boy to wear a condom.	1	2	3	4
60	Girls should know just as much as boys about putting on condoms.	1	2	3	4
61	It is all right for girls to buy condoms.	1	2	3	4
62	It is o.k. for boys to have many different sexual partners.	1	2	3	4
63	Boys want sexual intercourse more than girls do.	1	2	3	4
64	It is more important for a girl than a boy to stay a virgin.	1	2	3	4

65	Girls prefer boys who are sexually experienced	1	2	3	4
66	Boys prefer girls who are sexually experienced.	1	2	3	4
67	Boys can't turn down sex if it is offered to them.	1	1	3	4

Stigma: Next is a list of statements about how society reacts and behaves in various ways towards people with HIV or AIDS or people suspected of having HIV.

Please state whether you "Agree" or "Disagree" about the behavior towards people with HIV or AIDS.

		Agree	Disagree
68	People who have AIDS are dirty	0	1
69	People who have AIDS are cursed	0	1
70	People who have AIDS should be ashamed	0	1
71	People with AIDS must expect some restrictions on their freedoms	0	1
72	A person with AIDS must have done something wrong and deserves to be punished	0	1
73	People who have HIV should be isolated	0	1
74	I do not want to be friends with someone who is HIV positive	0	1
75	People who have HIV/AIDS should not be allowed to work	0	1

Attitudes and Beliefs Rating Scale towards Students who are orphans: (Please circle all responses that you think are appropriate).

76. If you are aware of orphans in your school, from your experience what are the biggest needs for orphans in your school?

- (1) Financial support
- (2) Educational support
- (3) Medical support
- (4) Other _____
- (5) Don't know

77. I would treat this student the same way I treat all students.

- (0) Agree
- (1) Disagree

78. This student should not receive special attention because they are HIV positive.

- (0) Agree
- (1) Disagree

79. I think the school is an appropriate place for a student to seek support

- (0) Agree
- (1) Disagree

80. Do you feel responsible for the orphans in your school?

- (0) Agree
- (1) Disagree

81. It is too much to require teachers to attend to the needs of orphans.

- (0) Agree
- (1) Disagree

Please state whether you "Agree", "Not Sure", "Disagree", "Strongly disagree" about the behavior towards people with HIV or AIDS.
 Directions: Read each item and check the response that fits best for you:

		Agree	Not sure	Disagree	Strongly disagree
82	Wouldn't mind having a student with AIDS in my classroom	1	2	3	4
83	I would avoid a student whose family member had AIDS	1	2	3	4
84	Students who have AIDS should be segregated from other students	1	2	3	4
85	Students who have AIDS should be segregated from other students	1	2	3	4
86	Students who have AIDS should not play sports with other students	1	2	3	4
87	I would feel uncomfortable about individually tutoring a student infected with HIV.	1	2	3	4
88	If I thought a teacher was infected with HIV, I would be afraid to shake hands with that teacher	1	2	3	4
89	I would feel comfortable hugging a friend who has AIDS	1	2	3	4

THANK YOU FOR YOUR TIME AND SUPPORT

INFORMED CONSENT

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Signature

Date

INTERVIEW OUTLINE

A. Introduction

1. Good [morning, afternoon, or evening] and thank you for meeting with me. My name is Meg Henning. I would like to thank you for taking the time to meet with me and providing me insight into your experience as a teacher in the (community, government or private school) and your thoughts and experience with teaching HIV prevention education.
2. During this discussion, I will ask you a series of questions related to HIV prevention education. When you answer, please express your thoughts and concerns about each of the questions or any other related issues. Your opinions, ideas, and experiences are very important. The more information I get from you, will help us to develop better health programs that will truly meet your needs. All comments are welcomed—both positive and negative. If you don't have an answer or do not understand the question, it is okay to tell me so. It helps us even when you don't have an answer to a question. So please don't be ashamed to say, "I don't know" or "I'm not sure what you're talking about." It is important to be honest, but please realize that you don't have to say anything about yourself that makes you feel uncomfortable.

B. Procedure

1. Please note that I will be taking notes during this discussion because I will need to pay close attention to what you are saying. Later, I will review the notes and read carefully your responses to my questions. I will then use this information to write a report. Please remember that you will not be identified in any way.
2. This discussion is strictly confidential. What you hear and what you say will not be shared with anyone outside this room. This information will stay here.
3. Our session will last about 1 hour. We will not take a break, but please feel free to get up and use the restroom.

C. Self-Introductions

1. Now please introduce yourself. Please state the type of school you teach at (government, private, public).

I. DISCUSSION QUESTIONS

1. Do you currently teach HIV/AIDS prevention in your classroom? (yes or no answer)
 - a. Do you think schools is where HIV education/prevention should be taught? (yes or no answer)
2. What might your typical lesson look like? {Could you expand on the (activities, time, topic)}?
3. Do you think that girls and boys should be given the same lessons or information on HIV/AIDS prevention? {Could you expand}
 - a. Would you be comfortable teaching both girls and boys HIV prevention at the same time? {Could you expand} Or would you want to teach them separately? {Could you expand}
4. Do you have an OVC (orphans and vulnerable children) in your class? (yes or no answer)
 - a. Are you comfortable with (orphans and vulnerable children) OVC in your classroom? (yes or no) and {Could you expand}
 - b. Do you feel they need extra attention? If so for what, if not why? {Could you expand}
 - c. Do you feel responsible for the OVC in your school? (yes or no answer)
 - d. What does this responsibility look like to you?
- e. Do you face challenges when working with OVC? (yes or no answer), (Could you expand)

D. CLOSING: do you have other responses or comments about the information discussed today?

E. Once again, I want to reassure you that everything you said here today is strictly confidential and anonymous. Your names will not be connected to the information given today in any way.

Thank you for taking the time to talk with me. The information that you have provided is very important. You have been very helpful

