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Assessing knowledge, attitudes, and beliefs of teachers in Alabama concerning comprehensive HIV education

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Assessing Knowledge, Attitudes, Beliefs and Intentions of Alabama Teachers Concerning Comprehensive HIV Education

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HEALTH EDUCATION AND HEALTH PROMOTION

ABSTRACT

The Alabama State Department of Education has guidelines for educators to insure HIV information is taught by teachers starting in fifth grade (Alabama Course of Study: Health Education, 2009). As assessed by The School Health Profile (Profiles), 55% of Alabama teachers received professional development on HIV/AIDS. In addition, less than half of grades 9-12 teachers taught how condoms work, the importance of consistent condom use, and how to obtain condoms (U.S. Department of Health and Human Services, 2009). The Youth Risk Behavior Surveillance Survey (YRBSS) administered to grades 9-12 determined that 57% of youth in Alabama are sexually active, with 19% of those having 4 or more partners, while only 58% used a condom during last sexual intercourse (Centers for Disease Control, 2008).

The *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* was developed based on the Theory of Planned Behavior (Ajzen, 1988) and piloted for psychometric properties before use in final phase of study. Three scales were used to answer the research question: What are the predictors of intention to teach comprehensive HIV prevention education among Alabama's 5^{th}-12^{th} grade teachers responsible for teaching HIV content? The survey included the *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998), the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* as well as the *Intention Scale* utilized in previous research (Burak, 1994; Lin & Wilson, 1998).

Multiple linear regression analysis with cross-validation was used on a sample of 617 Alabama teachers to develop a prediction equation to test the null hypothesis of no difference between predicted and actual intention scores for teaching comprehensive HIV prevention education. The best predictors of intention were found to be ethnicity, attitude, general HIV/AIDS knowledge and knowledge of transmission of HIV ($p < .001$); previous health course in college ($p=.032$); health degree ($p=.035$); professional development on HIV/AIDS ($p=.028$); primary subject taught ($p=.032$); perceived behavioral control ($p=.050$). The null hypothesis was rejected as no difference was found between predicted and actual intention scores. Future research should focus on replicating the study among different regions and populations across the United States.

DEDICATION

I dedicate this dissertation to my daughter, Lorali. The dissertation process began the year you were born. You unknowingly became my guiding light and driving force. May you fill your bucket of life with as much education and experience as you desire.

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LIST OF ABBREVIATIONS

AIDS	acquired immunodeficiency syndrome
ALSDE	Alabama State Department of Education
APA	American Psychological Association
CCSSO	Council o Chief State School Officers
CDC	Centers for Disease Control and Prevention
CVR	content validity ratio
EFA	exploratory factor analysis
E-mail	electronic mail
HIV	human immunodeficiency virus
IRB	Institutional Review Board
NASTAD	National Alliance of State and Territorial AIDS Directors
PI	primary investigator
Profiles	The School Health Profiles
SIECUS	Sexuality Information and Education Council of the United States
STD	sexually transmitted disease
STI	sexually transmitted infection
S-CVR	scale-level content validity index
TpB	Theory of Planned Behavior
TRA	Theory Reasoned Action

LIST OF ABBREVIATIONS (Continued)

UAB	University of Alabama at Birmingham
URL	uniformed resource locator
YRBSS	Youth Risk Behavior Surveillance Survey

CHAPTER 1

INTRODUCTION

In the mid to late 1980's the US government began to initiate measures to increase awareness about HIV/AIDS through education (Council of Chief State School Officers [CCSSO], 1989). Many Americans still view the epidemic as a gay-related disease which contributes to a resistance to HIV/AIDS education. The establishment of a law in Alabama calls for teaching that "a mutually faithful, monogamous relationship in the context of marriage is the only appropriate setting for sexual intercourse" (Code of Alabama, 1975, Sec 16-40A-2). In the state of Alabama HIV/AIDS education is legally required as part of the course of study in Alabama for grades 5-12 by a 1987 State Board of Education Resolution (Alabama State Department of Education [ALSDE], 2009). There is no limitation set within the Alabama Codes or the Alabama Course of Study for Health Education that limits teaching HIV prevention to the topic of abstinence.

The purpose of this study is to assess the level of knowledge, attitudes, subjective norms and perceived behavioral control of Alabama's 5-12th grade teachers concerning intention to teach comprehensive HIV prevention education. This paper will outline the significance of the problem, examine the study population, discuss HIV curriculum, and the use of the Theory of Planned Behavior (TpB).

Significance of the Problem

One of the earliest known cases of Human Immunodeficiency Virus (HIV) was found in 1959 within a sample of blood from a man in the Democratic Republic of Congo. Since then, 25 million deaths worldwide have occurred, making it one of the deadliest epidemics in human history (CDC, 2009a). Cumulative HIV/AIDS cases totaled 16,222 at year end 2008 in Alabama. The subgroup of those 24 years of age and younger accounted for 2,294 cases or 14.14% of total cases (Alabama Department of Public Health (ADPH), 2009).

Risky sexual behavior is associated with the transmission of HIV. The Youth Risk Behavior Surveillance Survey (YRBSS), administered to grades 9-12, in 2007 produced alarming results. Within Alabama, 6.4% more students in grades 9-12 were sexually active in 2007 compared to 2005. In addition, nearly 2% more Alabama students in grades 9-12 were sexually active before age 13 (CDC, 2007).

Current national and state school health policies and programs are assessed by a system of surveys called The School Health Profiles (Profiles). For example, two results from Profiles describe 87.1% of health teachers in the state of Alabama taught students how to access valid and reliable health information concerning HIV. Furthermore, 55.3% of Alabama health education teachers received professional development on HIV/AIDS within the past 2 years of the survey (U.S. Department of Health and Human Services, 2009).

Alabama Course of Study

The Alabama State Department of Education (ALSDE) has guidelines established for educators to insure that students across the state receive basic information by subject area. These guidelines, called the Alabama Courses of Study, state specifically within subject areas what should be taught. Pertaining to health education, students in grades 5-12 should receive HIV education (Alabama State Department of Education (ALSDE), 2009).

According to the Code of Alabama 16-35-5, every elementary school in the state shall teach curriculums related to reading, writing, arithmetic, spelling, English, history of the United States and Alabama, geography, science, physical education, and health education (Code of Alabama, 1975). The course of study is a directive document for school superintendents to use for developing and implementing curriculums for their school systems. The main purpose of the *Alabama Course of Study: Health Education* is to create health literate citizens. Students should learn how to obtain and interpret basic health information, thereby enhancing their own personal health. Health literate individuals are more likely to practice healthy behaviors as well as promote such behaviors; thereby reducing the health risks within a population (ALSDE, 2009).

Study Objectives

1.) To develop a theory-based valid and reliable questionnaire to examine subjective norms and perceived behavioral control of Alabama 5-12th grade teachers responsible for teaching comprehensive HIV prevention education.

2.) Examine the validity and reliability of the *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998) utilizing Alabama 5-12th grade teachers responsible for teaching comprehensive HIV prevention education.

Research Question

What are the predictors, related to intentions to teach comprehensive HIV prevention education, among Alabama's 5th-12th grade teachers who are responsible for teaching the HIV content?

Null Hypothesis

There is no significant difference between Alabama's 5-12th grade teachers responsible for health education content regarding intentions to teach comprehensive HIV prevention education and predicted intention scores based on (a) general knowledge score; (b) likelihood of transmission knowledge; (c) attitude score; (d) subjective norm score; (e) perceived behavioral control score; (f) number of years teaching; (g) number of hours of professional development in HIV within the past year; (h) highest degree; (i) grade level; (j) school system; (k) teaching classification; (l) age; (m) race; (n) gender and (o) location of last HIV related professional development.

Delimitations

The scope of this research is limited by the concepts of the Theory of Planned Behavior: intentions, behavioral beliefs, normative beliefs, and control beliefs. Specific personal history related to HIV or AIDS is not identified within this study.

Limitation of Study Population

This study is limited to teachers of grades 5-12 among all school systems in Alabama, who are responsible for teaching health education content.

Assumptions

For the purpose of this study, the following assumptions are made: (a) the researcher has access to the email addresses of the teachers; (b) teachers accurately completed and submitted the web-based questionnaire; (c) the content jurors are competent professionals.

CHAPTER 2

LITERATURE REVIEW

This chapter will present a review of the professional literature related to (a) history of HIV, (b) risk factors contributing to HIV, (c) comprehensive HIV prevention education, (d) history of sexuality education, (e) HIV curriculums, (f) Alabama course of study, (g) professional development for teachers, and (h) behavioral intention.

History of HIV

The Human Immunodeficiency Virus (HIV) was first reported in the United States as a rare type of pneumonia or cancer by doctors in Los Angeles and New York in the late 1970s. The conditions of the illness were not normally found in healthy immune systems and were associated with a number of male patients who reported having sex with other men (CDC, 2009a).

In 1982, the use of the term Acquired Immunodeficiency Syndrome (AIDS) was established to officially name the symptoms presented by patients. These symptoms included pneumonia, infections, and Kaposi's sarcoma. Surveillance of this new syndrome began the same year within the United States. A year later, scientists discovered the virus that causes AIDS. The virus was first named by an "international scientific committee the human T-cell lymphotropic virus-type III/lymphadenopathy-associated virus (HTLV III/LAV)" (CDC, 2009a, ¶ 4). It is known today as the Human

Immunodeficiency Virus (HIV), of which there are two types HIV-1 and HIV-2 (CDC, 2009b).

In 1999, a team of researchers, lead by Beatrice H. Hahn of the University of Alabama at Birmingham found the exact origin of HIV and how it appeared in the human population. It was discovered to have originated in a subspecies of chimpanzees native to West Africa. The researchers believe that hunters were exposed to infected blood whereby HIV-1 was introduced into the human population. HIV-1 is the predominant strain of HIV in the developed world (CDC, 2009a). HIV-2 strain is found mostly in West Africa and rarely found anywhere else. The difference between the two strains of HIV is the transmutability and period between the onset of HIV and the development of AIDS. It appears that HIV-2 is harder to transmit and has a longer period of time between infection and the development of AIDS (CDC, 2009a).

Risk Factors Contributing to HIV

According to the CDC, the four most common ways HIV can get into the body are dirty needles used to inject drugs, unprotected sexual intercourse, mother to fetus or new-born baby, and blood transfusion (2009b). HIV is transferable through any kind of unprotected sexual contact: heterosexual, homosexual, or bisexual. The human immunodeficiency virus, like some other viruses, cannot live outside the body due to contact with air. The human immunodeficiency virus requires a warm, wet place to live and can be carried only in blood, sexual fluids, and possibly saliva. Sexual transmission of HIV means that the virus goes from fluid to fluid (semen, vaginal, and blood) and pass from fluid to fluid to stay alive (CDC, 2009b).

Since 2004 states have required that cases of HIV and AIDS be reported to local and state school departments. Each state can use one of three forms of HIV reporting: "name-based, code-based, or name-to-code-based" (Holtzman, Green, Ingraham, Daily, Kolby, 1992). In name-based reporting, as the name implies, a positive tested individual is identified by name. In code-based reporting, unique identifiers are given in the place of a name. In name-to-code-based reporting, HIV cases are first identified by name and the name of the individual is then given a code in place of the name. For the surveillance reports the CDC compiles, only data from states that use name-based reporting is used. A total of 33 states, including Alabama have collected surveillance data for at least five years (CDC, 2009c). Persons living with HIV/AIDS age 13-19 years were estimated by 34 states using confidential name-based reporting to be 6,559 cases. In 2007 1,743 cases were diagnosed (CDC, 2009c).

When HIV/AIDS first was recognized some 25 years ago, it was almost exclusively a disease of white, homosexual males. This is no longer the case. As of 2008, cumulative data for Alabama shows that 27% of the 16,222 cases were transmitted through heterosexual (male/female) contact (ADPH, 2009). African Americans were twice as likely to be diagnosed with HIV/AIDS as whites (CDC, 2009d).

An article by the CDC, (2009b), points to a number of risk factors in addition to unprotected male homosexual sex. The Centers for Disease Control and Prevention states that a person is at risk of HIV infection if they "(a) have shared injection drug needles and syringes or have had sex without a condom with an HIV-positive partner, or (b) have had a sexually transmitted disease, like Chlamydia or gonorrhea, or have had sex with someone who has done any of those things" (CDC, 2009b, ¶ 11).

According to the ADPH, in 2008 the total number of cases of HIV/AIDS within the state nearly doubled from the previous year to 16,222 cases. The ADPH also states that of those cases, 10,301 or 63% were black, 5,442 or 33.55% were white, 263 or 1.62% were Hispanic and 216 or 1.32% were other races. When looking at gender, males make up 12,077 or 74.45% of cases with females totaling 4,145 or 25.55% of cases. The largest percentage of HIV cases, 79%, 12,810 cases total come from three groupings of ages 13-24, 25-34 and 35-44. Finally men who have sex with men continue to be the largest subgroup having 41.44% of total cases however from 2007 to 2008 there was a seven percent drop in new cases. Heterosexuals comprise 27.32% of total cases and also saw a drop in new cases from the previous year, almost four percent (ADPH, 2009).

According to the Centers for Disease Control's 2007 Youth Risk Behavior Surveillance Survey (YRBSS), 57% of the youth in Alabama are sexually active. Even more alarming is that 10.7% of youth in Alabama were sexually active before age 13, nearly a 2% increase from 2005. The YRBSS results show that 19.2% of sexually active Alabama youth have had four or more partners during their life. The YRBSS does not ask sexually active youth if they use a condom every time they have intercourse, but the survey does ask if a condom was used during the last sexual intercourse. Within Alabama 58.4% reported using a condom at last sexual intercourse resulting in 41.6% not using a condom (CDC, 2007).

Comprehensive HIV Prevention Education

The CDC recommends a comprehensive approach to prevention should include; information concerning abstaining from sex; refraining from the use of injecting illicit

drugs, condom use and effectiveness, and transmission of the virus (CDC, 1988). The Sexuality Information and Education Council of the United States (SIECUS), recommends that comprehensive HIV education contain information on high risk populations as well as problems caused by HIV such as its impact on relationships, finances and research. Furthermore, SIECUS recommends HIV education include causes for the epidemic, transmission of the virus, condom use and effectiveness, sexual abstinence, mutual sexual exclusivity and responsibility for one's own personal health and the health of others (Sexuality Information and Education Council of the United States (SIECUS), 2004). Comprehensive HIV prevention education is an aspect of sexuality education.

History of Sexuality Education

According to Dr. Mary Calderone, the cofounder of SIECUS, sex and sexuality are two different things (Schroeder & Kuriansky, 2009). Sexuality education is the emphasis on sensuality, sexuality to influence, reproduction, sexual identity, and intimacy. Sexuality education was born from the impact on sex education the depression and World War II made. In the 1940s, the United States Public Health Service and the American Association of School Administrators advocated for a larger enhancing approach to sexuality rather than a historically repressive approach. By the 1960's there was an expansion of the definition of sexuality to expand beyond biological need, to include psychological, spiritual and emotional aspects. By the 1970s a rise in cultural conservative opinion of people unhappy with the increase in abortions as well as the increase of openly gay and lesbian persons was the beginning of the push for abstinence

legislation from Congress in the 1980s. With a conservative President of the United States, Ronald Reagan, the 1981 Congress passed the first abstinence-only-until-marriage program (Schroeder & Kuriansky, 2009).

In the mid to late 1980's the US government began to increase awareness about HIV/AIDS through education. The Council of Chief State School Officers (CCSSO) began assisting state departments of education in designing and implementing HIV/AIDS education in 1987 (CCSSO, 1989). At the end of 1988 each state coordinator was sent the second annual survey on state HIV/AIDS education programs titled *Profile of State HIV/AIDS Education*. The survey covered five general areas relating to state HIV/AIDS education programs: state policy and funding, state assistance with curriculum, state programs for high-risk and out-of-school youth, state training, and state surveys of local programs. At that time 41 states had either a state law or state policy concerning HIV/AIDS education in schools. This is in contrast to just one year earlier when only 28 states had a law or policy on AIDS education (CCSSO, 1989).

The CCSSO survey examined whether the state law or policy concerning HIV/AIDS education was included as part of a broader and more comprehensive approach in health education. The results showed that 23 states, including Alabama, had a law or policy on comprehensive health education which included HIV/AIDS education. This was an increase from 1987 when only eight states provided funds for HIV/AIDS education. Just one year later, twenty seven states appropriated funds to HIV/AIDS education with the amounts varying from $9000 (like Alabama) to $3 million (CCSSO, 1989). In addition the survey examined state HIV/AIDS school curriculums. In the first year of research 28 states had a specific curriculum for HIV/AIDS education. One year

later the number had increased to 48 states and in addition, 27 states had developed HIV/AIDS curriculum as part of a broader comprehensive health education program.

While state and educational departments recognized a need for comprehensive HIV/AIDS curriculums, by 1990 school health programs were still being influenced by public and institutional opinions of the disease. Although the curriculums were established in 1987-1988 they still competed against other subjects for time and resources (Lavin, 1993).

Much of the opposition to HIV/AIDS education stems from what is viewed as "frank sexuality" teachings. This view has resulted in numerous national organizations confronting school boards with demands for curriculums to teach abstinence only. In 1992 the Alabama legislature established abstinence education as the "standard for any sex-related education taught in the public schools" (Code of Alabama, 1975, Sec 16-40A-2). While AIDS is a syndrome that is behaviorally-induced, to be effective, education must lead to changes in behavior. These results can be difficult and implementing HIV/AIDS education should lead to a person eliminating or reducing risk of infection (Lavin, 1993).

By 1992 the Centers for Disease Control and Prevention (CDC) reported a median of 62% of students having been taught about HIV/AIDS. Five years after the first mention of grade appropriate HIV/AIDS education, risk reduction still will require implementation in grades k-12 (CDC, 1992). A decade into the HIV/AIDS epidemic, the CDC assessed HIV related knowledge and beliefs among students. Just more than half of students surveyed knew HIV could not be transmitted by blood donation, while only half

knew that it could not be transmitted by mosquitoes and other insects. Still, only 88% knew HIV can be transmitted by having unprotected sexual intercourse (CDC, 1990).

Although states reported increases in required HIV/AIDS education classes, instruction by grade level lacked guided implementation. For example, in the early 1990s, just over 30% of first grades taught appropriate HIV/AIDS education, while just over 80% in seventh grade did. Finally by twelfth grade, the percentage dramatically decreased to 37% (Holtzman et al, 1992).

By the mid 1990s, the nation was becoming aware of no foreseeable vaccine being created for HIV (Office of National AIDS Policy, 1996). Advocates for preventing transmission of the virus, argued that the only means of prevention is education. In a letter to sitting President Clinton, the Office of National AIDS Policy gathered facts and opinions sharing the need of the time. The overwhelming support for comprehensive, multifaceted education for adolescents emerged. For success with HIV education, support was not only needed from traditional education systems, but from parents and the community as well. Effective HIV prevention is not a single program or event but rather a combination of such. Parents should be the first educators of children. If parents do not see a risk of HIV infections and the need for precautions, then failure to instill such awareness in children will occur. Because of this, advocates believe more should be done to educate parents about the risk their children face and the means best to protect themselves. The Office of National AIDS Policy suggested continued support of sexual abstinence, by means of encouraging students who may be thinking of engaging in sexual intercourse to think about the implications of their decision (Office of National AIDS Policy, 1996).

HIV Curriculums

The National Alliance of State and Territorial AIDS Directors (NASTAD) list each state's total funding for HIV testing, education and research. For fiscal year 2008, Alabama's total funding was $33.8 million (National Alliance of State and Territorial AIDS Directors (NASTAD), 2009). This is a large increase over the $9,000 spent the first year of funding for such in the state. In addition the state of Alabama received 3.6 million in funding for various abstinence-only-until-marriage programs (SEICUS, 2009). The United States Congress approved spending for fiscal year 2010 which includes a new office within the department of Health and Human Services on adolescent health. The 2010 budgetary spending on pregnancy prevention, HIV/AIDS, Office of Adolescent Health, and abstinence education totals $468 million (SEICUS, 2009).

The School Profiles (Profiles) assessment conducted by the United States Department of Health and Human Services collects data on national and state health policies. Profiles is conducted biennially and self-administered among secondary education principals and lead health education teachers. In 2008, profiles were conducted not only among 47 states but also 20 large metropolitan cities (CDC, 2009d). The state of Alabama answered questions concerning Human Immunodeficiency Virus, Sexually Transmitted Disease (now Sexually Transmitted Infection), and pregnancy prevention. Other topic categories included health education, school health councils, asthma, and unintentional injuries and violence. Profiles lists three key topics related to condom use that should be taught in grades 9-12: (a) how well condoms work and do not work, (b) the importance of using condoms consistently, and (c) how to obtain condoms. In addition,

Profiles established 11 key topics (table 1) on HIV, STD, and pregnancy prevention topics that should be covered in grades 6-8 and 8 topics for grades 9-12 (CDC, 2009d).

Table 1
Key Education Points of HIV, STDs, and Pregnancy Prevention

Grades 6-8	Grades 9-12
The difference between HIV and AIDS	Relationship among HIV, other STDs and pregnancy
How HIV and other STDs are transmitted	The relationship between alcohol and other drug use and risk for HIV, other STDs and pregnancy
How HIV and other STDs are diagnosed and treated	The benefits of being sexually abstinent
Health consequences of HIV, other STDs and pregnancy	How to prevent HIV, other STDs, and pregnancy
The benefits of being sexually abstinent	How to access valid and reliable health information, products, and services related to HIV, other STDs, and pregnancy
How to prevent HIV, other STDs, and pregnancy	The influences of media, family and social and cultural norms on sexual behavior
How to access valid and reliable health information, products, and services related to HIV, other STDs, and pregnancy	Communication and negotiation skills related to eliminating or reducing risk for HIV, other STDs, and pregnancy
The influences of media, family and social and cultural norms on sexual behavior	Goal-setting and decision-making skills related to eliminating or reducing HIV, other STDs, and pregnancy
Communication and negotiation skills related to eliminating or reducing risk for HIV, other STDs, and pregnancy	
Goal-setting and decision-making skills related to eliminating or reducing HIV, other STDs, and pregnancy	
Compassion for person living with HIV and AIDS	

Note: This list is adapted from U.S. Department of Health and Human Services. (2009). *Alabama Selected Topics Facts Sheet, Profiles.* Centers for Disease Control and Prevention.

It is important to note that results from Profiles are reported nationally in terms of range and median, and results for the state of Alabama are reported in percentage of schools. A summation of results relative to comprehensive HIV prevention education is displayed in Table 2.

Table 2

Profiles HIV, STD, and Pregnancy Prevention Results

Topic	**National Mean (Range)**	**Alabama %**
Taught 11 key HIV, STD, or pregnancy prevention topics in a required course during grades 6, 7, or 8	51.8 (27.7-71.9)	63.4
Taught 8 key HIV, STD, or pregnancy prevention topics in a required course during grades 9, 10, 11 or 12	79.6 (45.7-95.8)	84.7
Taught 3 key topics related to condom use in a required course during grades 9, 10, 11, or 12	58.8 (10.4-93.6)	47.3
Taught how to access valid and reliable health information, products, or services related to HIV, other STDs, and pregnancy in a required course	80.1 (48.8-90.9)	87.1
The lead health education teacher received professional development during the two years before the survey on HIV prevention	40.9 (11.4-71.6)	55.3
Policy on students or staff who have HIV infection or AIDS that addresses attendance of students with HIV infection, procedures to protect HIV infected students and staff from discrimination, and maintaining confidentiality of HIV infected students and staff	56.5 (19.4-85.7)	64.1
Schools with a gay/straight alliance or similar club	20.9 (12.3-48.7)	14.1
Lead health education teacher had professional preparation in health education or in health and physical education combined	58.3 (18.9-91.5)	56.7
All staff who teach health education were certified, licensed, or endorsed by the state in health education	85.3 (30.3-96.4)	82.8

Note: Profiles reported data nationally in terms of means and ranges, and for the state in percentages. Centers for Disease Control and Prevention (2009d). *Alabama Selected Topics Facts Sheet, Profiles.*

Alabama Course of Study

As Profiles provides a snap shot on aspects of health education, the 1975 Code of Alabama established five codes of interest for health education curriculums across the state. The first, code 16-8-28, gives all county boards of education direct control of creating, implementing and evaluating curriculums. This section also directs information to be supplied to every teacher concerning curriculums (Code of Alabama, 1975). The

second, code 16-12-9, provides city superintendents the same discretion as counties. They also have power to create and disseminate curriculums pertaining to the course of study. According to the third code of Alabama 16-35-5, every elementary school in the state shall teach curriculums related to reading, writing, arithmetic, spelling, English, history of the United States and Alabama, geography, science, physical education, and health education (Code of Alabama, 1975). Guidelines for sex education have been established in a fourth code 16-40A-2 creating minimum requirement for programs or curriculums (Code of Alabama, 1975).

All public schools in Alabama whose program or curriculum contain sex education or the process of human reproduction must include and emphasize, at minimum, certain topics. The first topic pertains to abstinence from sexual intercourse. This shall be taught as the only completely effective means of protection from unwanted pregnancy and sexually transmitted diseases, as well as AIDS when sexually transmitted. In addition, the socially expected behavior outside of lawful marriage for unmarried school aged individuals is abstinence from intercourse. Sex education programs should include materials that are age appropriate, emphasize self-control, ethical concerns of sexual behavior, and statistics indicating the degree of reliability and unreliability of different forms of contraception. Statistics should emphasize the protection contraception provides against pregnancy and sexually transmitted diseases – including HIV/AIDS. Lastly, discussion should be delivered in a factual manner that homosexuality is not an acceptable lifestyle and such conduct is a criminal offense under the laws of the state (Code of Alabama, 1975). Such laws fall under Alabama code 13A-6-63, also known as “sodomy laws” (Code of Alabama, 1975, Sec 16-40A-2).

Homosexual activity was included under the definition of "deviate sexual conduct" (Code of Alabama, 1975, Sec 16-40A-2) found within the section. Deviate sexual conduct was defined as sexual acts of gratification between unmarried persons involving sex organs of one person and the mouth or anus of another (Code of Alabama, 1975). This law was overturned by the US Supreme Court June 26, 2003 (Alabama Sodomy Law, 2007).

The last code pertaining to health education deals with the organization of a committee and task force appointed by the state board of education to develop minimum content requirements for the *Alabama Course of Study* (Code of Alabama, 1975). The committee is composed of early childhood, intermediate, middle school, high school, and college educators. The goal of the committee and task force is to develop the *Alabama Course of Study: Health Education*, which provides local school districts with minimum content required by law. In developing local curriculums, the philosophies and needs of the community can be reflected by local curriculum development. The course of study is a directive document for school superintendents to develop and implement curriculums for their school systems. For grades k-8 health education is a requirement, with one half credit needed for high school graduation.

The 2009 course of study includes eight major health content areas: consumer and community health, environmental health, family health, personal health and safety, mental and emotional health, nutrition, prevention and control of disease, and substance use and abuse. These eight content areas fit inside six dimensions of health: physical, mental, emotional, environmental, spiritual, and social (ALSDE, 2009)

In the development of the 2009 course of study, the course of study committee used the national health education standards as well as published material from the

Centers for Disease Control and Prevention. In addition, the committee members attended professional conferences, reviewed articles and journals as wells as other state health education curriculums. The committee also included public comments by reading statements from interested groups and individuals. All of these actions were taken to develop the best possible health education course of study for the state of Alabama for students K-12 (ALSDE, 2009). The *Alabama Course of Study: Health Education* divides each grade, and within each grade discusses the six content areas. Each content area is further explained by one or more content standards. If more explanation is needed, the course of study uses bullets to describe each standard in more detail. Examples are also included under some of the standards to provide more explanation.

While the *Alabama Course of Study: Health Education* guides grades K-12, the topic of HIV/AIDS is first included among the fifth grade standards. Such inclusion in the fifth grade course of study guidelines are required by a 1987 State Board of Education Resolution dictating discussion of HIV and AIDS for grades 5-12. Because the course of study is updated every five years, it is worth comparison to see what changes were made. The most current edition of the course of study is from 2009, and will be implemented in the 2010-11 school year. The previous version from 2003 is different from the updated version, reflecting the extensive research of the course of study committee and task force. The differences reflect evidence-based research that emphasizes health promotion, disease prevention, as well as the national health education standards (ALSDE, 2009)

Beginning with fifth grade, and comparing the 2009 course of study to the previous version of the course of study for health education, evidence of change is apparent. The 2003 version lists two of the previously discussed content areas relating to

the discussion of HIV and AIDS. The first of the two areas of content is personal health, and directs that adolescents should be able to identify risk behaviors that are among the most common causes of injury or death. The second content area is the prevention and control of disease and instructs that adolescents should be able to identify risky behaviors that affect one's personal health (Alabama Course of Study Bulletin No. 5, 2003). The 2009 version for grade five differs in that HIV and AIDS is now encompassed under the content area of personal health and safety. The reason for the change is due to the 2009 version changing the content area of prevention and control of disease to only include diseases that can be immunized against. This is the only time the content area change affects the standards for HIV and AIDS education (ALSDE, 2009).

Sixth graders are to learn emergency health situations, resolution for emotional conflict and information about HIV and AIDS. The difference in the two versions concerning sixth grade is the condensing of material under one standard in the 2009 version. For example, instead of the discussion on the effects of HIV on the body and the means of acquiring HIV and AIDS being two separate standards the 2009 version includes it under the standard of methods of HIV transmission (ALSDE, 2009).

Seventh graders should have increased knowledge concerning the gathering of health information, responsibilities of parenthood, and the compromise of health related to risky behaviors. The standards for seventh grade content area did not change much. The wording of the standards changed, from the word *analyze* in the 2003 version to the word *compare* in 2009, comparing short and long term effects of behaviors on adolescent health (ALSDE, 2009).

Eighth graders are now taught abstinence under the content area family health. No change occurred between the two versions concerning this content area; however the content area of prevention and control of diseases does differ between versions. The 2003 version stated students should describe the physical, social, and emotional effects of different types of sexually transmitted infections (Alabama Course of Study Bulletin No. 5, 2003), while the 2009 version omits the discussion of physical, social and emotional effects as a standard and realigns it as a bullet point under the standard for students to be able to describe types of sexually transmitted infections (ALSDE, 2009).

Grades nine through twelve are lumped together because graduation from high school only requires one half credit in health. The 2003 version categorized discussion of HIV/AIDS into two areas, community and consumer health, and prevention and control of disease (Alabama Course of Study Bulletin No. 5, 2003). This was simplified in the 2009 version, with prevention and control of disease being the only area with such content (ALSDE, 2009). Further distinctions between the two versions include the number of content standards. The previous version had three content standards related to intercourse and sexually transmitted infections (STIs). The first of the three, concerned social norms and cultural influences, the second differentiated media messages as either positive or negative concerning medications for STIs and use of sexual images. The third, related to preventive methods for communicable diseases (Alabama Course of Study Bulletin No. 5, 2003). The 2009 version of the course of study has only two content standards under the area of prevention and control of diseases. The first states prevention methods for diseases and the second is new to the course of study compared to

the older version of 2003, stating students should be able to explain the progression of HIV infection to AIDS (ALSDE, 2009).

Professional Development for Teachers

There has been no published research related to teacher preparation in the last ten years. Many states either have updated or are currently updating mandates on teacher preparation. For example, as of 2005 the state of Michigan revised its school codes to state that in order to teach sexuality education, a teacher must be endorsed as qualified to teach health in all middle and high schools. Teachers who currently teach sex education may become qualified by attending a regional in-service given by their local School Health Coordinator (Michigan Department of Education, 2007). In addition, research found from a 2008 survey of Illinois sex education teachers (N=305), 42% could pass a comprehensive sex education test themselves (University of Chicago, 2008).

The state and city of New York are also updating their codes to reflect the needs of the teachers and students. As of 2007, both state and city mandates require evidenced-based curriculum, however they recognize that this is not enough. Providing teachers with goals, objectives and lesson plans do not increase the level of comfort when it comes to some areas of sex education. Empowering teachers to make decisions, a "train the trainer" (New York Civil Liberties Union, 2007) approach was used. There is no published data as to how many teachers were trained this way; however the report states the importance of training teachers to be accurate and sensitive in the delivery of sex education material (New York Civil Liberties Union, 2007).

In Alabama, a program currently being implemented in many classrooms across the state is called *The Focus Program*. This program promotes school and community partnerships for the prevention of HIV and AIDS. Teacher training is provided through various regional in-service centers. The program is supported by the Alabama State Department of Education, Governor's Commission on AIDS, and many community organizations (FOCUS, 2009). Texas also provides regional in-services for teachers, however much of the state teaches abstinence only with the state being the highest in spending for such programs in the nation (Texas Department of State Health Services, 2006).

Comprehensive sexual health education and HIV/AIDS prevention education in California is taught by instructors trained in the appropriate courses. California also updated its education codes, and requires school districts to cooperatively plan and conduct in-service training for all teachers and school employees who provide HIV/AIDS prevention instruction. This in-service training is conducted periodically to enable staff to remain current with new developments in the scientific understanding of AIDS as well as with new prevention education techniques. This training may be expanded to cover comprehensive sexual health education (California Department of Education, 2008).

It is also important to examine the education of teachers while in college. Much research concerning college preparation occurred during the late 80s to late 90s. In 1990, college students within a teacher education program believed they did not understand HIV or AIDS and preventative methods (Ballard, White, & Glascoff, 1990). Another study found that among Texas middle and high school teachers

spent less time on HIV education with less training on the subject matter compared to high school teachers (Gingiss & Basen-Engquist, 1994).

Having the Alabama Course of Study as a guide and professional preparation for what should be taught concerning comprehensive HIV prevention education is not enough to know if the teacher intends to teach the material. Teaching comprehensive HIV prevention education is a behavior and understanding behavior is multifaceted. To help understand behavior, theories are used.

Behavioral Intention

One such theory used to understand behavior is the Theory of Planned Behavior (TpB). The TpB evolved from Fishbein's (1967) Theory of Reasoned Action (TRA) (Ajzen, 1991). Thus, the need to understand TpB, requires a discussion on Theory of Reasoned Action. The Theory of Reasoned Action is an individual-centered theory that assumes a link among attitudes concerning a behavior and perception of beliefs held by others (Glanz, Rimer, & Lewis, 2002). In other words, this theory suggests that a person's voluntary behavior can be predicted by their attitude toward that behavior and, further, how they believe others would view them if they performed the behavior.

Noted social psychologist Icek Azjen believed there to be a lack of sufficient components in predicting behaviors when utilizing Theory of Reasoned Action (TRA) (Azjen, 1991). Azjen believed that a person may forego performing a behavior due to environmental or external factors, in spite of having a high motivation to perform the behavior. Because of the lack of accounting for external intervention, Azjen added the concept of perceived behavioral control to the TRA and created the Theory of Planned

Behavior (TpB) (Glanz, Rimer, & Lewis, 2002). A search of the PsychINFO research database yielded 932 studies published between 1985 to June 2009 that have either used or mentioned TpB.

In addition to health education, other professions that have used the TpB in research are: nursing, psychiatry, sports psychology, dietetics, nutrition, public health, criminal justice, business management, information services, medicine, behavioral medicine, psychology, addiction treatment, exercise physiology, education, leisure studies, infection control, sex research, violence research, human lactation, criminal justice, safety, AIDS research and AIDS care, sex research, violence research, and youth studies. There have been very few studies that use the TpB to measure teachers' intention to teach specific material.

Measuring Elementary Teacher Intention

Much research concerning teachers' beliefs and attitudes toward HIV/AIDS and students living with HIV/AIDS, has been conducted since the mid 1980s, however it was 1994 before research focused for the first time on teachers' intentions and attitudes toward teaching HIV/AIDS education (Burak, 1994). Dr. Burak's research utilized the TpB to examine and predict elementary teachers' intentions to teach HIV/AIDS education. A convenience sample of 330 teachers employed in Massachusetts were administered a survey. Of those teachers asked to participate, 198 responses were received (Burak, 1994).

The instrument Burak used in the study measured the dependent variable, intention to teach AIDS education during the 1992-1993 school year, with three items: (a)

would teachers teach HIV/AIDS education; (b) likelihood teachers would teach HIV/AIDS education; (c) likelihood teachers would try to teach HIV/AIDS education. Elicitation interviews were conducted to formulate the content to include in the questionnaire. In addition to measuring intention, the study measured the other TpB constructs, attitudes, subjective norm, and perceived behavioral control (Burak, 1994).

Results from Burak's study yielded attitude and subjective norm accounted for 47% of the variance in teachers' intentions. Perceived behavioral control had the greatest weight in determining intention while attitude contributed the least in predicting intention of teachers to teach HIV/AIDS education. The conclusion of the study was teachers who had a positive attitude, a perception of more social impact on behavior, and a perceived behavioral control contributed to intention to teach HIV/AIDS education. Because perceived behavioral control attributed the most to predict intention, teachers should receive training to increase confidence in teaching HIV/AIDS. Another recommendation from Burak's study is to enable teachers with the resources, or knowledge of how to obtain resources needed to teach the material. Burak's examination of teachers' intentions was limited to elementary teachers in central and eastern Massachusetts and did not represent a state wide sample (Burak, 1994).

Burak's study is of importance to this primary investigator (PI), due to its elicitation interviews. Using Burak's study as a guide for this PI's questionnaire development, the creation of a new subjective norm and perceived behavioral control survey was developed. The elicitation interviews yielded eight groups or individuals of influence on the teachers' subjective norm: school principals, school committees, fellow teachers, students' parents, religious groups, students, spouse/partner, and family and

friends. In addition, the elicitation interviews resulted in nine factors related to perceived behavioral control: knowledge, training, ability to teach, ability to integrate material into teaching, ability to teach without sacrificing other subjects, curriculum in place, principal support, school committee support, students' parents support, and the support of religious groups. In addition to the nine, the inclusion of a question related to respondents previously teaching AIDS education was added to the behavioral control (Burak, 1994).

Measuring Science Teachers' Intention

Another research project, accessing teachers' intention to teach HIV/AIDS education was conducted in 1998. This project by Lin and Wilson targeted science teachers in Iowa. They used a paper pencil survey administered to a stratified systematic sample of 697 teachers. The sample returned 288 surveys of which 10 were not complete, leaving 278 usable surveys for analysis (Lin & Wilson, 1998).

The dependent variable in this study of Iowa science teachers was intention to teach HIV/AIDS education. Attitude, subjective norm and perceived behavioral control were independent variables. There were external variables some of which were the number of years teaching, specific science class, and as a teacher have you previously taught HIV material.

Results of the study found attitude and subjective norm accounted for 73% of the variance on intention. Attitude had the largest standard regression coefficient (0.80). Intention was categorized into three groups: high, low and neutral. Teachers with high intentions to teach HIV education were more likely to have people around them who did

not influence their opinion toward teaching it. In addition, teachers with high intentions had a less negative attitude toward sex and more knowledge concerning HIV material. Other results stated teachers of grades 7-12 were more comfortable teaching HIV material and those who taught biology were more likely to intend to teach (Lin & Wilson, 1998).

Lin and Wilson suggest future studies should focus on effectiveness of teaching strategies. In addition, training for teachers should provide resources related to HIV education and involve means in which to involve principals, other teachers, administrators, and parents. Lin and Wilson suggest the support of others increase intention to teach HIV education (Lin & Wilson, 1998).

Intention of Physical Education Teachers

Intention to administer the *Presidents Challenge Physical Fitness Test* was found from a survey in 2009. A convenience sample was used, but no means to calculate the number who received the survey. The survey, sent via surveymonkey web based survey creator, was sent to a list of physical education teachers and in turn asked to forward the link to other teachers (Stanec, 2009).

This study measured not only the intention to administer the physical fitness test, but as well as the behavior of administering the test. Behavior was self reported by teachers. Results from the study state that perceived behavioral control and attitude best predicted intention. Furthermore, attitude and intention actually predicted behavior. Self reporting behavior, in this study, did accurately measure teachers behaviors. The study highlighted an important result; subjective norms failed to predict intention. The

researcher states this is possible because physical education teachers are not observed by administration as often as classroom teachers and therefore may not care about the administrations' opinions concerning teaching behaviors.

This study is of interest to this PI because it reflects the use of TpB on physical education teachers. Even though it was not measuring HIV/AIDS education, it did reflect an important assumption: if physical education teachers do not have intentions to teach HIV material predicted by subjective norms it could be explained by fewer observations of administrators and less interaction with parents of students.

Online Surveys

It has been noted among researchers of the social science disciplines that the means by which a researcher gathers data sometimes affects the data gathered (Babbie, 1998). Electronic mail (e-mail) surveys gained popularity during the late 1990s, as more individuals were using the World Wide Web for personal use. Researchers began to see the potential of reaching a broader audience via e-mail through the use of listservs. It is imperative for researchers to understand the advantages and disadvantages of web based surveys with comparison to traditional paper surveys.

Advantages of Online Surveys

There are four advantages to online surveys: (a) cost, (b) shorter process, (c) validity, and (d) response rate (Gilmore & Campbell, 2005). Using electronic methods are also a way to remove the barrier of geographic boundaries (Mertler, 2003).

Electronic mail offers a means of convince for the survey participants to respond to the survey at his or her liking (Matz, 1999).

The first advantage is lower cost. Online surveys eliminate the cost of postage and survey distribution and are free in some cases if an individual has internet access (Gilmore & Campbell, 2005). It is important to note that assistance may be needed with the posting of the survey and data retrieval (Mertler, 2003). Mertler (2003) conducted web based surveys citing the particular cost saving measures as compared to traditional mail surveys. His calculation was based on an assumed return rate of 1,000 participants. Had Mertler mailed the surveys, costs would have included postage, envelopes, and copying totaling approximately $1 per person. A conservative 40% rate of return would yield a total cost for sending, receiving, as well as preparing the surveys to be $4,000 (Mertler, 2003). This cost would be significantly more if a person was employed for the entry and analysis of data. In comparison, Mertler's web-based study was $120 (Mertler, 2003). Some studies report an advantage of fast response rates, receiving responses within one to two weeks after posting (Roselle & Neufeld, 1998) while other received their first response within twenty minutes (Berge & Collins, 1996).

People are more inclined to complete an internet survey versus a mail survey because it is shorter and quicker to fill out versus a mail survey (Gilmore & Campbell, 2005). Communication between researchers and participants is immediate. Time is saved due to instant delivery versus using postal service. Also, individuals take less time to complete an online survey versus a mail survey (Gilmore & Campbell, 2005). Response rates have been measured as compared to traditional mail survey and have been found consistent. Roselle and Neufeld (1998) studied the effectiveness of e-mail survey

follow-up messages for non-respondents of the initial request for survey participation. The responses from participants who received an e-mail follow up were 85% as compared to 79% for those who received a postcard follow up.

In addition to decreased costs and increased response rates, researchers find a decrease in the amount of time needed for web based surveys. The intended survey participant receives the survey much quicker when compared to a mail survey. The same is true when referring to the researcher who receives a completed survey. In addition, there is no need for physical storing or copies of completed web-based surveys. Finally, most notable among researchers is the amount of time saved by not having to prepare envelopes for mailing. Once they have been completed mail surveys require manual data entry. This increases the probability of human error and makes the data collection process very time consuming. Web based surveys require very little to no entry of data, therefore decreasing human error and increased time for analysis. Web based surveys are even more efficient when compared to computer response forms. Although scannable forms decrease time spent with data entry and decrease potential human error, it still requires time and effort to scan the forms (Mertler, 2003).

Psychometric properties of web based surveys often are not the same as compared to written or telephone questionnaires (Taylor, 2000), however, there is no response difference between the deliveries of survey (Saphore, 1999). There is also no difference between responses based on gender (Matz, 1999). Finally the internal reliability of both a web based and paper surveys have been found to be consistent, although not identical (Mertler & Early, 2003). The web based method is classified as valid due to the

investigator having a greater chance of receiving honest answers than telephone or face-to-face interviews. It also eliminates bias within the study (Gilmore & Campbell, 2005).

Disadvantages of Online Surveys

Although online surveys identify favorable advantages to justify its usage, disadvantages to this method have been cited: (a) distribution, (b) access to participants, and (c) bias (Gilmore & Campbell, 2005). The first major disadvantage is that online surveys have limited distribution. Everyone does not have internet; thus, you are limited to the number of individuals one can reach (Gilmore & Campbell, 2005). Such technology issues include lack of participants' familiarity or even willingness to complete surveys through the use of a computer. There is also the potential for being able to identify respondents, as well as web browser incompatibilities (Solomon, 2001; Cabonaro & Bainbridge, 2000). The second disadvantage is that a mailing list is required. Accuracy of email addresses is a posed problem because individuals change their emails frequently. Another disadvantage is potential sample bias. Internet is mainly accessed by the individuals with a better education and higher income. Therefore, internet surveys could possibly exclude people who are less educated, lower-income, older, and young (Gilmore & Campbell, 2005). Furthermore, the investigator has no control over the individual that responds to the survey while the participant could consult with another person to answer the survey or could skip any question on the survey due to lack of encouragement from the researcher (Gilmore & Campbell, 2005).

Methodological Issues

Researchers should also be aware of methodological issues that arise during web based surveys. One such issue is the simplicity of the survey. If the process is complex, then completing the survey will become less likely and a lower response rate will undoubtedly occur. Second, the design of a web based survey should mirror the ease of a paper survey. The design should require minimal computer skills: use of web browser, entering or clicking on an uniformed resource locator (URL) address, and use of a mouse (Matz, 1999). Also, online surveys should be designed to keep respondents engaged in the survey, especially if it is a long survey. This could potentially add cost to the study (Gilmore & Campbell, 2005). With any mode of survey delivery, an important error source results from non-responses (Montez, 2003). Potential survey participants who become non-respondents have difficulty with technology. The result is that they give up either at the beginning or when a complicated question arises. In addition, software should include security aspects for data integrity, as well as for the respondents own information. The advertisement of the survey should be included by providing a link to the URL in an e-mail or on a cover letter (Mertler, 2003). Furthermore, it may difficult to calculate the number of people who receive the survey link. To increase the potential number of respondents, a researcher may ask for others to forward the link to the survey to others. Therefore the number who receive the link and thus the potential number who could complete the survey may not be known (Stanec, 2009).

Online Surveying of Teachers

Mertler (2003) surveyed 197 teachers representing all grade levels and subject areas. Many of the teachers were from a rural school setting. The teachers were split into two groups, with one group participating in a traditional paper survey, and the other directed to a web based version of the same survey. The survey accessed competencies of teachers. The instrument used was the *Classroom Assessment Literacy Inventory.* Participants in the first group, those receiving the paper survey, were given a cover letter and survey through the United States mail service. Included in the mailing was a postage-paid envelope for easier return. The second group of participants received an email message containing the cover letter which contained a link of the URL that would take them to the survey (Mertler, 2003).

A reminder email was sent to participants two weeks post contact. The first purpose of this research was to compare psychometric properties of web based survey to that of traditional survey (Mertler, 2003). The internal consistency between the two modes of survey was statistically the same. The second purpose of Mertler's research was to obtain data as to why non-respondents chose not to participate in either type of survey. The most common reason for not participating was simply not taking the time. Sixteen percent cited technology limitations as their reasoning for not participating. Open-ended questions assessed such technological limitations with responses including that they could not access the survey, did not understand how to complete the survey, and did not understand how to use a computer. Fifteen percent indicated that the length of the survey was too long and they anticipated too much time would be required for completion. Participants of the web-based survey indicated that their school district did

not permit email messages from unknown sources. This research found that research should not assume that those in an educational setting will be technologically literate. Many individuals, especially teachers, do not understand web browsers, navigating the World Wide Web, or email settings. Some educators were found to have started the survey and stop thinking they would be able to log back on and complete it later. One individual's response to the open-ended questions indicated no knowledge of a web browser even was (Mertler, 2003).

A more recent study in Iceland, published in the British Journal of Educational Technology, was investigating the viability of web based surveying methods (Lefever, Dal & Matthiasdottir, 2007). The purpose was to add to the research concerning data collection via web based methods with highlighted interest at the secondary level. This study's researchers discuss that because of their specific population, web based survey was the most time and cost effective means. To increase response rates, administrators were sent letters asking for encouragement of faculty members to complete the survey. In some cases, school administrators were contacted via telephone as well. In addition, a flyer was sent to school administrators asking to be posted in designated places, to encourage faculty to participate. A total of 906 teachers were asked to participate and a return rate of 47% or 423 completed surveys (Lefever, Dal & Matthiasdottir, 2007). Response rate may differ from population to population; however the researchers are confident generalizing of web based surveys with any population of teachers and in other countries will mirror this study's findings (Lefever, Dal & Matthiasdottir, 2007).

Summary

It is clear there are draw backs with conducting web based surveys within a population of teachers, for that manner any population. Teachers are thought of as being more able to use technology, simply because of its modern use as an educational tool, however as found through literature analysis, researchers should not assume such. Response rates appear to be high; however motivating teachers to take the time to participate in the survey is a barrier. In contrast, the benefits and ease of using web based methods appear to be greater than other methods. The largest benefit is the ease of reaching a larger geographic area with increased numbers of participation in a shorter amount of time. Although research supports its use, there is a cause for continued research utilizing populations of teachers and for such research to be published for the benefit of other professionals.

Summary

Many states do not differ in requirements for teacher education programs. The last comprehensive national survey of teacher education programs was published in 1995. In addition many universities currently have not changed many of its requirements for elementary or secondary teachers' knowledge in health education, HIV/AIDS, or sex education. Over the past 10 years, a national push has been for abstinence-only-until-marriage education, however many states report increases in teen pregnancies as well as the number of teenagers reporting having sex. Teachers uniformly feel at ease teaching abstinence however many school districts are moving to a more comprehensive sex

education curriculum. Teachers report less comfort and knowledge related to comprehensive sexuality education. Local and state boards of education offer in-service training to meet the needs of the teacher. As previously discussed, many states offer great programs proven to be affective. The issue appears to be recruiting teachers to the in-services. The implications of programs are dependent on the students, teachers, parents and community, with each having their own attitudes and beliefs as to what is best. Because teachers are the main source for comprehensive education across subject areas, the training they receive either pre- or post-graduation is important. It can be compared to the need for doctors and nurses to be up-to-date with their training, as to provide the best services to patients. The only means of understanding teachers' intention to teach comprehensive HIV prevention education is to utilize theory. Specifically this research will utilize the Theory of Planned Behavior to measure teachers' attitudes, beliefs, and perceived control over teaching.

CHAPTER 3

METHODOLOGY

In this chapter, the research methods to be used throughout the study have been presented. The topics discussed within this chapter are (a) theoretical framework, (b) research design, (c) study population, (d) instrument and study administration, and (e) data collection and data analysis.

Theoretical Framework

The Theory of Planned Behavior combines attitudes, norms and control forming intention to perform a behavior. This combination is assumed to be the antecedents of behavior (Azjen, 1991): however Azjen singles out behavioral control from the other components by designating behavioral control's direct influence on behavior. Azjen has argued that a person will spend more energy and effort to perform a behavior if he or she has a high perception of control over the behavior (Glanz, Rimer, & Lewis, 2002).

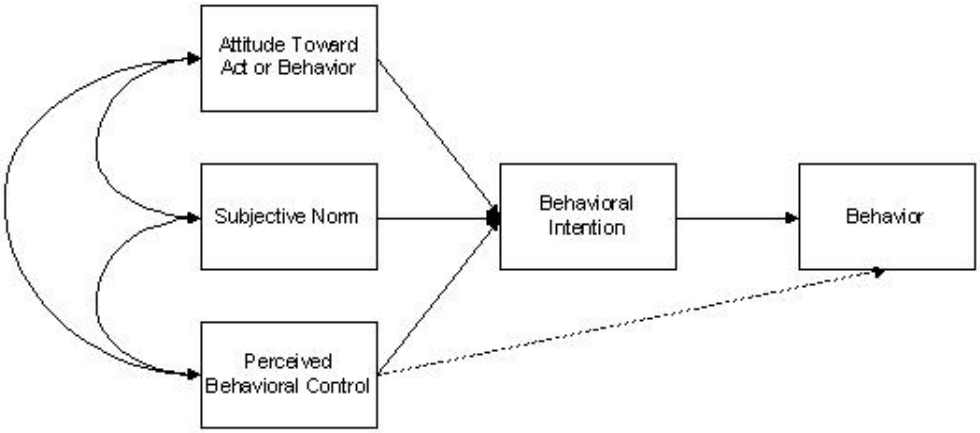

Figure 1. Theory of Planned Behavior Model. Human action is guided by three constructs: (a) attitudes, (b) subjective norms and (c) perceived behavioral control. From Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50(2)*. Copyright 1991 by Icek Aizen. Used with permission of the author.

Research Design

This study utilized a non-probability, cross-sectional research design. This study is non-probability in design because no random sampling was conducted (Gay, Mills, & Airasian, 2009). In addition, the study was considered cross-sectional because the data was collected from research participants at a single point in time (Gay, Mills, & Airasian, 2009). Comparisons were made across the research variables and multiple regression analyses used to test the null hypothesis.

Study Sampling

This study utilized: (a) expert sampling, (b) convenient sampling, and (c) criterion sampling.

1. An expert sampling was utilized during Phase I. Expert sampling utilizes the knowledge and experience of persons in a given topic area. This sampling was needed

for two reasons: (a) represented the best means for soliciting those with specific expertise and (b) provided evidence to increase validity (Trochim, 2001).

2. During Phase II a convenience sample was utilized. A convenience sample is a method by which an easily accessible group is used as a subject pool (Jones & Kottler, 2006). Convenience sampling does present a risk of not utilizing a representation of the study population, however sufficient effort to sample using similar target populations off sets the risk (Jones & Kottler, 2006).

3. A criterion sample population was utilized during Phase III. A criterion sample is also known as purposive selection (Jones & Kottler, 2006). Criterion sample was used because the sample was based on specific characteristics for inclusion (Jones & Kottler, 2006).

Study Phases

There were three phases in this study, each consisting of a different study population. During each phase, an important contribution to examining the null hypothesis will be described. Phases I and III of the study were conducted through the use of an online survey maker. Phase I utilized the free Google Documents Survey, while Phase III utilized Survey Monkey. Phase II utilized a written survey administered in the University of Alabama at Birmingham's (UAB) School of Education *Introduction to Education* courses. The University of Alabama at Birmingham's Institutional Review Board (IRB) approved research for all phases of study (Appendix A).

Phase I. During this phase, nine professionals in the fields of health education, survey development, theory, and elementary and secondary health education were asked

to participate in review of the instrument design, content, clarity, and relevance (Appendix B). Participants were sent an information sheet approved by IRB at UAB describing the research (Appendix C). Phase I participants utilized a rating form to evaluate the clarity and relevance of questions concerning subjective norms and perceived behavioral control of teachers responsible for teaching comprehensive HIV prevention education (Appendix D). The demographic items on the questionnaire will not require validity analysis. Jurors were also asked to provide additional comments concerning their review of items (Appendix E). Content validity was determined both through unanimous agreement of jurors', through his or her ratings, and by the average of percentages.

Phase II. This phase comprised the pilot study. *The HIV Prevention Education Subjective Norms and Perceived Behavioral Control for Teachers* from Phase I was administered to a convenience sample (n=160) of students in the *Introduction to Education* courses in the University of Alabama at Birmingham's (UAB) School of Education. The sample must reflect a well established and published "minimum participant to variable ratio of a 10 to 1" (Nunnally, 1978, p.180), with preference for a 20 to 1 subject to variable ratio (MacCallum, Windaman, Preacher, & Hong, 2001). These students are studying to become teachers and therefore represent a suitable group for pilot testing the survey instrument (Appendix F). The purpose of this phase was to determine if the new scales, those pertaining to subjective norms and perceived behavioral control, are understood. Participants reviewed with the PI, the research information sheet that must be distributed before the survey as instructed by the IRB at UAB (Appendix G). The information sheet described the purpose of the study; the

minimum psychological risk associated with the study; the benefits of participation as well as contact information of the PI and IRB. The survey was administered by the PI and collected when completed.

Data was reviewed for outliers and erroneously entered data, corrected, and imported into version 16 of the Statistical Package for Social Sciences (SPSS) software. Composite scores were used to examine internal construct reliability between subjective norm and perceived behavioral control variables through principal component analysis (PCA). In addition, PCA with internal consistency reliability analyses of components were performed to evaluate the psychometrics of the instrument before using it with the full study sample. Cronbach's alpha was computed; the closer to the number one the Cronbach's alpha is the higher the reliability.

Phase III. The third and final phase consisted of a criterion population of Alabama teachers responsible for teaching health education course of study content in grades 5-12 (Appendix H). This was a criterion sample because of the parameters set by the researcher for inclusion to the study. The population consisted of (N=530) physical education teachers, as well as (N=92) health education teachers. Each of the 132 school systems' curriculum coordinators were also sent the survey link and asked to forward the link to all teachers previously set for inclusion in the study (Appendix I). Furthermore, since the statistical method for data analysis will be multiple regression analysis, the population must reflect "a minimum of a 10 to 1 participant to variable ratio" (Nunnally, 1978, p.180).

The ALSDE's Health and Physical Education Specialist recommended using a web-based survey instead of a written survey due to the length of the survey. In addition

utilizing a web-based survey would limit the need for assistance of others. Due to e-mail restrictions on incoming mail from unknown senders, the specialist assisted the PI in disseminating the link to the survey population. The specialist directly sent the link to a current list of 622 health and physical education teachers. In addition, the specialist sent the link to 132 school district's curriculum coordinators. Each school district maintains differing e-mail accounts and therefore block differing incoming e-mail accounts not from within the school district. The curriculum coordinators maintain a list of all teachers in every subject, and therefore relayed the link to the needed study population. The survey included both the *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998) (Appendix J), the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* (Appendix K) as well as the *Intention Scale* (Appendix L) utilized in previous research (Burak, 1994; Lin & Wilson, 1998).

Because the ALSDE maintains that students in Grades 5-12 should be receiving HIV education, the researcher's population of teachers will be limited to the grades listed above within the state of Alabama. No guidance counselors, school nurses, or other school personnel including administrators will participate in the study. The exclusion of those personnel is because the course of study is developed to guide teachers; thus, the instruction of comprehensive HIV education should come from teachers.

To preserve anonymity of participants, the online survey was designed so that IP addresses were suppressed; all responses were stored on the surveymonkey.com website (password protected), PI's flash drive and in an excel file on the PI's laptop computer (password protected). No name is associated with a survey, therefore no association of the survey with the participant. In addition, participants were instructed at the beginning

of the survey of their rights in research and the approval of the research from the IRB at UAB.

Principal component analysis with varimax rotation was performed. A rotation is used in factor analysis by rotating axes in order to yield a better simple structure and a more interpretable pattern of values. The data was divided approximately in half to allow for a validation subset for the two new scales created in this study. A multiple linear regression prediction analysis was calculated to examine the extent to which the independent variables predict the dependent variable, intention to teach comprehensive HIV prevention education. The resulting multiple linear regression prediction equation was used to address the research question and null hypothesis. In using this method, all independent variables are entered at one time and then variables were removed one at a time based on a preset significance value, in this case $p<.05$. The regression equation was validated with a subset of data reserved for validation purposes. The prediction equation was generated to determine the variables that are significant in the prediction of the behavior, in this case, intention to teach comprehensive HIV prevention education.

Table 3
Description of Data Collection and Analysis Procedures

Phase	**Sample**	**Timeline**	**Follow-up Reminder**	**Analysis**
Phase I	University Faculty (Content Jurors) (N=5)	August 24 – September 4, 2009	August 31, 2009	*Content Analysis
Phase II	UAB education students (N=160)	October 5-6	N/A	*Exploratory factor analysis *Internal consistency of scales
Phase III	Alabama teachers grades 5-12 responsible for HE content (N=2400)	December 2-January 15	December 15, 2009 January 6, 2010 January 13, 2010	*Confirmatory factor analysis *Inter-correlation of variables *Multiple regression

Note: This chart represents descriptive information for each phase of the study.

Survey Instrument

Icek Azjen, creator of the theory of planned behavior, suggests that the behavior be defined using T.A.C.T.: target, action, context, and time (Azjen, 2006). For this study the behavior is defined as teaching comprehensive HIV prevention. As we analyze the definition of the behavior using Azjen's guidelines, the target is comprehensive HIV prevention education. The action within the definition is teaching, and the context is students. The time measure is not directly stated in this definition because it is understood that teachers instruct a cohort of students for one school year. This study is not measuring the behavior of teaching but rather measured the intent to teach comprehensive HIV prevention education.

Knowledge and Attitude Scales

The *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998) was developed to determine teachers' AIDS-related knowledge and attitudes. The knowledge scale has two parts: (a) questions related to general HIV/AIDS knowledge and (b) a subscale on knowledge of likely transmissions. "Participants receive one point for each correct answer: 35 possible points for the entire scale and 17 possible points for the subscale" (Koch & Singer, 1998, p 318). For the general knowledge scale, respondents identify the statements as (1) true, (2) false, or (3) not sure. The subscale or likelihood of transmission element of the knowledge scale, respondents identify if transmission is possible through differing modes: (1) very likely, (2) somewhat likely, (3) somewhat unlikely, (4) very unlikely, (5) definitely not possible, or (6) don't know (Koch & Singer).

The attitude scale includes 25 questions about general and educational AIDS-related issues. For the attitudes scale, respondents indicate, using a Likert-type scale, if they (1) strongly agree, (2) agree, (3) uncertain, (4) disagree and (5) strongly disagree (Koch & Singer, 1998). There are 25 items regarding HIV/AIDS, persons with HIV/AIDS, and educational issues. Using the 5-point scale, resulting scores will range from 25 (most unsupportive attitudes) to 125 (most supportive attitudes) (Koch & Singer, 1998).

The scale has been used with elementary (Singer, 1991) as well as high school teachers (Dawson, Chunis, Smith, & Carboni, 2001). When the scale was used with a sample of high school teachers, the findings of the study indicated the knowledge score

across all categories of teachers to be 59.34% correct. The allied health teachers scored the highest with 77.71% answered correctly. There was no significant difference between genders of teachers concerning knowledge of HIV/AIDS, but significant differences did exist between discipline categories. Number of years teaching was not found to be significant between knowledge and attitude. Specific discipline categories were not found to be significant concerning attitude as measured by this instrument (Dawson, Chunis, Smith, & Carboni, 2001).

The knowledge and attitude scale being used for this study has had reliability established using two different methods (Singer, 1991). The first was a test-retest of the instrument with 59 elementary education majors to establish stability over time in case the research study included a pre-post design. Pearson product-moment correlations were established for the Knowledge scale and attitudes scale, α=.87 and α=.89 respectively. Using Kuder-Richardson's statistic, internal reliability for the Knowledge scale was established using a sample of 128 elementary education student teachers. The reliability for the knowledge section was α=.78 where as the likelihood of transmission section was α=.88. This yielded an overall reliability for the entire scale of α=.89. Cronbach's alpha coefficient was used to establish reliability for the attitude scale at α=.89.

The *HIV/AIDS Knowledge and Attitude Scales for Teachers* (Koch & Singer, 1998) were constructed from two previous scales; the National Health Interview Survey and the Nurses' Attitudes About AIDS Scale. A panel of three experts in the area of HIV/AIDS disease and education reviewed the items and answers for relevance and accuracy. A pilot test for content validity was conducted with 10 elementary education

majors. The authors of the survey recommend that construct validity be further tested with other education teachers at all levels of education.

Measure of Subjective Norm and Perceived Behavioral Control

A manual entitled Constructing Questionnaires Based on the Theory of Planned Behavior: A Manual for Health Services Researchers, which was published by the Centre for Health Services Research, University of Newcastle, United Kingdom, was developed for use in TpB questionnaire development (Francis et al., 2004). This manual served as a guide to developing the study questionnaire that was used in addition to the already valid and reliable survey previously described in this chapter. The added items for this research explored quantitatively the final two constructs of the Theory of Planned Behavior: subjective norms and perceived behavioral control concerning comprehensively teaching HIV and AIDS preventative measures.

When constructing a questionnaire based on the TpB, is it sufficient to measure behavioral intentions using three items per variable (Francis et al., 2004,). Subjective norms were measured through a scale similar to the previous Likert-scale used on the *Knowledge and Attitude Scales for Teachers* (Koch & Singer, 1998). Using a 5-point Likert scale participants answered (1) Strongly Disagree, (2) Disagree more than agree, (3) Uncertain, (4) Agree more than disagree, and (5) Strongly Agree. Subjective norm measures of this scale were obtained through responses concerning how teachers think others important to them would perceive their intention to perform a behavior.

Perceived behavioral control is measured through capability and controllability of performing a behavior. To measure perceived behavioral control through capability,

participants answered using a 5-point Likert scale, (1) Strongly Disagree, (2) Disagree more than agree, (3) Uncertain, (4) Agree more than disagree, and (5) Strongly Agree. The scale is used to obtain responses about how teachers perceive their control over their behavior concerning the teaching of comprehensive HIV prevention education. Items measuring perceived behavioral control should reflect confidence and controllability in performing a behavior (Francis et al., 2004). Confidence is assessed by asking participants "how difficult it is to perform a behavior and how confident they are performing the behavior" (Francis et al, 2004, p. 21). Controllability is assessed by asking participants "whether performing the behavior is up to the individual or beyond their control" (Francis et al., 2004, p. 21).

Measure of Intention

There has not been much research concerning TpB with the population of teachers responsible for teaching HIV prevention education. Two studies did however utilize similar intention scales (Burak, 1994; Lin & Wilson, 1998). Respondents were asked to indicate their level of agreement on a seven point Likert scale to three items related to intention to teach comprehensive HIV prevention education: (a) I will teach comprehensive HIV prevention education, (b) I am likely to teach comprehensive HIV prevention education, and (c) I am likely to try to teach comprehensive HIV prevention education. Both studies used elicitation surveys of teachers and experts to create their respective survey items. Because both concluded very similar intention items, this PI elected to utilize the intention scale. Dr. Burak (1994) did not report Cronbach's alpha coefficients. This PI contacted Dr. Burak to ascertain the alpha coefficients, but Dr.

Burak's response was the information is not assessable to her at the moment. Further research found another study that measured intention of science teachers to teach sex education. That study's researchers, Lin & Wilson, reported their study's alphas as α=.90 (1998).

Research Question

What are the predictors, related to intentions to teach comprehensive HIV prevention education, among Alabama's 5^{th}-12^{th} grade teachers who are responsible for teaching the HIV content?

Null Hypothesis

There is no significant difference between Alabama's 5-12th grade teachers responsible for health education content regarding intentions to teach comprehensive HIV prevention education and predicted intention scores based on (a) general knowledge score; (b) likelihood of transmission knowledge; (c) attitude score; (d) subjective norm score; (e) perceived behavioral control score; (f) number of years teaching; (g) number of hours of professional development in HIV within the past year; (h) highest degree; (i) grade level; (j) school system; (k) teaching classification; (l) age; (m) race; (n) gender and (o) location of last HIV related professional development.

Figure 2. Variables Measured**.** Study's 15 Independent Variables used in relationship to the Dependent Variable of behavioral intention to teach comprehensive HIV education.

Summary

This study used the TpB as a basis to predict intent to teach comprehensive HIV prevention education. A valid and reliable instrument, *Knowledge and Attitude Scales for Teachers* (Koch & Singer, 1998), was used to assess the first construct of the TpB, attitudes. The remaining constructs subjective norms and perceived behavioral control were found through new developed items. A summed intention score was determined from three items that have been utilized in previous studies (Burak, 1994; Lin & Wilson, 1998).

The study used multiple linear regression analyses to develop a prediction equation to test the null hypothesis. The prediction equation also answered the research question; determining the predictors of intent to teach comprehensive HIV prevention education.

CHAPTER 4

FINDINGS

Purpose

The purpose of this chapter is to report findings from the three phases of the study. The phases were to: (a) develop a valid and reliable questionnaire to measure teachers' subjective norms and perceived behavioral control concerning the teaching comprehensive HIV prevention education; (b) pilot test the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* and (c) administer the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers*, *Knowledge and Attitude Scales for Teachers* and the *Intention Scale* to teachers in the state of Alabama. The pilot data as well as the full survey data were analyzed using PASW (formally SPSS) version 18.

In Phase I, a questionnaire was constructed using guidelines by Francis et al. (2004) for creating Theory of Planned Behavior (TpB) theoretical construct questionnaire items. These items were reviewed by a content jury of experts. Construct items achieving 100% agreement among the content jury were retained and deemed relevant and clear. In Phase II, exploratory factor analysis (EFA) with internal consistency reliability analyses of components were performed to evaluate the psychometrics of the instrument before administering it with the full survey. Phase III consists of EFA, descriptive statistics analysis, and multiple regression analysis. The Null Hypothesis

stated: There is no significant difference between Alabama's 5-12th grade teachers responsible for health education content regarding intentions to teach comprehensive HIV prevention education and predicted intention scores based on (a) general knowledge score; (b) likelihood of transmission knowledge; (c) attitude score; (d) subjective norm score; (e) perceived behavioral control score; (f) number of years teaching; (g) number of hours of professional development in HIV within the past year; (h) highest degree; (i) grade level; (j) school system; (k) teaching classification; (l) age; (m) race; (n) gender and (o) location of last HIV related professional development.

Phase I: Findings of Content Juror Ratings

Selecting Content Jurors

Phase I began with establishing criteria by which to select "jurors" with experience in the content area of the survey, survey development, or the population of interest. The term "juror" was used by researchers McKenzie, Wood, Kotecki, Clark and Brey in an article published in the *American Journal of Health Behavior* (1999); This researcher agreed with the terminology of juror rather than utilizing reviewer or expert because the panel will be judging relevance of item inclusion in the questionnaire. To meet the standards established by the American Psychological Association (APA) in the *Standards for Educational and Psychological Testing* it was important to select jurors that met or exceed the criteria (APA, 1985). All jurors must have met criterions one and two as well as at least one of the remaining four to be selected. The six selection criteria considered by the researcher were:

1. Ability to serve based on willingness.
2. Ability to complete the review within a given time frame.
3. Must have worked as a teacher in grade 5-12 in Alabama.
4. Must have previous research experience utilizing primary and/or secondary teachers as subjects.
5. Must have previous experience with establishing content validity of an instrument.
6. Must have previous research experience with the Theory of Planned Behavior.

Initially nine potential jurors, who met at least three of the established criteria, were asked to participate. The potential jurors received a cover via email letter explaining the research and were asked to participate. Five potential jurors were willing to participate; three indicated time constraints; one did not respond. The participating five jurors were emailed instructions detailing information related to UAB's Institutional Review Board's (IRB) approval, as well as means in which their consent to participate in the review process in accordance to IRB instructions. Finally the email contained the link of the content juror review.

Content Jurors' Ratings

Five content jurors submitted completed rating forms, and their ratings are reported in Table 4. Any rating of clarity of "unclear without major revision" or "unclear" was provided via detailed comments of what the juror needed to rate the item as clear. The unclear items were addressed in accordance with the content jury's direction to achieve acceptability. When all five jurors rated each item as "clear" no

other analysis was needed. Because there were five jurors rating the items, it was necessary to use a criterion for retaining items, termed content validity. Content Validity Ratio (CVR) is calculated using the ratio of jurors who rated the item as relevant or relevant with minor revision. Originally demonstrated by Lawshe (1975), Veneziano and Hooper (1997) adapted the CVR to be used by health questionnaires. The reasons to use CVR in health education to measure the content validity of items within a newly developed instrument include (a) the use of an expert panel or jurors; (b) allows the validity to be as objective as possible; (c) a numerical index is established; and (d) the content validity of items within the questionnaire is not due to chance (Veneziano & Hooper). According to Veneziano and Hooper, to calculate CVR the following formula is used where n_e is the number of jurors rating the item as relevant and N is the total number of jurors rating:

$$CVR = \frac{n_e - N/2}{N/2}$$

The scale-level content validity index (S-CVR) was determined by the percentage of items judged to be relevant by each juror and averaging those percentages across jurors (S-CVR/Avg). For the purposes of the present study, no item was retained on the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* unless it achieved 100% consensus of the content jury of items being clear and relevant to the theoretical constructs of the questionnaire. A 4-point scale was used by the individual judges (1 = *Relevant*, 2 = *Relevant with minor revision*, 3 = *Not relevant without major revision*, 4 = *Not relevant*).

Table 4

Phase I Content Validity of Retained Evaluation Items

	Content juror rating of item relevance							
Pilot Item	Juror 1	Juror 2	Juror 3	Juror 4	Juror 5	I-CVR[a]	Item retained	S-CVR/Avg
1	1	1	1	1	2	1.00	Yes	1.00
2	1	1	1	1	1	1.00	Yes	
3	2	1	1	1	1	1.00	Yes	
4	1	1	1	1	2	1.00	Yes	
5	1	2	1	1	2	1.00	Yes	
6	2	1	1	1	2	1.00	Yes	
7[b]	2	2	1	1	1	1.00	Yes	
8	1	1	2	1	1	1.00	Yes	
9[b]	1	2	1	1	2	1.00	Yes	
10	1	1	1	1	1	1.00	Yes	
11	2	1	1	1	1	1.00	Yes	
12[b]	2	1	1	2	1	1.00	Yes	
13	1	1	1	1	1	1.00	Yes	
14	1	1	1	1	1	1.00	Yes	
15	1	2	1	1	1	1.00	Yes	
16	1	1	1	1	1	1.00	Yes	
17	1	1	2	1	1	1.00	Yes	
18	1	1	1	1	1	1.00	Yes	
19	1	1	1	1	1	1.00	Yes	
20	1	2	1	1	1	1.00	Yes	
21	1	1	1	1	1	1.00	Yes	

Note. [a]I-CVR refers to jurors rating items as relevant. [b]Items where two or more jurors described the item as relevant with minor revision. Comments were reviewed and revision was not needed because relevance to the theory was found among the majority of the jurors.

Phase II: Findings of EFA and Internal Consistency Reliability

Analyses of pilot data indicated that the scales were reliable (α=.902). In addition, exploratory factor analysis with varimax rotation was performed on 13 items related to subjective norms and 7 items related to perceived behavioral control from the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* for

161 participants. Participants in this phase were students in an *Introduction to Teaching Course* at the University of Alabama at Birmingham. A response rate of 100% was established from this phase. "Varimax rotation is an orthogonal method of rotating most frequently used in factor analysis, where the data resulting in minimized factor complexity due to minimizing variance for each factor" (Mertler & Vannatta, 2005, p273). The Kaiser-Mayer Olkin test of sampling adequacy was .906 which is above the 0.5 recommended score, indicating sufficient correlations between items to justify the use of factor analyses (Kaiser, 1974).

Interpreting Factor Analysis

The means of interpreting a factor analysis uses three areas of criteria to evaluate: (a) eigenvalue, (b) variance, and (c) scree plot. Eigenvalues measure the amount of variation in the total sample accounted for by each factor. Those eigenvalues greater than 1.0 account for much of the variation in the total sample and are usually correct in identifying the number of factors within a study. In this study, three factors had eigenvaules of greater than 1.0 (Table 5). However, further examination indicates only one item was contained in third factor (Table 6); with the third factor only accounting for 5.4% of the variance (Table 5) thus insufficient for the creation of a factor. In addition, the theory that underlies this model is a two-factor solution: subjective norms and perceived behavioral control. Thus from both a statistical and theoretical standpoint the use of a two-factor scale was considered appropriate.

Table 5

Phase II Total Variance Explained by EFA Extraction

Com-ponent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.018	52.467	52.467	11.018	52.467	52.467	10.719	51.043	51.043
2	4.394	20.922	73.389	4.394	20.922	73.389	4.587	21.845	72.888
3	1.134	5.401	78.791	1.134	5.401	78.791	1.239	5.902	78.791
4	.838	3.992	82.783						
5	.672	3.202	85.985						
6	.522	2.487	88.472						
7	.512	2.439	90.911						
8	.361	1.720	92.631						
9	.297	1.414	94.045						
10	.252	1.199	95.245						
11	.218	1.039	96.284						
12	.160	.764	97.048						
13	.133	.631	97.679						
14	.097	.460	98.140						
15	.088	.417	98.556						
16	.087	.415	98.971						
17	.080	.381	99.352						
18	.067	.319	99.671						
19	.040	.190	99.861						
20	.023	.108	99.969						
21	.006	.031	100.000						

Table 6

Phase II Data EFA Extraction: Rotated Component Matrix

Item	Component		
	1	2	3
Q8	.928		
Q11	.924		
Q12	.913		
Q6	.907		
Q7	.904		
Q10	.899		
Q4	.896		
Q13	.892		
Q9	.889		
Q3	.887		
Q2	.852		
Q5	.810		
Q1	.808		
Q19	.664		
Q14		.916	
Q15		.900	
Q20		.893	
Q16		.884	
Q21		.739	
Q17		.706	
Q18			.740

Scree plot analysis of the factor analysis indicated there were three factors with Eigenvalues in excess of 1.0 (Figure 3). Limitations in factor analyses were prevalent. According to Tabachnic and Fidell (1996) if the approximate sample size is 500 and greater, the estimated reliability is very good.

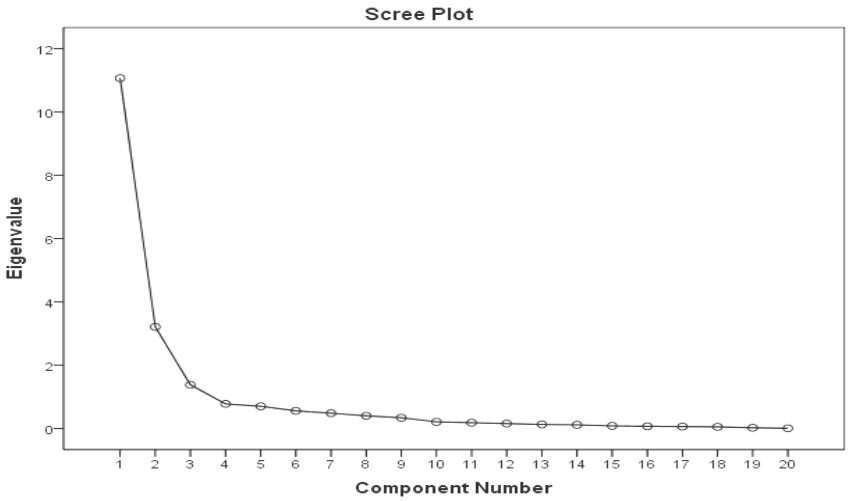

Figure 3. Phase II PCA Scree Plot

Analysis of the two factor solution yielded viable results provided below in Table 7. Using a cut score of .50, Factor 1 consisted of 14 items, primarily related to subjective norm and Factor 2 consisted of 7 items all of which were related to perceived behavioral control. Item 19 loaded incorrectly under Factor 1 as it relates to perceived behavioral control and should be within Factor 2. Item 19 related to teacher's knowledge of or ability to find the material related to HIV education within the Alabama health education course of study.

Table 7

Phase II Data Two-Factor Extraction: Rotated Component Matrix

Item	Subjective Norms	Perceived Behavioral Control
Q11	.912	
Q8	.912	
Q12	.910	
Q4	.904	
Q6	.900	
Q3	.895	
Q13	.889	
Q7	.887	
Q10	.882	
Q9	.867	
Q2	.861	
Q5	.822	
Q1	.819	
Q19	.677	
Q20		.904
Q16		.892
Q14		.852
Q15		.836
Q17		.706
Q21		.601
Q18		.560

Subjective norms accounted for the largest percentage, 52.5%, of the total variance describing participants' perceived behavioral control. Perceived behavioral control accounted for 20.9% of variance or approximately 1/5 of participants' subjective norm. Thus subjective norms and perceived behavioral control accounted for 73.4% (Table 8) of the variance in the 2 primary structures being tested.

Table 8

Phase II Total Variance Explained by EFA Extraction

	Initial Eigenvalues			Extraction Loadings			Rotation Loadings		
Fac-tor	Total	% of Variance	Cum %	Total	% of Variance	Cum %	Total	% of Variance	Cum %
1	11.018	52.467	52.467	11.018	52.467	52.467	10.741	51.148	51.148
2	4.394	20.922	73.389	4.394	20.922	73.389	4.671	22.241	73.389
3	1.134	5.401	78.791						
4	.838	3.992	82.783						
5	.672	3.202	85.985						
6	.522	2.487	88.472						
7	.512	2.439	90.911						
8	.361	1.720	92.631						
9	.297	1.414	94.045						
10	.252	1.199	95.245						
11	.218	1.039	96.284						
12	.160	.764	97.048						
13	.133	.631	97.679						
14	.097	.460	98.140						
15	.088	.417	98.556						
16	.087	.415	98.971						
17	.080	.381	99.352						
18	.067	.319	99.671						
19	.040	.190	99.861						
20	.023	.108	99.969						
21	.006	.031	100.000						

Reliability

In general, to establish evidence of reliability of internal consistency, Cronbach's alpha calculated to be α=.70 and above are established as a cut score (Guilford, 1956; Nunally, 1978). These analyses helped determine whether the reliability of the index remained consistent across different groups. The internal consistency of the two factors was determined using Cronbach's alpha. The results indicate that the first factor (n=14 items) had a Cronbach's alpha of .894. It was determined that the elimination of item 19 would increase the alpha to .90. The coupling of the increase in alpha with the inconsistent loading of item 19 under factor 1, the exclusion of item 19 from the survey

was made. The second factor (n=7 items) had an alpha of .863. Thus, no additional items were eliminated from the second factor since the maximum alpha was obtained using the seven items. Because the internal consistency estimates for the pilot study factors were considered adequate, it was determined use of the full questionnaire with the exception of item 19 yielded sufficient evidence of the reliability of the factors for use in the full study.

Phase III: Findings of Analyses

Description of the Population

The population consisted of Alabama teachers, who taught any subject within grades 5-12. In Phase III a total of 617 surveys were returned, of these 504 or 82% were complete. As discussed within Chapter 3, it was not possible to know the number of teachers who received the survey. This phase consisted of 217 males and 399 females with 1 not responded to the gender question. School system descriptive statistics regarding the study population can be found in the following tables. Descriptive statistics for the study population are provided in Tables 9-11.

Table 9

Study Population: Ethnicity, Age, and Number of Years Teaching

Variable	*f*	% of sample
Ethnicity (N=617)		
American Indian or Alaskan Native	2	0.3[b]
Black or African American	82	13.3
White or Caucasian	528	85.6[a]
Other	5	0.8
Age (N=617)		
20-29	97	15.7[b]
30-39	172	27.9
40-49	160	25.9
50+	188	30.5[a]
Number of Years Teaching (N=617)		
0-1	21	3.4[b]
2-5	95	15.4
6-10	112	18.2
11-15	128	20.7[a]
16-20	84	13.6
21-24	69	11.2
25+	108	17.5

Note: [a] Denotes the largest percentage of respondents for that variable
[b] Denotes the smallest percentage of respondents for that variable

Table 10

Study Population: Highest Degree, Health Course, and Health Education Degree

Variable	*f*	% of sample
Highest Academic Degree (N=617)		
Bachelor's	246	39.9
Master's	364	59.0[a]
Doctorate	6	1.0[b]
College Course in Health Education (N=617)		
Yes	519	84.1
No	98	15.9
Degree in Health Education (N=617)		
Yes	187	30.3
No	430	69.7

Note: [a] Denotes the largest percentage of respondents for that variable
[b] Denotes the smallest percentage of respondents for that variable

Table 11

Study Population: Current Grade(s) Taught

Variable	*f*	% of sample
Current Grade(s) Taught (N=608)		
5	110	18.1
6	55	9.0
7	25	4.1
8	31	5.1
9-12	201	33.1[a]
5 & 6	35	5.8
6 & 7	4	0.7
6 & 8	1	0.2[b]
7 & 8	28	4.6
8 & 9-12	7	1.2
5-7	1	0.2[b]
5-8	18	3.0
6-8	73	12.0
5-12	6	1.0
6-12	3	0.5
7-12	10	1.6

Note: [a] Denotes the largest percentage of respondents for that variable
[b] Denotes the smallest percentage of respondents for that variable

Table 12

Study Population: HIV Continuing Ed., Location of Continuing Ed., and Primary Subject

Variable	*f*	% of sample
Continuing Education Hours Related to HIV or HIV Prevention in Past Year (N=616)		
0	389	63.1[a]
1	102	16.6
2	57	9.3
3	25	4.1
4	12	1.9[b]
5+	31	5.0
Location of Last HIV or HIV Prevention Continuing Education (N=603)		
School Workshop	275	45.6[a]
School District Workshop	126	20.9
State Conference	49	8.1
National Conference	8	1.3[b]
Web Based Course	28	4.6
Self Study Course	117	19.4
Primary Teaching Classification (N=615)		
Health Education	97	15.8
Physical Education	237	38.5[a]
Humanities (English, History, Language, Social Studies)	34	5.5
Vocational (Industrial Arts, Vocational, Home Economics)	12	2.0[b]
Special Education	16	2.6
Math/Science	58	9.4
General (Teach Most Subjects)	118	19.2
Other	43	7.0

Note: [a] Denotes the largest percentage of respondents for that variable
[b] Denotes the smallest percentage of respondents for that variable

Findings of the EFA for Study Population

The *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* (α=.956) was analyzed using EFA (N = 575). A total of 42 cases were excluded listwise due to missing responses to the scale. EFA was administered on 13 items related to subjective norms and 7 items related to perceived behavioral control. A subjective norm factor and a perceived behavioral control factor were identified as expected accounting for 76.3% of the variance (Table 13).

Table 13

Phase III Total Variance Explained by Two-Factor Extraction

	Initial Eigenvalues			Extraction Loadings			Rotation Loadings		
Com-ponent	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.968	60.935	60.935	10.968	60.935	60.935	9.771	54.284	54.284
2	2.826	15.702	76.637	2.826	15.702	76.637	4.024	22.353	76.637
3	1.039	5.774	82.411						
4	.691	3.837	86.248						
5	.546	3.031	89.280						
6	.488	2.712	91.991						
7	.351	1.949	93.940						
8	.209	1.159	95.100						
9	.186	1.035	96.135						
10	.157	.871	97.006						
11	.130	.720	97.726						
12	.118	.654	98.380						
13	.082	.458	98.838						
14	.069	.381	99.219						
15	.060	.334	99.553						
16	.051	.285	99.838						
17	.023	.128	99.966						
18	.006	.034	100.000						

The Kaiser-Meyer-Olkin measure of sampling adequacy was .919, thereby justifying PCA's use. The communality measures the percent of variance in a given variable explained by all the items jointly (n=20 items). Perceived behavioral control items five and seven extracted low communality measures and were therefore excluded from the EFA (Table 14). Perceived behavioral control item five read: "I am the primary decision maker as to whether or not I teach HIV/AIDS prevention". Item seven of the behavioral control scale read: "I have knowledge to teach the effectiveness and proper use of condoms".

Table 14

Phase III Initial EFA Communalities

Variable Items	Initial	Extraction
Subjective Norms		
subnor1	1.000	.638
subnor2	1.000	.751
subnor3	1.000	.751
subnor4	1.000	.758
subnor5	1.000	.694
subnor6	1.000	.828
subnor7	1.000	.842
subnor8	1.000	.858
subnor9	1.000	.808
subnor10	1.000	.762
subnor11	1.000	.860
subnor12	1.000	.866
subnor13	1.000	.822
Perceived Behavioral Control		
behvcon1	1.000	.679
behvcon2	1.000	.633
behvcon3	1.000	.812
behvcon4	1.000	.503
behvcon5	1.000	.279*
behvcon6	1.000	.810
behvcon7	1.000	.322*

Note: * Denotes low commonality

EFA was conducted again with the exclusion of the two perceived behavioral control items with low communalities. Communalities statistics among the items (n=18) were found to be above the cut score of .50 for inclusion in the component matrix, items load statistically as expected (Table 15). Factor 1 comprised subjective norms (n=13 items), while Factor 2 composed the items of perceived behavioral control (n=5 items). The items loaded on the same two components as pilot results suggested.

Table 15

Phase III Component Matrix with Excluded Items

Variable Items	Subjective Norms	Perceived Behavioral Control
Subjective Norms		
subnor12	.923	
subnor8	.921	
subnor11	.917	
subnor13	.904	
subnor6	.900	
subnor7	.897	
subnor9	.891	
subnor10	.871	
subnor2	.837	
subnor4	.793	
subnor3	.786	
subnor5	.780	
subnor1	.735	
Perceived Behavioral Control*		
behvcon3		.874
behvcon6		.873
behvcon1		.811
behvcon2		.808
behvcon4		.719

Note: * Exclusion of perceived behavioral control items 5 and 7.

The PASW statistical system suggests that one way to identify outliers within the data is to compute the factor scores. Factor scores are calculated as standard scores by the statistical system. Factor scores were used to identify any outliers as having a *z*-score value greater than ±3.0. Assuming a normal distribution, nearly all scores, approximately 99% are within 3 standard deviations of the mean, thus any *z*-score greater than or less than 3.00 should be considered outliers (Stevens, 1992). Two outliers within the analysis were identified and omitted in the next analysis. The influence of outliers could potentially change the loadings of items. No change was identified between the communality of variable items or component matrix. Because no difference was found by omitting the outliers, the researcher chose to include the outliers in further analysis.

Split Half Validation of EFA

To validate the EFA, an analysis was conducted on an approximate half of the sample. The results of the first split half sample analysis (n=270; α=.959) were compared with the analysis of the second split half sample (n=305; α=.952). Splitting the sample in half allows for a validation set for comparison, to demonstrate the communalities and factor loading among the variables present similarly between two nearly equal samples. All of the communalities for the split samples satisfied the minimum requirement of being larger than 0.50 (Table 16). The pattern of factor loading for both split half samples load the subjective norm variable items on the first factor, and perceived behavioral control variable items loading on the second factor (Table 17). Finally, all items loaded above the cut score for inclusion of .50.

Table 16

Phase III EFA Split Half Communality Comparison

Split Half Validation (n=270)	Initial	Extraction
subnor1	1.000	.619
subnor2	1.000	.705
subnor3	1.000	.760
subnor4	1.000	.748
subnor5	1.000	.644
subnor6	1.000	.815
subnor7	1.000	.826
subnor8	1.000	.862
subnor9	1.000	.800
subnor10	1.000	.767
subnor11	1.000	.849
subnor12	1.000	.867
subnor13	1.000	.806
behvcon1	1.000	.681
behvcon2	1.000	.660
behvcon3	1.000	.789
behvcon4	1.000	.563
behvcon6	1.000	.784

Split Half Validation (n=305)	Initial	Extraction
subnor1	1.000	.671
subnor2	1.000	.791
subnor3	1.000	.757
subnor4	1.000	.778
subnor5	1.000	.743
subnor6	1.000	.848
subnor7	1.000	.862
subnor8	1.000	.870
subnor9	1.000	.822
subnor10	1.000	.770
subnor11	1.000	.881
subnor12	1.000	.879
subnor13	1.000	.851
behvcon1	1.000	.739
behvcon2	1.000	.722
behvcon3	1.000	.768
behvcon4	1.000	.526
behvcon6	1.000	.767

Table 17

Phase III EFA Split Half Component Matrix Comparison

Split Half Validation (n=270)	Component 1	2
subnor12	.913	
subnor8	.910	
subnor11	.901	
subnor6	.887	
subnor13	.887	
subnor9	.868	
subnor10	.864	
subnor7	.854	
subnor2	.788	
subnor3	.744	
subnor4	.743	
subnor5	.711	
subnor1	.657	
behvcon3		.867
behvcon6		.866
behvcon1		.781
behvcon2		.778
behvcon4		.735

Split Half Validation (n=305)	Component 1	2
subnor12	.933	
subnor11	.932	
subnor8	.930	
subnor7	.921	
subnor13	.919	
subnor6	.913	
subnor9	.904	
subnor10	.876	
subnor2	.868	
subnor5	.822	
subnor4	.820	
subnor3	.808	
subnor1	.780	
behvcon3		.875
behvcon6		.873
behvcon2		.833
behvcon1		.833
behvcon4		.709

Reliability for Subjective Norm Scale

The internal consistency reliability of the components was measured by examining the Cronbach's alpha coefficients. A sample of 575 participants completed the 13 item subjective norm component (α=.976). Approximately half of the population (N=305) was used to validate the reliability of the scale (α=.978). The remaining half of the population (N=270) was compared to the first split sample (α=.973). All Cronbach's alpha coefficients appeared within margins of each other, validating the reliability. This high level of reliability for relatively short scales suggests the preciseness in items comprising the scales.

Reliability for Perceived Behavioral Control Scale

The second component of the study, perceived behavioral control (α=.896; n=5 items), was completed by 586 survey participants. The approximate split half reliability (N=313) yielded a Cronbach's alpha of .895, while the remaining sample (N=273) statistically presented a Cronbach's alpha of .898. As with the first factor, perceived behavioral control scale is a reliable instrument.

Regression Analysis

The goal of a regression analysis is to create a prediction equation using a large percentage of the sample that can be validated against the remaining smaller percentage of the sample. Additionally, multiple linear regression analysis was conducted to test the null hypothesis. The null hypothesis stated: There is no significant difference between Alabama's 5-12th grade teachers responsible for health education content regarding

intentions to teach comprehensive HIV prevention education and predicted intention scores based on: (a) general knowledge score; (b) likelihood of transmission knowledge; (c) attitude score; (d) subjective norm score; (e) perceived behavioral control score; (f) number of years teaching; (g) number of hours of professional development in HIV within the past year; (h) highest degree; (i) grade level; (j) school system; (k) teaching classification; (l) age; (m) race; (n) gender and (o) location of last HIV related professional development.

A regression analysis according to Mertler and Vannatta (2005) will have five issues to be address: (a) multiple correlation; (b) tolerance and variance inflation factor (VIF); (c) independent variable selection; (d) subject to variable ratio; and (e) effect of outliers. The measures should be unique to the analysis and is measure by the multiple correlation symbolized by *R*. Multicollinearity results from high intercorrelations among the independent variables and is measured by tolerance and the VIF. Selecting or determining the independent variables that creates an efficient regression equation is relied upon the knowledge of the researcher (Stevens, 1992). Stevens further suggests a subject to variable ratio of at least 15:1 suggested. Finally, measuring the effect of outliers on the regression equation is important to determine their inclusion or exclusion from the analysis.

A total of 502 completed surveys were appropriate for use in the analysis. A standard multiple regression was conducted because the study was an exploration to determine the effect each independent variable has on the dependent variable. All variables are entered in the analysis simultaneously (Talbachnick & Fidell, 1996). Of the 502 completed surveys, scores for 443 were randomly chosen to process through

regression analysis to produce a prediction equation. The Durbin-Watson statistic for regression was 1.749 confirming the assumption of independence of observation. The independent variables jointly account for 60% (R^2=.601; adjusted R^2=.587) of the variance in the dependent variable that is significantly different from zero (F=36.7, p<.001). Standard error of estimation is 3.57. To test for multicollinearity or high correlation among the independent variables, collinearity statistics were presented within the analysis. When tolerance and variance inflation factor (VIF) scores greater than 4.0 indicate a multicollinearity problem. No high correlations among the IVs were found from the regression analysis (VIF<3.1). Regression statistics for the prediction are summarized in Table 18. No outliers were identified by a casewise plot.

Table 18

Phase III Statistics from Regression for Prediction Equation

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	β	t	Sig.	Tolerance	VIF
(Constant)	16.659	2.135		7.804	.000		
Gender	.288	.336	.025	.859	.391	.968	1.034
Ethnicity	-1.422	.415	-.100	-3.429	.001*	.965	1.037
Age	.479	.256	.093	1.868	.062	.334	2.990
Years Teaching	-.086	.155	-.028	-.552	.581	.326	3.071
Degree	-.483	.331	-.044	-1.458	.145	.896	1.116
HE Course	.999	.463	.069	2.156	.032*	.814	1.228
Degree in HE	.850	.401	.074	2.119	.035*	.680	1.470
Grade	.035	.046	.023	.746	.456	.882	1.134
Continuing Ed.	-.264	.120	-.067	-2.201	.028*	.901	1.110
Cont. Ed. Loc.	.107	.086	.037	1.248	.213	.923	1.084
Subject Teaching	.164	.076	.074	2.152	.032*	.704	1.421
School System	-.008	.008	-.027	-.921	.358	.954	1.048
Att	-.098	.017	-.183	-5.858	.000*	.849	1.177
SN	.015	.010	.049	1.518	.130	.793	1.262
PBC	-.040	.021	-.068	-1.897	.050*	.640	1.563
GenKnow	-.255	.040	-.196	-6.361	.000*	.872	1.147
TranKnow	-.439	.022	-.627	-19.702	.000*	.815	1.228

Note: * Denotes the independent variables that are significant ($p<.05$) predictors of intent to teach HIV prevention education.

The prediction equation was created utilizing all variables: Intent to teach HIV prevention = 16.659 + .288 * gender – 1.422 * ethnicity + .479 * age - .086 * yrsteach - .483 * degree + .999 * hecourse + .850 * hedegree + ..035 * grade1 - .264 * conted + .107 * typeconted + .164 * primteach - .008 * system - .098 * Att + .015 * SN - .040 * PBC - .255 * GenKnow - .439 * TranKnow. The research question for the study was: *What are the predictors, related to intentions to teach comprehensive HIV prevention education, among Alabama's 5th-12th grade teachers who are responsible for teaching*

the HIV content? Nine variables were found to be significant (p<.05) predictors of intent to teach HIV prevention education (Table 18). Attitude (p<.01) and perceived behavioral control (p=.050) were the only TpB constructs to be found significant. Subjective norms (p=.130) were not significant predictors of intention. The remaining significant variables are: ethnicity (p=.001); previous course in health education (p=.032); degree in health education (p=.035); continuing education in past year on HIV (p=.028); general knowledge (p<.001) and knowledge of HIV transmission (p<.001).

The summation of the three intention items, yielded the dependent variable used in the prediction equation, intention to teach comprehensive HIV prevention education (N=502; *M*=8.77; SD=5.49). Figure 4 displays the normal distribution of residuals associated with the variable "intention".

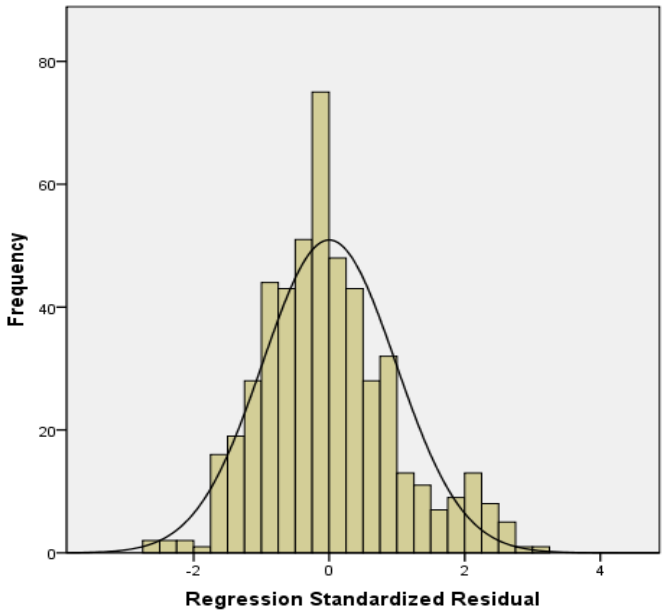

Figure 4. Dependent variable intention to teach HIV prevention education residual distribution (N=502, *M=-9.09, SD=0.983).*

Validation of Prediction Equation

The validity of the prediction equation was tested using the remaining random sample of cases. A new outcome variable was created from the regression analysis, predicted intention score, and was tested using a paired *t*-test with the dependent variable. Utilizing the cross-validation sample (N=59) for the paired *t*-test, confirmation of the predication equation's validity was established (Table 15).

Table 19

Phase III Paired Sample t-Test

				95% Confidence Interval of the Difference				
Pair	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
INT - Pred	-.47525	3.23244	.42083	-1.31763	.36712	-1.129	58	.263

The regression analysis resulted in insufficient evidence to reject the Null Hypothesis. There was no significant difference between actual intention to teach HIV prevention education scores and predicted intention scores. Although some variables where significant predictors of intent to teach HIV prevention education, the use of all independent variables accounted for a high percentage of variance. The final step was to interpret the prediction equation.

Understanding the Predication Equation

The predication equation was as follows: Intent to teach HIV prevention = 16.659 + .288 * gender – 1.422 * ethnicity + .479 * age - .086 * yrsteach - .483 * degree + .999 * hecourse + .850 * hedegree + ..035 * grade1 - .264 * conted + .107 * typeconted + .164 * primteach - .008 * system - .098 * Att + .015 * SN - .040 * PBC - .255 * GenKnow - .439 * TranKnow. It is important to note the dependent variable scores are inversely proportionate to likelihood of performing the behavior. The first number in the equation is a constant derived from the regression. The first variable listed, gender, is positively related to the dependent variable. Another way of stating this is as the likelihood of intention to teach HIV prevention education increases respondents were male. The next variable, ethnicity is negatively associated with the dependent variable, therefore the likelihood of minority participants to have intention to teach HIV prevention education decreased. Age was found to be positively associated; meaning that as the age category increased respondents were less likely to have intent to perform the dependent variable. Concerning the number of years teaching, respondents were more likely to teach HIV prevention education with more years of teaching experience. In addition, the higher the degree (bachelor's, master's, doctorate) the more likely a respondent will intend to perform the behavior. The next two variables, health course and health education degree were positively associated with intention. If respondents had a health course either in undergraduate or graduate studies they are more likely to intend to teach HIV prevention. Respondents having a degree in health education were also more likely to intend to teach HIV prevention.

The next variable allowed survey participants to select all grade levels currently working. Grades 5-8 were listed individually while grades 9-12 were grouped together. Yielding from the prediction equation those who taught one grade rather than multiple grades had lower intention scores and therefore more likely to perform the behavior. In addition the number of continuing education credits received in HIV or HIV prevention education the more likely he or she would respond with intention to teach HIV prevention education. The type of continuing education course, such as a course or workshop offered by the school or school district, correlated with more intent to perform the behavior as compared to those who had a course at a state or national conference, or were self-studied. Respondents who primarily teach a health or physical education were more likely to teach HIV prevention education. The next variable, school system, was negatively associated therefore city schools were more likely respond with intention to teach HIV prevention education.

Attitude was negatively associated with the dependent variable, concluding the as positive attitude increases toward HIV the more intention to teach HIV prevention education. Subjective norm however was positively associated, thus more positive the view of others supporting the teaching of HIV prevention the less likely one would intend to teach HIV prevention. Perceived behavioral control was negatively associated with intention to teach HIV prevention education resulting that as one's perceived behavioral control increases intention to teach the dependent variable increases. Therefore, the less perceived knowledge and ability a respondent has concerning performing the behavior makes them less likely to intend teach HIV prevention education. The variable general knowledge was assigned one point for each correct answer and no points for each

incorrect or unsure answer. A perfect score would yield 18 points. General knowledge is negatively associated with the dependent variable; therefore as general knowledge scores increased the more likely the respondent is to intend to teach HIV prevention education. Knowledge of transmission variable was scored based on correct answers to the scale items. One point was assigned for each correct answer, while no points were assigned to incorrect answers yielding a perfect score of 17. The interpretation of prediction equation is as knowledge of transmission increases the intention to teach HIV prevention education also increases.

Summary

Principle component analyses with internal consistency reliability analyses resulted in two factors. Composite scores were created for the factors and used in multiple linear regression analyses to answer the research question and test the null hypotheses. There was no significant difference between predicted evaluation intention scores and actual evaluation intention scores. The researchers failed to reject the null hypothesis because there was no significant difference between actual intention to teach HIV prevention education scores and predicted intention scores. Research questions were answered with the best predictors of intention being ethnicity; previous health course in college; health degree; continuing education courses; primary subject taught; attitude; perceived behavioral control; general HIV/AIDS knowledge; and knowledge of transmission of HIV. Two TpB variables, attitude and perceived behavioral control were significant predictors for dependent variable; subjective norm was not.

CHAPTER 5

SUMMARY, CONCLUSIONS, IMPLICATIONS, LIMITATIONS, AND RECOMMENDATIONS

Introduction

The purpose of this chapter is to: (a) present a summary of this study; (b) describe conclusions found from the analysis; (c) discuss implications of the research and (d) present recommendations from this study as well as future research related to the topic. The purpose of this study was to assess the level of knowledge, attitudes, subjective norms and perceived behavioral control of Alabama's 5-12th grade teachers concerning intention to teach comprehensive HIV prevention education. Of the 617 returned surveys 450 teachers completed the full survey measuring general HIV knowledge, knowledge pertaining to transmission of HIV, attitudes related to HIV, perceived behavioral control concerning teaching comprehensive HIV prevention education, and subjective norms related to teaching comprehensive HIV prevention education. Analyses were conducted to determine significant differences among the measured variables of the survey. Other variables included demographics such as gender, primary subject currently teaching, degree in health education, years of experience, ethnicity, age, school system, location of professional development and number professional development in past year related to HIV.

Summary

Chapter one presented an introduction to HIV and the foundation for studying the knowledge, attitudes, subjective norms and perceived behavioral control of teachers in Alabama who are responsible according to the Course of Study, for HIV and HIV prevention education material. There are no studies that have measured knowledge, attitude, subjective norms and perceived behavioral control regarding HIV/AIDS education among school teachers. In addition there are relatively no recent studies that measured any variables and compared those variables to HIV and/or a population of teachers. One study conducted by Richter in 1997 found that helping students develop skills to refrain from or delay engaging in sexual intercourse was identified as a specific area that teachers did not feel confident in addressing. Furthermore, Richter's study found that teachers did not feel they could impart skills to help students refrain from injecting drugs of influence their students to have more positive attitudes toward people infected with HIV/AIDS. Another study found teachers who felt they had sufficient knowledge on the subject were not confident discussing issues of HIV with their students especially topics related to safer sex and homosexuality (Remfedi, 1993).

Chapter two provided a history of HIV/AIDS, significance of HIV, discussion of risky behaviors, the *Alabama Course of Study: Health Education*, and the history and use of the Theory of Planned Behavior. In the late 1970's a rare type of pneumonia or cancer by doctors in Los Angeles and New York was discovered. It would be several years, until 1982, for the new disease to termed AIDS (CDC, 2009a). The four most common transmissions of the virus that causes AIDS, HIV, according to the CDC are dirty needles

used to inject drugs, unprotected sexual intercourse, mother to fetus or new-born baby, and blood transfusion (2009a).

Throughout the history of HIV and AIDS it has been associated with white, homosexual males. The most recent data presented today clearly points out that white males are half as likely as African American men to contract the virus. In addition, nearly a third of new cases are transmitted through heterosexual contact (CDC, 2009c). Within Alabama, 63% of active cases of HIV/AIDS are of African American ethnicity (ADPH, 2009).

The *Alabama Course of Study: Health Education* guides curriculum development for grades K-12 health education. The topic of HIV/AIDS is first included among the standards listed for fifth grade (ALSDE, 2009). Having the *Alabama Course of Study: Health Education* as a guide for minimum HIV content inclusion for teachers, does not mean teachers understand, feel comfortable with, or have an attitude of agreement related to teaching HIV prevention education. Professional development is provided to better prepare teachers on certain topics and to help educate students on those topics.

However, having the Alabama Course of Study as a guide and professional preparation on comprehensive HIV prevention education does not provide an answer concerning if the teacher intends to teach the material. The Theory of Planned Behavior was established to measure one's attitudes, subjective norms, and perceived behavioral control as predictors to performing or intending to perform a behavior. Therefore TpB was an appropriate theory to use for this study to measure teachers' intention to teach comprehensive HIV prevention education.

Chapter three detailed the method by which the study's three phases of study were discussed: (a) survey creation; (b) pilot study; (c) full survey administered. The *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* was created using guidelines for creating a questionnaire utilizing the theoretical constructs from the TpB (Francis et al., 2004). Eight professionals in the fields of health education, survey development, theory, and elementary and secondary health education were asked to participate as content jurors to review the instrument's design, content, clarity, and relevance. Five of the eight professionals participated as jurors. No items were eliminated from the survey, concluding a unanimous agreement of relevant and clear items within the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers.*

Next the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* was administered to a convenience sample (n=160) of students in the *Introduction to Education* courses in the University of Alabama at Birmingham's (UAB) School of Education. The purpose of this phase was to determine if the new scales through analysis pertaining to two factors, subjective norms and perceived behavioral control, werereliable and the items relate to the two factors.

Finally, a criterion population of Alabama teachers, responsible for teaching health education course of study content in grades 5-12, was administered the *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998), the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* as well as the measures of intention utilized in previous research (Burak, 1994; Lin & Wilson, 1998). The population consisted of physical education teachers (N=530), and health education

teachers (N=92). Each of Alabama's 132 school systems' curriculum coordinators were also sent the survey link and asked to forward the link to all teachers previously set for inclusion in the study. In addition to the coordinators sending the link to teachers, it was emailed directly to a current list of 622 health and physical education teachers.

Chapter 4 provided the results of analysis conducted on the pilot study as well as from the final phase of survey administration. The final phase included the *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998), the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* as well as the measures of intention utilized in previous research (Burak, 1994; Lin & Wilson, 1998). Analysis of the pilot yielded a two factor solution congruent with what was expected. Therefore the administration of the *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998), the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* as well as the measures of intention utilized in previous research (Burak, 1994; Lin & Wilson, 1998) was warranted. Results from the administration of the previously listed scales proved the same two factor solution the pilot study concluded. The reliability of the instruments was ascertained with all yielding reliable instruments. A regression analysis provided evidence of a prediction equation in which the variables produce a prediction score for the dependent variable. This equation was validated with a paired *t*-test to test the null hypothesis. The conclusion from the paired *t*-test was there was no significant difference between variables and therefore the researcher failed to reject the null hypothesis.

Conclusions

Research Question

The purpose of this study was driven by one research question: What are the predictors, related to intentions to teach comprehensive HIV prevention education, among Alabama's 5^{th}-12^{th} grade teachers who are responsible for teaching the HIV content? Results from the study indicate that a large amount of variance (R^2=.587) was accounted for by all variables tested: (a) general knowledge score; (b) likelihood of transmission knowledge; (c) attitude score; (d) subjective norm score; (e) perceived behavioral control score; (f) number of years teaching; (g) number of hours of professional development in HIV within the past year; (h) highest degree; (i) grade level; (j) school system; (k) teaching classification; (l) age; (m) race; (n) gender and (o) location of last HIV related professional development.

Null Hypothesis

The null hypothesis was not rejected due to analysis of the paired t-test yielding no difference between actual intention scores and the predicted intention scores derived from the prediction equation. The null hypothesis stated: There is no significant difference between Alabama's 5-12th grade teachers responsible for health education content regarding intentions to teach comprehensive HIV prevention education and predicted intention scores based on (a) general knowledge score; (b) likelihood of transmission knowledge; (c) attitude score; (d) subjective norm score; (e) perceived behavioral control score; (f) number of years teaching; (g) number of hours of professional development in HIV within the past year; (h) highest degree; (i) grade level;

(j) school system; (k) teaching classification; (l) age; (m) race; (n) gender and (o) location of last HIV related professional development.

Objectives

There were two objectives designed to contribute to the research question. The first was to develop a theory-based valid and reliable questionnaire to examine subjective norms and perceived behavioral control of Alabama 5-12th grade teachers responsible for teaching comprehensive HIV prevention education. The second was to examine the validity and reliability of the *HIV/AIDS Knowledge and Attitudes Scales for Teachers* (Koch & Singer, 1998) as well as the measures of intention utilized in previous research (Burak, 1994; Lin & Wilson, 1998) utilizing Alabama 5-12th grade teachers responsible for teaching comprehensive HIV prevention education.

The first objective was achieved by the development of a valid and reliable instrument. The *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* was validated for content by five jurors. The jurors established clarity and relevance of the items in the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers.* The instrument was piloted among 161 teacher education students. Items among the instrument upon analysis directly related to the two factors, subjective norms and perceived behavioral control, being tested accounting for 73% of the variance. The piloted instrument was measured for reliability (α=.879) and was found to be a reliable instrument using Cronbach's alpha (Table 20). When the *HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers* was

administered to a larger population (N=617) during the final phase of research, Cronbach's alpha (α=.956) yielded once again reliable instrument.

Table 20

Cronbach's Alpha for HIV/AIDS Subjective Norms and Perceived Behavioral Control Scales for Teachers

Scale	Cronbach's Alpha	Sample
Pilot Instrument		
Overall (includes both factors)	α = .879	n = 161
Subjective Norms	α = .901	n = 161
Perceived Behavioral Control	α = .863	n = 161
Instrument Study		
Overall (includes both factors)	α = .956	n = 575
Subjective Norms	α = .976	n = 575
Perceived Behavioral Control	α = .896	n = 586

The second objective was to compare the reliability of previously validated scales. The *Knowledge and Attitude Scales for Teachers* (n=60 items) and the intention scale (n=3 items) were utilized in this study. The *Knowledge and Attitude Scales for Teachers* consisted of 524 participants. This instrument consists of two components: knowledge, and attitude. The first component, knowledge (n=562, n=35 items) is further delineated into two subcomponents: general HIV knowledge (n=579, n=18 items), and likelihood of transmission (n=584, n=18 items). The second component, attitude (n=558, n=25 items) and consisted of the least amount of sample respondents. The final instrument used was an intention scale (n=585, n=3 items). The Cronbach's alpha for each scale was compared to the alpha yielded from this study (Table 21).

Table 21

Comparison of Cronbach's Alpha

Scale	Previously reported alpha	Current reported alpha
Knowledge and Attitude Scales for Teachers	α = .89	α = .82
Attitude	α = .89	α = .80
Knowledge	α = .87	α = .74
General Knowledge	α = 78	α = .73
Transmission Knowledge	α = .88	α = .78
Intention	α = .90	α = .98

Cronbach's alpha results differ between the initial psychometric analysis and current. However between both analyses the instruments are found to be reliable. A Cronbach's alpha calculated to be α=.70 and above are established as a cut score for reliability acceptance (Guilford, 1956; Nunally, 1978). As previously discussed, the *Knowledge and Attitude Scales for Teachers*' reliability was established on 128 elementary education student teachers. This study was administered to 617 teachers not student teachers. This difference in both population size and type could account for the differences among reliability. With differences noted, it was established that the scales used are in fact reliable scales. Strong reliability estimates were evident across the scales and remain strong across the different samples.

Factor Loading Comparison

As previously discussed, items within the instrument loaded as expected under the two-factor solution. Comparing the order of item loading between the pilot and the study, yield similar loading patterns, with a few differences (Table 23). The first three items of subjective norm factor for the pilot were items 11, 8, and 12. A slight change

occurred during the study, with the first three items of subjective norm loading first item 12, followed by 8 and 11. The last two items to load for subjective norm, five and one, were the same for both the pilot and the study phase. The most significant difference observed were with items three and four. Item four during the pilot loaded as the fourth item while item three loaded as the sixth. Item 4 subsequently loaded 10^{th}, and item 3 loading as the 11^{th}. Item three stated "my family supports me in providing comprehensive HIV education to my students" and item four stated "my friends support me in providing comprehensive HIV education to my students". One justification for the change in the order of item loading could be because the perception of teaching while a student is different than the perception of teaching as a teacher. Following the same line of thinking, the number of years teaching could also play a role in the perception a teacher may have, where as a student not having experience will not have the same perception.

For the perceived behavioral control factors, items loaded nearly identical between the two comparisons with the exception of items three and six switching order. As previously discussed, items five and seven of the perceived behavioral control scale were excluded from study analysis due to lack of commonality found during the analyzing process. Results from the pilot echo the decision to eliminate items five and seven. During the pilot analysis, item seven and five loaded as the last items under the perceived behavioral control factor (Table 22).

Table 22

Comparison of Factor Loading

Pilot Items	SN	PBC	Study Items	SN	PBC
Subjective Norms (SN)			Subjective Norms (SN)		
Subnor11	.912		Subnor12	.923	
Subnor8	.912		Subnor8	.921	
Subnor12	.910		Subnor11	.917	
Subnor4	.904		Subnor13	.904	
Subnor6	.900		Subnor6	.900	
Subnor3	.895		Subnor7	.897	
Subnor13	.889		Subnor9	.891	
Subnor7	.887		Subnor10	.871	
Subnor10	.882		Subnor2	.837	
Subnor9	.867		Subnor4	.793	
Subnor2	.861		Subnor3	.786	
Subnor5	.822		Subnor5	.780	
Subnor1	.819		Subnor1	.735	
Perceived Behavioral Control (PBC)			Perceived Behavioral Control (PBC)		
Behvcon6		.904	Behvcon3		.874
Behvcon3		.892	Behvcon6		.873
Behvcon1		.852	Behvcon1		.811
Behvcon2		.836	Behvcon2		.808
Behvcon4		.706	Behvcon4		.719
Behvcon7		.601			*
Behvcon5		.560			*

Note: * Exclusion of perceived behavioral control items 5 and 7.

Significant Predictors

The regression analysis yielded nine significant variables of predictors of intention to teach comprehensive HIV prevention education. Variables such as having a degree in health education, a college course in health, teaching health, and having within the past year a continuing education course related to HIV were expected to be significant predictors. Ethnicity was also a significant predictor, in addition to, attitude and perceived behavioral control. The only construct of the TpB not found to be significant

was subjective norms. Finally, general knowledge and likelihood of transmission were also found to be significant predictors.

Two variables to be discussed in more detail include (a) ethnicity, (b) subjective norm. Ethnicity was negatively associated with intention, thus minorities are less likely to intend to teach HIV prevention education. Few studies have been conducted to examine cultural sensitivity of the TpB among African Americans and the Caucasian population. Multi-cultural groups need interventions that are specialized to their needs. This study demonstrated the use of theory as a predictor of physical activity needs among multi-cultural groups (Blanchard et al., 2008).

Blanchard et al. found that attitudes toward physical activity were stronger in Caucasians than in African Americans. Blanchard believed that this can be partially explained by the strong relationship the African American community has with God. Their communal belief is that God is in control of one's life. Thus, one's health is a component of one's life and thereby taking control of it would be going against God. The researches hypothesized an observation of similar findings between attitude and intention (Blanchard et al., 2008). For the use of TpB, ethnicity should be considered when developing physical activity interventions for college students (Blanchard et al., 2008).

The next variable, subjective norm was found to have a positive relationship with the dependent variable. Therefore as teachers perceive others as having a more positive view concerning the teaching of HIV prevention education, the less likely he or she is to intend to teach HIV education. One would think that the more positive view others have of an educator teaching HIV prevention education, that he or she would be more likely to

intend to teach the material. An explanation for this could be those who perceive others as being supportive are not actually teaching the material. Thus, one who is actually teaching HIV education may perceive others as not supportive. Further research is needed to explain this in more detail.

Implications

In order to be effective, teachers must help increase awareness that although people infected with HIV are living longer, the disease still lingers as a major threat to health particularly among vulnerable populations. Heifetz and Linsky (2002) suggest providing accurate and current information helps to eliminate misconceptions and results in people looking beyond their self-interests for the good of society. Before one is able to provide such leadership, it is important to determine one's own attitudes and knowledge.

Implications from this study answer three important questions: who, what, and where? The study provided specific information for professional development courses designed for a particular population. For example, minorities are less likely to intend to teach HIV prevention education. Designing professional development classes that will address those concerns that inhibit minorities from having strong intention to teach the material could result from further analysis of the data. In addition, targeting younger teachers and those with few years teaching provide an answer to the first question of who needs an intervention course. Furthermore, knowledge and attitude scores were significant factors in predicting intention. This provides an answer to what do professional development courses teach. Finally, it was found that the location of the continuing education course was a factor. The study results yield that school or school

system sponsored professional development had greater intention scores as compared to those who had courses at a state or national conference.

Limitations

One limitation to this study is administering the survey via a web-based method. This could have limited the number of responses. The idea of teachers being inundated with information could have limited the response rate since the survey was sent via email to teachers. In addition, due to the email systems each school system has, outside emails are blocked from sending emails to teachers. Utilizing the Alabama State Department of Education Health and Physical Education Specialist, the survey was sent to all curriculum coordinators within the state. The curriculum coordinators maintain a list of all teachers in every subject, and therefore relayed the link to the needed study population. There was no means of measuring the full extent of administration of the survey.

Despite the large sample, the numbers of nonminority teachers far outnumber the number of minority respondents. Some variability may exist among different ethnic groups, with further research needed to draw conclusion. A final limitation to the study was the potential limited reach of teachers who are not health and physical education teachers.

Recommendations

The American Academy of Pediatrics has suggested that HIV/AIDS education be included as part of a comprehensive health education course at the college level for those preparing to become educators. Furthermore, once employed by a school district, the

American Academy of Pediatrics also suggested that this education be updated on a regular basis (American Academy of Pediatrics, 1998). Studies have indicated teachers are interested in having more specified training to help them be more prepared to teach in HIV prevention education. For example, many who teach HIV prevention education claim to have been self-taught and request more opportunity for quality training (Dawson, Chunis, Smith, & Carboni, 2001).

Using this study as a guide, more research is needed to understand relationships of variables. Future research should be done analyzing specifically constructs of the TpB and its relationship to age, years of teaching and ethnicity of teachers concerning HIV prevention education. Other recommendations are to focus research on specific school districts and target the needs of that area. This will allow smaller areas to generalize results to instead of producing continuing education programs and assuming it will meet the needs of all teachers. In addition, disseminating similar studies across all areas of the United States will help in targeting specific professional development course materials for differing populations of teachers based on variables such as age, gender, race, number of years as a teacher, rural school systems versus urban, course background.

Findings from this study will be submitted for publication in professional school health or HIV/AIDS journals. Additionally, information will be presented at local, state and national conventions and conferences. The primary investigator will provide any needed assistance to development of programs and sessions geared to teachers across the state of Alabama concerning HIV prevention education.

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APPENDIX A

IRB APPROVAL FORM

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Institutional Review Board for Human Use

Form 4: IRB Approval Form
Identification and Certification of Research
Projects Involving Human Subjects

UAB's Institutional Review Boards for Human Use (IRBs) have an approved Federalwide Assurance with the Office for Human Research Protections (OHRP). The Assurance number is FWA00005960 and it expires on January 23, 2012. The UAB IRBs are also in compliance with 21 CFR Parts 50 and 56 and ICH GCP Guidelines.

Principal Investigator:	POWELL, STEVEN BRENT
Co-Investigator(s):	PETRI, CYNTHIA J
Protocol Number:	**X090817003**
Protocol Title:	*Assessing knowledge, attitudes, and beliefs of teachers in Alabama concerning comprehensive HIV education*

The IRB reviewed and approved the above named project on 8/18/09. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services. This Project will be subject to Annual continuing review as provided in that Assurance.

This project received EXPEDITED review.

IRB Approval Date: 8-18-09

Date IRB Approval Issued: 8/18/09

Marilyn Doss

Marilyn Doss, M.A.
Vice Chair of the Institutional Review
Board for Human Use (IRB)

Investigators please note:

The IRB approved consent form used in the study must contain the IRB approval date and expiration date.

IRB approval is given for one year unless otherwise noted. For projects subject to annual review research activities may not continue past the one year anniversary of the IRB approval date.

Any modifications in the study methodology, protocol and/or consent form must be submitted for review and approval to the IRB prior to implementation.

Adverse Events and/or unanticipated risks to subjects or others at UAB or other participating institutions must be reported promptly to the IRB.

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APPENDIX B

LIST OF POTENTIAL CONTENT JURORS

Name	Contact Information	Response	Content Expertise
Charity Bryan	cxb4512@louisiana.edu	Accepted	Physical Education
Connie Dacus	cojd@yahoo.com	Accepted but did not complete	School Health Education
Kay Hamilton	kayhamil@hiwaay.net	Accepted	Health Education
William Hey	William.hey@wku.edu	Accepted	Health Education Survey Creation
Patricia Barthalow Koch	p3k@psu.edu	No Response	Knowledge and Attitudes Scale for Teachers
Joel Moskowitz	jmm@berkely.edu	Too busy to undertake task	California AIDS survey
Emilie Pharez	epharez@bcbe.org	Accepted	Elementary Physical Education
Charles Sands	cdsands@samford.edu	Accepted	Health Education
Kory Tuescher	ktuescher@dubuquek12.ia.us	No Response	Elementary Physical Education

APPENDIX C

JUROR INFORMATION LETTER

Survey Information Sheet

Juror's Review Form*

a. TITLE OF RESEARCH: Assessing Knowledge, Attitudes, and Beliefs of Teachers in Alabama Concerning Comprehensive HIV Education

b. IRB Protocol Number: X090817003

c. Your opinion is important to evaluate the relevance and clarity of the **survey content** before administration to Alabama teachers of grades 5-12 are responsible for teaching health education content. The questionnaire is being used for research purposes only.

d. Your participation is voluntary.

e. CONTACT INFORMATION FOR INVESTIGATOR:
Brent Powell
sb7737@uab.edu
205-541-6651

f. **The TpB and Wording of Survey Items**
Item content and sentence structure were determined according to guidelines provided by "Constructing Questionnaires Based on the Theory of Planned Behavior: A Manual for Health Services Researchers" (Francis et al., 2004) and according to information gathered from the professional literature. The items are designed to measure the general influence of the following TpB variables (a) subjective norms, and (b) perceived behavioral control (self efficacy and ability), as they relate to intentions to teach comprehensive HIV prevention education. The survey is NOT designed to identify specific beliefs about the TpB variables.

Your task

1) Complete the survey either via the email, or copy and paste the link.

2) Mark one response each for "Relevancy" and "Clarity" on this form as you preview each survey item. Indicate whether each item is:

3) Please complete the survey by September 18, 2009 preferred, September 21, 2009 at the latest.

4) Your comments will be submitted back via email. Please, be sure to select submit at the end of the survey.

g. If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact Ms. Sheila Moore. Ms. Moore is the Director of the Office of the Institutional Review Board for Human Use (OIRB) at the University of Alabama at Birmingham (UAB). Ms. Moore may be reached at (205) 934-3789 or 1-800-822-8816. If calling the toll -free number, press the option for "all other calls" or for an operator/attendant and ask for extension 4-3789. Regular hours for the Office of the IRB are 8:00 a.m. to 5:00 p.m. CT, Monday through Friday. You may also call this number in the event the research staff cannot be reached or you wish to talk to someone else.

APPENDIX D

CONTENT JUROR REVIEW FORM

Survey Review Form

My school administrators support me in providing comprehensive HIV education to students. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My students' parents support me in providing comprehensive HIV education to their children. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My family supports me in providing HIV education to students. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My friends support me in providing HIV education to students. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My church or religious group supports me in providing HIV education to students.

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

Most people important to me think I should provide comprehensive HIV education to students. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My local board of education thinks I should provide comprehensive HIV education to students. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My co-workers think I should provide comprehensive HIV education to students.

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

It is expected of me by my administrators to provide comprehensive HIV education to students. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

The parent's of my students think I should provide comprehensive HIV education to their children. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My family thinks I should provide comprehensive HIV education to their children.

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My friends think I should provide comprehensive HIV education to their children. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

My religion or spiritual association leaders think I should provide comprehensive HIV education to their children. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

I have the knowledge to teach HIV and AIDS prevention.

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

I can teach students about universal precautions associated with HIV and AIDS prevention. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

I can find or develop lesson on HIV and AIDS prevention. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

I can find or have knowledge of my school district's HIV and AIDS prevention curriculum.

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

It is mostly up to me whether or not I teach HIV and AIDS prevention. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

I have the knowledge to teach proper condom use. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

It is mostly up to me whether or not I teach proper condom use. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

It is mostly up to me whether or not I teach universal precautions. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

It is mostly up to me to find or develop lesson on HIV and AIDS prevention. Select two, one for Relevancy and one for Clarity

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

I have knowledge of the Alabama Course of Study concerning HIV and AIDS prevention.

- ☐ Relevant
- ☐ Relevant with minor revision
- ☐ Not relevant without major revision
- ☐ Not relevant

- ☐ Clear
- ☐ Clear with minor revision
- ☐ Not clear without major revision
- ☐ Not clear

Record other comments about survey here:

Juror, please include your full name:

Submit

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APPENDIX E

CONTENT JUROR COMMENTS

Places where I marked ""Relevant with Minor Revision"" are mostly related to the family and friends questions. For family, do you mean the immediate family of the person taking the survey? Same for friends - friends of the person taking the survey? Also, ""to their children"" was a little confusing to me. For example -- My family thinks I should provide comprehensive HIV education to their children -- the children of my family would either be (a) also my own personal children and/or (b) kids of my family members. Is that who you mean, or do you mean school children in general? Same for friends - do your friends want you teaching THEIR kids? A little clarification may help with these two areas! Otherwise, great job! Let me know if you want any additional follow up!

A few words need to be plural, consider using the word "believe" instead of "think" in the statements

I think the survey is, for the most part, clear and relevant. There are some questions that refer to religious groups and friends and how they affect your teaching. I might be misunderstanding the questions, but my friends and religious beliefs cannot direct my teaching. (At least not to the point that I tell my students)

I am no longer a classroom teacher, but when I was in the classroom I found that if the text related to HIV and Aids, we had to walk a very fine line and get a parental clearance, whereas now on the University level it is expected to be covered in many personal health, fitness and wellness and human sexuality courses. It is considered required information and I am often asked to discuss the topics in dorm-life settings.

APPENDIX F

PILOT STUDY RECRUITMENT LETTER E-Mail

Dear Instructor

The students in your course section has been selected to participate in the pilot of a new instrument conducted by the University of Alabama at Birmingham's Department of Human Studies between the dates of September 30-Ocotober 9, 2009. This pilot will assess subjective norms, and perceived behavioral control concerning teaching comprehensive HIV prevention education. **We realize that class time is very precious, and would greatly appreciate your help in administering this important assessment.** The objective is to gather data to help validate the constructs of this new survey.

The primary investigator, doctoral student in the Department of Human Studies will distribute and oversee the survey process. The survey is self-administered and will take students approximately 5-10 minutes to complete. The surveys will be distributed, completed, and collected during one class period.

Note that student participation in this study is completely voluntary and that all survey answers are completely anonymous. Results will only be reported in the aggregate form.

Please respond via e-mail and provide the following information to Brent Powell, Doctoral Student, Health Education/Promotion at your earliest convenience:

-Preferred administration dates (September 30-October 9, 2009):
-Your Contact Name/Phone/E-mail:
-Preferred Administration Time:
-Class Location (building and room number):

Respectfully,

Steven Brent Powell
The University of Alabama at Birmingham
Graduate Student

APPENDIX G

PILOT STUDY INFORMATION SHEET

Survey Information Sheet

a. TITLE OF RESEARCH: Assessing Knowledge, Attitudes, and Beliefs of Teachers in Alabama Concerning Comprehensive HIV Education

b. IRB Protocol Number: X090817003

c. You are being asked to participate in a survey assessment of subjective norms (the opinion of others as to what is acceptable) and perceived behavioral control concerning the comprehensive HIV prevention education. The information you provide is used for research purposes and for validating measures within the survey. The survey is being conducted through the Department of Human Studies at the University of Alabama at Birmingham. You will be participating in a survey that asks questions about your personal perception concerning the teaching of comprehensive HIV prevention education to students. The questionnaire is being used for research purposes only.

d. Your participation is voluntary. You may omit any items that you would prefer not to answer. All information reported in the survey will remain strictly confidential.

e. CONTACT INFORMATION FOR INVESTIGATOR:
Brent Powell
sb7737@uab.edu
205-541-6651

f. The survey will take approximately 5-10 minutes to complete. Please read this form carefully before deciding whether or not to participate. Return the survey to the Primary Investigator at anytime. You may choose to not participate in the survey, or choose to not answer any question while answering the survey.

g. If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact Ms. Sheila Moore. Ms. Moore is the Director of the Office of the Institutional Review Board for Human Use (OIRB) at the University of Alabama at Birmingham (UAB). Ms. Moore may be reached at (205) 934-3789 or 1-800-822-8816. If calling the toll -free number, press the option for "all other calls" or for an operator/attendant and ask for extension 4-3789. Regular hours for the Office of the IRB are 8:00 a.m. to 5:00 p.m. CT, Monday through Friday. You may also call this number in the event the research staff cannot be reached or you wish to talk to someone else.

APPENDIX H

STUDY RECRUITMENT LETTER E-Mail

Dear……..

You are receiving an email asking you to participate in a survey related to the teaching of HIV/AIDS in your school. Your participation is important. The information gathered can assist the Alabama State Department of Education in planning for future workshops, teacher training, and other support activities. Information will be gathered anonymously using a program called Survey Monkey.

The information gathered will truly be important to the ALSDE and ultimately to the education of the students in Alabama.

Thank you for your time and thank you in advance for your participation.

Please click the link below to continue to the survey.

http://www.surveymonkey.com/s.aspx?sm=C6l59AxbD5kNXreCxRVkIw_3d_3d

Steven Brent Powell
The University of Alabama at Birmingham
Graduate Student

Nancy Ray
Alabama State Department of Education
Education Specialist - Physical Education and Health Education

APPENDIX I

STUDY PARTICIPANTS'INFORMATION LETTER

Survey Information Sheet

a. TITLE OF RESEARCH: Assessing Knowledge, Attitudes, and Beliefs of Teachers in Alabama Concerning Comprehensive HIV Education

b. IRB Protocol Number: X090817003

c. The information gathered can assist the Alabama State Department of Education in planning for future workshops, teacher training, and other support activities. The questionnaire is being used for research purposes only.

d. Your participation is voluntary.

e. CONTACT INFORMATION FOR PRIMARY INVESTIGATOR:
Brent Powell
sb7737@uab.edu
205-541-6651

f. The survey will take approximately 25-30 minutes to complete.
1) Please complete the survey by January 15, 2009.
2) Your comments will be submitted back via SurveyMonkey. Please be sure to click the submit button when you have completed the form.

g. If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact Ms. Sheila Moore. Ms. Moore is the Director of the Office of the Institutional Review Board for Human Use (OIRB) at the University of Alabama at Birmingham (UAB). Ms. Moore may be reached at (205) 934-3789 or 1-800-822-8816. If calling the toll -free number, press the option for "all other calls" or for an operator/attendant and ask for extension 4-3789. Regular hours for the Office of the IRB are 8:00 a.m. to 5:00 p.m. CT, Monday through Friday. You may also call this number in the event the research staff cannot be reached or you wish to talk to someone else.

Selecting Yes is confirmation of your agreement to participate in the survey

Yes I agree to participate and wish to proceed with the survey

APPENDIX J

SUBJECTIVE NORMS AND PERCEIVED BEHAVIORAL CONTROL SCALES FOR TEACHERS

Subjective Norm Scale for Teachers

To what degree do you agree or disagree with the following?

	Strongly agree	Agree	Somewhat agree	Uncertain	Somewhat disagree	Disagree	Strongly disagree
1. My school administrators support me in providing comprehensive HIV education to my students	○	○	○	○	○	○	○
2. The parents of my students support me in providing comprehensive HIV education	○	○	○	○	○	○	○
3. My family supports me in providing comprehensive HIV education to my students	○	○	○	○	○	○	○
4. My friends support me in providing comprehensive HIV education	○	○	○	○	○	○	○
5. My faith group supports me in providing comprehensive HIV education to my students	○	○	○	○	○	○	○
6. People important to me believe I should provide comprehensive HIV education to my students	○	○	○	○	○	○	○
7. My local board of education believes I should provide comprehensive HIV education to my students	○	○	○	○	○	○	○
8. My co-workers believe I should provide comprehensive HIV education to my students	○	○	○	○	○	○	○
9. My administrators expect me to provide comprehensive HIV education to my students	○	○	○	○	○	○	○
10. The parents of my students believe I should provide comprehensive HIV education	○	○	○	○	○	○	○

	Strongly agree	Agree	Somewhat agree	Uncertain	Somewhat disagree	Disagree	Strongly disagree
11. My family believes I should provide comprehensive HIV education to my students							
12. My friends believe I should provide comprehensive HIV education to my students							
13. My faith group leaders believe I should provide comprehensive HIV education to my students							

Perceived Behavioral Control Scale for Teachers

To what degree do you agree or disagree with the following?

	Strongly agree	Agree	Somewhat agree	Uncertain	Somewhat disagree	Disagree	Strongly disagree
1. I have the knowledge to teach comprehensive HIV/AIDS prevention							
2. I have the ability to teach the universal precautions associated with HIV/AIDS prevention							
3. I can find or develop lesson plans concerning comprehensive HIV/AIDS prevention							
4. I can find or have knowledge of my school district's HIV/AIDS prevention curriculum							
5. I am the primary decision maker as to whether or not I teach HIV/AIDS prevention							
6. I am the primary decision maker in selecting lessons concerning HIV/AIDS prevention							
7. I have knowledge to teach the effectiveness and proper use of condoms							

APPENDIX K

KNOWLEDGE AND ATTITUDE SCALES FOR TEACHERS

General Knowledge

Please indicate, to the best of your knowledge, if the following statements are true (first choice) or false (second choice). If you are not sure of the correct answer select not sure (third choice).

	True	False	Not Sure
1. AIDS is an infectious disease caused by a bacteria			
2. AIDS breaks down the body's immunity by destroying the B cells in the endocrine system			
3. AIDS can damage the brain			
4. It may be more than 5 years before an HIV-infected person develops AIDS			
5. HIV lives and functions in warm, moist environments for days outside of the body			
6. Early symptoms of HIV infection include fatigue, fever, weight loss, and swelling of the lymph nodes			
7. A person who has tested negatively on one HIV antibody blood test could still transmit HIV to a sexual partner			
8. The number of HIV-infected person will be decreasing during the next two years			
9. Two common disorders found in persons with AIDS are pneumocystis carinii pneumonia and Kaposi's sarcoma			
10. Latex condoms are not as effective as "lambskin" or natural membrane condoms in preventing the spread of HIV			
11. Drugs can be used to slow down the rate of reproduction of HIV and lengthen the life of an infected person			
12. It is possible to detect HIV antibodies in the bloodstream immediately after becoming infected			
13. There is a vaccine available in Europe that can			

	True	False	Not Sure
protect a person from getting AIDS			
14. There have been no cases of AIDS spread by students to their teachers or classmates through usual daily contact			
15. In recent years, adolescents are among the groups with the largest increase of HIV infection			
16. Less than one-half of he states have mandated that AIDS education be included in their schools' curricula			
17. There is a federal law that protects children with HIV or AIDS from educational discrimination			
18. There is no cure for AIDS at the present time			

Likelihood of Transmission Scale

To what degree do you think the following are likely to transmit HIV.

	Very Likely	Somewhat likely	Somewhat unlikely	Very unlikely	Definitely not possible	Don't know
1. Working near someone with AIDS						
2. HIV-infected mother to baby during pregnancy/birth						
3. Kissing someone who has AIDS						
4. Eating in a restaurant where the cook has AIDS						
5. Receiving a blood transfusion						
6. Sharing plates, forks, or glasses with someone who has AIDS						
7. Living with a person who has AIDS (without sexual involvement)						

	Very Likely	Somewhat likely	Somewhat unlikely	Very unlikely	Definitely not possible	Don't know
8. Donating blood						
9. Sharing needles for drug use with someone who has AIDS						

How likely do you think the following situations are in transmitting HIV?

	Very likely	Somewhat likely	Somewhat unlikely	Very unlikely	Definitely not possible	Don't know
10. Mosquito bites						
11. HIV-infected mother to baby through nursing						
12. Receiving anal intercourse from an HIV-infected person without using a condom						
13. Receiving anal intercourse from an HIV-infected person with using a condom						
14. Having sexual intercourse with an HIV-infected person without using a condom						
15. Having sexual intercourse with an HIV-infected person with using a condom						
16. Performing oral sex on an HIV-infected man without using a condom						
17. Performing oral sex on an HIV-infected woman using a dental dam						

Attitude Scale

The following statements reflect attitudes about HIV and AIDS. Respond with the choice that best describes your reactions to each statement.

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
1. I believe I have enough information about HIV/AIDS to protect myself in my social life	○	○	○	○	○
2. I worry about possible casual contact with a person with AIDS	○	○	○	○	○
3. Activities that spread HIV, such as some forms of sexual behavior, should be illegal	○	○	○	○	○
4. I feel uncomfortable when coming in contact with gay men because of the risk that they may have AIDS.	○	○	○	○	○
5. I believe I have enough information about HIV/AIDS to protect myself in my future work setting	○	○	○	○	○
6. Persons with AIDS are responsible for getting their illness	○	○	○	○	○
7. Civil rights laws should be enacted/enforced to protect people with AIDS from job and housing discrimination	○	○	○	○	○
8. Male homosexuality is obscene and vulgar	○	○	○	○	○
9. HIV antibody blood test results should be confidential to avoid discrimination against people with positive results	○	○	○	○	○
10. I feel that more time should be spent teaching future teachers about HIV/AIDS in their college courses	○	○	○	○	○
11. I feel disgusted when I consider the state of sinfulness of male homosexuality	○	○	○	○	○
12. I would quit my job before I would work with someone who has AIDS	○	○	○	○	○

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
13. People should not blame the homosexual community for the spread of AIDS in the U.S.					
14. AIDS is a punishment for immoral behavior					
15. I feel secure that I have reduced all risks of personally contracting HIV					
16. I think all children should be tested for HIV before entering school					
17. I believe it is the regular elementary classroom teacher's responsibility to teach AIDS education					
18. In my opinion parents of all students in the class should be notified if there is a student with HIV or AIDS in the class					
19. I feel that all school personnel who have direct contact with a student with HIV or AIDS should be notified					
20. I think that students with HIV or AIDS should be allowed to fully participate in the day-to-day activities of the regular classroom					
21. I would support including AIDS education in the curriculum in a school where I was teaching					
22. A teacher with HIV or AIDS should be allowed to continue teaching					
23. It scares me to think that I may have a student with HIV or AIDS in my classroom					
24. I believe that teachers should have the right to refuse to have students with HIV or AIDS in their classroom.					
25. I feel that I could comfortably answer students' questions about HIV/AIDS					

APPENDIX L

INTENTION SCALE

Intention Scale

To what degree do you agree or disagree with the following statements?

	Strongly agree	Agree	Somewhat agree	Uncertain	Somewhat disagree	Disagree	Strongly disagree
1. I will teach comprehensive HIV prevention education							
2. I am likely to teach comprehensive HIV prevention education							
3. I am likely to try to teach comprehensive HIV prevention education							

APPENDIX M

SCHOOL SYSTEMS

Phase III School System (n=613)

Variable-School System	*f*	% of sample
Albertville City		
Anniston City	2	0.3
Athens City	2	0.3
Auburn City	4	0.7
Autauga County	11	1.8
Baldwin County	7	1.1
Bessemer City	16	2.6
Bibb County	1	0.2
Blount County	1	0.2
Boaz City	12	2.0
Brewton City	4	0.7
Calhoun County	1	0.2
Chambers County	19	3.1
Cherokee County	2	0.3
Chilton County	2	0.3
Choctaw County	11	1.8
Colbert County	6	1.0
Conecuh County	10	1.6
Coosa County	3	0.5
Covington County	1	0.2
Crenshaw County	3	0.5
Cullman City	4	0.7
Cullman County	3	0.5
Dale County	21	3.4
Dallas County	3	0.5
DeKalb County	2	0.3
Demopolis City	1	0.2
Elmore County	4	0.7
Enterprise City	1	0.2
Escambia County	2	0.3
Etowah County	4	0.7
Fairfield City	4	0.7
Fayette County	3	0.5
Florence City	4	0.7
Franklin County	5	0.8
Hale County	3	0.5
Haleyville City	9	1.5
Homewood City	2	0.3
Hoover City	89	14.5*
Houston County	8	1.3
Huntsville City	20	3.3

Phase III School System (n=613)

Variable-School System	*f*	% of sample
Jasper City	1	0.2
Jefferson County	29	4.7
Lamar County	2	0.3
Lanett City	5	0.8
Lauderdale County	2	0.3
Lawrence County	3	0.5
Lee County	16	2.6
Limestone County	46	7.5
Lowndes County	1	0.2
Madison County	14	2.3
Marengo County	1	0.2
Marion County	6	1.0
Marshall County	5	0.8
Mobile County	9	1.5
Montgomery County	21	3.4
Morgan County	22	3.6
Mountain Brook City	5	0.8
Opelika City	7	1.1
Oxford City	5	0.8
Ozark City	2	0.3
Perry County	1	0.2
Phenix City	7	1.1
Pickens County	2	0.3
Pike County	3	0.5
Randolph County	3	0.5
Russell County	5	0.8
Russellville City	1	0.2
Saraland City	1	0.2
Scottsboro City	1	0.2
Shelby County	22	3.6
Talladega County	3	0.5
Tallassee City	5	0.8
Tarrant City	1	0.2
Thomasville City	1	0.2
Troy City Schools	3	0.5
Trussville City	23	3.8
Tuscaloosa City	1	0.2
Tuscumbia City	7	1.1
Walker County	1	0.2
Winston county	1	0.2

Note: * Homewood City Schools comprised the largest percentage of respondents

APPENDIX N

OUTLIER COMPARRISON

Communality Outlier Comparison

With Outliers	Initial	Extraction
subnor1	1.000	.643
subnor2	1.000	.753
subnor3	1.000	.758
subnor4	1.000	.764
subnor5	1.000	.698
subnor6	1.000	.830
subnor7	1.000	.843
subnor8	1.000	.863
subnor9	1.000	.811
subnor10	1.000	.767
subnor11	1.000	.863
subnor12	1.000	.870
subnor13	1.000	.828
behvcon1	1.000	.714
behvcon2	1.000	.692
behvcon3	1.000	.778
behvcon4	1.000	.542
behvcon6	1.000	.776

Communality Outlier Comparison

Without Outliers	Initial	Extraction
subnor1	1.000	.638
subnor2	1.000	.748
subnor3	1.000	.755
subnor4	1.000	.761
subnor5	1.000	.693
subnor6	1.000	.828
subnor7	1.000	.841
subnor8	1.000	.863
subnor9	1.000	.810
subnor10	1.000	.764
subnor11	1.000	.863
subnor12	1.000	.870
subnor13	1.000	.827
behvcon1	1.000	.712
behvcon2	1.000	.690
behvcon3	1.000	.775
behvcon4	1.000	.537
behvcon6	1.000	.773

Component Matrix Outlier Comparison

	FACTORS	
With Outliers	1	2
subnor12	.923	
subnor8	.921	
subnor11	.917	
subnor13	.904	
subnor6	.900	
subnor7	.897	
subnor9	.891	
subnor10	.871	
subnor2	.837	
subnor4	.793	
subnor3	.786	
subnor5	.780	
subnor1	.735	
behvcon3		.874
behvcon6		.873
behvcon1		.811
behvcon2		.808
behvcon4		.719

Component Matrix Outlier Comparison

	FACTORS	
With Outliers	1	2
subnor12	.922	
subnor8	.920	
subnor11	.916	
subnor13	.902	
subnor6	.897	
subnor7	.892	
subnor9	.889	
subnor10	.868	
subnor2	.830	
subnor4	.781	
subnor3	.774	
subnor5	.768	
subnor1	.722	
behvcon3		.871
behvcon6		.869
behvcon1		.808
behvcon2		.806
behvcon4		.714