

California State University, San Bernardino

CSUSB ScholarWorks

Theses Digitization Project

John M. Pfau Library

2004

Positive prevention: The relationship between teacher self-efficacy, program implementation, and student outcomes

Marilyn Jean Sweitzer

Follow this and additional works at: <https://scholarworks.lib.csusb.edu/etd-project>



Part of the [Health and Physical Education Commons](#)

Recommended Citation

Sweitzer, Marilyn Jean, "Positive prevention: The relationship between teacher self-efficacy, program implementation, and student outcomes" (2004). *Theses Digitization Project*. 2698.

<https://scholarworks.lib.csusb.edu/etd-project/2698>

This Thesis is brought to you for free and open access by the John M. Pfau Library at CSUSB ScholarWorks. It has been accepted for inclusion in Theses Digitization Project by an authorized administrator of CSUSB ScholarWorks. For more information, please contact scholarworks@csusb.edu.

*POSITIVE PREVENTION: THE RELATIONSHIP BETWEEN
TEACHER SELF-EFFICACY, PROGRAM IMPLEMENTATION,
AND STUDENT OUTCOMES*

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Education:
Health Education

by
Marilyn Jean Sweitzer

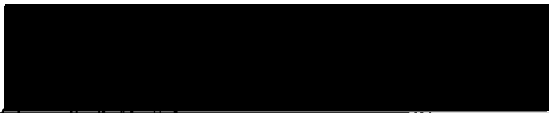
March 2004

POSITIVE PREVENTION: THE RELATIONSHIP BETWEEN
TEACHER SELF-EFFICACY, PROGRAM IMPLEMENTATION,
AND STUDENT OUTCOMES

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

by
Marilyn Jean Sweitzer
March 2004


Approved by:



Kim R. Clark, Dr.P.H., CHES.,
First Reader

305-04

Date



Robert G. LaChausse, M.A., CHES.,
Second Reader



Christine J. Ridley, RN, M.Ed.,
Third Reader

© 2004 Marilyn Jean Sweitzer

ABSTRACT

This study examined the effects of the *Positive Prevention STD/HIV Prevention Education Curriculum for California Schools Grades 7-12, Second Edition's* implementation and student outcomes. Four teachers supplied the data for this study. Student outcomes were measured from data collected by an existing research project utilizing data from 193 high school students attending school in San Bernardino City Unified School District, an urban district in San Bernardino, California. Students' classes were randomly assigned to either an implementation or a control group. The implementation group was given a pre-test, the curriculum, then a post-test, while the control group received the pre-test and post-test only. Teacher data was collected by means of a questionnaire following instruction.

The hypotheses in this study predicted that (1) student outcomes would be improved if one of the lessons in the curriculum pertaining to sexually transmitted diseases was delivered by the school nurse instead of the teacher, (2) that higher teacher self-efficacy predicts better student outcomes, and (3) that higher teacher self-efficacy predicts stronger curriculum implementation. The results did not support the

hypotheses; no statistically significant differences were found in student outcomes between those taught by the RN or the teacher; no relationship was seen between teacher self-efficacy and implementation; and no relationship was found between teacher self-efficacy and curriculum implementation. A discussion of the results, as well as possible explanations for the lack of significant findings, is included.

ACKNOWLEDGMENTS

I am indebted to my mentors and professors, Dr. Kim Clark, Robert LaChausse, and Christine Ridley for the support they have given me throughout the process of both the writing and the research for this project. This paper would not have been possible without their encouragement and guidance, and their patience is limitless. Thanks to the three of them for modeling Health Education at its finest.

TABLE OF CONTENTS

ABSTRACT	iii
ACKNOWLEDGMENTS	v
CHAPTER ONE: INTRODUCTION	
General Statement of the Problem	1
Significance of the Research	4
Research Questions	5
Limitations and Delimitations	8
Assumptions	10
Definition of Terms	10
CHAPTER TWO: REVIEW OF RELATED LITERATURE	12
Curricula	16
What Programs Work?	18
Teachers	24
Teacher Training	29
Skills-based Instruction	31
Fidelity	32
Curriculum Evaluations	37
Evaluation of Health Curricula	38
Evaluation of HIV Curricula	46
Positive Prevention	49
CHAPTER THREE: METHODOLOGY	
Subjects/Data Collection Procedures	52
Instrumentation	53

CHAPTER FOUR: RESULTS

The Effect of Type of Instruction and HIV Knowledge	57
The Effect of Type of Instruction and Condom Self-efficacy	57
The Effect of Teacher Self-efficacy and Student Outcomes	58
Knowledge	58
Condom Self-efficacy	58
Curriculum Implementation and Teacher Self-efficacy	59

CHAPTER FIVE: DISCUSSION

Type of Instruction	60
Teacher Self-efficacy and Student Outcomes	63
Self-efficacy and Implementation	63
Recommendations for Further Research	67
Conclusion	69
APPENDIX A: TEACHER SURVEY	71
APPENDIX B: FIGURE A	86
APPENDIX C: FIGURE B	88
APPENDIX D: DEBRIEFING STATEMENT	90
REFERENCES	92

CHAPTER ONE

INTRODUCTION

General Statement of the Problem

Never before has there been such a need for education to reduce the incidence of a disease. The Human Immunodeficiency Virus (HIV) pandemic has affected people of every continent, socio-economic status, age, race, gender, and sexual orientation. According to data from the HIV AIDS Surveillance report (Centers for Disease Control, 2001), over 793,000 people in the United States are living with HIV infection; annually over 41,000 new cases of HIV are identified. Considering the fact that HIV is largely preventable due to avoidance of behaviors such as unprotected sexual intercourse or sharing of intravenous needles, education plays a key role in prevention of the spread of the disease. According to the Centers for Disease Control (CDC), "comprehensive, sustained prevention activities offer the best hope for slowing the epidemic's spread" (CDC, 1998, ¶. 1).

Young people are especially at risk. It is estimated that over half of the new cases of HIV in the United States annually occur in the 13-24 age group. In 1998, HIV was the sixth leading cause of death among individuals

aged 15-24 and according to the CDC was ranked the fifth leading cause of death for persons 25-44 years of age in 1999. Due to the long period of time between viral exposure and the appearance of symptoms, it is estimated that most of the cases in the 25-44 year old group contracted HIV in their teenage years, and the majority of the teen cases were acquired sexually. While there has been a decline in Acquired Immune Deficiency Syndrome (AIDS) incidence in recent years, there has not been a corresponding decrease among youth. Minorities are disproportionately affected. Among African-American males in the 25-44 years of age group, it is the leading cause of death since 1991, and is ranked as the third leading cause of death among African-American females of the same age group. In San Bernardino County, there were 3,670 people living with AIDS in 1999 (Prendergast & Frykman, 2003).

Young people are at greater risk for acquiring HIV due to several factors: perception of invincibility, multiple sex partners, and physiological differences making their bodies more susceptible to the virus. In addressing this public health imperative, because school attendance is mandatory, every state in the U.S. either mandates or recommends that HIV instruction occur in the

classroom. However, it is up to the individual school districts to select curriculum for this purpose, and school districts do not always select research-validated programs. The DARE (Drug Abuse Resistance Education) drug abuse prevention curriculum was until recently the most popular alcohol/drug abuse program in the U.S. (CDE, 2001), yet it has been shown there is no impact on behavior (Lynam et al., 1999). Similarly, in spite of the evidence that abstinence-only approaches to HIV instruction are ineffective (Kirby, 2000), recently the federal government offered 250 million dollars in funding for abstinence-only programs. At local levels, school boards are under the watchful eye of parents and the community, and because matters dealing with sexuality instruction are controversial, curriculum selection committees often choose the program with the least ability to offend. Once a curriculum is placed in the hands of teachers, the quantity and quality of the lessons taught becomes a concern. If the program is not delivered as the author intended, will it have an effect on student's sexual behavior? Will curriculum outcomes be achieved if the implementation is poorly conducted? When the curriculum is designed to reduce the incidence of a deadly

communicable disease, achieving optimum student outcomes is a life saving imperative.

Significance of the Research

In the San Bernardino City Unified School District, *Positive Prevention: HIV/STD Prevention Education for California Schools Grades 7-12, Second Edition (Positive Prevention)* by Clark & Ridley (2000) is used as the curriculum for ninth grade. In evaluating the curriculum, it is of key importance to first determine if this curriculum is being taught as it was designed, or with fidelity. Fidelity is affected by the comfort, confidence, competence and commitment of the personnel presenting the curriculum. Confidence is an important factor in implementation with fidelity, as those who are uncomfortable or insecure with sensitive topics or skills-based instruction are likely to avoid these methods or implement them with poor fidelity.

According to Basen-Enquist, O'Hara-Tompkins, Lovato, Lewis, Parcel, and Gingiss (1994) and others, effective programs cannot achieve their potential impact unless they are implemented effectively. Therefore, the purpose of this investigation will be to (1) determine if there is a correlation between implementation and teacher

self-efficacy; (2) if there are improved student outcomes in knowledge and condom self-efficacy if an RN delivers the lesson that pertains to sexually transmitted diseases (STDs) and includes a condom demonstration, and (3) if high teacher self-efficacy correlates with stronger implementation of the curriculum. Annual teacher training is mandated for preparation to teach the HIV instruction according to the Education Code 51229.8; however, it is up to each district to determine what meets this requirement. Is six hours, for example, enough time for staff to gain the skills and concepts needed to bring about changes in student's sexual behaviors? It is likely that these findings from this study could be generalized to other districts implementing ninth grade HIV instruction in California.

Research Questions

One of the questions this research will attempt to answer: is there a difference in student outcomes (knowledge and condom self-efficacy) when the school nurse (who is a Registered Nurse) presents a modified Lesson Three, which covers STD's, a condom demonstration from Lesson Four, and includes community resources from Lesson Six? It is posited that when a nurse who presumably is

more comfortable with the topic presents the lesson, student outcomes may be improved. The second question to be addressed concerns the relationship between implementation of the *Positive Prevention* curriculum and student outcomes of knowledge and condom self-efficacy. In order to answer this question, it must be determined to what degree is the *Positive Prevention* curriculum implemented. Lastly, is there is a possible relationship between teacher self-efficacy and implementation? It would seem logical that a teacher with high self-efficacy would implement the curriculum completely. The hypotheses are:

H₁ Students who receive a modified lesson three (which includes STD's, contraception, and a condom demonstration as specified by SBCUSD) from an RN will have greater knowledge gain than students who receive a modified lesson three from a teacher.

(null) H₀ Students who receive a modified lesson three from an RN will have the same knowledge gain as those students who received a modified lesson three from a teacher.

H₂ Students who receive a modified lesson three from an RN will have greater change in condom self-efficacy

than students who receive a modified lesson three from a teacher.

(null) H_0 Students who receive a modified lesson three from an RN will have the same condom self-efficacy as those students who received a modified lesson three from a teacher.

H_3 Knowledge gain will be higher among students who receive instruction from teachers with high self-efficacy.

(null) H_0 There will be no relationship in knowledge gain of students who receive instruction from teachers who have high self-efficacy.

H_4 Condom self-efficacy will be higher among students who receive instruction from teachers with high self-efficacy.

(null) H_0 There will be no relationship in condom self-efficacy of students who receive instruction from teachers who have high self-efficacy.

H_5 Higher teacher self-efficacy predicts stronger curriculum implementation.

(null) H_0 There will be no relationship between high teacher self-efficacy and strong implementation.

Limitations and Delimitations

The purpose for the study is to examine the *Positive Prevention* HIV curriculum's implementation among ninth-graders in SBCUSD. The data for the study was collected through the use of a teacher post-intervention questionnaire as the reporting instrument. Limitations to this type of data collection are the dependence on the teacher to self-report honestly and accurately. A teacher may not complete the checklist honestly if it is felt it may negatively affect their job performance or evaluation. Teacher participation can be difficult to obtain, often due to multiple demands on teachers time. Participation in the study, even though time requested is brief, may be perceived as yet "one more thing" added to the teacher's workload.

Threats to internal validity could include the effect that outside programs or workshops in which the teacher may have participated in addition to the *Positive Prevention* curriculum. How much outside information does the teacher add to the instruction? Additional threats to

internal validity may be (1) teacher experience; for example, a disproportionately new teaching staff may demonstrate different levels of fidelity than a seasoned staff, and (2) familiarity with the curriculum (for example, a teacher who has used the program more than once may be more or less likely to implement the program with fidelity).

This study is limited by the constraints of sample size; since it only occurs in one school district with five comprehensive high schools thus limiting the number of high school science teachers available to participate in the post-intervention questionnaire. Delimitations: The *Positive Prevention* HIV curriculum addresses both middle and high school levels. This study was narrowed to curriculum implementation at only the high school level.

Although the curriculum is used by numerous schools in California, this study was narrowed to one urban school district with a diverse student population. It is hoped that since a varied demographic populace was selected for this study, the results could be generalized to other high schools in California who implement the curriculum.

Assumptions

The following assumptions apply in this thesis:

- 1) Knowledge alone is not enough to change behavior (Durlak, 1997).
- 2) Providing HIV/STD instruction to students does not lead to an increase in sexual behaviors, such as onset or frequency of sexual intercourse (Kirby, 1995).
- 3) Teacher self-efficacy is an important factor in implementation (Rohrbach, Graham, & Hansen, 1993).

Definition of Terms

For this thesis, the following definitions apply:

Fidelity is the degree to which the curriculum is taught as it is designed. It is also known as program quality, integrity, and consistency.

Positive permission is parent's written permission for the student to attend the instruction.

Negative permission occurs when the parent does not object in writing to the student's participation: no written feedback from the parent is necessary. It is assumed that in the absence of written feedback, the parent gives permission.

Perception of invincibility among adolescents is the belief that they are immortal, or that negative outcomes such as disease or death occur only to others.

A Type III error refers to the evaluation of a program which has not been implemented as it was designed.

Reinvention is the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation.

Self-efficacy is a person's belief in their ability to complete a task or behavior.

Menarche refers to the onset of menstruation.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

AIDS is preventable. With approximately 20,000 new cases in the United States each year among youth, it is a public health imperative to determine why young adults represent the highest proportional increase among those who are HIV positive, and to implement research-based programs to "vaccinate" youth with prevention interventions. This review will discuss the epidemic, California mandates, school based instruction, characteristics of effective programs, teacher considerations and inservice needs, followed by a review of the concept of fidelity, evaluations of programs with regards to fidelity, and evaluations of health programs including HIV prevention programs. This section will conclude with a brief history of the development of the *Positive Prevention* curriculum.

Young people are at greater risk for acquiring sexually transmitted diseases, including HIV, due to several factors. The first is perception of invincibility (Facente, 2001), although this premise is challenged in HIV Education: Perspectives and Practices (Schoeberlein, 2000) which states that invincibility is due more to

youth's developing capacity for abstract thought than the perception they are immortal. Other risk factors are teens "propensity toward multiple sex partners, and physiological differences making their bodies more susceptible to the virus. The cervixes of adolescent girls are covered with columnar epithelial cells which are less efficient in fighting infection" (Sulak, 2002, p. 1). Earlier menarche and delayed age of marriage translate to a longer period of sexual risk-taking behaviors among females.

Recognizing the need for education to reduce transmission among youth, all states in the U.S. either mandate or recommend that HIV prevention education occur in the classroom (Kirby, 1995). Eighty-two percent of high schools in this country require sex education (Parker, 2001). California has mandated HIV instruction since 1992. Education Code 51201.5 states that school districts shall ensure that all students in grades seven to twelve will receive AIDS prevention instruction from adequately trained instructors, in appropriate courses; at least once in junior high and once in high school. The instruction is to include (1) information on the nature of AIDS and its effects on the human body; (2) information on how the virus is and is not transmitted; (3) methods to reduce the

risk of HIV infection, emphasizing abstinence, monogamy, and the avoidance of multiple sex partners and intravenous drug use (IDU) as the most effective means of AIDS prevention, and should include contraceptive failure rates based on the latest medical data, as well as information on methods to reduce the risk of transmission from IDU; (4) related public health issues; (5) local resources for HIV testing and medical care; (6) development of refusal skills and effective decision making skills; and (7) societal view about AIDS, emphasizing compassion and discussing stereotypes. Additionally, the instruction is not to advocate a particular sexual practice or drug use.

Further, Education Code 51201.5 specifies that parents be given written notice prior to the school year or upon student enrollment in the district that AIDS instruction will be provided to their student unless they request that the instruction not occur. No student is to attend the instruction if the parent or guardian objects; and similarly, written notice must be given before any assembly or outside speaker presentations on HIV. School districts are to have the instructional materials available (for parent review), and such material is to be appropriate for students of various ethnic, cultural backgrounds and learning abilities. Education Code 51202

stipulates that personal, as well as public health and safety is taught, including instruction on venereal disease. Education Code 51229.8 states that teachers providing the AIDS instruction be given training including current information on the disease and the latest prevention education techniques. Codes 51240, 51513, and 51550 address exemption from instruction due to religious belief, no questionnaire administration without parental consent, and further guidelines for sex education. Code 51553 provides the criteria for sex education instruction, while 51554 and 51555 deal with parental notification of sex education (Clark & Ridley, 2000).

Although AIDS and sexuality issues are sensitive topics which some parents would prefer to address in the home, "the Nation's public and private schools have the capacity and responsibility to help assure that young people understand the nature of the AIDS epidemic and the specific actions they can take to prevent HIV infection, especially during their adolescence and young adulthood" (CDC, 1988, ¶. 6). Schools have the potential to reach the greatest number of youth, since school attendance is mandatory. Though programs exist for use outside the school setting, this paper will focus primarily on programs to be used in the classroom.

Curricula

Two main types of curriculum exist for HIV/STD instruction in the school: abstinence-only, and abstinence-plus. Abstinence-only programs are curricula based on the position that youth should abstain from sex until marriage. There is no discussion regarding condom use or other contraception; abstinence is taught as the way to avoid the effects of unintended pregnancy or an STD, including HIV. Abstinence-only programs have been promoted by various groups, but particularly since the 1996 Congressional Act which set aside 250 million dollars in federal funds for these interventions. Abstinence-only curricula currently in use include *Postponing Sexual Involvement*, *Stay Smart*, *Project Taking Charge*, *Living Smart*, and *Success Express*. There have been few evaluations of abstinence programs, and studies performed fail to show evidence of effectiveness from the implementation of these programs (Parker, 2001). Kirby (2000) wrote that there is "too little evidence to determine whether different types of abstinence-only programs actually delay the onset of intercourse or have other positive effects on sexual and reproductive behavior" (p. 75). Abstinence-plus or abstinence-based (also known as comprehensive) programs stress abstinence

as the only 100% effective means of preventing sexual transmission of HIV or STDs, but include information on contraception and protection such as the use of condoms. Kirby concludes that until data is conclusive to support abstinence-only programs, schools should use abstinence-plus programs which have been researched and proven effective. DiClemente (1998) concurs, and stated that abstinence-only programs are only good for youth who have not begun having sex; abstinence-plus programs should be used for those youth who are already sexually active. Youth Risk Behavior Data (CDC, 2003) collected from students in the SBCUSD has shown that 28% of students in grade 9 have engaged in sexual intercourse, and the figure climbs closer to graduation (61% in grade 12).

Unfortunately, schools do not always utilize research-driven curricula. A case in point is the DARE (Drug Abuse Resistance Education) program, a drug prevention program that has been researched and found to have no effect on behavior either one or five years after it ends (CDE, 2001). However, it was until recently the most widely used drug abuse curriculum in the country. Controversial and sensitive topics such as sexuality education and HIV prevention generate a wide range of responses from the community and educators themselves.

Further complicating curriculum selection are administrator's attempts to meet the instruction mandate yet placate parents and school boards. "In many communities, selecting a curriculum for sexuality education serves as a lightning rod for controversy and high emotions" (Wiley & Terlosky, 2000, p. 1). Locally, for example, the Colton School District removed instruction on condom use from their HIV curriculum, due to the controversial nature of the topic (M. Stewart, personal communication, August 2002).

What Programs Work?

Kirby (1995) conducted a review of 50 school-based programs that are designed to reduce sexual risk behaviors. Many of the programs reviewed had evaluation design flaws, rendering it impossible to compare them with programs which showed good evaluation design, such as adequate sample size, good internal and external validity, random assignment, and long-term follow-up. In this analysis, four programs were found to have a positive impact on sexual or contraceptive behaviors and had well designed evaluations. These programs are *Reducing the Risk*, *Get Real About AIDS*, *Be Proud Be Responsible*, and *Behavior Skills Training*. In a subsequent article, Kirby

(2000) identifies four abstinence-plus programs as having "particularly strong evidence that they positively changed behavior" (p. 73): *Reducing the Risk, Safer Choices, Be Proud Be Responsible, and Becoming a Responsible Teen*.

The Centers for Disease Control formerly provided a website under the Division of Adolescent and School Health that supplied information on obtaining curriculum for HIV prevention, entitled Programs that Work. Contact with the organization subcontracted to provide information listed basic information on *Becoming A Responsible Teen (BART)*, *Safer Choices*, *Reducing the Risk*, *Making Proud Choices*, *Making a Difference*, *Get Real About AIDS*, *Focus on Kids*, and *Be Proud Be Responsible*, all of which are considered effective programs by the CDC. There are no abstinence-only curricula included in Programs that Work.

Kirby (1995) found nine characteristics of successful programs, as follows:

1. *Narrow Focus*. Effective programs have a narrow focus on reducing sexual risk-taking behaviors that may lead to HIV or STD transmission, or pregnancy. The focus is a small number of behavioral goals, such as using a condom during intercourse. Little time is spent on broader issues such as parenting.

2. *Theory Based.* Effective programs are generally based on theoretical approaches. The social learning theories have been found to successfully influence other health risk behaviors, and can be applied to sexual behaviors through the application of knowledge (how to avoid sex or negotiate condom use), motivation (a belief in the anticipated benefit), outcome expectancy (a belief that the behavior change will be effective, and self-efficacy (the belief that one can successfully use these behaviors). The theories recognize that youth learn through both education and observation of the behavior of others, and focus on social influences, values, and building social skills.
3. *Length.* Effective programs were at least 14 hours in length, or used small group instruction to increase the impact of the instruction, as small groups may be able to involve the youth more thoroughly.
4. *Variety of Teaching Methods.* Effective programs use active learning methods and involve the students. Activities such as brainstorming,

games, small group discussions, role play, or clinic visitation all personalize the information for the youth and are more likely to be retained than simply an instructor's lecture.

5. *Basic, accurate information.* Programs that are effective do not elaborate a great deal on all forms of contraception or each type of STD, but in providing basic facts needed to make good decisions with regard to sexual activity.
6. *Social pressures.* Effective programs discuss societal influences and pressures. This may include review of the influence of the media, or cover "lines" used to pressure someone to have sex.
7. *Clear values and messages.* Programs are successful that emphasize and reiterate specific values such as not having intercourse, and are tailored for the age and culture of the target population.
8. *Modeling and practice of negotiation skills.* The effective programs provide information about the skills, model their use, then allow for demonstration and practice.

9. *Training.* Effective programs provide adequate training for those implementing the program. The training should be at least six hours, and ranges up to three days in programs reviewed.

Kirby (2000) identifies another element of successful programs: the selection of teachers or peer leaders who believe in the program they are implementing. Smith, Steckler, McCormick, and McLeroy (1995) refer to "program champions" or patron saints, those teachers and administrators who propel the implementation process. Holtgrave, Qualls, Curran, Valdiserri, Guinan, and Parra (1995) state that HIV prevention programs need to be given sufficient resources, financial, human, material, and temporal, to be effective. They list characteristics of successful programs as those which are based on specific, community needs; demonstrate cultural competence; target clearly defined audiences, objectives, and interventions; have a basis in behavioral and social science theory and research; provide for quality monitoring and adherence to plans; and utilize evaluation findings and mid-course corrections.

Durlak (1997) concurs that the focus of effective programs should be on reducing risky sexual partners and increasing safe sex practices. He states the timing of the

intervention should be consistent with program goals (for example, if the goal is to prevent first intercourse it should be implemented early, such as in middle school). Durlak and Kirby both maintain that knowledge alone does not work; youth must be trained in behavior skills, and interventions should be community-wide. The American Academy of Pediatrics (1998) states that HIV instruction should occur in developmentally appropriate, grade specific programs by skilled educators who are culturally and ethnically sensitive, and recommends that HIV education be part of a comprehensive school health education program which should be mandatory for graduation. In *Criteria for Evaluating an AIDS Curriculum* (National Coalition of Advocates for Students, 1992), it is recommended that each school designate an HIV resource person.

The United States Congress' Office of Technology Assessment (OTA) published "The Effectiveness of AIDS Prevention Efforts" in 1995. Key findings include the statement that behavior change is difficult to achieve and sustain; a successful program is one that is interactive in nature, utilizes small groups and includes skills development in its content. OTA posits that there is a difference between what is known and what is actually

delivered as prevention, and that available research has been diminished by poor study design.

According to an initial review of the Add Health Study in JAMA (Resnick et al, 1997), youth who reportedly made a pledge to remain a virgin were at significantly lower risk to initiate intercourse early. Other factors associated with delaying onset of sexual intercourse include school connectedness, and parental disapproval of the youth's sexual activity and/or use of contraception. In this study, parent-family connectedness and school connectedness were protective against every health risk behavior measure except history of pregnancy. McIlhaney (2000) states that the risk of STD's is increased by the total number of lifetime partners, which is greater the earlier the teen has their sexual debut.

Teachers

Popham (1993) in addressing the importance of AIDS prevention instruction, states that the responsibility to prevent young people from contracting HIV belongs to the nation's educators. Young people spend the majority of their developmental years in school, since school attendance is mandated by law. Due to the severe threat of the epidemic, he states that districts should select their

most talented teachers and allow them to devote a portion of their academic time to AIDS instruction. What characteristics contribute to successful teaching, and what other factors impact implementation?

Levenson-Gingiss and Hamilton (1989) determined that comfort influenced the teaching experiences of virtually all teachers, and that those who are committed to the curriculum are more likely to successfully implement it. Levenson-Gingiss and Basen-Enquist (1994) conducted a study involving 269 participants, to determine their level of HIV education provided and teacher training needs, and found that those who are uncomfortable will avoid skills-based lessons or use them with poor fidelity. Skripak and Summerfield (1996) agree that teacher attitudes affect their comfort with and capacity to teach specific subject matter, in this case HIV/AIDS. Similarly, Dawson, Chunis, Smith, and Carboni (2001) concluded that among teachers who had sufficient AIDS knowledge, many felt uncomfortable discussing these issues with students, and that teachers who are uncomfortable with the topic are unlikely to present it in class.

Teacher experience is logically a factor in comfort and competency. According to Gaskins and Anderson (1993) more experienced teachers presented lessons with a higher

proportion of process instruction combined with content than less experienced teachers, and suggests that "orchestrating process, content, procedures, and behavior during a lesson may be difficult in a teacher's early years of training, even when the teacher takes advantage of frequent opportunities for professional growth" (p. 301).

Quinn, Thomas, and Smith (1990) describe five skills health educators must possess to be effective in HIV/AIDS instruction: (1) they must work cooperatively with community members to develop curricula and policies; (2) must be sensitive to community attitudes, values, and morals; (3) due to the controversial nature of the disease, they must be able to deal with hostile, fearful communities; (4) they must become proficient in using mass media to promote programs; and (5) be able to use language acceptable in their communities. They add that studies show health educators must be aware of their own feelings, biases, prejudices, and values to work comfortably and effectively with AIDS education.

Project Teach Health, under the California Healthy Kids initiative, outlines health education standards and competencies for K-12 teachers. Teachers are to know and understand:

(1) connections between children's health and their ability to learn; how health behaviors are established, maintained and changed, especially during childhood and adolescence; common behaviors which promote and protect or compromise the health and safety of children and youth; and cultural and ethnic differences in approaches to health; (2) the legal basis for the instructional content and strategies for K-12 Health Education in California; the Health Education content and pedagogical guidelines presented in the Health Framework for California Public Schools, The Challenge Standards for Health Education, The National Standards in Health Education, and other professional health education documents; and how to locate scientifically valid information in the nine content areas of health instruction; (3) laws for protecting and promoting students' health; common chronic and communicable diseases of children and adolescents from both a prevention and management perspective; and how to respond appropriately to student's questions regarding personal health issues; the purpose of school-based health screening exams (vision, hearing, scoliosis, etc.) and services, as well as mandates; how to identify and refer students who may be at risk for health problems; and how to function as part of the team of professionals who assist with the school's role in planning, implementing and evaluating student health interventions, and (4) laws related to creating a healthy and safe school environment; and the components of a healthy school (Comprehensive School Health System) and fully participate in creating a healthy and safe school environment. (CA. Healthy Kids, 2002, ¶. 1)

Effective health education teachers are described in Rohrbach, Graham, and Hansen (1993) as those who possess an enthusiastic, confident, and non-authoritarian teaching style, and have personal characteristics of being outgoing, adventurous, and organized. Rohrbach, Graham,

and Hansen emphasize the importance of teacher training, since the use of psychosocially-based teaching strategies differs from what teachers normally use (more didactic approaches).

Kimpston (1985) determined that teachers who believe they are involved in curriculum development will show a greater relationship between intended and actual use of a curriculum. In this case study which made use of a combination of teacher self-reporting and interviews, he found that fidelity was low at all levels but tended to decrease as the grade level increased. He suggested that high school teachers desire and maintain greater autonomy. Sussman, Petosa, and Clarke (1996) wrote that the quality of the final curriculum, fidelity of implementation, and the effect on student positive outcomes depend on the enthusiastic participation of site staff.

Wolff and Schoeberlein (1999), in a needs assessment study of middle school HIV education among approximately 66 state education agencies and local education agencies, determined that 43-44% of the teachers were not implementing the chosen curricula. The individuals most likely to offer the education at the schools were the certified health education teacher, the school nurse, and

the science teacher, followed by the physical education (PE) teacher.

In Wolff and Schoeberlein (1999), barriers to HIV instruction are listed as: lack of time, lack of funding, political opposition, lack of school buy-in, lack of training materials, fear of controversy, local school board, state school board, and students. Schoeberlein (2000) wrote that implementation of effective interventions is not always possible given time constraints. In Levenson-Gingiss and Basen-Enquist's study (1994), barriers were identified as adequacy of resources, parent/community responses, and curriculum adequacy. In Gaskins and Anderson (1993) school leadership is seen as a secondary factor which influences whether a curriculum is well implemented.

Teacher Training

Teacher training is a critical component for effective prevention programs (Wolff & Schoeberlein, 1999). Kimpston (1985) posits that teacher inservice training was directly related to the degree of implementation. Not only is teacher inservicing prior to HIV teaching mandated by the Education Code, but it has been determined that a lack of teacher preparation

(preservice training) is a major obstacle to implementing high quality health instruction (Summerfield, 2001). Poor teacher preparation in health may be caused by: (1) lack of time in the student teacher education curriculum; (2) emphasis on standardized testing, as new teachers are being prepared to teach students how to take these tests, and not on health behavior outcomes; and (3) lack of comfort. Faculty of student teachers who are uncomfortable with certain subjects may not discuss them with their students.

Robenstine (1994) stated that the preparation of teachers implementing HIV instruction must be improved dramatically in terms of both quantity and quality. From data collected by a process evaluation conducted in New Jersey, organizational barriers to the inservice for HIV prevention teachers were found by Lohrmann, Blake, Collins, Windsor, and Parrillo (2001) to be: time constraints (33%); organizing and bringing staff together (20%); and lack of motivation by district staff (18%). In Summerfield (2001), the CDC found that in states mandating HIV prevention education, only one-third of the teachers had attended inservice training on HIV/AIDS in the previous two years.

Skills-based Instruction

A four-year evaluation study, the School Health Education Evaluation (SHEE) by Fors and Doster (1985) suggests resources, training, and commitment are virtual prerequisites for the success of a program. The findings from the SHEE conclude clearly and with statistical significance that the better the implementation process with regard to teacher training, the better the results. There was found to be a positive relationship between level of training and fidelity to the program. Further, it was found that "the level of implementation is most critical for the areas that seem to be the most difficult to change attitudes and practices" (p. 333) due to the fact that attitudes and behaviors are more personal than knowledge, and that it requires a more powerful learning experience in order to bring about change. Fors and Doster conclude that if a curriculum is to make a real difference in student health, teachers must be adequately trained in that curriculum to have the knowledge, skills and commitment to enact it as designed.

The length and intensity of the teacher training are important considerations. Levenson-Gingiss and Basen-Enquist (1994) found that only one third of the teachers felt extremely adequately prepared to use

skill-building lessons and less than one-third used teaching methods commonly used to teach decision-making, peer resistance, and communication skills, following an average of six hours of HIV prevention inservice training.

Fidelity

Schoeberlein (2000) in "HIV Education: Perspectives and Practices" states that implementation with fidelity is a critical issue in the success of any classroom-based intervention. The Office of Technology Assessment (1995) in evaluating U.S. AIDS prevention efforts, suggests that the key factor in an intervention's success may be "the process by which the intervention was developed and implemented rather than the actual content of the intervention" (p. 13). Halle (1998), in "Fidelity: A Crucial Question in Translating Research to Practice" voiced the concern that when any procedure is translated from research to practice it is not applied exactly as it was originally intended.

How crucial is fidelity to curriculum implementation, what are ways by which is it measured, and how is it defined? Gall (1976) defined fidelity of treatment as a close correspondence between intended content and what occurs experimentally. Kimpston (1983) defined fidelity as

the extent to which the curriculum being taught corresponds to intended use. Kimpston explored the issue of fidelity in the 1980's using the methods of direct observation, focused interviews, questionnaires, and analysis of key documents and curriculum plans. He found that three generalizations apply: (1) that curriculum implementation is an intense concern of school districts; (2) that the major orientation to implementation research is fidelity; and (3) the primary unit of curriculum adoption is the classroom. He found a lack of congruence between the district's plan and what teachers actually taught, especially at the secondary level.

Loucks (1983) raised similar concerns with regards to fidelity in an examination of four studies of the change process. She stated that teachers who implement new programs have often been observed to adapt them to their own teaching situation. The same program was different in each classroom observed, raising questions regarding replication and effectiveness. She refers to the RAND study that suggested modifications to the curriculum are the key to successful implementation, and she states this is necessary with ambiguous, loosely defined programs or curricula. Loucks also refers to the Dissemination Efforts Supporting School Improvement study in which it was found

that at the end of the third year of implementation, few innovations bore a strong resemblance to the author's design. Adaptation always occurred; enforcing fidelity paid off, if accompanied by assistance. "When adaptation went too far because of administrative 'latitude,' what often occurred was blunting/downsizing, trivialization, and weak student impact" and "only in sites where there was strong user commitment did substantial adaptation improve the innovation" (p. 7).

Bucknam and Brand (1983) wrote, "a question that plagues both program developers and implementers alike, albeit for different reasons, is fidelity to the program model" (p. 70). They conducted a meta-analysis of the Experience Based Career Education program and found both students in a high fidelity group and the low fidelity group (in which significant modifications to the curriculum had occurred) achieved gains, but the gains were strongest in those who had the high fidelity implementation. They posit that with a good program design even a highly modified program can be successful.

In "Lessons Learned about Disseminating Health Curricula to Schools," Smith et al. (1995) evaluated three different health curriculum's implementation and formed ten "lessons," which follow: (1) environmental turbulence

(such as staff turnover) influences health curriculum adoption and implementation; (2) health curriculum implementation is affected by standardized testing in other subject areas; (3) problems arise when health is taught within other curriculum areas, notably physical education and science; (4) schools are under pressure to offer a variety of highly visible, separate prevention programs; (5) leadership for health is critical to adoption and implementation of school health instruction; (6) health education often is implemented without adequate K-12 planning; (7) program champions and patron saints are critical to the implementation of school health education; (8) school personnel need assistance in planning and implementing health instruction, and training is a vital component; (9) when provided with a curriculum, some teachers will implement it, without being trained; and (10) when provided with a curriculum and training, teachers sometimes fail to implement it or to implement it as designed. Suggested reasons for this are lack of administrative support and/or teacher's lack of familiarity and comfort with student-centered teaching methods such as peer-led sessions and demonstrations.

Another issue related to fidelity that bears discussion is one of Type III errors, or evaluation of a

health program that has not been fully implemented. This has significance for all health curriculum evaluations, as the lack of statistically significant outcomes could be due to insufficient (or poor) implementation rather than on the curriculum itself. For example, Basch, Sliepcevich, Gold, Duncan, and Kolbe (1985) conducted an impact study of the School Health Curriculum Project (SHCP) in which one of the objectives was to determine the magnitude and statistical significance between fidelity of program implementation and student outcomes. Data was gathered by observation and teacher questionnaires. Implementation was measured in terms of both quantity and quality of the material covered; 66% percent of the activities were not implemented as planned by one or more teachers, to which the study concludes that implementation varies widely. Perhaps due to this factor, "no statistically significant relationship between implementation of SHCP and student cognitive outcomes was seen" (p. 328). Although Basch et al. found no relationship between fidelity and student outcomes, this differs from the findings of Bucknam and Brand (1983) who found gains were highest in those who had received a high fidelity implementation. It is apparent from the literature that fidelity is of key importance to both implementers and curriculum developers.

Curriculum Evaluations

As previously mentioned, concern for fidelity in curriculum implementation is not limited to health. An interesting study was conducted by Emshoff, Blakely, Gottschalk, Mayer, Davidson, and Erickson (1987) in which the fidelity of implementation and program effectiveness were evaluated of three educational and four criminal justice programs. Data was collected through site visits and telephone interviews. In this study, the dichotomy between the pro-fidelity (solid programs faithfully replicated) and pro-adaptation (different organizational contexts and practitioner needs require changes in the programs) camps was alluded to, and it was concluded that concrete, well-specified, unambiguous programs are more effective when implemented with fidelity; while more ambiguous, less clearly defined programs are more suitable to be adapted. Tunks (1999) assessed implementation strategies used by teachers to evaluate utilization of a music curriculum (the opera Turandot) and found that the data from this study support findings of others: few if any curricula are implemented with fidelity (63% of the respondents modified the curriculum while 21% maintained fidelity). Time constraints were found to be the major reason why teachers modify the curriculum. The author

indicates that a balance between fidelity and adaptation in the classroom is desirable.

Kovaleski, Gickling, Morrow, and Swank (1999) determined that schools who implemented the Instructional Support Team with fidelity to program design features showed better outcomes than those who did not, and that half-hearted attempts at implementation were equal to doing nothing at all. This differs from Bucknam and Brand (1983) who in their meta-analysis of 80 evaluations of the Experience Based Career Education program found that high levels of fidelity translated to better outcomes, but positive outcomes were seen even in the low-fidelity cohort of high school students. Baldwin, Rolf, Johnson, Bowers, Benally, and Trotter (1996) assert that implementation fidelity has been a difficult hurdle in school improvement efforts, but is an important consideration because of its link to student outcomes.

Evaluation of Health Curricula

A review of evaluations of health programs suggest commonalities that pertain to fidelity. Taggart, Bush, Zuckerman, and Theiss (1990) conducted a process evaluation of the Know Your Body curriculum, which is designed to reduce heart disease risk factors among

elementary and junior high students. The sample size was 82 teachers, who were assessed for quality of instruction. Method used included classroom observations and end-of-year teacher activity reports. It was also noted whether or not the teacher was a good role model of health behaviors (overweight, smoker, or not) and had attended trainings or not. Using a checklist, observers rated the teacher's performance, and each of the 82 teachers was observed at least once; visits were both announced and unannounced. Results of the study showed that teachers who had higher quality and quantity of instruction had more favorable student outcomes (as measured by changes in student's blood samples, blood pressure checks, and skin-fold measurements). It is suggested that with stronger implementation, better results could be obtained; only 46% of the teachers had scores reflecting effective teaching. The reasons given for the lack of effective teaching were barriers to time, failure to use the behavioral approach suggested, and teachers' failure to be appropriate role models. Taggart et al. conclude that although staff training is essential, lack of time and commitment are the greatest factors in poor implementation. They suggest that principals be fully involved in the process of health curriculum

implementation, that there be incentives for good teaching, and that health be seen as more than a mere addendum to a teacher's responsibilities.

Rohrbach, Graham, and Hansen (1993) state that both the quantity and quality of program implementation are determinants of its effectiveness in their study of a school based substance abuse prevention program. The AAPT, or Adolescent Alcohol Prevention Trial, was designed to prevent substance abuse among fifth and seventh-grade students in the Los Angeles area. A 2 x 2 factorial study design was used (two strategies were being assessed: intensive teacher training and principal intervention). The intensive training was an all day workshop, and the principal intervention consisted of a one-on-one meeting with the school principal to discuss the importance of the curriculum. Principals were then to support and encourage the program. Sixty teachers participated in this study, and data was collected by observation and teacher self-reports. Although 78% of the teachers had implemented one or more of the lessons, 13 of the teachers implemented none of the lessons. One year later, only 25% of the teachers implemented the program. It was found that principal intervention did increase implementation compliance, but the all day inservice training did not.

Teachers who implemented the program had fewer years of teaching experience, interestingly enough, and higher self-efficacy to teach, as well as enthusiasm, preparedness, teaching methods compatibility, and principal encouragement. The results of this study show that integrity of program delivery can be a significant predictor of short-term student outcomes. Rohrbach, Graham, and Hansen (1993) concluded that there were a few teachers who refused to be observed, and suggests that their reluctance has implications for the overall effectiveness of the program.

The Smart Choices Diffusion Project was studied by Basen-Enquist et al. (1994) focusing on the effects of teacher training and implementation (videotape training vs. live presentations). Basen-Enquist et al. define three types of program implementation measures: (1) use, or whether the program was done; (2) completeness or quantity, or how much was delivered; and (3) degree to which the program was administered as specified, or fidelity. Fidelity was measured by use of teacher logs, in which teachers kept track of the activities utilized, which was correlated with student questionnaires, in which students were asked about each of the program elements. One hundred and seventy-one teachers participated in the

study. Although the use of teacher self-reports was deemed a major limitation of this study, this study provides an interesting example of how fidelity was measured.

Tappe, Galer-Unt, and Bailey (1995) studied long-term implementation of the Teenage Health Teaching Modules (THTM), a curriculum that covers a wide range of health issues, by collecting data from 174 teachers by both a telephone survey and a written questionnaire. The chief problem the teachers identified in teaching the modules was lack of time. Other problems included student testing, integration of THTM into existing curricular materials, and the depth and/or currency of the factual content. They listed extensive length of the modules, lack of resources and information available (such as textbooks). The data revealed that 88% of the teachers modified the units when implementing. Modifications included using only part of a module, combining modules, or integrating other material into the curriculum. The Tappe et al. study is limited by its post hoc design and poor response rate to the written survey (51.7%) which limits the study's ability to be generalized. The results show that teacher inservice training is not enough to guarantee implementation of the curricula if the teacher is assigned to other

instructional areas. Tappe et al. suggest that problems with implementation be discussed at the teacher training.

The Life Skills Training (LST) program is an effective drug abuse prevention curriculum. Botvin, Baker, Dusenbury, Botvin, and Diaz (1995) identify insufficient implementation as a factor in previous prevention studies' results, and sought to determine the long term effects of LST including implementation fidelity. The sample size was large (3597 adolescents); another strength of the study was that the data was collected by program experts and not the teachers themselves. Implementation was assessed by observations in which the quantity of the material covered was documented. A sub-sample provided data for drug related outcomes for a high fidelity group (those who received at least 60% of the intervention) and a low fidelity group. The high fidelity group had better outcomes, but the low fidelity group showed gains as well, compared to the control cohort. Even though this study pertains to implementation (not quality of fidelity) it offers pertinent outcomes. It concludes that interventions can be effective in schools under "real-world" conditions in spite of time constraints and limited resources that make it difficult to implement the program exactly as planned. It suggests that other health prevention programs

may have failed because they are not of sufficient length, or have been too short (the LST program is 15 sessions) with no booster sessions. Botvin et al. suggest that studies which do not take implementation fidelity into account risk underestimating program effects.

Dalis and Dodd (2001) conducted an evaluation of the Missing Link personal and social skills lessons used to increase intrapersonal and interpersonal skills among middle school students. Missing Link, as its name suggests, is designed to provide what other tobacco prevention programs lack. The evaluation utilized a blind pre-test, post-test, control group design to evaluate the implementation by 40 teachers and 1900 students in the Los Angeles area. Teachers were observed once to determine if the experimental group was implementing the lessons with fidelity, and data was collected from the students by means of a student survey. It was found that the experimental group was markedly reduced by a lack of treatment fidelity. Positive impact on student behavior occurred only when the lessons were implemented with fidelity, based on the observations in the classroom. Limitations of the study were a reduction in the sample size due to transience, and also to the fact that the experimental teachers did not apply the independent

variable with fidelity. Reasons for the lack of fidelity by the staff were suggested to be (1) the teachers did not develop an understanding of the skills or competency to teach them; or (2) chose not to teach them. Dalis and Dodd postulated that there be more rigorous monitoring of the teachers' adherence to program intent and design, and attach incentives contingent on teaching the requisite number of lessons with fidelity.

The Life Skills Training Program was evaluated by Hahn, Noland, Rayens, and Christie (2002) for efficacy of training and fidelity of implementation. Forty-five teachers were evaluated on a 23-item instrument that measured content and process fidelity of the program, program exposure, teaching time, program acceptance by students, efficacy of teaching delivery, teacher enthusiasm, appropriateness of teaching techniques and materials used, class size, class control, and class enthusiasm. Five of the 15 lessons were randomly selected to be observed; the observer completed a worksheet with a combination of yes/no answers and a seven point Likert scale. This enabled a teacher score to be derived with a range of 11-77. A weakness of this study is the small sample size; only 10 teachers were actually observed in the classroom. An average of 80% of the lessons were

delivered to students, although one teacher presented only 27% of the lessons and was congruent with the content less than 20% of the time. Obstacles to teaching LST were listed by the teachers as time away from other job responsibilities (over 50% of the respondents), lack of time, and cost (although there was no cost for the program). Teachers rated lower on student-based teaching methods, such as using peer leaders. Hahn et al. conclude that districts need to screen teachers before allowing them to teach LST, and that teachers be given ongoing monitoring and technical assistance.

Evaluation of HIV Curricula

Several evaluations of HIV/STD curricula have been conducted in the past 15 years. Not all of them provide indications that fidelity was studied, such as with the Safer Choices evaluation by Coyle et al. (1999) and with the Rochester AIDS Prevention Project, or RAPP, by Siegel (2002). The next section will focus on HIV curriculum evaluations that do evaluate fidelity in some manner.

In "Preventing HIV among adolescents: Evaluation of a School-Based Education Program", Main et al. (1994) studied a 15 session intervention to prevent HIV to a sample group of 2,844 students. Teachers of the curriculum

were trained via a five day, 40 hour program designed to ensure teacher fidelity to the curriculum, including modeling of all lessons and continuous feedback about fidelity. During implementation of the curriculum, trained observers watched 20% of the lessons; each teacher was observed at least three times. Teachers also completed daily checklists of the HIV lessons taught, marking the activities completed and student response. Observer data showed that 75% of the lessons were implemented and 89% were taught with fidelity. Although Main et al. caution that the study is limited by the quasi-experimental design in which not all threats to internal validity were controlled, it did have significant positive outcomes on student behaviors. Main et al. conclude,

[HIV] education should be taught by trained teachers who are comfortable teaching skills-based HIV curricula, and the programs should be taught in their entirety in a manner compatible with the structure of individual curricula lessons. We believe that if anything less than this occurs, the impact of the programs will be minimal and certainly far less than what is needed for the programs to generate a public health effect. (p. 415)

Lohrmann, Blake, Ledsky, Foster, Lehman, and Parrillo (n.d.) conducted an evaluation of the HIV curricula used in the state of Maine. School districts were to train teachers to implement a "Programs That Work" curriculum

(as designated by the CDC), at least once.

One-hundred-eleven schools in Maine were studied. Data was collected by telephone interview during the spring of 1998. It was found that among trained teachers, 83% added lessons from other sources; 43% eliminated lessons where students practice skills; 30% modified or eliminated activities where students work cooperatively; 28% eliminated activities about where to get condoms; 8% eliminated the condom lesson entirely; and 57% modified or eliminated any other lesson. Among untrained teachers, the data was generally worse. Questions for future research that Lohrmann et al. pose on the basis of this data are: is the expectation of teaching new curriculum with strict fidelity too great, and is there a happy medium between reinvention and strict fidelity?

Lohrmann, Blake, Collins, Windsor, and Parrillo (2001) evaluated school-based HIV prevention programs in New Jersey and found variable compliance in teaching despite code provisions. While effective HIV prevention curricula include at least twelve lessons, fewer than half of the high school teachers devoted six or more class periods to HIV instruction (385 HIV teachers participated in the study). Additionally, district superintendents were queried by telephone survey and one-page curriculum

questionnaire regarding the HIV instruction implementation in their schools.

No discussion of HIV prevention instruction would be complete without inclusion of the work of Douglas Kirby. Kirby has been researching sex education programs for over twenty years. Kirby et al. (1994) raised the concern that effective programs need to be maintained and replicated with fidelity. In 1995, Kirby wrote that the research community should conduct studies to improve its understanding of how to replicate effective programs with fidelity. Kirby (1999) suggests researchers in conducting evaluation studies start with large sample sizes (1,000 to 4,000 students) due to losses such as student absenteeism and attrition. In 2000, Kirby wrote in "What does the research say about sexuality education?" that to reduce the rates of unintended pregnancy, STDs, and HIV, schools should implement effective programs more widely and with fidelity. Lohrmann et al. (n.d.) echo Kirby when they suggest "implement with fidelity" as the program developer's mantra.

Positive Prevention

How did the *Positive Prevention* HIV curriculum originate? Dr. Kim Clark and Christine Ridley, faculty in

the Health Science Department at California State University San Bernardino, were approached by the Orange County Chapter of the American Red Cross to develop a new AIDS curriculum incorporating the guidelines specified in California Assembly Bill 11 (AB 11). AB 11 resulted in Ed. Code 51201.5 in 1992. Clark and Ridley devised a 13-lesson format with two levels, one for high school and one for middle school. After the curriculum was piloted at several school districts in California, over 200 teacher questionnaires were obtained for feedback on the program. The greatest obstacle to implementation the teachers identified was time constraints. Teachers were queried as to what they felt was important to retain in the curriculum, and what could be eliminated. The program was then re-written to reflect the teacher's input, and including that of David Lohrmann, HIV researcher on the East Coast. The lessons were reduced in number to five plus an introduction. In the 2000 edition, one more lesson was added on sexually transmitted diseases (K. Clark, personal communication, June 2003).

A formal formative and summative evaluation of the *Positive Prevention* curriculum began in November of 2003 and will be completed in June of 2004. The evaluation examines the effectiveness of *Positive Prevention* on

student's knowledge, attitudes, beliefs, and behaviors including intention to abstain from sexual intercourse, HIV knowledge, self-efficacy to use a condom, refusal to have sexual intercourse, and frequency of intercourse (LaChausse, 2004).

CHAPTER THREE

METHODOLOGY

Subjects/Data Collection Procedures

Data was collected by post-intervention questionnaire from four ninth-grade science teachers in SBCUSD implementing *Positive Prevention* in October of 2003. The study began originally with six teachers, three of which were randomly assigned to a group in which the RN would present a modified Lesson Three, and three were randomly assigned to a control group. Contact was made with each teacher by letter, phone call, or personal contact, informing them of the purpose of the study and to obtain their support. Every effort was made to protect the anonymity of the teachers involved; each was given an ID number instead of the use of their names. Participants were given an incentive for participation in the study through their participation in the overall evaluation of the curriculum.

Consent to participate in the study was implied by the teacher's willingness to complete the questionnaire. The Institutional Review Board of California State University, San Bernardino approved this study. The questionnaire was mailed to each teacher in December. Four

teachers implemented the *Positive Prevention* curriculum in October of 2003 (another teacher completed Lesson One, then did not complete the curriculum due to illness). Four surveys were returned to the researcher. Participants were given the debriefing instrument after completing the questionnaire.

Student data was collected through an existing research study in which half of selected ninth grade science classes were randomly assigned to an implementation group and the other half were assigned to a control group. Both groups were given pre-tests and post-tests on the same dates. The implementation group was given the *Positive Prevention* curriculum two weeks after the pre-test. The survey the students were given consisted of questions to determine a parental monitoring assessment, students HIV/AIDS knowledge, attitudes toward abstinence, and their self-efficacy to use condoms.

Instrumentation

The survey was constructed from a review of tools used in fidelity and self-efficacy studies. The fidelity instrument devised by Rohrbach, Graham, and Hansen (1993), the classroom observation checklist by Hahn et al. (2002), and the teacher self-efficacy checklist from Project Teach

Health (Everett, Price, Telljohann, & Durgin, 1996) contributed to the development of the survey. The components of the lessons in the *Positive Prevention* curriculum were the basis for the implementation portion of the questionnaire, and the objectives of *Positive Prevention* were the basis for the self-efficacy portion. Once completed, the questionnaire was piloted by seven nurses and teachers in SBCUSD, and their suggestions after completing the survey were incorporated into the final draft.

The instrument or survey had a brief demographic section pertaining to teacher education and experience. Responses were elicited by multiple choice or fill in. Self-efficacy questions pertained to teaching health instruction, (for example, "I understand health education concepts well enough to be effective in teaching health education") and questions regarding to their efficacy to teach students to abstain from sexual intercourse and drug use, utilizing replacement behaviors and barrier protection, not consuming alcohol or sharing drug injection equipment, teaching about community resources and STD/HIV antibody testing, and exhibiting compassion for persons with chronic illness or HIV. These questions were answered by a five point Likert scale, ranging from

one (strongly agree) to five (strongly disagree).

Implementation questions were answered by either yes/no or fill in, and pertained to utilization of each lesson by its components, (for example, "Did you have a Person Living With AIDS speak to the students?"), including what percent of class time was spent on lecture, demonstration, discussion, and practice. Teachers were also asked to indicate how many total minutes were spent per lesson. One question was open-ended, allowing for teacher comments on the curriculum.

Once the surveys were returned, a scale was calculated from the questionnaire based on the 15 questions pertaining to self-efficacy. Each question had been answered on a five point Likert scale, ranging from one (strongly agree) to five (strongly disagree). Since several of the questions were construed negatively (for example, "I believe I would not be able to inform students about STD/HIV antibody testing") questions one through eight and question 11 were recoded to obtain a maximum self-efficacy score of 75. To make the self-efficacy scores less variable, a second self-efficacy score was calculated to obtain a result between 1 (lowest) to 5 (highest). Items in the survey were summed and divided by the number of lessons. Once these scores were calculated,

the data from this project was merged with data from the existing research project in order to link student outcomes with type of instruction, student outcomes with teacher self-efficacy, and teacher self-efficacy and implementation. The SPSS (Statistical Program for the Social Sciences) version 11.5 was used to perform parametric statistics including an ANOVA (analysis of variance) and simple linear regression, the results of which follow in the next chapter.

CHAPTER FOUR

RESULTS

The Effect of Type of Instruction and HIV Knowledge

The effect of the type of instruction in terms of student HIV knowledge was calculated by means of a 2 X 2 repeated measures ANOVA to compare the effects of instructor (RN or teacher) and time (pre-test and post-test) on student scores in terms of knowledge gain. No significant main effects of interactions were found. The main effect for time was found not to be significant ($F(1,151) = 2.36, p = .126$). The between group effect (comparison vs. intervention) was found not to be significant ($F(1,151) = .098, p = .754$) and the type of instruction by time ($F(1,151) = .076, p = .783$) was found not to be significant. Therefore, having a nurse conduct a modified lesson three does not affect knowledge regarding HIV infection and AIDS among students.

The Effect of Type of Instruction and Condom Self-efficacy

The effect of the type of instruction in terms of student's condom self-efficacy was calculated by means of a 2 X 2 repeated measures ANOVA to compare the effects of instructor (RN or teacher) and time (pre-test and

post-test) on student scores in terms of condom self-efficacy. No significant main effects or interactions were found. The main effect for time was found not to be significant ($F(1,165) = .4.04, p = .046$). The between group effect (comparison vs. intervention) was found not to be significant ($F(1,165) = .002, p = .964$) and the type of instruction by time ($F(1,165) = .530, p = .468$) was found not to be significant. Therefore, having a nurse conduct a modified lesson three does not affect condom self-efficacy among students.

The Effect of Teacher Self-efficacy and Student Outcomes

Knowledge

A simple linear regression was calculated to predict student gain in knowledge based on teacher self-efficacy. The regression equation was not significant ($F(1,153) = 2.793, p = .097$) with an r^2 of .018. Teacher self-efficacy is not a good predictor of student knowledge regarding HIV/AIDS.

Condom Self-efficacy

A simple linear regression was calculated to predict student condom self-efficacy based on teacher self-efficacy. The regression equation was not significant ($F(1,169) = .090, p = .764$) with an r^2 of .001. Teacher

self-efficacy is not a good predictor of student's self-efficacy to use condoms.

Curriculum Implementation and Teacher Self-efficacy

A simple linear regression was calculated predicting curriculum implementation based on teacher self-efficacy. The regression equation was not significant ($F(1,3) = 2.83, p = .234$) with an r^2 of .58. Teacher self-efficacy is not a good predictor of curriculum implementation.

CHAPTER FIVE

DISCUSSION

The results indicate that the type of instruction (whether an RN presents a modified Lesson Three or the classroom teacher) has no effect on students' knowledge about HIV/AIDS or their condom self-efficacy. This research indicates that teacher self-efficacy is not a good predictor of either student's self-efficacy to use condoms, or their knowledge about HIV/AIDS; and that teacher self-efficacy was not found to be a good predictor of curriculum implementation. This section will provide an explanation of the results based on a comparison of results presented in previous research and recommendations for further research.

Type of Instruction

This research found no statistically significant difference between the group of students taught a modified Lesson Three of *Positive Prevention* by the school nurse or the cohort taught by their teachers. This was unexpected, since it was thought that the RN would be presumably more comfortable discussing sensitive topics, and would have higher student outcomes both in terms of knowledge and condom self-efficacy. Rohrbach, Graham, and Hansen (1993)

found correlations between implementation with fidelity and stronger student outcomes, and that a high degree of implementation correlated with teacher characteristics such as enthusiasm, commitment, and the use of teaching methods compatible with psychosocial-based programs. Rohrbach et al. stated that districts should "recruit and train teachers or other providers (for example, counselors or nurses) who are skilled in the use of non-didactic methods, enthusiastic, and committed to teaching psychosocial-based programs" (p. 250). Since enthusiasm, commitment and use of non-didactic methods have been shown to result in better outcomes, and nurses are listed as possessing those qualities, it could be presumed that having a nurse present the lesson would show an improvement in student outcomes. In this study, however, these characteristics were assumed but not researched. It may be that there was no difference in student outcomes between the RN and the teacher-taught groups because the self-efficacy of the teacher, but not the nurse, was the focus of study. Kirby (1995) wrote that effective programs should be taught by trained teachers; to what degree are the nurses trained to conduct the lessons? Further research should examine these factors.

A possible explanation for the lack of significant findings may be due to a methodological error that exists in this research: low sample size. Only four teachers completed this survey. Sample size affects statistical power: low statistical power makes the probability of finding an effect unlikely, if an effect exists.

This research found no statistically significant difference between whether the RN or the instructor delivered a modified Lesson Three of *Positive Prevention* in terms of condom self-efficacy. However, it is interesting that the only teacher who implemented the modified Lesson Three omitted the condom demonstration in which condom use is demonstrated and failure rates explained, while in the RN taught groups, it was included in the lesson, according to the surveys. Yet student outcomes in knowledge and condom self-efficacy in this research study showed no difference between those who had the condom demonstration or those who did not. This was unexpected, but the fact that the condom demonstration showed no significant difference in student outcomes may have been caused by the lack of statistical power due to low sample size. The teacher who omitted the condom demonstration did give the latex glove demonstration from Lesson Four (designed to replace the condom activity when

districts prohibit the condom demonstration); this supports the utilization of the latex glove demonstration as an effective alternative to demonstrating condom use. Further research should be conducted to support this finding.

Teacher Self-efficacy and Student Outcomes

The current study indicates that teacher self-efficacy is not a good predictor of student knowledge and condom self-efficacy. This was unexpected, since the literature suggests that higher self-efficacy of the teacher results in improved student outcomes. Rohrbach, Graham, and Hansen (1993) found that student outcomes were higher among students whose teachers had high self-efficacy, among other variables. The low sample size (four instructors) is a methodological concern, however, with this research. The low statistical power makes it difficult to prove an effect, if an effect exists.

Self-efficacy and Implementation

This research found that there was no statistically significant relationship between teacher self-efficacy and stronger curriculum implementation. This was unexpected, since it was thought that high self-efficacy (the teacher's belief in their ability to deliver the lessons)

would correspond with a high degree of use or implementation of the lessons and their components. Previous research (Rohrbach, Graham, & Hansen, 1993) found that curriculum implementers (those who implemented the program over those who chose not to) had stronger self-efficacy, among other variables.

In considering the lessons implemented, four lessons were considered for this research, since a modified lesson three was delivered by the RN in most cases. Lesson Three is modified because although *Positive Prevention* is a six unit curriculum, SBCUSD implements it in five lessons due to time constraints (Personal communication, August 2003, C. Davis-Long). Lesson Three is modified in SBCUSD to include part of Lessons Four and Six.

Three of the four teachers in this study indicated that they implemented the curriculum fully. All four teachers indicated they devoted the entire 50 minutes of each class period to each lesson; the instruction time was not shortened in any way. They all indicated they had taught the optional preliminary lesson to the curriculum. The survey indicates that the teacher with the least degree of implementation taught 80% of the lesson components; two others taught 90%, and one teacher taught 95% of the *Positive Prevention* lessons and components.

This high degree of implementation contrasts with previous studies (Lohrmann et al., 2001; Rohrbach et al. 1994; Botvin et al, 1995; Hahn et al., 2002; Taggart et al., 1990; Tappe et al., 1995) that have demonstrated wide variation in implementation of curricula and school-based health education programs.

Even though the teachers surveyed for this research implemented rather well, several components of *Positive Prevention* were not taught (three of the four teachers did not include the making of a contract or the classroom enrichment activities, and one of the teachers eliminated the abstinence activity). Yet previous research has concluded (Main et al., 1994) that HIV prevention programs must be taught in their entirety in order to have a public health effect. Perhaps future research should explore district implementation fidelity as well as teacher fidelity, since this six-unit curriculum is compressed into five lessons in the SBCUSD.

All four teachers rated themselves high in terms of self-efficacy. Though it appears in this research that self-efficacy and implementation were both high, the level was not high enough for statistical significance. This may be due to the low sample size, a methodological error of the study.

Teacher fidelity to the curriculum was high, and three of the four teachers had taught just two years. These findings are consistent with those of Rohrbach, Graham, and Hansen (1993) which found that implementation was highest among teachers with the least teaching experience.

Data for this study was collected by means of a self-report, in which it is possible that the teachers may have overestimated the number of lessons/components taught. Teacher self-report was stated as a major weakness in the Basen-Enquist, O'Hara-Tompkins, Lovato, Lewis, Parcel, and Gingiss study of 111 teachers' curriculum implementation. Even self-efficacy may be difficult to determine by means of a self-reporting instrument. One of the teachers in this research, for example, self-rated fairly high (4.0 on a 5.0 scale) in terms of self-efficacy, and yet was uncomfortable and unwilling to teach a modified lesson three (sexually transmitted diseases and condom use). Classroom observation or a combination of self-report and observation may have yielded different results than those obtained in this research. However, the literature suggests that obtaining teacher agreement to be observed is sometimes difficult to obtain. Rohrbach, Graham, and Hansen (1993) stated that

"the reluctance of some teachers to be observed is not unique to this study in future research on program integrity, it may be important to address why classroom observation threatens some teachers and how their lack of cooperation affects implementation and program outcomes" (p. 253). Furthermore, observation usually occurs during one period only, not all five periods that constitute a normal high school teaching schedule, and each period will undoubtedly vary in content. This weakens the effect of the observation, since it is difficult to replicate an intervention exactly in practice (Halle, 1998). It is also possible that the observation itself may have an effect on the lesson taught, and on the student's behavior and receptiveness to the lesson.

Recommendations for Further Research

Further research in the areas of teacher characteristics may yield suggestions for optimal curriculum implementation. For example, if it is determined that teacher enthusiasm is a predictor of student outcomes, perhaps district administrators would hand-select those best suited to implement the curriculum, instead of the current practice of "drafting" all teachers from a particular subject such as PE or science. Likewise

with characteristics such as commitment to the curriculum, if research suggests that certain teacher characteristics yield improved student outcomes, these components should be included when a district is planning to implement health instruction. Since the literature has suggested that curricula need to have a "patron saint", advisor, or research person during the implementation process at each school, perhaps research could determine what effect this support would have on student outcomes. One of the teacher's comments on the use of *Positive Prevention* was that the students were not very responsive to the Reducing the Risk activity and that it was the most challenging. A designated resource person at each site could offer support for teachers with implementation concerns, particularly new teachers. Further research could determine the optimal way of determining fidelity to the curriculum, since there are shortcomings with either the self-report or the observation methods.

It would be interesting to replicate this research project but utilizing a larger sample of teachers, perhaps if an evaluation were to be done concurrently in several school districts. Different outcomes from what this small study obtained may result, and would confirm that this research may have been flawed by methodological error due

to small sample size. If this study were replicated, perhaps a more sensitive instrument should be utilized to determine teacher self-efficacy, as the one used in this research did not yield much variation in teacher responses, making it difficult to draw corollaries between self-efficacy and student outcomes. It would be interesting to research nurses on their self-efficacy to teach and their comfort level with discussing sensitive issues with high school students. It may be that years of experience in school nursing yields different results on nurses' self-efficacy. Only further research into instructor characteristics and self-efficacy, along with implementation and fidelity, will be able to determine how best to deliver critically important prevention education to our youth.

Conclusion

Fidelity studies and strategies to improve curriculum delivery should continue to be a focus of health education's prevention efforts. Research has shown that fidelity is a key to achieving optimal student outcomes, and that certain teacher characteristics and adoption strategies improve implementation. Although this research did not yield any statistically significant outcomes, it

did serve as a means of verifying fidelity to *Positive Prevention's* implementation, since it was done concurrently with a research study of *Positive Prevention*. This helps reduce the possibility of a Type III error for the study and adds credence to those conclusions, and perhaps makes it possible to determine which curriculum components may have contributed to best student outcomes.

HIV is continuing to infect over 40,000 Americans needlessly each year. The cost of treating one case of AIDS is over \$150,000; the cost of the impact to victims, their families, and society as a whole is incalculable. Whatever strategies can be learned and put into place to stem this epidemic is a national imperative, whether it be at the Federal level, or in the classroom.

APPENDIX A
TEACHER SURVEY

Teacher Health Survey

This survey is about teaching the Positive Prevention HIV curriculum. We are interested in what teachers think about the curriculum and about teaching health. There are no right or wrong answers. We just want to know what you think. This survey is being conducted by Marilyn Sweitzer, under the direction of Robert G. LaChausse, the Department of Health Science and Human Ecology at California State University, San Bernardino. The researcher can be contacted at 909-512-7598 (pager) or kenmare@cybertime.net. The study has been approved by the Institutional Review Board (IRB) at California State University, San Bernardino. This survey takes about 14 minutes to complete.

Please read each question carefully. Choose only one answer for each question. Do not write your name on the survey. No one will know your answers. Please do not show your answers to anyone.

This survey is voluntary. You can stop at anytime without penalty.

Please pay careful attention to each question. Read all of the choices before you answer. If you don't know the answer, leave it blank.

Part A: These first few questions ask about your education and teaching experience.

- A1.** Have you ever completed or are very near completing a class in "health" to meet the California Commission on teacher Credentialing requirements for a California Clear Teaching Credential?:
☐ Yes ☐ No
- A2.** If you answered "Yes" to 1, what type of course was it?: (Think hard about the title and content of the course)
☐ Drugs and Alcohol
☐ Nutrition
☐ Health Issues for Educators
☐ Methods for Health Education
☐ Physical Education and Health
☐ Human Sexuality
Other: _____ **type in** _____ (Fill in)
- A3.** What was your undergraduate degree major (e.g. liberal studies)
Please choose the one that best fits. Select only one.
☐ English ☐ Sociology
☐ Foreign languages ☐ Health Science/ Health Education
(French, Spanish, German etc.)
☐ Music ☐ Human/ Child Development
☐ Fine Arts ☐ Criminology
☐ Physical Education/ ☐ History
Kinesiology
☐ Liberal studies- Concentration: ☐ Business/ Economics/Accounting

☐ Psychology ☐ Biology
☐ Communication ☐ Chemistry
☐ Philosophy
☐ GeographyGeology/Anthropology
☐ Computer Science ☐ Math
- A4.** Do you currently have a Masters Degree?
☐ Yes ☐ No

- A5.** If you answered "Yes" to A4, what was your area of study of your Masters Degree?
- | | |
|---|--|
| <input type="radio"/> English | <input type="radio"/> Sociology |
| <input type="radio"/> Foreign languages
(French, Spanish, German etc.) | <input type="radio"/> Health Science/ Health Education |
| <input type="radio"/> Music | <input type="radio"/> Human/Child Development |
| <input type="radio"/> Fine Arts | <input type="radio"/> Criminology |
| <input type="radio"/> Physical Education/
Kinesiology | <input type="radio"/> History |
| <input type="radio"/> Liberal studies- Concentration: | <input type="radio"/> Business/Economics/Accounting |
| <input type="radio"/> Psychology | <input type="radio"/> Biology |
| <input type="radio"/> Communication | <input type="radio"/> Chemistry |
| <input type="radio"/> Philosophy | <input type="radio"/> Geography/Geology/Anthropology |
| <input type="radio"/> Computer Science | <input type="radio"/> Math |
- A6.** Which type of Teaching Credential do you currently hold?
- ☐ I DO NOT currently have a teaching credential
- ☐ Emergency or Intern credential
- ☐ Multiple Subjects
- ☐ Single Subject
- ☐ Special Education
- ☐ Other: _____ (fill in)
- A7.** Are you currently teaching?:
- ☐ Yes ☐ No
- If yes, how many years? _____ fill in
- A8.** If you answered "Yes" to A14, what grade do you teach most?: (Select one answer only.)
- | | |
|--|-----------------------------------|
| <input type="radio"/> Pre-Kindergarten | <input type="radio"/> Elementary |
| <input type="radio"/> Middle School | <input type="radio"/> High School |
| <input type="radio"/> Other: _____ | (fill in) |

Part B: The next few questions ask about how much you know, understand or can do as a teacher. Please read each statement carefully and fill in the bubble above the number that best represents the extent to which you agree or disagree with each statement. Please choose one answer only. Remember that there are no right or wrong answers.

- B1.** I understand health education concepts well enough to be effective in teaching health education.

○	○	○	○	○
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B2.** I know the steps necessary to teach health education concepts effectively.

○	○	○	○	○
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B3.** I believe that I can do a good job teaching students about abstaining from sexual intercourse.

○	○	○	○	○
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B4.** I believe that I can do a good job helping students explore replacement behaviors (instead of sex), that may lead to healthy friendships and dating relationships.

○	○	○	○	○
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B5.** I believe that I can do a good job teaching students about using barrier protection consistently and correctly.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B6.** I believe that I can do a good job teaching students about abstaining from drug use.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B7.** I believe that I can do a good job teaching students about not consuming alcohol.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B8.** I believe that I can do a good job teaching students about not sharing drug injection equipment.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B9.** I believe I would **not** be able to do a good job teaching students about resources such as school and/or community counseling.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B10.** I believe I would **not** be able to inform students about STD/HIV antibody testing.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B11.** I believe I can do a good job teaching students to identify family and friends as a primary source of support.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B12.** I believe that I would **not** be able to do a good job teaching students about exhibiting compassion for persons living with chronic illness.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B13.** I believe that I would **not** be able to do a good job teaching students about exhibiting compassion for persons living with AIDS.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B14.** I believe that I would **not** be able to do a good job teaching students how to replace stereotypes about infected persons with accurate information.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

- B15.** I believe that I would **not** be able to do a good job teaching students to have a sense of compassion for affected persons regardless of how they became infected.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1 Strongly Agree	2 Somewhat Agree	3 Neither agree nor disagree	4 Somewhat Disagree	5 Strongly Disagree

Part C: The following questions ask about the curriculum's use and effectiveness. Please read each statement carefully and check yes or no following each statement. Remember that there are no right or wrong answers.

Preliminary Lesson (optional): If you did not present this lesson, skip to Lesson One.

- C1.** Did you discuss the basic ground rules for classroom discussion and obtain student agreement with the ground rules?
____ yes
____ no
- C2.** Did you teach the students the definitions of basic HIV infection and AIDS terminology (the Vocabulary List)?
____ yes
____ no
- C3.** Did you administer the optional pre-test?
____ yes
____ no
- C4.** Do you think this lesson was effective?
____ yes
____ no
- C5.** Please estimate the percentage of time you spent using each of the teaching techniques listed below. Total should equal 100% of class.
____% Lecture ____% Discussion
____% Demonstration ____% Practice (role play)
- C6.** Please estimate the total number of minutes you spent teaching the Preliminary Lesson.
FILL IN ____

Lesson One: If you did not present this lesson, skip to Lesson Two.

- C7.** Did you have a Person Living With AIDS speak to the students?
_____ yes
_____ no
- C8.** Did you show the Educational video of a person living with or affected by AIDS?
_____ yes
_____ no
- C9.** Did you have the students participate in the "It's All Relative" activity?
_____ yes
_____ no
- C10.** Did you utilize any of the classroom enrichment activities, family/home assignments, or cross curriculum integration ideas?
_____ yes
_____ no
- C11.** Do you think this lesson was effective?
_____ yes
_____ no
- C12.** Please estimate the percentage of time you spent using each of the teaching techniques listed below. Total should equal 100% of class.
_____ % Lecture _____ % Discussion
_____ % Demonstration _____ % Practice (ie, role play)
- C13.** Please estimate the total number of minutes you spent teaching Lesson One. _____

Lesson Two: If you did not present this lesson, skip to Lesson Three.

- C14.** Did you outline the magnitude of the HIV pandemic (using maps of the US and the world)?
____ yes
____ no
- C15.** Did you outline the effects of HIV on the body, using the overheads?
____ yes
____ no
- C16.** Did you explain the 'four openings and the four fluids'?
____ yes
____ no
- C17.** Did you cover the timeline of the progression from infection to AIDS?
____ yes
____ no
- C18.** Did you use the "Mismatch" activity with the students?
____ yes
____ no
- C19.** Do you think this lesson was effective?
____ yes
____ no
- C20.** Please estimate the percentage of time you spent using each of the teaching techniques listed below. Total should equal 100% of the class.
a ____% Lecture c ____% Discussion
b ____% Demonstration d ____% Practice (ie, role play)
- C21.** Please estimate the total number of minutes you spent teaching Lesson Two. _____

Lesson Three: If you did not present this lesson, skip to Lesson Four.

C22. Were the most common sexually transmitted diseases presented?

☐ yes
☐ no

C23. Did you have the School Nurse (RN) present this lesson?

☐ yes
☐ no

C24. Did you present the lesson yourself?

☐ yes
☐ no

C25. Were the symptoms of STD's discussed (overhead)?

☐ yes
☐ no

C26. Were transmission and prevention covered, including getting tested for STD's?

☐ yes
☐ no

C27. Was condom use demonstrated and condom failure rates explained?

☐ yes
☐ no

C28. Did you think this lesson was effective?

☐ yes
☐ no

C29. Please estimate the percentage of time you spent using each of the teaching techniques listed below. Total should equal 100% of class.

<input type="checkbox"/> % Lecture	<input type="checkbox"/> % Discussion
<input type="checkbox"/> % Demonstration	<input type="checkbox"/> % Practice (ie, role play)

C30. Please estimate the total number of minutes you spent teaching Lesson Three. _____

Lesson Four: If you did not present this lesson, skip to Lesson Five.

C31. Did you use the Risk Continuum activity (cards)?

_____ yes
_____ no

C32. Did you use the Risk Continuum activity (no risk, low risk or high risk check off sheet)?

_____ yes
_____ no

C33. Did you utilize the Abstinence activity?

_____ yes
_____ no

C34. Did you think this lesson was effective?

_____ yes
_____ no

C35. Please estimate the percentage of time you spent using each of the teaching techniques listed below. Total should equal 100% of class.

_____ % Lecture	_____ % Discussion
_____ % Demonstration	_____ % Practice (ie, role play)

C36. Please estimate the total number of minutes you spent teaching Lesson Four. _____

(write them below-you may use an additional page if necessary) _____

[illegible]

THANK YOU FOR YOUR PARTICIPATION.

APPENDIX B

FIGURE A

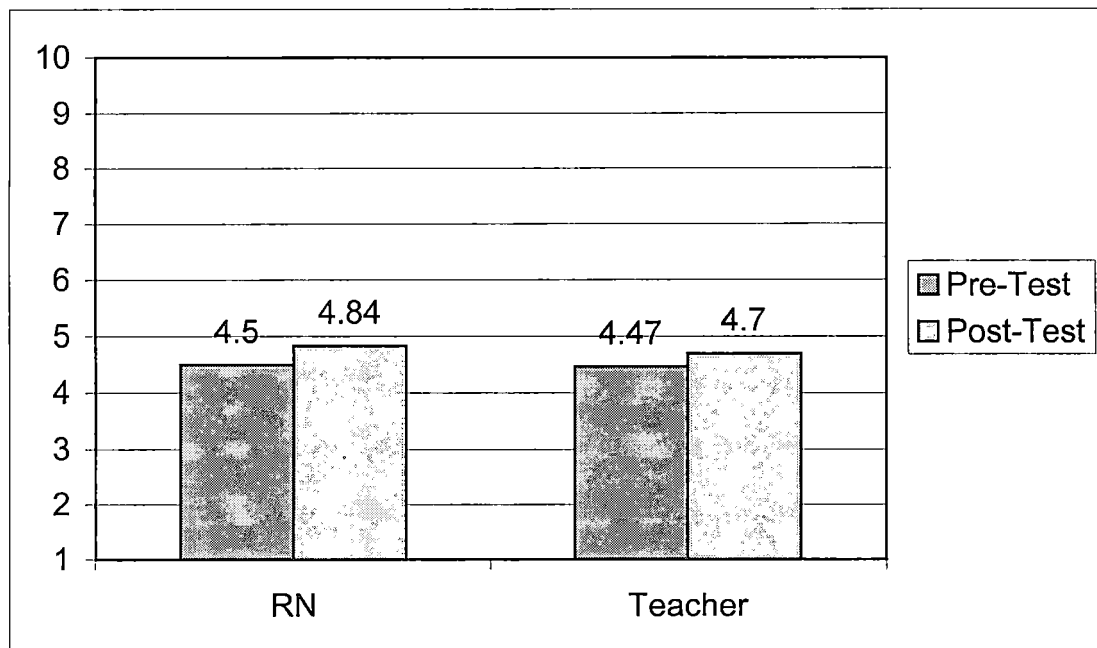


Figure A. The effect of type of instruction (RN or teacher) on student knowledge

APPENDIX C

FIGURE B

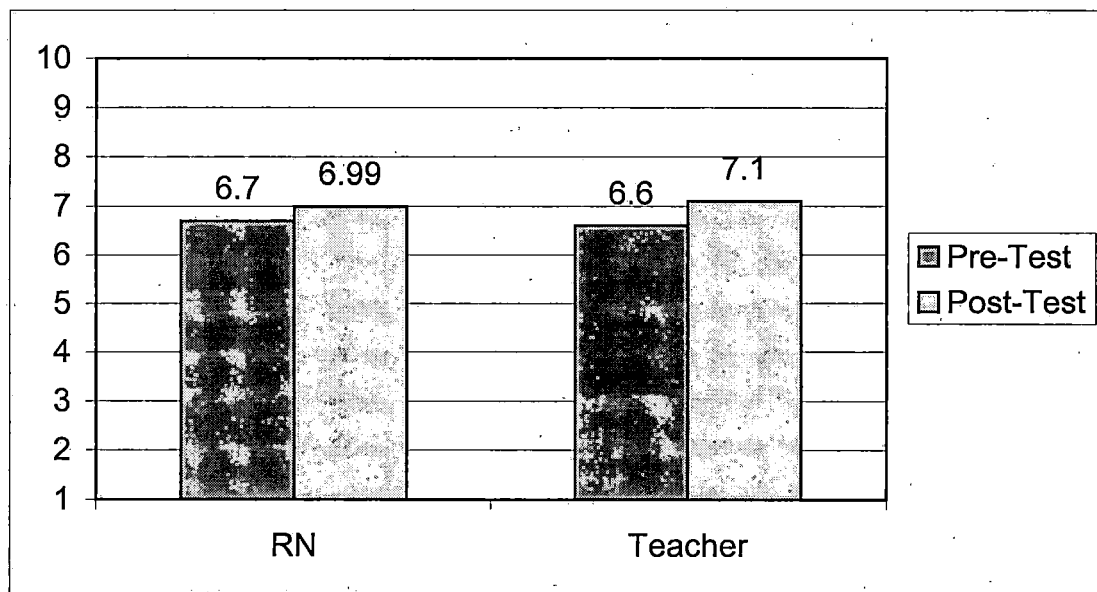


Figure B. The effect of type of instruction (RN or teacher) on student condom self-efficacy

APPENDIX D
DEBRIEFING STATEMENT

Debriefing Form

The study you have just completed was designed to look at the Positive Prevention HIV curriculum. Thank you for participating in this study. Your answers were very helpful to us. This study was designed to determine if there is a relationship between implementation and student outcomes. You did a terrific job and we really appreciate your help.

It is unlikely that you will experience any stress or anxiety about participating in this study. Please understand that at no time were we evaluating your specific behavior or you as a person. We are interested aggregate data only. At no time will your responses be associated with you as an individual. If you have any questions about the study, please feel free to contact Marilyn Sweitzer at (909) 512-7598 or kenmare@cybertime.net; or Robert G. LaChausse, Department of Health Science and Human Ecology at California State University, San Bernardino at (909) 880-7229 or rlachaus@csusb.edu.

I hope that your participation in this study was fun and exciting. Please do not share your answers with other people, as they might want to participate in the study too.

REFERENCES

- American Academy of Pediatrics Committee on Pediatric AIDS. (1998). Human immunodeficiency virus/acquired immunodeficiency syndrome education in schools. *Pediatrics*, 101(5), 933.
- Baldwin, J. A., Rolf, J. E., Johnson, J., Bowers, J., Benally, C., & Trotter, R. T. (1996). Developing culturally sensitive HIV-AIDS and substance abuse curricula for Native American youth. *Journal of School Health*, 66(9), 322.
- Basch, C., Sliepcevich, E., Gold, R., Duncan, D., & Kolbe, L. (1985). Avoiding type III errors in health education program evaluations: a case study. *Health Education Quarterly*, 12(4), 315-331.
- Basen-Enquist, K., O'Hara-Tompkins, N., Lovato, C., Lewis, M., Parcel, G., & Gingiss, P. (1994). The effect of two types of teacher training on implementation of smart choices: a tobacco prevention curriculum. *Journal of School Health*, 64(8), 334.
- Botvin, G., Baker, E., Dusenbury, L., Botvin, E., & Diaz, T. (1995). Long term follow up results of a randomized drug abuse prevention trial in a white middle-class population. *Journal of the American Medical Association*, 273(14), 1106-1112.
- Bucknam, R. B., & Brand, S.G. (1983). Highlights from evaluation of EBCE. *Educational Leadership*, 40(6), 66.
- California Department of Education. (2001). *Getting results: Developing safe and healthy kids (Update 2)*. Sacramento, CA: Author.
- California Healthy Kids Initiative. (2002). *Health education standards and competencies for K-12 teachers*. Retrieved May 5, 2003, from <http://www.hkresources.org/c/@eQZ141WCEJJxw/Pages/competencies>

- Centers for Disease Control. (1988) *Guidelines for effective school health education to prevent the spread of AIDS*. Retrieved September 26, 2002 from <http://www.cdc.gov/nccdphp/dash/guidelines/aids.htm>
- Centers for Disease Control. (1998). *Linking science and prevention programs - The need for comprehensive strategies*. Retrieved September 30, 2002, from <http://www.cdc.gov/hiv/pubs/facts/programs.html>
- Centers for Disease Control. (2001). *Guidelines for effective school health education to prevent the spread of AIDS*. Retrieved September 26, 2002 from <http://www.cdc.gov/nccdphp/dash/guidelines/aids.htm>
- Centers for Disease Control. (2001). *HIV/AIDS surveillance report*, 13(1), 5.
- Centers for Disease Control. (2003). *Youth Risk Behavior Data for San Bernardino High School*. Atlanta, GA: Centers for Disease Control.
- Clark, K. R., & Ridley, J. S. (2000). *Positive Prevention: HIV/STD Prevention Education for California Schools Grades 7-12, Second Edition*. Orange County, CA: American Red Cross.
- Coyle, K., Basen-Enquist, K., Kirby, D., Parcel, G., Banspach, S., Harrist, R., et al. (1999). Short term impact of safer choices: A multicomponent school based HIV, other STD, and pregnancy prevention program. *Journal of School Health*, 69(5), 181-188.
- Dalis, G. T., & Dodd, G. R. (2001). The effect of a personal/social skills lessons: The missing link in prevention curricula on urban middle school student tobacco use. *American Journal of Health Education*, 32(4), 199-205.
- Dawson, L. J., Chunis, M. L., Smith, D. M., & Carboni, A. A. (2001). The role of academic discipline and gender in high school teachers AIDS-related knowledge and attitudes. *Journal of School Health*, 71(1), 3.

- DiClemente, R. J. (1998). Preventing sexually transmitted infections among adolescents: A clash of ideology and science. *Journal of the American Medical Association*, 279(19), 1574.
- Durlak, J. A. (1997). *Successful prevention programs for children and adolescents*. New York: Plenum Press.
- Emshoff, J. G., Blakely, C., Gottschalk, R., Mayer, J., Davidson, W., & Erickson, S. (1987). Innovation in education and criminal justice: Measuring fidelity of implementation and program effectiveness. *Educational Evaluation and Policy Analysis*, 9(4), 300-311.
- Everett, S. A., Price, J. H., Telljohann, S. K., & Durgin, J. (1996). The Elementary Health Teaching Self-Efficacy Scale. *American Journal of Health Behavior*, 20(3), 26-33.
- Facente, A. C. (2001). Adolescents and HIV: Knowledge, behaviors, influences, and risk perceptions. *Journal of School Nursing*, 17(4), 198-203.
- Fors, S. W., & Doster, M. E. (1985). Implication of results: Factors for success. *Journal of School Health*, 55(8), 332-334.
- Gall, M. D. (1976, April). *The importance of context variables in research on teaching skills*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.
- Gaskins, I. W., & Anderson, R. C. (1993). Six teachers' dialogue during cognitive process instruction. *Elementary School Journal*, 93(3), 227-228.
- Hahn, E. J., Noland, M. P., Rayens, M. K., & Christie, D. M. (2002). Efficacy of training and fidelity of implementation of the Life Skills Training Program. *Journal of School Health*, 72(7), 282-287.
- Halle, J. (1998). Fidelity: A crucial question in translating research to practice. *Journal of Early Intervention*, 21(4), 294-296.

- Holtgrave, D. R., Qualls, N. L., Curran, J. W., Valdiserri, R. O., Guinan, M. E., & Parra, W. C. (1995). An overview of the effectiveness and efficiency of HIV prevention programs. *Public Health Reports*, 110(2), 134-144.
- Kimpston, R. D. (1983). *Curriculum fidelity and implementation tasks employed by teachers*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada, April 1983.
- Kimpston, R. D. (1985). Curriculum fidelity and implementation tasks employed by teachers: A case study. *Journal of Curriculum Studies*, 17(2), 185-195.
- Kirby, D. (1995). *A review of educational programs designated to reduce sexual risk-taking behaviors among school-aged youth in the United States*. [Monograph].
- Kirby, D. (1999). Reflections on two decades of research on teen sexual behavior and pregnancy. *Journal of School Health*, 69(3), 89-93.
- Kirby, D. (2000). What does the research say about sexuality education? *Educational Leadership*, 58(2), 72-76.
- Kirby, D., Short, L., Collins, J., Rugg, D., Kolbe, L., Howard, M., et al. (1994). School based programs to reduce sexual risk behaviors: A review of effectiveness. *Public Health Reports*, 109(3), 339-360.
- Kovaleski, J., Gickling, E., Morrow, H., & Swank, P. (1999). High vs. low implementation of instructional support teams: A case for monitoring program fidelity. *Remedial & Special Education*, 20, 170-183.
- LaChausse, R. (2004) *Evaluation of the Positive Prevention HIV/STD Prevention Education Curriculum for California Schools Grades 7-12*. San Bernardino, CA: California State University, San Bernardino.

- Levenson-Gingiss, P. L., & Basen-Enquist, K. (1994). HIV education practices and training needs of middle school and high school teachers. *Journal of School Health, 64*(7), 290.
- Levenson-Gingiss, P., & Hamilton, R. (1989). Deteminants of teachers plans to continue teaching a sexuality education course. *Family Community Health, 12*(3), 40-53.
- Lohrmann, D. K., Blake, S., Collins, T., Windsor, R., & Parrillo, A. (2001). Evaluation of school-based HIV education programs in New Jersey. *Journal of School Health, 71*(6), 207.
- Lohrmann, D., Blake, S., Ledsky, R., Foster, J., Lehman, T., Parrillo, A., et al. (n.d.) *Characteristics of local high school HIV curricula adoption and implementation in Maine*. Electronic correspondence from (author) R. Ledsky, April, 2003.
- Loucks, S. F. (1983). *Defining fidelity: A cross-study analysis*. Paper presented at the Annual meeting of the American Educational Research Association, Montreal, Canada, April 1983.
- Lynam, D., Milich, R., Zimmerman, R, Novak, S., Logan, T., Martin, C., et al. (1999). Project DARE: No results at 10 year follow-up. *Journal of Consulting and Clinical Psychology, 67*(4), 590-593.
- Main, D., Iverson, D., McGloin, J., Banspach, S., Collins, T., Rugg, D., et al. (1994). Preventing HIV infection among adolescents: Evaluation of a school based education program. *Preventive Medicine, 23*, 409-417.
- McIhaney, J. S. (2000). Sexually transmitted infection and teenage sexuality. *American Journal of Obstetrics/Gynecology, 188*(2), 334.
- National Coalition of Advocates for Students. (1992). *Criteria for evaluating an AIDS Curriculum, (3rd.)*. Boston, MA: Author.

- Office of Technology Assessment, Congress of the United States. (1995). *The effectiveness of AIDS prevention efforts*. (OTA Pub. # OTA-BP-H-172). Washington, DC: Author.
- Parker, J. T. (2001). *School based education: A new millennium update*. U.S. Department of Education Contract # ED 99-C00-0007 (ERIC Document Reproduction Service #ED460130)
- Popham, J. W. (1993). Wanted: AIDS education that works. *Phi Delta Kappan*, 74(7), 559.
- Prendergast, T., & Frykman, E. (2003). *AIDS program report-San Bernardino County, vol. XVII*. San Bernardino County Department of Public Health.
- Quinn, S. C., Thomas, S. B., & Smith, B. J. (1990). Are health educators being prepared to provide HIV/AIDS education? A survey of selected health education preparation programs. *Journal of School Health*, 60(3), 92.
- Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., et al. (1997). Protecting adolescents from harm: Findings from the national longitudinal study on adolescent health. *Journal of the American Medical Association*, 278(10), 823-831.
- Robenstine, C. (1994). HIV/AIDS education for adolescents: School policy and practice. *The Clearing House*, 67(4), 229.
- Rohrbach, L. A., Graham, J., & Hanson, W. (1993). Diffusion of a school-based substance abuse prevention program: Predictors of program implementation. *Preventive Medicine*, 22, 237-260.
- Schoeberlein, D. (2000). *HIV education: Perspectives and practices*. Fastback 461. Bloomington, IN: Phi Delta Kappa Education Foundation.
- Siegel, D. M. (2002). Long term effects of a middle and high school based HIV sexual risk prevention intervention. *Journal of the American Medical Association*, 287(3), 299.

- Skripak, D. & Summerfield, L. (1996). *HIV/AIDS education in teacher preparation programs*. ERIC digest. (ERIC document #ED403264)
- Smith, D. W., Steckler, A. B., McCormick, L., & McLeroy, K. R. (1995). Lessons learned about disseminating health curricula to schools. *Journal of Health Education*, 26(1), 37-43.
- Sulak, P. J. (2002). Adolescent sexual health. *AudioDigest Pediatrics*, 48(6).
- Summerfield, L. (2001). Preparing classroom teachers for delivering health instruction. U.S. Department of Education Contract # ED-99-C00-0007. (ERIC document # ED460128)
- Sussman, S., Petosa, R., & Clarke, P. (1996). The use of empirical curriculum development to improve prevention research. *American Behavioral Scientist*, 39(7), 838.
- Taggart, V. S., Bush, P. J., Zuckerman, A. E., & Theiss, P. K. (1990). A process evaluation of the District of Columbia "Know your Body" project. *Journal of School Health*, 60(2), 60-66.
- Tappe, M. K., Galer-Unt, R. A., & Bailey, K. C. (1995). Long term implementation of the teenage health teaching modules by trained teachers: A case study. *Journal of School Health*, 65(10), 411-415.
- Tunks, J. L. (1999). You say potato, I say potato: Implementation strategies used by teachers. Paper presented at the Annual Meeting of the American Research Association, Montreal, Canada, April 1999.
- Wiley, D. C., & Terlosky, B. (2000, October). Evaluating sexuality education curriculums. *Educational Leadership*, 79-82.
- Wolff, W. J., & Schoeberlein, D. R. (1999). The status of middle level HIV/STD education as assessed by state and local education agencies. *Journal of School Health*, 69(6), 239.