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**WHAT ARE WE TEACHING OUR KIDS? AN ANALYSIS OF SCHOOL-BASED
SEXUALITY EDUCATION CONTENT AND STATE POLICY IN RELATION TO
DEVELOPMENTAL NEEDS OF YOUTH**

by

Karen Hoffman Tepper

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A Dissertation Submitted to the Faculty of the

COLLEGE OF FAMILY AND CONSUMER SCIENCES

**In Partial Fulfillment of the Requirements
For the Degree of**

**DOCTOR OF PHILOSOPHY
WITH A MAJOR IN FAMILY STUDIES AND HUMAN DEVELOPMENT**

In the Graduate College

THE UNIVERSITY OF ARIZONA

2002

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THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the Final Examination Committee, we certify that we have read the dissertation prepared by Karen Hoffman Tepper entitled What Are We Teaching Our Kids? An Analysis of School-based Sexuality Education Content and State Policy in Relation to the Developmental Needs of Youth

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SIGNED: *Kawthoff Te*

ACKNOWLEDGEMENTS

It's amazing the number of people who go into accomplishing a goal. I will always be grateful for all the help and support I received throughout this process and especially in the days and months leading up to the defense. First, a thank-you to my committee: Dr. Jennifer Maggs, Dr. Angela Taylor, Dr. Mari Wilhelm, Dr. Richard Wood and especially Dr. Sherry Betts for all of their helpful insights and support.

Second, a thank-you to my friends for not only listening and supporting but also for each in their own way making the extra effort to allow a piece of this accomplishment belong to them. Mary Miller, Peggy Lazarus, and Paige Jacobson, thank you for helping me navigate mounds of paperwork when I was too far away to do it myself. Shevaun Neupert, Roshni Menon, Dan McDonald, and James Roebuck, there was no need for any of you to know as much as you did about this project prior to the defense. Thank you for sharing your knowledge and expertise with me. And to Donna Peterson for acting as hostess, chauffeur and mental health professional too many times as this process came to a close, how do I thank you?

Thank you to my family, who for so many years have been neglected while I completed this document. Your love and support means everything. And especially my mom who has shown me what a successful woman looks like and challenged me to prove worthy of her guidance.

Finally, I must acknowledge all of the extraordinary advocates, educators and (gasp!) administrators whom I have met, who care so passionately for the well being of young people. You have truly been an inspiration.

DEDICATION

I dedicate this dissertation to Dr. Sherry Betts. For the past several years you have been a powerful mentor, a tireless cheerleader and sometimes a fairy-godmother. I have learned so much from working with you. It has truly been a privilege.

And to my husband Steve Tepper, my strongest supporter and my toughest critic. I dedicate this to you for all the days, weeks, and months you waited patiently while I completed this document. Your unparalleled faith in me has carried me through. Thank you for encouraging me frequently, disagreeing with me sometimes and loving me always.

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ABSTRACT

A developmental-contextual approach to understanding sexuality education course content is used in this national study. Examining policy as a factor that may influence young people's environments and hence their development is an important role for developmental research. Using data from the CDC's *School Health Policies and Programs Study* (SHPPS) 2000 and the Alan Guttmacher Institute's *State Policies in Brief Report* (Alan Guttmacher Institute, 2001), three general topic areas are addressed. First, can school level be differentiated by the sexuality education topics taught at various school levels? Second, are there significant differences in state policies that regulate school-based sexuality education targeting different school levels? Third, how do state and classroom level variables contribute to variance in the likelihood of a given topic being taught as part of school health education?

The two sources of data provide a nationally representative sample of 1,201 teachers and state level data from Department of Education administrators and policies from all 50 states. These data were analyzed using stepwise discriminant analysis and Hierarchical Linear Modeling (HLM). This study resulted in three primary findings. First, both state policies and classroom content were significantly different by school level. Second, state policy was not a good predictor of the course content being taught in the classroom. Third, teachers' desires for additional training significantly predicted the sexuality education course content taught in schools. Implications for both research and practice were discussed.

CHAPTER 1: INTRODUCTION

The healthy development of young people is considered by many to be a national priority. Politicians, researchers and youth workers all work to promote the health of children and adolescents in different ways and based upon different views. One way of promoting healthy development is through health education, including sexuality education. Most Americans (98% of parents) want some type of sexuality education taught in schools (Hoff, Greene, McIntosh, Rawlings, & D'Amico, 2000). Nearly all parents want education that focuses on HIV/AIDS, STDs and abstinence, but a sizable majority also want their children to receive education on more controversial topics such as birth control (90% of parents) and sexual orientation (76% of parents) (Hoff et al., 2000). The hope of educators and parents alike is that by teaching young people about sexuality, adolescents will be more likely to develop in a manner that is sexually healthy.

Rates of pregnancy, childbearing and disease are frequently referred to as key indicators of the sexual health of a nation's youth (Berne & Huberman, 2000). However, some would argue that these are actually indicators of the negative consequences related to sex and that true sexual health is never even addressed in most public discussions of adolescent sexuality (Brooks-Gunn & Paikoff, 1997; Chilman, 1990; Ehrhardt, 1996; Graber & Brooks-Gunn, 1999). The absence of consequences or disease is not the same as sexual health. Chilman (1990) has postulated that true sexual health encompasses healthy dating and relationships, understanding and acceptance of sexual desires and one's own body and the development of sexual identities/orientation.

Ehrhardt (1996) has argued that the United States is morally ambiguous about the sexual health of its young people, on one hand dedicated to preventing the negative consequences that are associated with early and/or unsafe sex while simultaneously denying the normative nature of adolescents as sexual beings. Despite this ambiguity the prevention of early or unsafe sexual behavior is generally met with approval, and much attention is consistently paid to the prevention of the negative consequences of sexual activity often at the expense of true sexual health. Additionally, indicators of negative consequences are easier to measure and less subjective than potential indicators of sexual health, such as positive body image, the confidence to make sexual decisions that are not harmful to self or others, and engagement in healthy relationships.

Historical Context

A substantial amount of time and money is spent on issues relating to adolescent sexuality. Governments, foundations and educational institutions spend millions of dollars each year on the study of adolescent sexuality and the development of policies and programs that aim to control adolescent sexuality and sexual behavior. Attention to this issue has increased tremendously since the beginning of the AIDS epidemic in 1981. By 1986, HIV/AIDS had become enough of an issue that conservative Surgeon General C. Everett Koop issued a report advising that sex education begin for children in early grades and that condom use be taught as a means of HIV prevention (Lerner & Homes, 1998). Koop viewed HIV as a public health crisis rather than a political issue. His report shocked both liberals and conservatives by offering a different philosophy for dealing with sexuality in schools (Lerner & Homes, 1998). The possibility that ignorance

around sexuality could lead to the death of many of our nation's young people encouraged increased funding for sexuality education and research.

The Centers for Disease Control and Prevention followed Koop's lead by beginning to offer funding for comprehensive health education that focused specifically on HIV/AIDS in 1988 (Kaiser Family Foundation, 2000). During the 1980s and early 1990s, there was a substantial push to integrate information about HIV and AIDS into schools. In fact, currently 38 states mandate the teaching of HIV education. However, in recent years the emphasis of this education has shifted with more and more money being focused toward educational strategies that promote abstinence and in many instances fail to acknowledge safer sex alternatives at all (Daillard, 2001).

State of Adolescent Sexual Risk Indicators

At first glance many would argue that we as a nation are succeeding at improving the sexual health of our young people. According to the National Center for Health Statistics, 94 out of every 1,000 girls between the ages of 15 and 19 became pregnant in 1997. This is down from 117 out of every 1,000 in 1991 (Ventura, Mosher, Curtin, Abma, & Henshaw, 2000). A decrease in teen births from 52 per 1,000 in 1997 to 49 per 1,000 in 2000 indicates that this decrease may be continuing (Ventura, Matthews, & Hamilton, 2001).

Studies of the prevalence of STDs find that each year over 3 million adolescents in the United States will contract an STD. That is approximately one in every four sexually active adolescents (Alan Guttmacher Institute, 1999). However recent reports indicate that there have been declines in the number of new cases of STDs throughout the

1990s (U.S. Department of Health and Human Services, 1997). New cases of HIV appear to also be decreasing. Since 1995 there has been a continued decrease in the number of new AIDS cases diagnosed in the United States each year, from over 60,747 in 1996 to 40,106 in 2000 (CDC, 2001). However, research indicates that the disease is spreading more quickly among heterosexual minority young people than among other groups (Rosenberg & Biggar, 1998). These findings indicate the need for concern about the sexual health of youth, despite the apparent success in regard to the other indicators.

Cross-National Comparisons

Cross-national comparisons further call the United States' apparent progress into question. Studies of pregnancy and childbearing in 33 developed nations indicated that the decrease in adolescent pregnancy and childbearing is not an American phenomenon. Over the last 25 years there has been a trend across all developed nations toward lower rates of adolescent pregnancy and birth. While the United States has shown a 20% decrease in birth rates from 1970-1995, many other industrial nations have shown decreases of up to 77%. Sweden, for example, reported 34 births per 1000 girls between the ages of 15 and 19 in 1970, but reported only 8 births per 1000 girls in 1995. In fact, of the 33 countries included in the analysis, only Russia reported higher pregnancy rates than the United States (Singh & Darroch, 2000). Comparisons of STDs also indicate that despite the decreases in STDs in the United States, they still have higher rates of STDs than every other country in the developed world, both within the general population and among adolescents more specifically (Panchaud, Singh, Feivelson & Darroch, 2000).

The cross-national variation in indicators of sexual risk has led to more detailed investigations of the political and social contexts in which this variation exists. Using an ecological approach, researchers have reviewed the contexts in which young people from various countries exist as a predictor of their sexual behavior (Berne & Huberman, 2000). This type of research has allowed for researchers and advocacy groups to develop statements on the most appropriate type of sexuality education for young people both within the United States and throughout the world (SIECUS, 1996). A more detailed discussion of cross-national research will follow in the literature review.

Variations in Sexual Health Within the United States

Ecological studies have also helped to uncover predictors of sexual behavior in adolescents within the United States. A recent review of the literature has found well over 100 risk and protective factors that are associated with adolescent sexual behavior of one kind or another (Kirby, 2001). These risk and protective factors are often contextual variables that not only impact the adolescent directly but also through their interactions with the adolescent's environment.

Individual development also plays a role in what is taught in sexuality education. Developmental theory and research show that as adolescents age they are capable of learning more new and complex constructs (Petersen et al., 1995). Additionally physical and social changes also lead to different needs during this period (Petersen, 1993). In the area of sexuality specifically, different issues become relevant during different developmental periods (Granello, 1997). These changes require that schools be

responsive to the unique needs of young people in various developmental periods through differing curricula and/or curricular requirements.

As greater emphasis has been placed on sexuality education in schools, there has also been greater emphasis on accountability. This has led to many more quality evaluation studies assessing the impact of sexuality education programs on the adolescent participants. Yet only a very small percentage of the existing programs have been well evaluated, and therefore we still have relatively little knowledge about the effect of many of our educational programs and policies on the young people served (Kirby, 2001). Indicators of sexual risk can give us some clues as to the effectiveness of various programs or policies. For example, we know that many of the countries with the lowest rates of STDs and adolescent pregnancy have the most comprehensive sexuality education strategies. These strategies often go beyond risk avoidance approaches and focus on healthy sexual development (Berne & Huberman, 2000).

Fisher (1990) noted that there are a series of barriers that young people must overcome if they are to avoid HIV/AIDS, STDs and unintended pregnancy. Structural or political barriers impact the content of sexuality education interventions through the willingness of organizations to deal with change and controversy and sexuality educators' ability to be effective in their work. Variations in the politics and the presence or absence of these barriers within the United States may help account for the differences in sexual health of young people in various parts of the country. For example, while states do not keep consistent records of HIV or STD incidence, data are available on pregnancy rates for every state in the country. State-specific pregnancy rates for 15 to 19-year-olds

ranged from 48.2 (North Dakota) to 127.8 (Delaware) per 1,000 adolescents in 1997 (Morbidity and Mortality Weekly Report, 2000).

Clarification of Terms

Discussions of adolescent sexuality and sexual health require the use of a number of terms that are often discussed in a variety of ways. To allow for easier comprehension, this section will address the meaning that is being ascribed to these terms for the purpose of the current study. *Sexuality education* refers to activities that occur in a formal instructional setting that provide young people with either skills or information that will help them to avoid potential negative consequences of sexual activity and/or promote sexual well-being. *Comprehensive sexuality education* is a specific type of sexuality education that teaches young people about abstinence and safer sexual activities as well as information and skills needed for healthy relationships and sexual well-being. *Sexual health* will be discussed both as the avoidance of these negative consequences (STDs, HIV and early pregnancy) and the presence of sexual well-being. *Sexual well-being* includes but is not limited to: healthy dating and relationships, acceptance of sexual desires, positive feelings about one's own body, the ability to make informed, safe decisions about which behaviors to engage in, and the development of sexual identities/orientation. *Sexuality* refers to sexual behaviors, feelings and identities that occur both individually and with others. The behaviors include but are not limited to sexual intercourse and may entail less obvious activities such as dressing in a particular way to feel sexy. *Sexual development* refers to the biological, psychological, and social

processes that occur as a child moves through adolescence and into adulthood as they relate to sexuality.

The Importance of the Current Study

Sexuality education course content can have a profound effect both on what young people learn about sexuality and how they choose to behave (Gruseit, Kippax, Aggleton, Baldo, & Slutkin, 1997). However course content is not determined in a vacuum. There are multiple interrelated systems at multiple levels that work together to influence what is taught to students about sexuality. Although developmental models call for studies that examine multiple levels of contextual influence as a means of understanding adolescent development, that approach has not been used to directly address sexuality education course content (Lerner, Freund, De Stefanis, & Habermas, 2001). In fact developmental researchers have been relatively uninvolved in empirical studies of sexuality education course content. This has led to a literature base that does not empirically recognize developmental differences in the sexual development of young people as an important factor that is related to sexuality education course content.

The current study will use a developmental-contextual approach to understand sexuality education course content. This approach argues that variables at multiple contextual levels, both proximal and distal often work together and influence each other (Bronfenbrenner, 1986; Lerner et al., 1996). In the current study, data collected from classroom teachers, state department of education officials and information regarding state policy will be used to identify factors that predict school-based sexuality education course content. The current study will investigate the interrelations between and among

levels of data, such as classroom, teacher and state contexts as a means of understanding school-based sexuality education.

The specific independent variables selected for inclusion in the current study were chosen due to the links found in the literature between these variables and sexuality education. Since developmental researchers have failed to systematically address issues around sexuality education course content, these factors were gleaned from literature in other fields of inquiry that specifically address sexuality education course content.

Teacher training and state policies have been linked to curriculum decisions by writers with a focus on education and public policy (Imber & van Geel, 2000; Rodriguez, Young, Renfro, Asencio, & Haffner, 1996). Developmental research indicates young people of different ages have the need for different information about sexuality (Ehrhardt, 1996; Havinghurst, 1972; Kirby, 2001). However, the public policy and education literature do not systematically address issues of human development in their discussions of curriculum decisions. Therefore the current study will seek to fill this gap in the literature.

The current study will include teacher training and state policy as independent variables that may predict sexuality education course content. Student grade and its interrelationship to teacher training and state policy will also provide valuable information about the factors that predict the sexuality education course content that is addressed in the classroom. What is unique about this research is that findings will be examined in light of developmental theory and research to determine if current practices are cognizant of these distinctions.

CHAPTER 2: LITERATURE REVIEW

The current study will address three general topic areas. First, it will examine school level as a predictor of the sexuality education topics taught at various school levels. Second, the current study will determine if there are significant within state differences in the policies that regulate school-based sexuality education by school level. Third, this study will examine how state and classroom level variables contribute to variance in the likelihood of a given topic being taught as part of school health education. This chapter will lay out the literature that provides the foundation for this research.

The review will begin with a brief discussion of adolescence in the context of human development. While not a comprehensive discourse on adolescent development this will provide some initial justification for later discussions of developmental differences that occur throughout childhood and adolescence. This section will be followed by a description of the theoretical approaches that influenced the current study and their relationships to one another. As the current study is based on the premise that developmental theory should be an considered by policy-makers and school personnel when making decisions that impact the well-being of young people, developmental stage theories will be discussed along with more recent developmental approaches that highlight the importance of context in developmental research. Some specific examples of developmental-contextual research using school as a context for development will also be discussed. Following this section an overview of adolescent sexual development will describe the major paradigms used in the study of adolescent sexuality and how this research is related to other research on adolescence.

The sexual development of young people is dependent upon many different influences. A brief review of the research on sources of information on sexuality will provide a look at some of these influences. Furthermore, this section will show the importance of school as a context for development, particularly focusing on sexual development and sexuality education. Research indicates that as young people age, their needs regarding sexuality education change. These differences will also be discussed in this section.

The remainder of the literature review will be focused on sexuality education both with the developed world more generally and in the United States. As the current study is employing a contextual approach to the study of sexuality education, it is useful to use studies from across the developed world to develop a sense of the how sexuality education and adolescent sexual health are interrelated and contextually based. Furthermore, policies and procedures that influence sexuality education course content both inside and outside the United States will be discussed as will the role of teachers in young people's education about sexuality. Finally the literature review will discuss sexuality education course content and its relationship to the informational needs of young people.

Throughout this literature there may appear to be some redundancy, however in bringing together literature that cut across a variety of disciplines and perspectives it becomes necessary at times to reexamine similar concepts from a variety of perspectives.

Adolescence in the Context of Development

Human development occurs through a complex constellation of processes, which involve biological, cognitive, social and emotional changes. For healthy development to occur, children and adolescents have developmental tasks that must be achieved and developmental needs that must be met (Havinghurst, 1972; Resnick, 2000).

Developmental tasks of middle childhood include: understanding of and ability to care for one's own body, school adjustment and achievement, establishment and maintenance of friendships, and the ability to follow rules of pro-social conduct while establishing a sense of independence and autonomy (Havinghurst, 1972; Holmbeck, 1996; Resnick, 2000). Developmental tasks of adolescence include academic achievement, school adjustment, the development of close friendships; autonomy; identity; values and intimacy (Brooks-Gunn & Graber, 1999; Erickson, 1968; Havinghurst, 1972).

In recent years developmental researchers have moved beyond the simple distinctions of childhood, adolescence and adulthood. Childhood can be further broken down into the infant and toddler years (0-2), early childhood (2-6) and middle childhood (7-11) (Berger & Thompson, 1996). The period of adolescence is also discussed as three distinct times in an individual's development: early adolescence (10-13), middle adolescence (15-17) and late adolescence (18-20) (Leffert & Peterson, 1996). The developmental literature discusses unique transitions and trends that occur during each one of these developmental periods. Knowledge of these norms is essential for understanding how a young person transitions from childhood to adulthood.

The concepts of childhood and adolescence and the subphases within each are social constructions that allow for more detailed description and better understanding of how development occurs (Berger & Thompson, 1996). The phases themselves, and more specifically the ages that are typically expected to mark the beginning and end of each subphase, are only generalizations, they are not absolutes. In fact much of the research on adolescent development has begun with the focus of understanding the transition period where childhood ends and adulthood begins. As more research has been conducted the paradigm has shifted away from studying a single transition to a series of transitional events that occur at varying times for different individuals (Graber & Brooks-Gunn, 1996).

The approximate ages that are generally associated with different developmental periods are not entirely arbitrary as they are based both on the behavior of the majority of adolescents and also, not coincidentally, are consistent with school structure. Early adolescence begins following the transition from elementary school to middle/junior high and middle adolescence begins when an adolescent transitions to high school. Late adolescence begins when the young person leaves high school either through graduation or dropout (Entwisle, 1990).

Along with school transitions each developmental period has unique experiences that tend to go with it. During middle childhood there is a greater emphasis placed on family relationships than on peer relationships (Furman & Buhrmeister, 1992), better cognitive skills develop and moral reasoning improves (Berger & Thompson, 1996). Early adolescence is the time when many of the biological, psychological and social

changes that differentiate a child from a teenager begin to occur (Lerner, 1993). The onset of puberty and the transition to middle/junior high school are two examples of these changes.

The middle adolescent years are those that are generally stereotyped as adolescent, when peers dominate young people's social worlds and their own "culture" of music and clothing becomes especially significant (Crockett & Peterson, 1993). Additionally during this period dating becomes a normative developmental experience (Davies & Windle, 2000). Late adolescence begins the transition into young adulthood. With the transition out of high school, many young people begin to take on more adult responsibilities such as work or career development (Entwisle, 1990).

Theoretical Framework

Developmental Perspectives

Studies of developmental change are often based upon developmental theories or frameworks. One such theory was proposed by Erikson and spans an individual's entire life, beginning with birth and ending in death. The theory includes eight developmental stages; within each stage there is a central crisis that must be resolved. Each stage is developmentally related to every other stage, as the resolution of one crisis is essential for understanding the resolution of subsequent crises (Erikson, 1982).

As the remainder of this chapter will focus on middle childhood and adolescence, only Erikson's stages that occur during these time periods will be discussed. The fourth stage of Erikson's theory occurs during the middle childhood period. During these years children struggle to resolve the conflict between industry and inferiority. Children strive

to feel like valued contributing members of society or of their families or classrooms. They crave success and tend to mimic the behaviors of others to feel that they can achieve success. During these years children try to achieve in school as a means of feeling competent (Erikson, 1959).

As this stage ends Erikson (1959) postulates that adolescents move into a period of identity versus identity diffusion. Throughout the life span individuals are influenced by the way they navigated all of their earlier stages. For example, young people who achieved a sense of industry during middle adolescence are those who were able to integrate the feelings of accomplishment into their identity, while young people who felt inferiority during middle childhood are likely to carry those feelings into adolescence. The development of identity is an important task of adolescence. This need to define oneself is partially created by changes that begin to occur within the individual themselves. Puberty may cause a young person to become preoccupied with how they are viewed by others, as their outward appearance undergoes drastic changes and they feel compelled to assess who they are in this light (Erikson, 1959)

Throughout adolescence, the quest to define oneself may take many forms. Many young people try to develop identity by working through their own thoughts and feelings within the context of a relationship either with same-sex or opposite sex peers. It is only after a coherent sense of self is formed that individuals can develop truly intimate relationships. This is the crisis that is presented to late adolescents and young adults. This stage is entitled intimacy versus isolation and goes beyond sexual intimacy, although that may be a part of it. More importantly it addresses the ability of an

individual to develop truly intimate relationships that have the ability to be sustained (Erikson, 1959).

Additionally the development of identity involves adolescents developing their own autonomous values. These values may or may not be consistent with the values of their parents and may change over time as a young person tries on various belief systems, trying to find one they are comfortable with (Erikson, 1982). According to Erikson (1979), this process of experimenting with values and avoiding over-identification with parents is not only normal but healthy. Other developmental researchers have adopted this argument and empirical findings have supported the importance of some “risky” behavior as normative and valuable in the development of an autonomous sense of self (Dworkin, 2002; Lerner et al, 2001; Maggs & Hurrelmann, 1998).

Erikson’s psychosocial theory of development highlights the resolution of each crisis or stage through the interaction between the individual and the support they receive from the social environment. This theory encourages researchers and practitioners to recognize the differences between young people at various points in their development and make accommodations for their developmental level in their social worlds.

Life-span developmental psychology is another approach to understanding developmental change. However, unlike Erikson’s psychosocial theory, life-span developmental psychology is a perspective that incorporates a number of central tenets into its view of the world and the way development occurs in that world, without proposing a specific theory. Life-span developmental psychology teaches that development is a life-long process that includes gains and losses throughout the life-

course. While child development often focuses on these gains and gerontology often focuses on these losses, both gains and losses are occurring at all stages of development (Baltes, 1987). For example, during adolescence, young people are developing more advanced cognitive and interpersonal skills. As a result peer relationships become closer, however other relationships, such as those with parents and grandparents, may become less close (Furman & Buhrmeister).

Life span developmental psychologists believe there is a plasticity to development. This means that individuals have the potential to behave or develop in any number of different ways, but that the conditions in which they live will influence development within the limits that exist for that individual. Life-span research pays particular attention to context attending both to the historical context and the environmental influences that play a part in the development of an individual (Baltes, 1987; Smith & Baltes, 1999).

Lerner and his colleagues (1996, 2001) theorize that developmental regulation or the ability of an individual to adapt to changing contexts is a key determinant of successful development, especially for adolescents. Therefore, understanding the interaction between the individual and the context in which he/she lives is an important goal for developmental science. Bronfenbrenner's (1986) ecological approach goes beyond acknowledgement of context and proposes a specific framework for understanding the role of context in development. This framework calls for examination of four distinct organizational constructs. First, the *microsystem* consists of the immediate contexts that impact the developing person directly, for example family, peers

and school. The second context is the *mesosystem* that includes the linkages between one or more *microsystems*, for example the relationship between an adolescent's boyfriend or girlfriend and his/her parents. The third context is the *exosystem*. It consists of the interrelationship of two or more contexts, one of which does not directly involve the developing person. Examples of the exosystem would be a teacher's own sexual relationships. While the child is not directly involved, the child may be indirectly affected through the values and attitudes that the teacher develops and passes on as a result. The fourth and final context is the *macrosystem*. The macrosystem is a means of examining the influence of the larger society. The rules, opportunities and norms that exist in the society in which the child lives have both direct and indirect effects on how the individual develops, yet are often ignored by research. The laws regarding adolescent sexuality, such as abortion laws and rules regarding obtaining contraception are two examples of how the macrosystem may impact young people's development.

What makes this framework particularly important and somewhat unique are two under-studied elements of development. First, it is not only the proximal contexts that influence developmental outcomes, but also more distal contexts. Drawing on Bronfenbrenner's work, Rutter and his colleagues (1995) noted that numerous diverse distal contexts, including geography and income may influence individual development. For example living in a community that has limited public transportation could limit an individual's ability to access health care and would likely lead to poor sexual health for that individual. Second it is not any one individual influence that promotes

understanding of developmental outcomes, but rather the linkages between and among the various contexts (Wachs, 2000).

Very few studies have adequately captured these points of Bronfenbrenner's (1986) ecological model. While it is impossible for a single study to incorporate all of the contexts that shape an individual's life, researchers need to be aware of both the proximal and distal contexts that influence development and the interactions of those contexts.

An ecological approach is consistent with the recent call for a new field of inquiry called developmental science. Coming out of the Carolina Consortium of Human Development, developmental science is intended to be a multi-disciplinary holistic approach to the study of behavioral and psychological phenomena (Cairns, 2000). Drawing from general systems theory, a developmental systems approach falls within the confines of developmental science.

The developmental systems approach views the mental, biological, behavioral, and social factors that relate to individual development as working together as a system (Magnussun, 2000). Magnussun (2000) writes, "the holistic principle holds for all systems of interest in research on human ontogeny, regardless of the level at which the system is operating; they are 'undivided' in structure and function. This proposition holds...for the environment and its subsystems, such as the peer system among youngsters or the family system." This model highlights the bi-directionality of the interaction between the person and the environment as a part of a single system operating as one (Magnussun, 2000).

The emphasis on understanding the role that context plays throughout an individual's development is an especially useful framework for conducting applied research. Bronfenbrenner has been an advocate of conducting research where the findings have implications for intervention (Moen, 1995). He has stated that policy is a starting point for researchers, who can then look at interactions between the individual and the policy as a means of understanding human behavior (Bronfenbrenner, 1974). Therefore applied contextual research can provide guidance for practitioners and policymakers looking to promote better health of young people by changing their environments.

A developmental contextual approach reinforces the need for health promotion interventions that acknowledge the developmental level of the young people being targeted. Sexual development, like all development, occurs through the interaction between the individual and multiple overlapping levels of contextual influence (Bronfenbrenner, 1986; Wachs, 2000). Contextual influences play a large role in the development of healthy, productive, well-adjusted young people. Factors such as family, school and peers have been shown to influence the development of sexuality, despite the narrow conceptualization of sexuality as only encompassing behaviors relating to intercourse (Kirby, 2001).

School as a Context for Development

Swartz and Martin (1997) focus specifically on ways that a contextual approach can be used to understand the development of young people within their schools and communities. They note that students exist within multiple systems, which make up the environment. These systems may or may not meet the needs of the individual. They

argue that it is the goal of applied contextual research is to begin to recognize the conflict between the individual and the environment and work to create systems within the environment that are more consistent with the needs of the individual.

This is consistent with the Eccles et al.'s (1993) stage-environment fit model. According to Eccles and her colleagues, when there is a developmental mismatch between an individual and the environment, it is likely that negative motivational consequences will occur for the individual. Eccles et al. (1993) found that the traditional junior high experience was incompatible with the needs of the young people within the system and a more developmentally appropriate system (middle school) was needed.

Wachs (2000) points out that the administrative leadership of a school can contribute to individual developmental outcomes, while Conoley and Rotto (2000) discuss the importance of being cognizant of the "hidden curriculum." They refer to the hidden curriculum as "values and behaviors taught implicitly by the social systems of the school." Ecological theory would support the contention that both the explicit goals of the administration and the so-called hidden curriculum would likely be influenced by the policies that guide them. Therefore it is important that ecological studies within the school context consider the federal, state and local levels of the system.

Orton (1994) conducted an in-depth analysis of the sexual health of adolescents in Ontario, Canada. By tracking indicators of sexual health and simultaneously conducting assessments of institutional policies and practices. She noted that institutional hierarchies strongly influence the sexual health of young people through their control of both

program access and content. She noted that federal, provincial and local policies and programs were influential in determining the sexual health of adolescents.

A developmental contextual approach allows researchers to consider the normative developmental changes that occur throughout adolescence as well as the context in which those changes occur. Therefore, from this perspective it is important for research to examine the environments that impact young people's development to determine if they support the normative developmental changes that occur. Due to the vast number of changes that occur during middle childhood and adolescence regarding sexuality, research that takes a developmental approach to examine the environment where young people develop knowledge, attitudes and beliefs about sexuality is necessary.

Adolescent Sexual Development

There are several schools of thought regarding the sexual health of adolescents. One school of thought argues that adolescent sexual health is characterized by a young person's ability to feel confident in making decisions about what, if any, sexual behaviors to engage in and their ability to carry out those decisions in a manner that minimizes risks and allows for pleasurable experiences based upon mutual respect. These abilities may or may not be related to the specific behaviors that young people choose to engage in (SIECUS, 1996). This belief system is consistent with Erikson's (1982) assertions regarding the development of values, autonomy and intimate relationships.

While this perspective has gained support among many who work in the area of adolescent sexual health (Ehrhardt, 1996; SIECUS, 1996) the prevailing belief in our

society is that any engagement in sexual behavior is necessarily problematic (Graber, Britto & Brooks-Gunn, 1999). These divergent viewpoints are evident in the developmental literature that deal with adolescent sexual development. The current literature fall mostly into two general categories. First, there is literature that examines adolescent sexuality as a risk factor to be avoided, with the rationale that the study of adolescent sexuality must occur so that we can help adolescents to avoid sexual risks (Resnick et al., 1997; Small & Luster, 1994). Second, some developmental scholars have begun theorizing about the development of healthy adolescent sexuality (Brooks-Gunn & Graber, 1999; Chilman 1990; Erhardt, 1996). These researchers have conceptualized the development of healthy sexuality as a primary developmental task of adolescence. Each type of literature brings something unique to the understanding of adolescent sexual development.

Risk-Avoidance Approach to Adolescent Sexuality

Adolescent sexual behavior can result in potentially serious negative consequences for young people, their families and their communities. The physical and/or public health consequences that are most often addressed are unintended pregnancy, HIV/AIDS and STDs. To address these potential problems, many researchers have begun to study the risk and protective factors that predict adolescent engagement in sexual intercourse or unprotected sexual intercourse. Thus a construct as broad as sexuality is being defined as synonymous with an individual activity.

None of this is to say that there have not been valuable findings that have emerged from some of these studies of sexual intercourse. Researchers have clearly

established a set of antecedents (both risk and protective factors) to adolescent sexual intercourse, contraceptive use, pregnancy, and childbearing. These studies have highlighted the importance of context in adolescent sexual behaviors, as the vast majority of the research has examined risk and protective factors that lie outside of the individual, but within their environment. A recent extensive review of over 250 research studies found well over 100 risk and protective factors that stretched across contexts from community to peer and family relationships (Kirby, 2001).

Researchers and government agencies associated with the National Longitudinal Study of Adolescent Health (Ad Health) have released findings on adolescent sexual intercourse primarily (although not exclusively) using a risk avoidance approach that equates healthy sexuality with the absence of sexual intercourse. The 2000 monograph entitled Protecting Teens (Blum, Beuhring & Rinehart, 2000), indicates that motivation to avoid sexual intercourse is the single greatest predictor of actually doing so. The researchers operationalized motivation as: the perceived personal and social costs and benefits to sex, the perceived costs of pregnancy, the perceived (not actual) knowledge of contraception, and having made a public or written virginity pledge. Understanding this approach to adolescent sexual development is important, as it is ideologically consistent with the public policy around adolescent sexuality. The motivational factors examined within Protecting Teens support current federal policies that fund abstinence-only education.

Much attention has also been paid to the recent Add Health finding that the so-called virginity pledge can be an effective method of delaying the onset of sexual

intercourse for some young people, but only in certain circumstances (Bearman & Bruckner, 2001). Pledging is most likely to be correlated with the delay of sexual intercourse for younger adolescents, and for adolescents in schools where some but not too many of the students of the same sex have taken a pledge. However, this study also indicates that those young people who take the pledge but fail to keep it are significantly less likely to use contraception when they do engage in sexual intercourse (Bearman & Bruckner, 2001).

Healthy Adolescent Sexuality

The emphasis on risk and protective factors for adolescent sexual intercourse contradicts the literature around the development of healthy adolescent sexuality. This latter literature assumes that sexuality encompasses feelings, beliefs and behaviors that are much broader than sexual intercourse and does not conceptualize sexual health as the absence of sexual intercourse but rather as the presence of a constellation of other factors such as healthy dating and relationships, acceptance of sexual desires, positive feelings about one's own body, the ability to make informed, safe decisions about which behaviors to engage in, and the development of sexual identities/orientation (Brooks-Gunn & Paikoff, 1997; Chilman, 1990).

The literature in this area is primarily comprised of theoretical/concept pieces that have been written by developmental researchers in an effort to move the field toward an understanding of healthy adolescent sexuality (Brooks-Gunn & Paikoff, 1997; Chilman, 1983; Graber & Brooks-Gunn, 1999). However, over a decade ago this discussion was catapulted to a new level through Fine's (1988) qualitative work with young women in

New York City schools. Fine (1988) examined of sex education curricula, school policies, and interviews with young women to determine how these factors played into young women's conception of sexuality. Her findings indicated that schools were encouraging young women to feel victimized. Fine (1988) argued that the young women were not given the opportunity to understand their changing sexuality or to become empowered to deal with sexual decisions. Rather the students felt they were encouraged to be passive and accepting of victimization.

The victimization described above is in direct opposition to the conceptualizations of healthy sexuality that have emerged since that time. Fine (1988) indicated that a sense of social and sexual entitlement was essential for young women to develop into healthy young adults. Still other researchers have described sexuality as an integral part of adolescent experience and developing a cohesive sexual identity is a developmental task of adolescence (Brooks-Gunn & Paikoff, 1997; Graber & Brooks-Gunn, 1999). A number of factors have been proposed to be a part of healthy adolescent sexuality including: respect for one's self and others, comfort with one's own body, the ability to communicate honestly and openly, acceptance of sexual desire as natural, and engagement in activities that are developmentally appropriate, safe and consistent with one's own values (Chilman, 1990; Brooks-Gunn & Paikoff, 1997). Chilman (1990) argued that when adolescent sexual behavior is examined it should be examined contextually, with attempts made to capture the biological, cultural and social environments that are so essential for all adolescent development. Chilman (1990) notes that sexuality does not occur in a vacuum but is an integral part of an individual's total

life. She further notes that sexuality is expressed differently at different developmental periods.

This holistic, developmentally and contextually based understanding of adolescent sexuality is consistent with much of the current work being done within developmental science, which focuses on continuity and strong individual-context linkages (Cairns, 2000). For example, families and schools are essential in the development of beliefs about sexuality (Kirby, 2001). Peers both influence beliefs about sexuality and are the primary partners in sexual behavior, making the understanding of peer relationships as they relate to sexual behavior especially important (Miller & Benson, 1999).

Embedded within both the risk-avoidance literature and the healthy sexual development literature are two important themes. The first deals with the integration of sexual development with other domains of general human development, such as biological, cognitive and social development (Peterson, Leffert & Graham, 1995). The second theme highlights the importance of developmental differences and age-related trends in sexuality. These two themes will be discussed in the next sections.

Sexuality Within Human Development

The linkages among family, school, peers and sexuality are examples of the way sexuality is discussed within a biopsychosocial framework. Research has examined the biological, psychological and social aspects of human development and have developed a view of adolescent sexual development that acknowledges the changes in these areas of development.

The most important biological change that impacts sexual development is puberty. Puberty brings physical changes that lead to the development of secondary sex characteristics, an increased interest in sex and allow for reproduction (Peterson, Leffert & Graham, 1995). Many view the physical changes of puberty as both an indicator of the beginning of adolescence and a factor that influences a number of other changes that occur during this time of enormous transition (Graber, Petersen & Brooks-Gunn, 1996; Richards, Abell & Petersen, 1993). The physical changes of puberty may lead to any number of other transitions in an adolescent's life (Brooks-Gunn & Paikoff, 1997). For example with the onset of puberty young people are more likely to have more opportunities to engage in sexual and romantic behaviors due to increased interest from their peers, and in many cases older peers. Additionally parent-child relationships will develop new strains as parents struggle to accept their child's sexuality and increased desire for independence amidst fears of the negative consequences so often associated with sexuality (Holmbeck, 1996).

As with other developmental indicators, adolescents develop at different times and follow different patterns of development, however, in general, pubertal development tends to begin for girls around age 10.5 and peaks around age 12.5. For boys this process begins about a year or two later and peaks at age 14 (Graber et al., 1996). Most studies of puberty either examine pubertal status or pubertal timing. Pubertal status refers to whether or not a young person has reached a particular marker of puberty while pubertal timing refers to how a young person's pubertal development compares to others of their same age (Graber et al., 1996).

Pubertal timing in particular has been linked to variations in psychosocial adjustment, especially in girls. Research has found that early maturing girls had more difficult psychosocial adjustment and more negative body image than on time and late maturing girls (Simmons & Blyth, 1987; Stata & Magnusson, 1990). However, research has found that in general all young people regardless of gender and pubertal timing experience some anxiety about puberty (Graber & Brooks-Gunn, 1999). A study of middle school adolescents found that early adolescents had a number of questions about puberty specifically focused on biological areas. Teaching young people about what to expect during this time is one way to decrease the anxiety experienced by many young people (Ryan, Millstein & Irwin, 1996).

The biological changes of puberty are not sufficient to explain sexual development entirely, nor the changing need for information around sexuality of adolescents. Studies of pubertal timing supported Bronfenbrenner's work in their findings that pubertal timing interacts with environmental characteristics to affect young people's development, resulting in the need for an environment that adapts to the changes occurring within the individual (Simmons & Blyth, 1987; Stata & Magnusson, 1990).

Physical changes combined with social influence precipitate psychological changes as young people adapt to their changing bodies. The resulting psychological changes in self-esteem and body image are an integral part of sexual development (Graber & Brooks-Gunn, 1999; Peterson, Leffert & Graham, 1995).

As noted earlier, in Erikson's (1968) theory of psychosocial development, identity development is the primary developmental task of adolescence. Identity

development is a psychological process that has significant implications for adolescent sexual behavior. An adolescent's sense of self has implications for his/her sexual behavior. Research has also found that adolescents with higher self-esteem were significantly more likely to have engaged in sexual intercourse and to have used contraception than were adolescents with lower self-esteem (Holmbeck, Crossman, Wandrei & Gasiewski, 1994).

The process of developing a sense of one's self begins during childhood with the early understanding of gender, but becomes more salient as more complex constructs are integrated into a coherent sense of sexual self. According to Brooks-Gunn and Graber (1999), despite limited understanding of the development of sexual orientation, the sexual identity was originally conceptualized as only consisting of sexual orientation. Researchers have recently begun to examine the development of sexual orientation as a normative part of development and more information has become available in recent years (Diamond, 1998).

Additionally, adolescent sexuality researchers have begun to conceptualize sexual identity more broadly. Breakwell and Millward (1997) argue that sexual identity should include people's understanding of their sexuality, how they derive these understandings and the influence of this understanding on behavior.

Social development also influences the development of sexuality in young people. both through the influence of social relationships on the development of values and the change in their social relationships. Values are developed as a result of reciprocal influence between an individual, environment and behavior. The social process of

modeling allows young people to develop values about the type of people they wish to become and the type of behaviors in which they wish to engage in (Bandura, 1989). Therefore, it is likely that changes in relationships would certainly impact the way in which values develop.

Values and attitudes are good predictors of sexual behavior (Chernoff & Davison, 1999; Kirby, 2001) and therefore the changing social relationships that influence these values should be acknowledged as important. As adolescents age, romantic relationships begin to take a more prominent role in their lives. Adolescents generally begin to develop romantic relationships regardless of their physical development, to meet both sexual and non-sexual needs. These reasons include social desirability and validation, means of achieving intimacy, and desire for sexual fulfillment (Miller & Benson, 1999). By late adolescence, young people name romantic partners as their primary supportive relationship, ahead of parents, grandparents, same-sex friends and teachers (Furman & Buhrmeister, 1992). These romantic partnerships are extremely important in the sexual development of young people. The most obvious reason is that they are likely to be partners in any sexual activity that may occur. Research from the Add Health study shows involvement in a romantic relationship in the prior 18 months is the strongest predictor of engagement in sexual intercourse regardless of gender and ethnicity (Blum et al., 2000).

Age-Related Trends in Sexual Development

Age is another important predictor of adolescent sexual behavior. Numerous studies have found that as adolescents age they tend to engage in more sexual behaviors,

with younger teens engaging in behaviors like kissing and holding hands and gradually progressing toward sexual activities that lead to orgasm (Alan Guttmacher, 1998; CDC, 2001; Koch, 1993). While each individual will engage in sexual behaviors at different times in their life cycle, developmental researchers have noted that adolescent sexual behaviors often follow predictable patterns.

While researchers have been studying sexual behavior for many years, they have just begun to examine age related trends in dating behavior. It is not surprising that this research also finds that there are predictable trends in dating relationships, with adolescents generally beginning to be concerned with romantic relationships during middle school, however most adolescents actually begin dating between the ages of 14 and 16 (Brown, 1999). Once dating commences it typically will move from casual dating of either one or multiple partners to more serious dating of only one partner. These more serious relationships tend to be characterized by greater emotional closeness, and sexual activity (Brown, 1999; Davies & Windle, 2000; Miller & Benson, 1999). The co-existence of more serious dating relationships and sexual activity indicate that during the middle adolescent years there may be increased need for education that deals specifically with romantic relationships and sexual behavior.

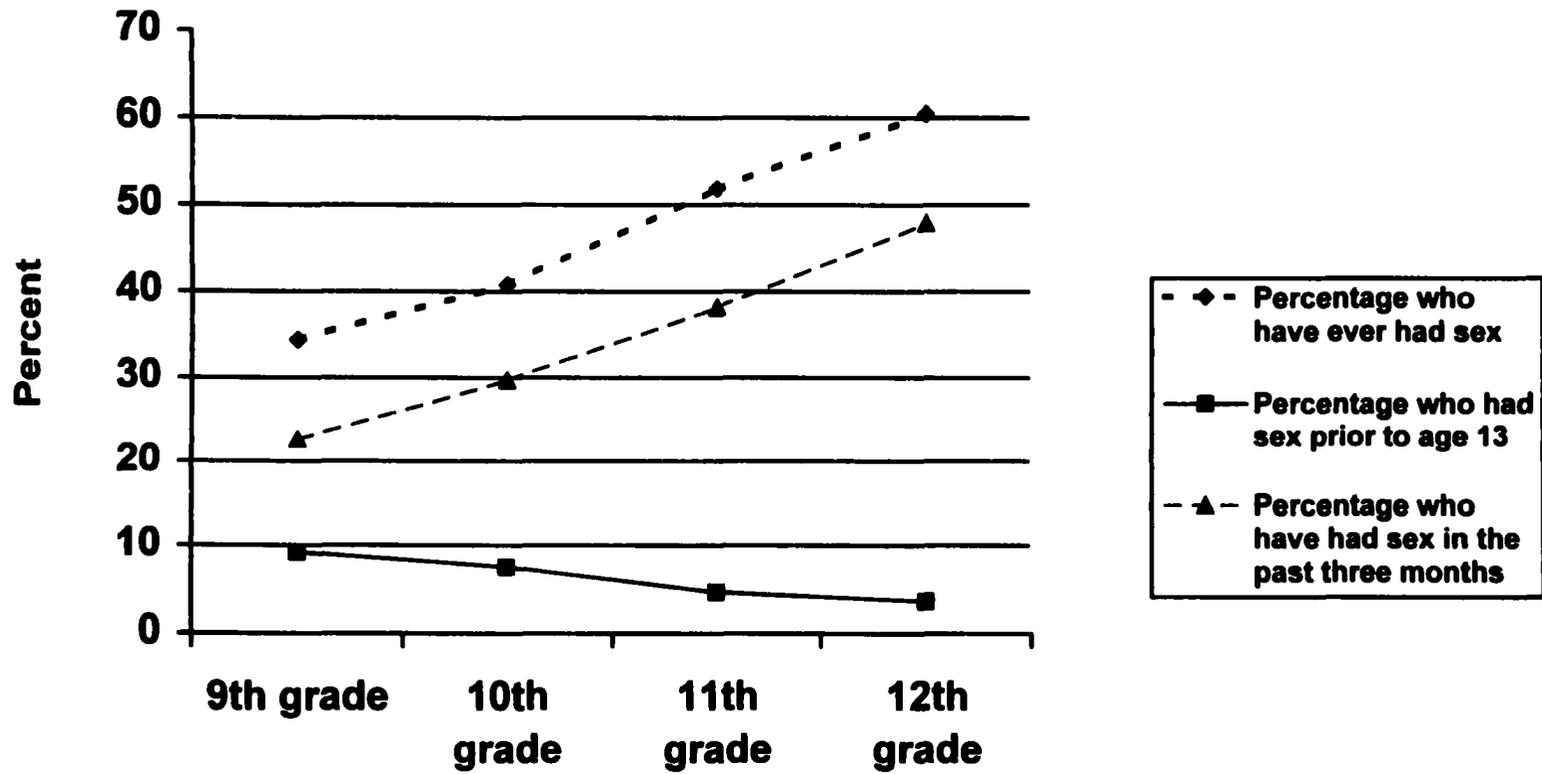
While dating research is still in its infancy, research that specifically examines sexual behavior has been going on for many years. It has generally shown specific patterns of sexual behavior, mainly that adolescents typically begin by hand-holding and kissing and then progress to light and heavy petting followed by sexual intercourse and/or oral sex (Koch, 1993; Miller & Benson, 1999). In recent years the percentage of young

people who have engaged in sexual intercourse has been decreasing from 54.1 percent in 1991 to 45.6 percent in 2001 (CDC, 2001). A recent Alan Guttmacher report, Remez notes that anecdotal evidence indicates the prevalence of oral sex is increasing among teens. The media, sexuality educators and physicians all report that for young people who have grown up receiving AIDS education, oral sex is often viewed as a safe alternative to sexual intercourse and is therefore occurring more frequently and among younger youth (Remez, 2000). Unfortunately very little research has focused on non-intercourse behaviors, and it is therefore impossible to confirm this trend.

We do know that by the age of 15, 97% of teens have experienced their first kiss (Koch, 1993) and that approximately 75% of them have not experienced sexual intercourse, although 80% will before they reach age 20 (Alan Guttmacher, 1998). Research also indicates that the younger a girl is when she first engages in sexual intercourse the less likely it is to have been consensual; this is especially true if her partner is significantly older than she (Alan Guttmacher, 1998). Findings consistently indicate that age is the most important predictor of virginity status, with a greater percentage of adolescents having engaged in intercourse at each age (Newcomer & Baldwin, 1992; Upchurch, 1998).

One of the best national indicators of adolescent intercourse behaviors is the Youth Risk Behavior Survey (YRBS). The YRBS is a national survey conducted by the CDC to obtain information regarding young people's engagement in behaviors that may place them at risk. In 2001, 42 states, 16 large cities and 4 territories participated in this study, with an average of 2,200 students. The figures below are based upon data from the

Figure 1. Sexual intercourse by grade

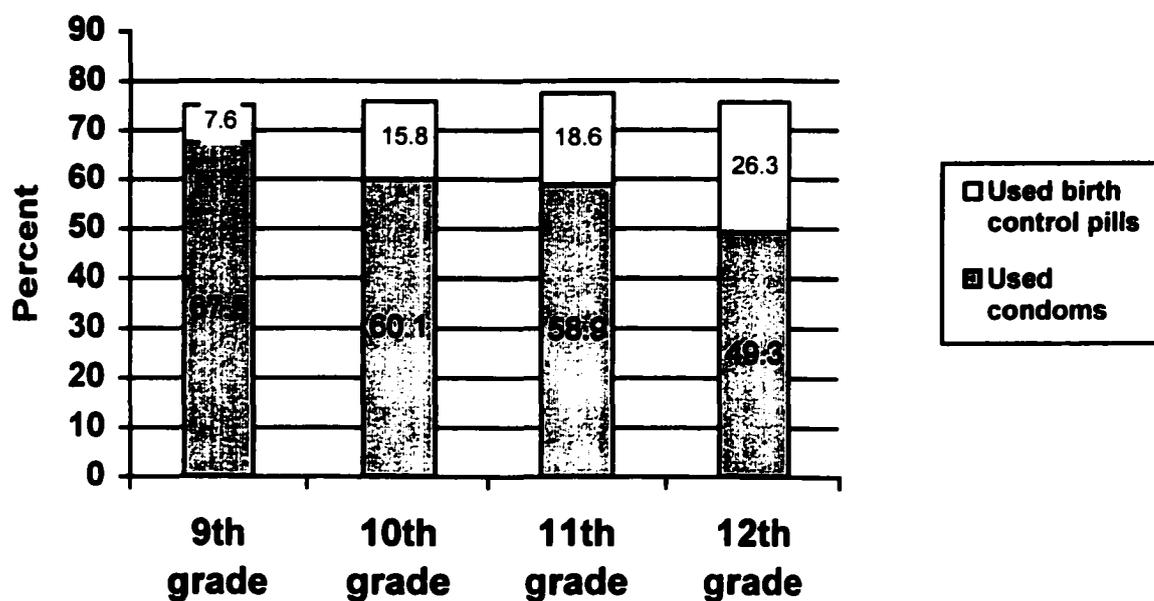


2001 YRBS. Results of this study support previous research. Figure 1 shows the percentage of adolescents in each grade who have ever engaged in sexual intercourse, engaged in sexual intercourse in the past 3 months and had engaged in intercourse prior to age 13. From this graph you can see that while the majority of adolescents have engaged in sexual intercourse by grade 12, many fewer have engaged in sexual intercourse in the last 3 months. Additionally the bottom line shows that a very small percentage of young people engage in sexual intercourse prior to age 13 (CDC, 2001). This illustrates that sex is not a common occurrence in the lives of teens.

Contraceptive use has also been shown to be related to age. Data analyses of two nationally representative studies showed that older adolescents are more likely to use contraception when they engage in sexual intercourse than are younger adolescents (CDC, 2001; Newcomer & Baldwin, 1992). Furthermore there are age differences in the method of contraception employed. Condoms and birth control pills are the most common methods of contraception for adolescents and young adults, while sterilization is the most common method of contraception for older Americans. (Abma, Chandra, Mosher, Peterson & Piccinino, 1997).

Yet even within the adolescent years there is some variation in contraceptive use. Condom use appears to decline as adolescents age, while the use of hormonal methods such as birth control pills increases as they get older. This is consistent with the findings on the relationship of condom use to length of relationship which show that individuals often use condoms early in a relationship and later switch to a hormonal method of contraception (Agnew, 1998; Newcomer & Baldwin, 1992).

Figure 2. Birth control use at last intercourse by grade



The YRBS findings are consistent with many of these findings, as can be seen in Figure 2. Figure 2 shows that while between 70% and 80% of all adolescents who engaged in sexual intercourse used either condoms or birth control pills at last intercourse, the percentage of adolescents who use condoms decreases as adolescents age and the percentage who use birth control pills increases. Like engagement in sexual intercourse and contraceptive use, the development of sexual orientation also follows a particular developmental pattern, although there has been much less research on this topic. Most models of sexual orientation theorize that development of sexual orientation among gay, lesbian and bisexual youth follows a predictable pattern, however there is some discrepancy about the timing of each of these stages and the relationship of gender to timing (Savin-Williams & Diamond, 2000).

The four events that sexual minority adolescents experience are awareness of same-sex attraction, same-sex sexual activity, self-labeling as non-heterosexual, and disclosure of sexual orientation to others. Studies are generally in agreement that for most young people, awareness of their same-sex attraction occurs during late childhood and early adolescence (9-11). Most studies show that between the ages of 13 and 16, sexual minority adolescents will have their first experience with same-sex activity and first label him/herself as gay, lesbian or bisexual. Consistent with studies of heterosexual activity, some studies show that sexual activity occurs later for females than for males. It is only after these three events occur that most sexual minority young people disclose their sexual orientation (Herdt & Boxer, 1993; Savin-Williams & Diamond, 2000).

What is less clear is whether adolescents' first experiences with same-sex sexual activity occur before or after they first label themselves as homosexual. In their study of 164 sexual minority men and women between the ages of 17 and 25, Savin-Williams and Diamond (2000) found that males were more likely to engage in same-sex sexual activity prior to labeling themselves as gay or bisexual while the reverse pattern held true for women.

Research on the experiences of over 600 adolescents who indicated, as part of the Add Health study, at least one incident of same-sex attraction, found that many sexual minority youth experience negative school outcomes including poor grades, negative school attitudes and other school troubles including not getting homework done and paying attention. Negative relationships with teachers have been found to be a significant predictor of these negative school outcomes for both males and females (Russell, Seif & Truong, 2001). These findings indicate a strong need for recognition of issues that may face sexual minority young people at various times in their development.

Age related trends in sexual development highlight the differences in needs that adolescents at different developmental levels will have. In other words, since elementary school children have different experiences with sexuality than adolescents, it would be necessary to provide children with different resources than adolescents. These differences may or may not currently be acknowledged within the systems that influence resources available to young people around issues of sexuality. Looking contextually to understand how young people learn about sexuality is important for both research and

practice, as the information gleaned can be used to make the process of learning about sexuality easier for our young people.

Sources of Information about Sexuality

There are a number of sources that may inform young people's knowledge of sexuality. A 1991 literature review examined studies that tracked the sources of information about sexuality since 1943 (Andre, Dietsch & Cheng, 1991). This review found that mothers, peers, the media and schools were all rated as the primary source of sex education for some youth. Looking at the sources that were most frequently noted over the past 60 years, it appears that schools and teachers have been noted more frequently since the 1980s. Despite this increase, schools are still ranked as the primary source of sex education less frequently than other sources such as parents and peers (Andre et al., 1991).

In response to the results of this literature review a follow-up study of 232 college freshman examined this issue more specifically and found that while adolescents do not frequently identify school as the primary context for learning about sexuality in general, they did identify it as a major source of information about specific sexuality topic areas. The key areas where schools are noted as a primary source of information are reproduction and anatomy and the prevention of sexually transmitted diseases. Andre and his colleagues (1991) wrote "overall schools are not rated as an important source of sex education, but are rated as important in the areas that school curricula traditionally emphasize," mainly contraception, STDs and reproduction and anatomy. They went on to hypothesize that if schools were to expand the topic areas that they cover within

sexuality education, they may have greater impact on the sexual development of young people. Since 1991, a greater emphasis has been placed on sexuality education in schools with much more federal funding and the vast majority of schools (95%) offering sexuality education of some kind (Kaiser Family Foundation, 2000).

Results of a 2002 Kaiser Family Foundation survey of 1,552 randomly sampled 15-24 year olds found that friends, the media, sex education classes and parents were all sources of information about sexual health issues. Students were asked where they got their information on sexual health, and the most common response, by 76% of young people surveyed was from friends. Forty-six percent of students indicated that they get “a lot” of information from friends. Sixty-eight percent of young people indicated that they received information on sexual health from sex education class and 45% indicated that they received “a lot” of information from this source (Kaiser Family Foundation, 2002).

The proliferation of sexuality education does not denote greater quality in that education. Steele’s (1999) qualitative study of 51 middle and high school students utilized focus groups and journals. The participants were recruited through three schools and three community based organizations in one southeastern city. Analysis of these data indicated that these adolescents felt sex education in schools was overly redundant, with an unnecessary emphasis on disease and a total disregard for the information adolescents are really interested in, primarily how to develop and sustain relationships.

This is not to say that all adolescents have sufficient knowledge of all of the biological aspects of sexuality. In fact, a study of 698 high school and college students between the ages of 17 and 20, found that a substantial number of students had inaccurate

knowledge in regard to HIV transmission, proper condom use, and contraceptive use. Even more disturbing, results of a canonical correlation showed no significant relationship between actual knowledge about sexuality and perceived need for additional knowledge (Buysse, 1996).

Crosby & Yarber (2001) found that over a third of adolescents in grades 7-12 had misconceptions regarding condom use. Additionally many of the adolescents who indicated they felt confident in their knowledge of condom use also endorsed the misconceptions. Kaiser Family Foundation (2002) found that many young people were lacking in their knowledge and understanding of HIV and STD transmission, and consequences. For example, 60% of young people surveyed were not aware that some STDs can cause some kinds of cancer and 51% of respondents were not aware that one in four sexually active people under age 25 will contact an STD this year.

The lack of relationship between actual knowledge and perceived need for additional knowledge indicates that adolescents should not be expected to seek out information on sexuality on their own, as in many cases they are unaware of the information that they most need.

School as a Context for Development

Educational Policy

Within the context of school, young people learn to deal with peer interaction and friendship, develop an ability to interact with adults, and respect and appreciate authority. Not incidentally young people also develop the academic skills and competencies that are directly taught within the classroom. Much of what is learned in school is influenced by

contextual factors such as school policy. Policies play a role in how schools carry out their daily business.

Educational policy is determined through a combination of federal, state and local regulations (Imber & van Geel, 2000). Federal law begins with the U.S. Constitution which makes no mention whatsoever of education. However, since the Tenth Amendment to the Constitution gives all powers not specifically delegated to the federal government to the states, each state has the right to develop its own educational policy. This does not allow the states total freedom, as it is still necessary for state education law to be consistent with all of the rights given in the Constitution. Additionally the federal government can still control much of what occurs in schools through the allocation of federal funds and laws that regulate interstate commerce (Imber & van Geel, 2000). When federal funding is used for local education, the federal government will then have the ability to control the way in which that money is spent (U.S. Department of Education, n.d.).

The Constitution deferred control of public education to the states, and each state now requires that free public education be available to all children. State statutes vary, but most determine who will attend or not attend school, what will be taught, and by whom, what are the minimum standards for graduation and create local school boards and districts along with guidelines surrounding their authority. State statutes are also responsible for the creation of bureaus and public agencies that regulate education in that state. These state agencies are responsible for the development of regulations which fill

in details of how the goals expressed in the statutes are to be carried out (Imber & van Geel, 2000).

The majority of public education funding in many areas comes from local taxes. In these localities much of the control over educational policy belongs with those localities as well (Bullough, Burbank, Gess-Newsome, Kauchak & Kennedy, 1998). Local school boards are established and given certain delineated powers by their state legislatures. School boards may then develop their own rules and regulations so long as they conform to both the federal and state policies that are established (Imber & van Geel, 2000). The multiple, interconnected political structures that impact the way schools are run may seem confusing and lacking leadership, however this process allows the rules that guide our country to guide our schools while allowing progressively more detailed decisions be made the states, districts and eventually the teachers (Bullough et al., 1998).

The political structures that monitor teacher training are similarly complex. Teacher certification requirements are regulated by the states and these requirements do vary considerably. However, national associations also conduct certifications using their own requirements (Bullough et al., 1998). Additionally the individual colleges and universities who conduct the majority of teacher training programs all have their own requirements for their students to graduate and become teachers (Rodriguez et al., 1996).

Sexuality Education in Schools

The role of politics in education becomes especially apparent when dealing with issues that are highly politically charged. Developmental research often intersects with both education and politics, and as noted earlier, schools are an important context for the

development of young people. What goes on in schools is often studied by developmental researchers as a means of both understanding development and advocating for developmental sensitivity in the educational process (Eccles, et al., 1993; Swartz & Martin, 1997).

Sexuality education is one issue where such an intersection could reasonably be expected to occur. Sexuality education, in one form or another, is taught in most schools impacting on young peoples' understanding of their own sexuality and altering the context in which they develop (Kaiser Family Foundation, 2000, Kirby, 2001). Additionally, there is currently a great deal of political dialogue around the issue of sexuality education (Alan Guttmacher Institute, 2001; Daillard, 2001).

The predictors of sexual behavior relating to school that are most often addressed through developmental research are constructs such as attachment to school and grades (Ohannessian & Crockett, 1993; Resnick, et al, 1997). This is despite the fact that evaluation research has found that knowledge, attitudes and behaviors around sexuality are correlated with participation in sexuality education (Kirby, 2001; Marsiglio & Mott, 1986).

Sexuality education is conducted in many schools throughout the Western world. However, this education can exist in many forms with many different goals. In the majority of circumstances the goal of school-based sexuality education is to reduce the number of adolescent unintended pregnancies and/or the number of sexually transmitted infections especially HIV/AIDS (Rotheram-Borus, Mahler & Rosario, 1995; Visser & van Bilsen, 1994). Additionally there are "Abstinence-only" programs where the goal is

to delay the onset of sexual intercourse. Understanding these programs is complex because the objective of some of these programs is to delay the onset of sexual intercourse until later, while for others it is delay until marriage (White & White, 1991).

Visser and van Bilsen (1994) conducted a literature review of studies that examined sexuality education and knowledge, attitudes and behaviors around contraception in Western countries from 1984-1993. They specifically noted that the studies they reviewed consistently found an increase in knowledge about contraception by adolescents who received sexuality education. Based upon both empirical studies and literature reviews, researchers have noted that while knowledge is necessary for responsible sexual behavior, it is not sufficient to lead to behavior change (Kirby, 2001; Rotheram-Borus, Mahler & Rosario, 1995).

Besides addressing changes in knowledge, research has examined the relationship of sexuality education to attitudes. Findings in this area were less conclusive, as Visser and van Bilsen (1994) reported that students who received sexuality education indicated more liberal attitudes toward sexuality in the short-term. These more liberal attitudes included greater tolerance for homosexuality and masturbation. However other studies found less tolerance for premarital sex and pregnancy (Visser & van Bilsen, 1994).

Kirby (2001) has emphasized the importance of the development of skills around sexuality (i.e. communication and decision-making skills). Unfortunately very few studies highlighted these types of skills in their findings. The few studies that examined these types of skills found that some sexuality education did lead to better parent-child

communication about sexuality and greater insight into the sexual decision-making process (Visser & van Bilsen, 1994).

One concern is that sexuality education will encourage young people to engage in sexual intercourse. Numerous studies have attempted to address this issue and there has been very little support for this contention. Nearly all research in this area has found that sexuality education is not related to an increase in sexual intercourse (Kirby, 2001; Gruseit et al., 1997). Completion of HIV education has been shown to be related to increased condom use, while the age of first intercourse does not decrease (Gruseit et al., 1997). Even school-based programs that include condom distribution and promotion have not been shown to increase sexual intercourse (Sellars, McGraw & McKinlay, 1994).

In regard to behavior around contraception and pregnancy prevention, a number of studies reported significant increases in use of contraception by young people after sexuality education courses (Kirby, 2001; Visser & van Bilsen, 1994). However programs that included clinics that distributed contraception were even more effective at promoting contraceptive use than education programs alone (Visser & van Bilsen, 1994). This increase in contraceptive use resulted in lower pregnancies and birthrates.

The ability of sexuality education to increase the use of condoms and other contraception does not address the goal of abstinence education. Millions of federal dollars are allocated each year to sexuality education programs that encourage young people to delay the onset of sexual intercourse. Evaluations of these programs are still inconclusive (Kirby, 2001). The few quality studies that have been done have shown no

evidence of delayed sexual intercourse, in fact one study showed a statistically significant increase in non-intercourse sexual activity among males who were involved in the program (Christopher & Roosa, 1990). However, this is not to say that the goal of delaying adolescent sexual intercourse cannot be met. Recent studies have found that young people who have participated in sexuality education programs that focus on the importance of abstinence along with contraception/safer sex practices will delay sexual intercourse (Jemmott, Jemmott & Fong, 1998).

In sum, research has shown that a comprehensive approach to sexuality education, that includes information on abstinence as well as contraceptive use, along with activities that provide young people with skills, is an effective method of helping youth avoid the potential negative consequences of early or unsafe sexual activity. Currently there is no evidence to suggest that abstinence only education is an effective means of preventing HIV/AIDS, STDs or unintended pregnancy.

However developmental theory does indicate that there are significant age differences in young people and their needs, therefore it is important to consider the developmental level of the student when making decisions about sexuality education. For example, information about contraception is more important for young people who are sexually active or may become sexually active in the near future. Research has shown that there are many more older adolescents who are sexually experienced than there are younger adolescents, perhaps indicating that information about contraception is more relevant for older youth (CDC, 2002).

Age Differences in Sexuality Education Needs

Studies by Andre (1991), Steele (1999), Buysse (1996) and Crosby (2001), show that despite the proliferation of sexuality education courses throughout the United States, adolescents still do not have access to the information that they need about sexuality.

What these studies do not show is that there are developmental differences in the needs of young people regarding sexuality information. These concepts have not been addressed directly. However, some research has been able to address these issues indirectly.

One such study employed focus groups to understand how young women and girls constructed meaning around the television show *Beverly Hills, 90210*. This television show was selected because it was popular with young women and girls of various ages and the content of the show included a number of issues that are of particular developmental importance. These issues include forming an identity, developing positive body image, defining gender roles and developing romantic relationships. Age segregated focus groups were conducted with 12 year olds, 16-17 year olds and 21 year olds. The author's premise was that women at different developmental stages would attend to different aspects of the show, based upon their own developmental needs (Granello, 1997).

Upon completion of the focus groups, analyses indicated that there were several key themes that showed evidence of developmental differences. First, the reaction to the male characters appeared to reflect the developmental differences in male-female relationships, with the youngest group showing little understanding of the value or purpose of romantic relationships, the middle group giving them great importance but

having a stereotyped view of relationships and the oldest group expressing a desire for more mature men. Additionally, while all groups saw relationships as having primary importance, the youngest group emphasized both romantic and familial relationships while the older groups only emphasized romantic relationships (Granello, 1997).

Each focus group also discussed issues of sexuality. The 12 year olds were troubled by the strong emphasis on sexual activity and not enough emphasis on the friendship aspect of dating relationships. The 16-17 year olds did not perceive this as a problem, however they were very interested in the concept of virginity and felt that an individual's choice to remain abstinent should be handled in a positive light (Granello, 1997).

The developmental themes that emerged as a result of these focus groups may have some important implications for teaching sexuality education to young people of various ages. Since there has been limited research that has examined the sexual stages of young people using criteria that go beyond engagement in sexual activity, this type of research has great value in helping researchers and practitioners to make assertions about the developmental needs of children and adolescents. One limitation of this study is that only one focus group was conducted with each age group, making it impossible to draw definitive conclusions based on this work.

Another researcher has used quantitative research methodologies to attempt to tap into young peoples' sexual stages at various ages. Rosenthal and Smith (1997) elicited responses from 522 Australian middle-class 15 and 16 year olds to determine the most appropriate ages for engagement in various sexual activities (from kissing to sexual

intercourse). Results indicated that the majority of young people felt that kissing was first appropriate between the ages of 12 and 14, all other behaviors including petting, oral sex and sexual intercourse were deemed acceptable between the ages of 15 and 17. Teens' perceptions of the most appropriate ages for particular behaviors were related to other psychosocial variables including media consumption and autonomy (Rosenthal & Smith, 1997).

These findings indicate that it is important to provide enough information to adolescents that they are able to make decisions on safe engagement in sexual intercourse by the age of 15. However, this study was conducted in Australia and therefore may not be generalizable to American youth.

Sexuality Education in the Developed World

European Approaches

Cross-national studies have great value for understanding adolescent sexual behavior. For the past several years University of North Carolina-Charlotte and Advocates for Youth have sponsored a European Study Tour, to help graduate students and professionals in the field of adolescent sexuality learn from those developed countries where young people have greater sexual health. For these purposes indicators of sexual health include: lower pregnancy and abortion rates, lower rates of HIV/AIDS and STDs, lower numbers of sexual partners, and lower rates of infant mortality (Berne & Huberman, 2000).

After reviewing over 90 peer-reviewed articles and pieces of background data, participants in the 1998 and 1999, European Study Tours determined there were four

primary factors that impacted the sexual health of adolescents in Europe. One of those factors was sexuality education. Reviews of the sex education policies and practices in the Netherlands, Germany and France show marked differences between the policies and practices in those countries and in those in the United States (Berne & Huberman, 2000).

The Dutch system of sexuality education is very open and unstructured. All young people receive mandatory sexuality education throughout their educational careers. However, this education is not curriculum-driven. Instead, teachers in all subject matters are guided by the interests of the students and freely and openly discuss sexuality with their students. The emphasis of these discussions is on communication, loving relationships and negotiation skills, with little acknowledgement of sexual risk. This view of sex as a normal, natural part of human existence does not appear to encourage early sexual intercourse, as young people in the Netherlands, on average, initiate intercourse later than adolescents from other Western nations (Berne & Huberman, 2000).

Germany offers comprehensive sexuality education to children and adolescents in a wide range of ages. There is no nationally mandated curriculum, however, there is a strong emphasis on sexual well-being rather than risk. This is not the case in France where sexuality education has been implemented in response to the AIDS epidemic and is primarily focused on the prevention of disease. Consistent with this philosophy, discussions about sexuality in schools generally begin when young people are approximately 9 years of age. French schools begin addressing condom use as a means of preventing HIV by age 13. Since disease prevention is the primary motivation for this

education, contraception to prevent pregnancy is not covered consistently (Berne & Huberman, 2000).

In 1990, the United Kingdom's National Curriculum Council published Curriculum Guidance 5: Health Education. These guidelines are not mandated but they provide recommendations for health education. Sex education is one of the nine primary themes addressed within this document. The guidelines discuss the various content areas that should be addressed during each of four developmental stages. According to these guidelines, between the ages of four and seven, sex education should teach children to name the various parts of the body, know the difference between male and female and develop their own sense of personal safety. During the second developmental stage (ages 7-11) children should understand the biology of basic reproduction and learn about different patterns of friendship (Lenderyou, 1994).

Once young people enter adolescence, the guidelines begin to recommend the teaching of a greater variety of topics. For youth between the ages of 11 and 14 the guidelines recommend teaching decision-making, transmission of HIV and other STDs, values and morals, identity, the range of sexual behaviors that exist within society, the right to remain abstinent, understanding parenthood as a choice, and developing an understanding of the biological and social factors that influence parenthood (Lenderyou, 1994).

For youth between the ages of 14 and 16 the suggested topics are even wider. These include understanding aspects of the law that are related to sexual behavior, the biological aspects of reproduction, pros and cons to various methods of contraception,

organizations that are available to help in navigating relationships, sexuality as a positive, normal part of the life course, relationships including marriage, and sexual harassment and coercion (Lenderyou, 1994).

Sexuality Education in Canada

Like the United Kingdom, Canada also has National Guidelines for teaching about sexual health. As of 1993, these guidelines mandated that all young people receive STD prevention education in grades 7 and/or 8 and that contraception must be addressed in grade 9. With this said, it is surprising to note that during that same time period this does not appear to be reality for most young people in Canada's most populous province (Orton, 1994). Orton (1994) surveyed local school boards within the 54 localities of Ontario to determine their policies regarding sexuality education. Results of this survey found that the majority of students did not attend schools that met the above curriculum standards. This finding illustrates the need to look not only at policies or programs on adolescent sexual health, but the importance of looking hierarchically at both the policies that are in place and how they are implemented on a program level. This type of hierarchical, organizational research can be utilized to examine if young people have access to contexts that are most conducive to positive development.

Sexuality Education Within the United States

Indicators of adolescent sexual health within the United States, including rates of adolescent pregnancy, STDs and HIV, show that our nation's young people are growing up without the tools necessary to make informed decisions about issues relating to

sexuality. This becomes even more apparent when health indicators within the United States are compared to those of the countries mentioned above.

Federal Policy and Sexuality Education

Consistent with Orten's (1994) study of Ontario's political structures as barriers to the sexual health of young people, politics within the United States are such that federal, state and local policy all play a role in the sexual development of young people. A portion of the money spent on sexuality education is funded through the federal government. When federal monies are used for sexuality education, the federal government has some ability to control the content of those classes. The federal government has allocated millions of dollars each year for abstinence-only education and comprehensive health education including sexuality education (Kaiser Family Foundation, 2000).

The majority of federal funding is directed toward abstinence education. Federal funding of this type currently comes as a result of three major political actions. The first is the Adolescent Family Life Act (AFLA), which was first passed in 1981. In 2000, AFLA funding more than doubled with 40 million dollars being allocated toward the "promotion of chastity and self-discipline" among young people (Kaiser Family Foundation, 2000).

The second type of abstinence funding was passed as a part of welfare reform in 1996. The Temporary Assistance to Needy Families (TANF) Act provides funding to both school and community-based programs that advocate abstinence for all people regardless of age unless married. Programs funded by TANF must follow the federal

definition of abstinence education, which many have interpreted as prohibiting any discussion of contraception except for discussion of failure rates. This type of federal funding is administered directly to states, which are then required to provide a three dollar match for every four dollars allocated by the federal government. In total TANF funding will provide an additional 440 million dollars toward abstinence education over 5 years (Kaiser Family Foundation, 2000).

The final type of federal abstinence funding comes from a set of maternal and child health block grants that were approved by Congress in 2000. These grants will provide 50 million dollars in additional abstinence funding over a two-year period (Dailard, 2001). Programs that accept any of these three types of funding must use them exclusively for the teaching and promotion of abstinence.

The Centers for Disease Control and Prevention (CDC), in response to the threat that HIV/AIDS presents to the United States, began providing funding specifically for HIV/AIDS education in 1988. As of 1999, this funding totaled approximately 47 million dollars and was to be used for coordinated school health efforts that included, but was not limited to HIV/AIDS education (Kaiser Family Foundation, 2000).

State and Local Policy and Sexuality Education

Much of this federal money is initially distributed to states, with the understanding that the states will distribute it locally. By allowing the states the discretion to distribute the funds, state policy becomes more important in the distribution of both state and federal funds. Most state legislatures have developed multiple policies regulating the distribution of these and other types of state funds. There is variability

both within and between states on the content of the policies and their specificity (Kaiser Family Foundation, 2000). There are state policies that require the teaching of certain topic areas and there are state policies that prohibit the teaching of topic areas (Alan Guttmacher, 2001).

Currently 38 states require that schools provide education on HIV/AIDS and other STDs, while only 22 states require sexuality education be taught. Additionally there are differences in how states mandate that either sexuality education or HIV/AIDS education be taught. State policies can require that abstinence be either covered or stressed and that contraception be either covered or stressed. However, no state currently requires that contraception be stressed, while many states require that abstinence be stressed (Alan Guttmacher, 2001). For specific state-by-state comparisons see Table 1.

Localities that are funded with these state controlled dollars are expected to adhere to state policies. However, there is still some local control of how the money is spent. Despite this latitude, it is not surprising that state directives are still cited by 48% of school district superintendents as the single most important factor in the decisions they make regarding sexuality education (Kaiser Family Foundation, 2000). According to research conducted by the Alan Guttmacher Institute, approximately two-thirds of schools districts have their own policies regarding sexuality education. Of the districts with policies, 86% require an emphasis on abstinence, while only 14% have a comprehensive policy that prepare young people to become sexually healthy adults (Daillard, 2001).

Teachers' Influence on Sexuality Education

Despite federal, state and local policies regarding sexuality education, it is clear that it is still the teachers that actually teach our young people. What is not clear is how much authority teachers have to make decisions about course content. In a survey of public secondary school principals, over 70% indicated teachers who teach sexuality education in their schools do not generally choose their own course materials. Instead, the majority of sexuality education teachers use a set of standard materials chosen by the school district. However, this same survey indicated that 88% of principals believe teachers were either somewhat or very involved with developing the schools' sexuality education curricula (Kaiser Family Foundation, 1999).

In regard to sexuality education, it appears that teachers have some discretion, with school and district level policies exerting a strong influence on teacher decision-making. There is an important related issue that many believe must be addressed. This issue is teacher training. Kirby's comprehensive review of sexuality education materials found programs that reduced sexual intercourse and/or increased contraceptive use generally included a teacher-training component (Kirby, 1997). However, his work did not address what if any training other than program specific training teachers had in the area of sexuality education.

A recent SIECUS study has attempted to examine whether or not the majority of teachers are adequately prepared to teach sexuality education to the young people they serve (Rodriguez, Young, Renfro, Asencio & Haffner, 1996). To conduct this study, researchers analyzed the course catalogs at 169 institutions offering undergraduate

Table 1
State by State Comparisons of State Policies on Teaching Abstinence and Contraception

State	Abstinence policy	Contraception policy
Alabama	Must be stressed	Must be covered
Alaska	No policy	No policy
Arizona	Must be stressed	No policy
Arkansas	Must be stressed	No policy
California	Must be stressed	Must be covered
Colorado	No policy	No policy
Connecticut	Must be covered	No policy
Delaware	Must be covered	Must be covered
Florida	Must be covered	No policy
Georgia	Must be covered	May be covered with restrictions
Hawaii	Must be stressed	Must be covered
Idaho	No policy	No policy
Illinois	Must be stressed	Must be covered
Indiana	Must be stressed	No policy
Iowa	No policy	No policy
Kansas	No policy	No policy
Kentucky	Must be covered	No policy
Louisiana	Must be stressed	No policy
Maine	No policy	No policy
Maryland	Must be stressed	Must be covered
Massachusetts	No policy	No policy
Michigan	Must be covered	No policy
Minnesota	No policy	No policy
Mississippi	Must be stressed	May be covered with restrictions

Missouri	Must be stressed	Must be covered
Montana	No policy	No policy
Nebraska	No policy	No policy
Nevada	No policy	No policy
New Hampshire	No policy	No policy
New Jersey	Must be covered	Must be covered
New Mexico	Must be stressed	Must be covered
New York	Must be stressed	Must be covered
North Carolina	Must be stressed	May be covered with restrictions
North Dakota	No policy	No policy
Ohio	Must be stressed	No policy
Oklahoma	Must be stressed	Must be covered
Oregon	Must be stressed	Must be covered
Pennsylvania	Must be stressed	Must be covered
Rhode Island	Must be stressed	Must be covered
South Carolina	Must be stressed	Must be covered
South Dakota	No policy	No policy
Tennessee	Must be stressed	No policy
Texas	Must be stressed	May be covered with restrictions
Utah	Must be stressed	May be covered with restrictions
Vermont	Must be covered	Must be covered
Virginia	Must be covered	Must be covered
Washington	Must be stressed	Must be covered
West Virginia	Must be stressed	Must be covered
Wisconsin	No policy	No policy
Wyoming	No policy	No policy

Note. Data is based on Alan Guttmacher Institute (2001)

teaching programs. Based on information found within the course catalogs regarding course content and program requirements, a number of findings were made. Nearly all of the programs examined were found to offer both sexuality education and general health education classes to students enrolled in pre-service teaching programs. However only 14% of the schools required a health education course for all pre-service teachers and not one of the schools required a sexuality education course for **all** pre-service teachers. Pre-service teachers in some subject areas were required to take a sexuality education course, but many of the specialties that were most in need of this information were not among them. Only 2% of elementary and 1% of secondary teachers were required to take a course on sexuality and only 6% of physical education certification programs required any course related to sexuality. Not even all health education programs require sexuality education training. Only 61% of health education certification programs require any coursework in sexuality related topics and not one of these programs require a course that covers HIV/AIDS (Rodriguez et al., 1996). These findings are troubling as they indicate the teachers who are providing young people with information about sexuality are often not well-informed on the subject themselves.

With federal, state, and local politics all intimately involved in classroom teachers' curriculum decisions, it becomes exceedingly complex to disentangle the effects of the various parts of the system on the end result, which is the sexual development of our youth. Due to the lack of multi-level statistical analysis in this area, it is currently impossible to accurately predict the impact of either politics or teacher training on the course content that is taught to our young people (Darroch, Landry &

Singh, 2000; Kaiser Family Foundation, 1999). It becomes important to examine course content as a means of better determining whether or not adolescents' needs are being met by the sexuality education that we provide them.

Adolescents' Needs and Sexuality Education

In response to the increase in available funds and high prevalence of sex education classes in schools, public policy organizations have recently conducted surveys aimed at discerning the specific course content that is being taught in schools today.

Besides decision-making policies, these studies have also explored the individual content areas that are discussed in sexuality education classes. Descriptive statistics indicate that there is a great deal of variability in what is covered. While nearly all the schools cover abstinence and sexually transmitted diseases, fewer schools indicate that they teach about birth control or homosexuality (Kaiser Family Foundation, 1999).

These studies also indicated that there were some developmental differences with a higher percentage of high schools than middle schools teaching each topic area (Darrouch et al, 2000; Kaiser Family Foundation, 1999). While these studies are useful in putting school-based sexuality education in context, they are not sufficient in exploring the important issue of the developmental appropriateness of sexuality education in schools. What these numbers do not show is the frequent mismatch between the information that schools provide and the information that adolescents need and want. One recent study indicated that 30% of adolescent males receive **no** sexuality education prior to engaging in sexual intercourse for the first time (Lindberg, Ku & Sonenstein, 2000).

Parents and teachers, even those without ideal training, generally have greater knowledge of and access to young people than do legislators. Therefore it is important to ask parents and teachers along with students themselves about sexuality education. Survey results indicate that parents, teachers and young people all want schools to provide more information to young people regarding sexuality (Daillard, 2001). Specifically, teachers feel that they should teach more about sexual orientation, abortion, condom use and birth control. These same topics are supported by three-quarters of parents who were interviewed (Daillard, 2001, Darrouch et al, 2000).

A number of recent surveys of adolescents find that they also want more information than they are currently provided in school. Roughly half the students in grades 7-12 indicate they need more information on HIV/AIDS and STDs and talking to a partner about STDs and birth control. Forty percent of students say they need more information on birth control in general and handling the pressure to engage in sexual intercourse. Additionally, research suggests that adolescents whose most recent course in sex education was abstinence-only did not have as much knowledge as young people who had recently received comprehensive sex education (Daillard, 2001). Kaiser Family Foundation (2002) found that 77% of young people surveyed indicated that they need more information on all sexual health topics with 60% wanting more information on how to know if you have a disease and 57% wanting more information on the types of birth control that are available. These findings highlight the importance of being aware that adolescents at different ages need different information about sexuality, and raise

questions as to whether or not these age differences are recognized in school-based sexuality education.

The Current Study

It is clear from the literature that school-based sexuality education can play an important role in the development of sexually healthy adolescents (Visser & van Bilsen, 1994; Berne & Huberman, 2000; Kirby, 2001). Furthermore, past research and developmental theory both indicate that adolescents' needs regarding sexuality are likely to change as they age (Erikson, 1982; Koch, 1993; Rosenthal & Smith, 1997). Additionally, we know that teachers who are trained in the area of sexuality education are better able to teach their students (Kirby, 1997). Therefore, to truly be useful to students, school-based sexuality education should be taught by trained teachers and address different topics at different grade levels. The research on school-based sexuality education course content currently does not adequately address to what extent this occurs. The research tells us the approximate percentages of classrooms or schools where various topics are taught (Darrouch et al., 2000; Kaiser Family Foundation, 1999). However, this research does not look at the larger ecological picture to understand the role that contextual variables such as policy play in what is taught in the classrooms.

The current study will use an ecological approach to test the relationship between classroom and state level variables and the sexuality education course content that is presented in schools. The current literature review indicates that sexuality education is important for the development of sexually healthy young people. Therefore developing a

better understanding of the way contextual variables at multiple levels work together to influence course content is an important goal.

The current study will expand upon the existing descriptive knowledge and explore school-based sexuality education using nationally representative samples of classroom teachers, state administrators and state policy analysis. This research will utilize hierarchical linear modeling (HLM) to look at interrelationships between systems at these two levels. By examining both proximal and distal contexts as well as their interactions, the current research will provide a clearer picture of school-based sexuality education in the United States.

The basic premise is that both state and classroom level variables predict sexuality education course content and understanding which variables best predict course content is essential for improving curriculum decisions to meet the developmental needs of young people. These variables are the school level, state sexuality education policies, teacher training, and the opportunity for state-sponsored teacher training. The literature suggests that each of these variables may influence the content areas that are covered within school-based sexuality education classes. Adolescent development (specifically sexual development) is thus influenced by this course content. Because school districts are unable to develop any local policy that contradicts that policy of the state, it seems logical that state policy would play a role in the determination of course content (Imber & van Geel, 2000).

Furthermore, since it is the teachers within the classrooms who actually do the teaching, it is reasonable to assume that their knowledge of the content areas would

influence what they teach. However, we know that all teachers do not have equal training in or knowledge of sexuality and that it will be the combination of the education they received in college and the in-service education that they have since received that they will utilize when making decisions about what to teach (Rodriguez et al., 1996). The state agency in charge of education can increase the likelihood that a teacher will have greater knowledge about sexuality related issues by providing opportunities for educational enrichment for its teachers. This type of support or lack thereof could certainly influence what is eventually taught in the classroom. Therefore, to best capture these multiple contexts and their influence on course content, the current study will focus on four content areas in particular: abstinence and marriage, pregnancy prevention, information about condoms and sexual orientation. Four separate models will be computed to determine the relationship of state sexuality education policies, teacher training, and state-sponsored teacher enrichment to each of these content areas.

These content areas were chosen because each has particular significance for the sexual development of young people and is an area of particular political significance in the United States. Currently, abstinence education is being heavily funded by the federal government and it is mandatory that abstinence and in some instances abstinence until marriage is covered as part of sexuality education in many states across the country (Alan Guttmacher, 2001). However, as Chilman (1990) points out, among older adolescents' sexual feelings and behaviors can often be normal and healthy, especially when expressed within the context of a loving relationship. This may be justification for greater emphasis on abstinence during middle/junior high and elementary schools and the

inclusion of topics that will help young people to act responsibly within sexual relationships during high school. These topics would include information about condoms and pregnancy prevention.

Sexual orientation was also chosen as an important area for inclusion in this study. While research tells us that many adolescents and pre-adolescents are struggling with issues around sexual orientation, the majority of schools around the country are not acknowledging these issues in their sexuality education curriculum (Kaiser Family Foundation, 1999; Savin-Williams & Diamond, 1999). Additionally we know that sexual minority young people will often struggle in many areas of their lives and may benefit from additional support (Russell et al., 2001). Therefore developing an understanding of the ecological factors that lead to the inclusion or exclusion of these topics from school curricula could be very valuable.

Research Questions

Bronfenbrenner's (1986) work indicates the need for research that lead to an understanding of the environments in which adolescents live. The current study will attempt to clarify the relationship of multiple levels of influence on sexuality education course content, with the knowledge that this course content will in turn have serious implications for the sexual development of the adolescent students. Overall the current study will address three different issues. First, the study will examine course content to see if certain combinations of topics can be used to accurately predict the school level of the class. This is an important next step in understanding the topics taught to students in various school levels. Second, this study will examine state policies to determine if they

differ by the school level to which they relate. This will provide an indication of the role that adolescent development plays in the construction of state policies. Third, the current study will examine the relationship of state level predictors (state policy and state sponsored teacher training) and classroom level predictors (developmental level of students and teacher training) to course content (abstinence and marriage, condoms, pregnancy prevention and sexual orientation).

The current study will address the following general research questions: First, it will examine whether or not school level predicts the topics taught in school-based sexuality education. Second, the current study will determine if there are significant within state differences in the policies that regulate school-based sexuality education by school level. Third, this study will examine how state and classroom level variables contribute to the teaching of particular topics.

Specific Research Questions

To address these three general issues the following specific research questions will be addressed.

1. Does the teaching of certain topics predict the level of the school in which the class is located?
 - a. Which topics differentiate between elementary school and junior high/middle school classes?
 - b. Which topics differentiate between junior high/middle school and high school classes?

2. Do state policies significantly differ as a function of the level of the schools governed by them?
 - a. Do state policies significantly differ within a given state as a function of the level of the schools governed by them?
 - b. Are there between state differences in these relationships?
3. How do variables at different ecological levels predict the teaching of abstinence and marriage?
 - a. Is the variance of teaching abstinence marriage accounted for by within state or between state variables?
 - b. How much of that variance is accounted for by school level and teacher training?
 - c. Does school level significantly predict the teaching of abstinence and marriage in school?
 - d. Does teacher's desire for training on sexuality related topics significantly predict the teaching of abstinence and marriage in school?
 - e. Do state policies predict the general level of abstinence and marriage being taught in their state?
 - f. Is the relationship of teaching abstinence and marriage and school level affected by state policy?
4. How do variables at different ecological levels predict the likelihood of teaching about sexual orientation?

- a. Is the variance in teaching about sexual orientation accounted for by within state or between state variables?
 - b. Does school level significantly predict the likelihood of teaching about sexual orientation and identity in school?
 - c. Does teacher's desire for training on sexuality related topics significantly predict the likelihood of teaching about sexual orientation and identity in school?
 - d. Do state policies predict the likelihood of teaching about sexual orientation and identity in their state?
 - e. Is the relationship of the likelihood of teaching about sexual orientation and identity and school level affected by state policy?
5. How do variables at different ecological levels predict the teaching of information about condoms?
- a. Is the variance in teaching about condoms accounted for by within state or between state variables?
 - b. How much of that variance is accounted for by school level and teacher training?
 - c. Does school level significantly predict the teaching of information about condoms in school?
 - d. Does teacher's desire for training on sexuality related topics significantly predict the teaching of information about condoms in school?

- e. Do state policies predict the teaching of information about condoms in their state?
 - f. Is the relationship of the teaching of information about condoms and school level affected by state policy?
6. How do variables at different ecological levels predict the teaching of pregnancy prevention?
- a. Is the variance in teaching about pregnancy prevention accounted for by within state or between state variables?
 - b. How much of that variance is accounted for by school level and teacher training?
 - c. Does school level significantly predict the teaching of pregnancy prevention in school?
 - d. Does teacher's desire for training on sexuality related topics significantly predict the teaching of pregnancy prevention in school?
 - e. Do state policies predict the teaching of pregnancy prevention in their state?
 - f. Is the relationship of the teaching of pregnancy prevention and school level affected by state policy?

CHAPTER 3: METHODS

The current study used two sources of data for secondary analysis. The first source of data was the CDC's School Health Policies and Programs Study (SHPPS) 2000. The second source of data was an Alan Guttmacher Institute report, *State Policies in Brief*. All data used in the current study were collected for purposes other than the current study.

Secondary Data Analysis

Secondary analysis of data brings with it several advantages as well as some unique problems and concerns. The primary advantage of the current data set, is that it is a large, nationally representative sample with nested data that allows for the examination of distal variables as they relate to more proximal contexts. However, as with all secondary analysis, the data were collected by other researchers for purposes other than the current study. Therefore, secondary analysis can be very challenging. The process of conducting secondary data analysis is in many ways inconsistent with the process of typical research. For example, in general, researchers first develop questions and then a methodology and measures that are then designed to address those specific questions (McCall & Applebaum, 1991).

Since that process is not possible when conducting secondary data analysis, researchers doing this type of work often begin with a more general topic area for research and refine their research questions (McCall & Appelbaum, 1991). Additionally, it is often necessary to recode data and conduct preliminary descriptive analyses to determine if there is sufficient variation to answer the proposed questions.

Because there are six states where no classroom teachers were surveyed, two states where state level SHPPS data are missing, and the Guttmacher report did not collect data from the District of Columbia, complete data is not available for all states. In the current study states with missing state level data, or no classroom level data were excluded from the HLM analysis requiring that data. No more than nine states were excluded from any analysis.

School Health Policies and Programs Study (SHPPS)

SHPPS is a nationally representative study, commissioned by the Centers for Disease Control and Prevention, Division of Adolescent and School Health (CDC/DASH) and released for public use in September of 2001. The study was designed to measure health and physical education policies and programs at elementary, junior high/middle school and senior high schools across the country (Center for Disease Control and Prevention, 2001a).

SHPPS 2000 was developed to answer four general questions: 1) What are the characteristics of health education, physical education, health services, mental health and social services, food service, school policy, faculty and staff health promotion and family and community involvement at the state, district, school and classroom levels nationwide? 2) Who is responsible for coordinating and delivering each component of the school health program and what kind of training have they received? 3) What collaboration occurs among staff from each of the school health program components and with staff from state and local agencies and organizations? 4) How have the

characteristics of school health programs changed since 1994? (Kolbe, Kann & Brener, 2001)

The specific methodology used and issues addressed were based upon a similar study conducted in 1994. SHPPS 2000 included data collected on each of the eight components of school health from representatives at the state, district, school and classroom levels (Smith et al., 2001). Seven separate types of surveys were designed and administered at four different levels. The data used in the current study were only a portion of all the data collected. These data came from one state level (including some school level information for that state) and one classroom level survey.

SHPPS Participants

The current study used data on health education collected from the state education agency officers and classroom health education teachers. To obtain this data, fifty-one surveys were mailed to officials in the 50 United States and the District of Columbia. All 51 were returned completed, for a response rate of 100% (Center for Disease Control and Prevention, 2001a). In 93% of states where there is a single individual who is responsible for oversight of the state coordinated school health program, that individual responded to the survey.

District data were collected through random stratified sampling of public school districts and Catholic diocese. Districts were stratified by urbanicity and poverty and a total of 745 were selected for inclusion in the data collection. Of those 522 responded for a response rate of 70%. Forty-eight states were represented by the 522 respondents. The District of Columbia, Hawaii, and Rhode Island had no districts participating in the

district data collection. The number of districts that responded within each state varied dramatically. Nevada had the fewest responding districts with 1 and Texas had the most responding districts with 38.

School data (not used in this study) and classroom data were collected in person. Of the 745 districts, 283 were included in a randomly selected subsample to be used in the collection of school level data. Within these 283 districts there were over 132,000 schools. These schools were stratified by school size, school level and public or nonpublic status. Two hundred ninety-four schools were selected from within each stratum for a total of 1,764 potentially eligible schools. Of these schools, 433 were either ineligible for participation or could not be confirmed as eligible for participation thereby reducing the sample size to 1,331. To be eligible to participate, schools must have been in operation during the 1999-2000 school year and not located within a prison or other correctional facility (Smith et al., 2001). Of the 1,331 schools that were selected for participation, 950 or 71% responded to at least one questionnaire (Smith et al., 2001).

The final sample of schools consisted of schools from 45 states. California had the most schools in the school sample with 63. The fewest number of schools included in the sample from any one state was five. Maine, Montana and South Carolina each had five schools included in the sample. The average number of schools included per state that had any schools in the analysis was 21.

Classrooms were then randomly selected from within the participating schools. Elementary schools were asked to list the grades that require health or physical education and list the teachers who taught that grade. From these lists up to two sections were

randomly selected for inclusion in either the health or physical education portion of the study. Junior high/middle and high schools provided researchers with a list of classes that included instruction on health or physical education and a list of teachers who taught sections of these classes. Using this information up to eight sections of health or physical education classes from each school were randomly selected (Smith et al., 2001).

Overall 1,742 classes were randomly selected for inclusion in the health education classroom survey. Thirty-six of these classes were determined to be ineligible due to the class being discontinued or the teacher no longer being employed by the school, leaving a total sample of 1,706. Of those eligible classes 1,534 teachers or 90% of those sampled responded (Smith et al., 2001).

These teachers who responded taught in elementary schools (34%), junior high/middle schools (40%) and high schools (26%). The teachers were from 45 different states. Due to this response pattern, a maximum of 45 states were included in analyses that involved state data. States with larger populations had a greater number of teachers surveyed than did states with smaller populations. California had the most teachers respond with 273 (8% of the total sample) and Montana had the fewest with 10 (.3% of the total population). All teachers had taught at least one class in 2000 that was either partially or entirely focused on health education. Sexuality education may or may not have been a part of the health education curriculum taught. Because any teacher who had some responsibility for teaching health education was eligible to be surveyed, it is likely that in some instances sexuality education was taught to students but not by a teacher within the sample.

Overall 792 (66%) teachers reported having covered either human sexuality, HIV/AIDS, STDs or pregnancy prevention. Some teachers reported having taught more than one of these topic areas. The most commonly covered topic was HIV prevention, which 58% of the teachers reported teaching. Human sexuality was taught by 52% of teachers. STD prevention and pregnancy prevention were the least commonly taught topics with 48% and 39% of teachers respectively teaching each topic.

Because of the nature of the topics being addressed in this dissertation, kindergarten, first, second and third grade teachers were excluded from the sample. Since very young children have different developmental needs than older students, it was decided that teachers who taught these very young children would not be included in the analyses. This resulted in 333 teachers being excluded, leaving a total sample of 1,201 teachers.

SHPPS Procedure

The SHPPS 2000 data were collected by Research Triangle Institute in collaboration with the CDC. State, district and school officials completed seven different surveys addressing physical education, health education, mental health, health services, faculty and staff, food service and school policy. In some instances the same person was responsible for completing multiple surveys, in other instances each individual only completed one survey. This was determined based on the individual job responsibilities of the respondent. Classroom teachers completed two surveys, one addressing health education and one addressing physical education (Smith et al., 2001).

Project staff worked with state and district level officials to obtain participation by states and districts and to allow for project staff to contact sampled schools. If permission was granted project staff began working with schools to gain permission to collect data in those schools. To collect classroom level data, project staff must have first received permission from the state, district and school where the class was located (Smith et al., 2001). Prior to data collection, SHPPS 2000 received permission to collect these data from the CDC's Institutional Review Board. The University of Arizona Institutional Review Board has exempted these data from review.

To obtain state data, self-administered questionnaires were mailed to designated officials at state education agencies, who were either the most knowledgeable about or responsible for health education programs and policies. The chief state school official for each state designated these individuals during the recruitment period (summer 1999). The state and district surveys were mailed to the state contact person with instructions to distribute them to the appropriate people. The respondents then returned their surveys to either their state contact person or to the Research Triangle Institute, where the data were compiled for the CDC. State and district officials who did not respond to the initial survey were sent numerous follow-up surveys and received follow-up phone calls from project staff, until all surveys were returned or participants refused to participate. By the end of state data collection, August 1, 2000, all 51 state surveys had been completed and returned (Smith et al., 2001).

Classroom level data were obtained through in-person computer-assisted structured interviews. Prior to the beginning of data collection 115 interviewers

completed an 11-day training on the interview process being used. The interviewers used a computer-assisted interviewing process that ensured proper use of skip patterns and consistent responses. The interviewers visited the schools on the week specified by the school contact person and arranged the interviews prior to the first school visit. In most cases classroom teacher interviews were conducted during teacher free periods (Smith et al, 2001). After collecting and cleaning the data, the CDC in collaboration with Research Triangle Institute developed codebooks and released the data file to the public on September 19, 2001 (CDC, 2001a).

SHPPS Measures

Several steps were taken prior to data collection to assure that the best possible measures were used and that the most reliable and valid data would emerge. First volunteers from states, districts and schools participated in testing to assess the content validity of the survey (Smith et al., 2001).

Expert panels were convened in January 1998 to reach consensus about topic areas not addressed in SHPPS 1994 (Smith et al., 2001). Draft questionnaires were developed by project staff and then reviewed by nearly 150 representatives from national organizations and government agencies, who worked in the area of school health. This process resulted in the development of 23 separate questionnaires: seven each for the state, district and school officials and two for the classroom teachers.

A second set of pilot tests were conducted with school and classroom-level representatives. Two hundred fifty-six participants from 52 schools in three states completed an initial interview. Two weeks later 95% of them completed a second

interview to determine the test-retest reliability of the measures. Generally the participants showed high agreement indicating that the measures were reliable, however some items were revised or eliminated from the final questionnaires due to low concordance of responses (Smith et al., 2001).

The questions used in the current study were a combination of one-item dichotomous measures and small indexes that were based upon the average of multiple dichotomous measures. Indexes were developed to increase reliability through the use of multiple items to assess a single construct. This was especially important due to the small amount of variation within each individual item that made up the index (Babbie, 1994). Internal consistency was assessed through the computation of Cronbach's alpha. The alpha levels for all indexes used in the current study were high (.76-.87) indicating that each item in the index was measuring a similar construct.

The current study used measures taken from the state administrator and classroom teacher questionnaires on health education (Smith et al., 2001). The measures used for the current analyses fall into three major categories. The first set of questions address course content, the second set address teacher training, and the third set of measures address state policy. Each of these sets of questions will be discussed separately. Questionnaires are reproduced in Appendix A and Appendix B. The variables that came from SHPPS 2000 were recoded for use in the current study. The data were originally coded so that 1=yes and 2=no. However to make the analyses easier to interpret all variables were recoded so that 0=no and 1=yes. Additionally, where indexes are used the

indexes are computed by taking the average of the responses to the included questions, such that 0= no and 1=yes.

Classroom Level Variables

Course content was assessed through four general questions followed by 29 more specific follow-up questions. Teachers responded to four, yes or no questions that asked whether they taught each of the four main sexuality topics: human sexuality, HIV prevention, pregnancy prevention and STD prevention. Teachers who indicated teaching one or more of the general topics were then asked a set of follow-up questions pertaining to the areas that they indicated they teach. The 29 follow-up questions asked classroom teachers if they taught about each one of a series of sexuality related topics including marriage and commitment, goal setting skills around issues of sexuality and the number of young people who get HIV or STDs. These questions also required a yes or no answer. A complete list of these 29 questions and their responses appears in Table 2. Certain follow-up questions were not asked of elementary school teachers and therefore a total of 25 questions were asked of these teachers.

Research Question 1 uses each of these items individually. For Research Questions 3 through 6 some of the items were combined to form indexes. Indexes are generally preferable to single item measures, primarily due to the difficulty of constructing single items that adequately capture complex phenomena. The constructs being measured in the current study are somewhat straightforward and therefore single item measures are an option, however due to the small amount of variability in the individual items it is still preferable to use indexes where feasible. By combining

Table 2
Frequencies of Teaching Specific Sexuality Topics

General topics	Specific follow-up questions	Yes	No
Human Sexuality (n=1,201)	Abstinence as the most effective method to avoid pregnancy, HIV, or STDs	667 (56%)	531 (44%)
	Dating and relationships	559 (47%)	640 (53%)
	Marriage and commitments	465 (39%)	734 (61%)
	Human development issues, such as reproductive anatomy and puberty	613 (51%)	586 (49%)
	How many young people are sexually active	400 (33%)	801 (67%)
	The number of teenage pregnancies	456 (38%)	745 (62%)
	The number of young people who get STDs or HIV	501 (42%)	700 (58%)
	The influence of families on sexual behavior	407 (34%)	794 (66%)
	The influence of the media on sexual behavior	556 (46%)	645 (54%)
	Social or cultural influences on sexual behavior	503 (42%)	698 (58%)
	Communication skills related to sexual behaviors, such as telling your date you do not want to have sex	528 (44%)	673 (56%)
	Decision-making skills related to sexual behaviors, such as deciding when to start dating	529 (44%)	672 (56%)

General topics	Specific follow-up questions	Yes	No
Human Sexuality (elementary teachers not included) (n=1,015)	Resisting peer pressure to engage in sexual behavior	529 (44%)	672 (56%)
	Risks associated with having multiple sexual partners	534 (53%)	479 (47%)
	Condom efficacy, that is, how well condoms work and don't work	394 (39%)	620 (61%)
	How to correctly use a condom	200 (20%)	814 (80%)
	Sexual identity and sexual orientation	333 (33%)	680 (67%)
HIV Prevention (n=1,201)	How HIV is transmitted	663 (55%)	538 (45%)
	How HIV affects the human body	644 (54%)	557 (46%)
	Compassion for persons living with HIV or AIDS	522 (44%)	679 (56%)
	How to find valid information or services related to HIV or HIV testing	490 (41%)	711 (59%)
STD Prevention (n=1,201)	How STDs, other than HIV, are transmitted	535 (45%)	664 (55%)
	Signs and symptoms of STDs	496 (41%)	703 (59%)
	How to find valid information or services related to STDs or STI testing	442 (37%)	756 (63%)

Pregnancy prevention (n=1,201)			
	Methods of contraception	325 (27%)	872 (73%)
	Risks associated with teen pregnancy	420 (35%)	777 (65%)
	How to find valid information or services related to pregnancy or pregnancy testing	357 (30%)	841 (70%)

multiple variables the potential variability is increased, thus leading to more meaningful findings (Babbie, 1995). Therefore in the current study variables are combined where conceptually feasible to increase variability. Table 3 shows the means and standard deviations for each of the three indexes of course content and the index of teacher training described below.

Abstinence and marriage. The first index addresses the teaching of abstinence and marriage. A national evaluation of abstinence-only education programs recently released an interim report describing the process evaluation. The report states that most programs that address abstinence also address marriage (Devaney, Johnson, Maynard & Trenholm, 2002) therefore these two topics were combined into one index in the current study. Two items were added together, and this new variable was used to answer Research Question 3. The correlation for this index was .79.

Sexual orientation/identity. The outcome variable for Research Question 4 is the teaching about sexual orientation/identity. This construct was assessed using the single item measure. This item was used alone, since no other items were conceptually similar enough to warrant combining them.

Condoms. Four items were combined to form an index assessing the teaching of information about condoms. The four items were: condom efficacy, how to correctly use a condom, how to find valid information or services related to HIV or HIV testing, and how to find valid information or services related to STDs or STD testing. These four items had an alpha of .86.

Pregnancy prevention. Pregnancy prevention was assessed by a two-item index. These two items were methods of contraception and how to find valid information and services related to pregnancy or pregnancy testing. These two items had a correlation of .87.

Teacher training. Teacher training was assessed through an index of four yes/no questions that address each teacher's perceived need for additional training in each of the areas of sexuality education. The questions asked, "Which of the following topics do you wish to receive further staff development on...?" The specific topics mentioned were human sexuality, pregnancy prevention, STD prevention and HIV prevention. These four items were combined to form an index with an alpha of .86.

Table 3
Descriptive Statistics for Classroom Level Variables

Variable name	n	M	SD	α
Abstinence and marriage	1,198	.47	.45	.79
Condoms	1,201	.33	.39	.86
Pregnancy prevention	1,197	.29	.42	.87
Desire for teacher training	1,097	.23	.36	.86

State Level Variables

Table 4 contains descriptive information on the state level variables included in the current study. These variables came from both SHPPS and the Alan Guttmacher data. SHPPS 2000 asked state administrators whether or not the state government provided

training to teachers in each of these four topic areas. The question asked, "During the past 2 years, has your state education agency provided any funding for or offered staff development on each of the following topics to those who teach health education? This might include workshops, conferences, continuing education, graduate courses, or any other kind of in-service." The specific topics mentioned were human sexuality, pregnancy prevention, STD prevention and HIV prevention. These four items were combined into an index with an alpha of .7817.

SHPPS 2000 surveys ask state administrators "Has your state adopted a policy stating that elementary schools will teach each of the following health topics?" The topics included human sexuality, HIV prevention, STD prevention and pregnancy prevention. The same questions were repeated for middle and high schools.

These data were located in a data file with 51 cases representing the 50 United States and the District of Columbia. The data were recoded so that each state was split into 3 separate cases representing elementary school policies, junior high/middle school policies and high school policies, thus resulting in a data set with 153 cases. The questions assessing mandates to teach sex education topics at each school level were combined, such that the four questions asking if elementary schools have a policy requiring sexuality topics be taught were used to form an index. The same process was used for junior high/middle and high schools. This index had an alpha of .8593.

Table 4

Descriptive Statistics for State Level Variables

Variable name	n	M	SD	α
State sponsored teacher training	51	.84	.28	.78
Abstinence policy	50	2.18	.90	---
Contraceptive policy	50	.28	.64	---
State policy for school level	153	.52	.42	.86

Alan Guttmacher Institute Data

The Alan Guttmacher Institute is a non-profit organization for sexual and reproductive health research, policy analysis and public education. In November of 2001 they released a document summarizing state policies relating to sexuality education in all fifty states. This document specifically addressed the policies on provision of abstinence education and contraceptive education (Alan Guttmacher Institute, 2001). The information in this document was coded and included as part of the current data set. The Alan Guttmacher data is able to compliment the SHPPS data by providing information on the content of their state policies.

Alan Guttmacher Measures

To create the *State Policies in Brief* report, policy analysts examined state policies regarding sexuality education and summarized each state's policy. The Alan Guttmacher Institute has a strong national reputation for conducting reputable, non-partisan policy analyses as they relate to sexual health. The current analysis addressed three primary questions: 1) Is there a statewide requirement to HIV, STD or sexuality education? 2) If

HIV, STD, or sexuality education is taught, are there requirements for the teaching of a) abstinence or b) contraception? 3) What are parents' rights or obligations regarding HIV, STD or sexuality education?

To answer these questions Alan Guttmacher Institute staff compiled state laws, regulations, and controlling guidelines, that were issued by Departments of Education, as they related to sexuality education. Department of Education recommendations that were not enforceable were not included in the analysis. In cases of contradictory or unclear policies, Alan Guttmacher staff contacted the person in charge of health education at the state Department of Education for clarification (E. Nash, personal communication, September 23, 2002).

The current study used the state-by-state comparison of Question 2 as part of the current data set. The Alan Guttmacher report indicates for each state whether there is a policy on the teaching of abstinence and contraception. Abstinence policy is coded with 0 = no policy, 1 = policy requiring that abstinence be covered, and 2 = requiring that abstinence be stressed.

For contraception, the possible values were (-1), (0) and (1). The data was coded such that -1 = teaching of contraception is restricted (this includes states where it may not be covered at all and states where if contraception is taught it must include failure rates and failure rates among adolescents), 0 = no policy, 1 = policy requires that contraception is covered.

Overview of Measures

In summary, the variables used in the current research consisted of classroom level measures of the topics taught. These measures were used both as single, dichotomous items and as indexes created to assess broader constructs of abstinence and marriage, condoms and pregnancy prevention. Additionally teachers' desire for additional training in sexuality education was also assessed at the classroom level.

There were also several state level measures in the current study. These measures came from two separate sources. The SHPPS study provided measures of state policy mandates to teach sexuality topics by school level and measures of state sponsored teacher training. The Alan Guttmacher report provided measures of a state abstinence and contraception policy.

Analysis

The two analyses to be used were stepwise discriminant analysis and HLM. Stepwise discriminant analysis were used to answer Research Question 1. Discriminant analysis were used to produce a function of predictor variables that may distinguish between categories of a criterion variable (Kachigan, 1991). Using this technique two functions were produced. The first function attempted to differentiate between elementary and junior high/middle school and the second function attempted to differentiate between junior high/middle school and high school using 25 and 29 possible predictor variables respectively.

The second analysis that was used was HLM. Research Questions 2 through 6 were answered using this technique. Research Question 2 sought to examine policy as it

is related to both school level and state. Research Questions 3 through 6 examined course content and its relationship to classroom and state level variables. HLM was useful for examining relationships of variables at different levels and to assess the ability of each variable to account for variance in the outcome (Raudenbush & Bryk, 2002). When forced to deal with multi-level data traditional linear models either disaggregate all data to the lower level or aggregate it to the higher level. In the current example this would involve either assigning state level characteristics to the classroom violating the assumption of independence of observations or conducting all analyses only on the state level doing away with all within state variance in the process (Raudenbush & Bryk, 2002).

HLM is a much better technique than either of these two options. HLM assumes that each level-1 entity (classroom) is independent, but shares some similarities with others in their larger level-2 grouping (state). Using HLM it is possible to let each level-2 group, in this case state, have its own regression line with its own slope and own intercept. The current study will use this technique to examine state policy as it relates to school and classroom level variables.

CHAPTER 4: RESULTS

This chapter will provide results of the analyses conducted to answer Research Questions 1 through 6. It will begin with the results of the discriminant analysis done to examine differences in the specific topics addressed at elementary, junior high/middle and high school levels. Second, results of the HLMs will be presented. When examining results of multi-level analysis it is important to understand the multiple levels considered. For Research Question 2, school level within a state is the first level and state is the second level. Research Questions 3 through 6 all involve models where the classroom is the first level and the state is the second level.

Research Question 1

The first research question was addressed using two stepwise discriminant analyses. The discriminant analysis determined which of the sexuality education topics are the best predictors of the school level. To answer this question two analyses were conducted. The reason for conducting two analyses instead of one was that four questions were not asked of elementary school teachers that were asked of junior high/middle school and senior high school teachers. Twenty-five total questions about sexuality education topics were asked of elementary teachers. These 25 topics were potentially included in the first analysis. There were 29 topics asked of all other teachers and these 29 were potentially included in the second function.

If different topics were covered in sexuality education classes based upon the developmental level of the students then school level should be predicted with a high degree of accuracy. To do this, stepwise analysis was conducted. The Wilks method was

used to determine the order of entry by the variables. Only those variables that significantly contribute to the model were actually entered into the final function. Differences in probability due to differences in sample size were taken into account. The final function allowed for discrimination between school levels based upon the topics that are taught.

The first discriminant analysis addressed differences in topics covered between elementary and junior high/middle schools. Results of this analysis showed that five of the 25 topics significantly predicted school level ($\chi^2=100.057$, $p < .001$): signs and symptoms of STDs, number of teenage pregnancies, compassion for people with HIV/AIDS, abstinence and human development issues. Based upon these five variables 77.8 % of the cases were correctly categorized. Table 5 shows the means, F-values, and discriminant function coefficient for each variable included in the final function.

Table 5
Topics in the discriminant function for elementary and junior high/middle schools

Variable	Means		F	Discriminant Function Coefficient
	Elementary n=183	Junior High/Middle School n=681		
Signs and symptoms of STDs	0.07	0.36	64.56***	.639
Number of teenage pregnancies	0.07	0.35	39.52***	.487
Compassion for people with HIV/AIDS	0.30	0.38	30.72***	-.448
Abstinence	0.25	0.54	24.40***	.512
Human development issues	0.37	0.48	21.28***	-.409

*** $p < .001$

The discriminant function coefficient provides a measure of the relative contribution of each variable to the function when all other variables entered are taken into account. In a test of equality of group means all 25 topics were found to be taught significantly more by junior high/middle school teachers than by elementary school teachers. Twenty-three were significant at the $p < .001$ level. For two topics, the differences between group means were in the same direction but not as great: teaching human development issues was ($F=7.303$) significant at $p < .01$ and teaching compassion for people with HIV/AIDS ($F=4.788$) was significant at $p < .05$.

Table 6

Topics in the Discriminant Function for Junior High/Middle School and High Schools

Variable	Means		F	Discriminant Function Coefficient
	Junior High/Middle School n=681	High School n=395		
How to correctly use a condom	0.09	0.36	127.88***	.457
Methods of contraception	0.19	0.51	80.22***	.354
Condom efficacy	0.26	0.59	56.85***	.326
Resisting peer pressure	0.48	0.65	45.10***	-.439
Signs and symptoms of STDs	0.36	0.66	38.23***	.369

*** $p < .001$

The second analysis addressed differences in topics covered between junior high/middle and high schools. Results of this analysis also showed five of the 29 topics

significantly predicted school level ($\chi^2=175.224$, $p< .001$): correct use of condoms, methods of contraception, condom efficacy, resisting peer pressure and signs and symptoms of STDs. Based upon these five variables 70.2 % of the cases were correctly categorized. Table 6 shows the means, F-values, and discriminant function coefficient for each variable in the function. In a test of equality of group means all 29 topics were found to be taught significantly more ($p< .001$) by high school teachers than by junior high/middle school teachers.

Research Question 2

The second research question was answered using Hierarchical Linear Modeling (HLM). Research Question 2 examined state policies to determine if there are differences in state policies for different school levels. In this and all subsequent research questions, elementary school is coded as zero, junior high/middle school as one and high school as two.

To answer this research question, the data set was recoded such that the unit of analysis was a school level within a state. The fully unconditional model is one in which there are no predictors in the model. Computing this results in estimates of the grand mean and level-2 variance (Raudenbush & Bryk, 2002). This equation examines the total amount of variance in policy mandates and through the use of the intraclass correlation provides a measure of the amount of variance that is within state as compared to the amount that is between states. This model is

Level-1 Model

$$\text{Policy}_{ij} = \beta_0 + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

The level-1 equation above means that for a given school level in a given state, policy mandates are predicted by the average policy mandates for that state (β_0) plus the amount that the given school level varies from that mean (r_{ij}). The level-2 equation indicates that a state's mean (β_0) is computed by the average policy mandate for all states (γ_0) plus the amount that the given state varies from the mean of all states (u_0).

The results of this model provide two measures of variability. The first σ^2 corresponds to the amount of variance that is within state ($\sigma^2=.031$), while τ_{00} corresponds to the amount of variance that is between states ($\tau_{00}=.145$). Therefore, $\tau_{00}/(\sigma^2 + \tau_{00})$ provides the proportion of the total variance in the outcome that is between states. In this case that is $.145/ (.031 + .145) = .824$. This indicates that the vast majority of the variance, 83%, in policies mandating the teaching of sexuality education topics is predicted by the state and not characteristics that vary within a given state.

While most of the variance in policy mandates is between states, 17% of the variance is accounted for within state. The next important step is to determine if policy mandates are predicted by the school level governed by them. The equation below answered that question.

Level-1 Model

$$\text{Policy}_{ij} = \beta_0 + \beta_1 (\text{school level}) + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

$$\beta_1 = \gamma_1 + u_1$$

The level-1 equation above means that for a given school level in a given state, policy mandates are predicted by the average policy mandates for an elementary school in that state (β_0) plus the effect of school level (β_1) plus amount that the school level varies from the average (r_{ij}). The level-2 equation indicates that the state policy mandate for elementary schools (β_0) is computed by the average policy mandate for elementary schools for all states (γ_0) plus the amount that the given state's elementary school policy varies from the mean of all state's elementary school policy (u_0). The effect of school level for a given state (β_1) is predicted by the average effect of school level for all states (γ_1) plus the amount that a given state differs from that average (u_1).

Table 7 shows the results of this analysis. These results indicate that the policy mandates regarding sexuality education for a given school level in a given state are predicted by the average mean for elementary schools ($\gamma_0=.46, p< .001$) plus the slope for school level ($\gamma_1=.06, p< .01$). This shows that there are on average significantly more policy mandates for teaching sexuality education topics to older students than to younger students. Chi-square tests for the variance components indicate there is significant between-state variation in average number of mandates for elementary schools and that there is significant between-state variation in the relationship between school level and policies mandating the teaching of sexuality education topics. These findings lead one to conclude that policies mandating the teaching of sexuality related topics are predicted

Table 7
The Relationship of School Level to State Policy Mandate Regarding Sexuality Education Topics

Fixed Effect	Coefficient	SE	t-ratio
For base level for elementary grades, β_0			
Intercept, γ_0	0.455	0.056	8.103***
School level effect, β_1			
Intercept, γ_1	0.060	0.019	3.124**
Random Effect	Estimate	χ^2	df
Var (u_0) = τ_0	0.148	501.754***	48
Var (u_1) = τ_1	0.009	94.900***	48
Var (r) = σ^2	0.019		

* $p < .05$, ** $p < .01$, *** $p < .001$

both by school level of the student being taught and the state that they are in, with state predicting a greater proportion of the variance.

Research Question 3

Research Question 3 also utilized HLM. HLM is an especially good tool for analyzing the data in the current study, due to the nested nature of the data and unequal size of the groups being studied (Raudenbush & Bryk, 2002). Research questions three through six examined the relationship of both classroom and state level variables to the teaching of various sexuality education topics. The results of this analysis show the ability of classroom level variables to predict the topics that are taught as part of school-based sexuality education. Additionally results show whether the topics taught are influenced by state level policies, or if the relationship between topics taught and school level are influenced by state level policies. This study does not attempt to address the relationship of teacher's desire for training to state policy and therefore level-2 predictors are not included for teacher's desire for training in any of the analyses to come.

The levels of data in the current analyses are classrooms at level-1 nested within states at level-2. The outcome variable for this analysis is the teaching of abstinence and marriage. It is coded so that zero indicates nothing was taught about abstinence and marriage and 1 indicates that both abstinence and marriage were taught. This is the same scale that is used for the outcome variables in the remaining research questions.

To answer Research Question 3, three separate HLM analyses were run. The first looks at the degree to which the classroom level variables used in this study contribute to the teaching of abstinence and marriage as compared to state level variables. The first step

was to estimate the model with no Level-1 or Level-2 predictors, allowing for the intraclass correlation to be computed. The intraclass correlation provides the proportion of variance in the outcome variable that is between states as compared to within state.

The equation used to answer these questions was

Level-1 Model

$$\text{Abstinence}_{ij} = \beta_0 + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

The level-1 equation above means that the teaching of abstinence and marriage for a given classroom (i) in a given state (j) is predicted by the average teaching of abstinence and marriage in that state (β_0) plus the amount that the classroom varies from that mean (r_{ij}). The level-2 equation indicates that a state's average (β_0) is equal to the average teaching of abstinence and marriage for all states (γ_0) plus the amount that the given state differs from that mean (u_0).

The results of this analysis provided estimates of $\sigma^2 = .194$ and $\tau_{00} = .005$. This resulted in the following computation for the intraclass correlation. $.005/ (.194 + .005) = .026$. This indicates that only 3% of the variance in the teaching of abstinence and marriage is between state variance and the remaining 97% of the variance is within state variance. This means that the vast majority of variance in teaching abstinence and marriage is not accounted for by state but rather by differences between different classrooms in the same state.

Since the proportion of the variance that is between states is very small, there was no need to conduct follow-up analyses examining the proportion of the between state variance that is accounted for by the state level predictors. However, since such a high percentage of the variance is within state, it was important to conduct follow-up analyses to determine the percentage of within state variance that is accounted for by the level-1 predictors of school level and desire for teacher training. To do this the model shown below was run.

Level-1 Model

$$\text{Abstinence}_{ij} = \beta_0 + \beta_1(\text{school level}) + \beta_2(\text{training}) + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

$$\beta_1 = \gamma_1$$

$$\beta_2 = \gamma_2$$

The level-1 equation above means that for a given classroom (i) in a given state (j), the teaching of abstinence and marriage is predicted by the average teaching of abstinence and marriage in that state for classrooms coded zero (elementary school classrooms) where the teacher's desire for training is coded zero (feels no need additional training on sexuality related topics) (β_0) plus the average effect of school level (β_1) plus the average effect of teacher's desire for training (β_2) plus the amount that the classroom varies from what is predicted for that state (r_{ij}).

The first level level-2 equation describes the prediction of the intercept of the level-1 equation. This equation says that the average teaching of abstinence and marriage

for elementary school classrooms in that state where the teacher feels the need for no additional training on sexuality related topics (β_0) is computed by the average teaching of abstinence and marriage (γ_0) plus the amount that given state varies from this mean (u_0).

The second level-2 equation addresses the prediction of the slope of school level in the level-1 equation above. This model shows that the slope of school level for a given state (β_1) is predicted by the average slope of school level for all states (γ_1). The third level-2 equation addresses the prediction of the slope of the teacher's desire for training level in the level-1 equation above. This model shows that the slope of desire for training in a given state (β_2) is predicted by the average slope of desire for training in all states (γ_2). No error term was included in the last two equations as preliminary analyses indicated that there was not significant variability by state in the effect of either school level or desire for teacher training and therefore it was desirable to exclude these terms from the analysis thereby gaining a degree of freedom from each. This was determined by a non-significant chi-square (Randenbush & Bryk, 2002).

The results in Table 8 shows that on average elementary schools teach something about abstinence and marriage ($\gamma_0 = .22, p < .001$), with teachers in higher level schools teaching more about abstinence and marriage than teachers in lower level schools ($\gamma_1 = .19, p < .001$) and teachers who have a greater desire for training ($\gamma_2 = .14, p < .001$), teaching more about abstinence and marriage than teachers who have less desire for training.

Results did show that there were significant differences between states in average amount taught about abstinence and marriage in elementary classrooms where the teacher

Table 8
The Relationship of Student Level and Desire for Training to Teaching Abstinence and Marriage

Fixed Effect	Coefficient	SE	t-ratio
For base level for elementary grades, β_0			
Intercept, γ_0	0.218	0.028	7.876***
School level effect, β_1			
Intercept, γ_1	0.193	0.020	9.708***
Desire for training effect, β_2			
Intercept, γ_2	0.135	0.032	4.243***
Random Effect	Estimate	χ^2	df
Var (u_0) = τ_0	0.004	69.293**	42
Var (r) = σ^2	0.175		

** $p < .01$, *** $p < .001$

did not desire any additional training. To obtain the proportion of within state variance accounted for by the predictor variables, the value for σ^2 obtained from the means-as-outcomes regression model was used along with the value for σ^2 obtained from the unconstrained model. The equation below determined the proportion.

$[\sigma^2 (\text{unconstrained model}) - \sigma^2 (\text{means as outcomes regression model})] / \sigma^2 (\text{unconstrained model})$.

Results of this analysis showed $(.194 - .174) / .194 = .098$ or 10% of the within state variance is accounted for by grade and the teacher's desire for training. These results taken together indicate that the majority of the variance in teaching abstinence and marriage is predicted by within state variance rather than between state variance and that there is a great deal of variance that remains unaccounted for after accounting for school level and teacher's desire for training.

Research Questions 3c- 3f

Subparts c through f of Research Question 3, examine the role of both state and classroom level predictors to explain the teaching of abstinence and marriage. The models used to compute these results can be seen below.

Level-1 Model

$$\text{Abstinence}_{ij} = \beta_{0j} + \beta_{1j}(\text{school level})_{ij} + \beta_{2j}(\text{teacher training})_{ij} + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{abstinence policy}) + \gamma_{02}(\text{contraception policy}) + \gamma_{03}(\text{state sponsored training}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{abstinence policy}) + \gamma_{12}(\text{contraception policy}) + \gamma_{13}(\text{state sponsored training})$$

$$\beta_{2j} = \gamma_{20}$$

The level-1 model is the same as the model described in the prior equation. The level-2 models include some additional predictors. The first of these equations predicts the intercept of the level-1 model (β_{0j}), a given state's average teaching of abstinence and marriage for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics. This is predicted by the average teaching of abstinence and marriage for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics in all states (γ_{00}) plus the slope for abstinence policy (γ_{01}) plus the slope for contraceptive policy (γ_{02}) plus the slope of state sponsored teacher training (γ_{03}) plus the extent to which the given state differs from the average of all states regarding teaching of abstinence and marriage for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics (u_{0j}).

The second level-2 equation addresses relationships between teaching of abstinence and marriage and school level. This model shows that the slope of school level for a given state (β_{1j}) is predicted by the average slope of school level for all states

(γ_{10}) plus the slope for abstinence policy (γ_{11}) plus the slope for contraceptive policy (γ_{12}) plus the slope for state sponsored teacher training (γ_{13}).

The third level-2 equation addresses the prediction of the slope of the teacher's desire for training level in the level-1 equation above. This model shows that the slope of desire for training in a given state (β_2) is predicted by the average slope of desire for training in all states (γ_2).

Preliminary analyses indicated that the slopes of school level and teacher training were not significantly different by state and therefore were held constant in the current analysis. This also allowed for greater degrees of freedom. The results of this analysis can be seen in Table 9.

Table 9 shows that on average elementary teachers who do not feel that they need more training on sexuality topics, do teach something about abstinence and marriage ($\gamma_{00} = 0.368$, $p < .001$). Surprisingly, there is a significant linear effect of abstinence policy, which indicates elementary teachers in states that require a greater emphasis on abstinence teach less about abstinence and marriage than do elementary teachers in states requiring a greater emphasis on abstinence.

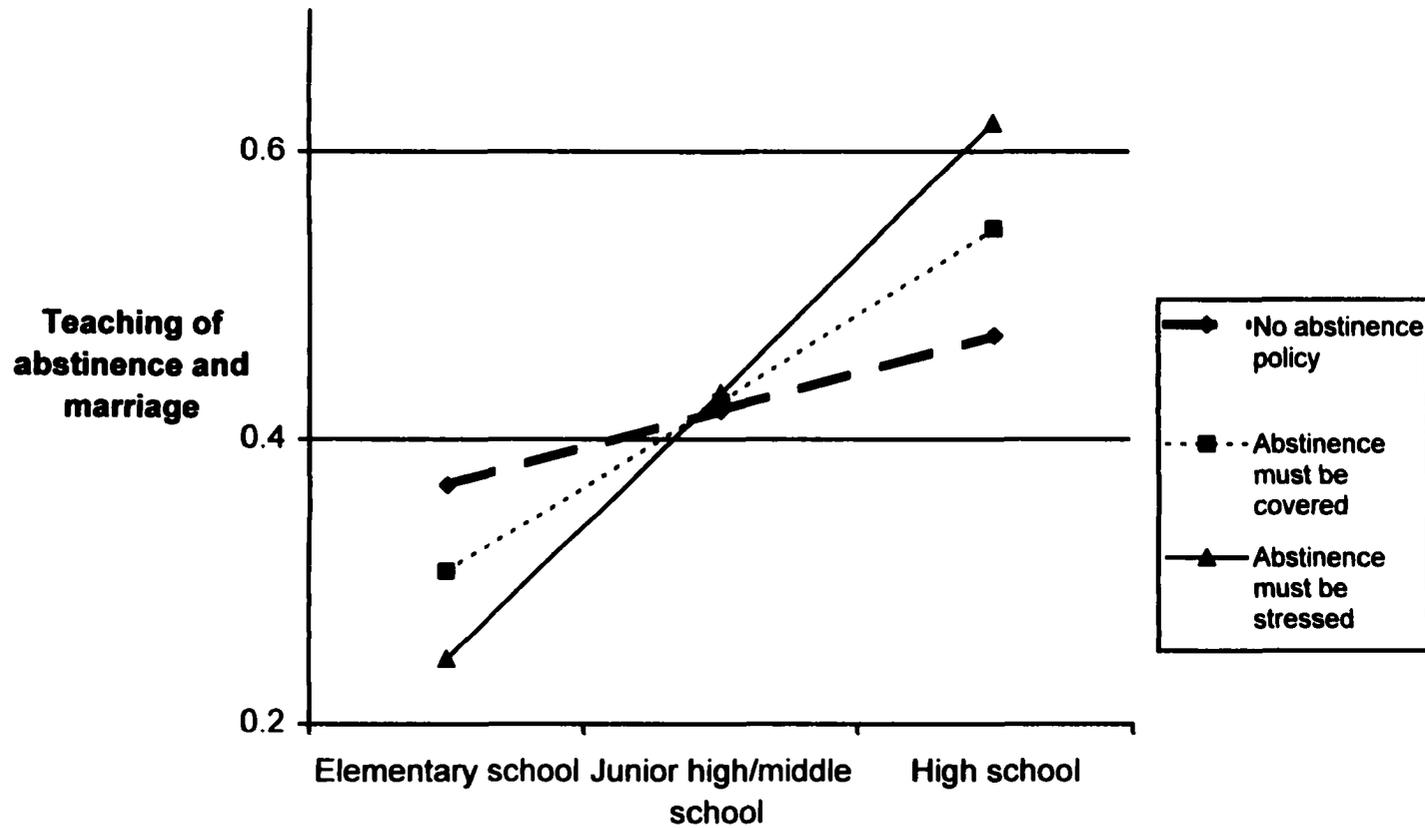
Table 9 goes on to show that there is not a significant relationship between school level and the teaching of abstinence and marriage. However, state abstinence policy does significantly predict this relationship. This finding indicates, the stronger the focus on abstinence in the state policy, the steeper the slope showing the relationship between teaching abstinence related topics and school level. Meaning, in states with greater emphasis on abstinence in their policies, older students may be more likely to receive

Table 9
The Relationship of Teaching Abstinence and Marriage to School Level and Desire for Teacher Training

Fixed Effect	Coefficient	SE	t-ratio
Average topics taught for elementary classes with teachers feeling the need for no training on topics relating to sexuality, β_0			
Intercept, γ_{00}	0.368	0.074	4.992***
Abstinence policy, γ_{01}	-0.062	0.030	-2.078*
Contraception policy, γ_{02}	0.035	0.028	1.268
State sponsored training, γ_{03}	-0.088	0.079	-1.116
School level effect, β_1			
Intercept, γ_{10}	0.052	0.041	1.285
Abstinence policy, γ_{11}	0.069	0.021	-3.232**
Contraception policy, γ_{12}	-0.035	0.023	-1.496
State sponsored training, γ_{13}	0.068	0.051	1.323
Desire for teacher training effect, β_2			
Intercept, γ_{20}	0.130	0.032	4.040***
Random Effect	Estimate	χ^2	df
Var (u_0) = τ_0	0.004	68.539**	39
Var (r) = σ^2	0.174		

* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 3: The relationship of state abstinence policy on school level and the teaching of abstinence in schools



abstinence and marriage education than younger students. Figure 3 shows the relationship of school level and teaching of abstinence and marriage based upon state abstinence policy.

While school level does not predict teaching of abstinence and marriage, teacher's desire for training does significantly predict the teaching of abstinence. Table 9 shows that teachers who feel that they need more training on sexuality related topics teach more about abstinence and marriage. Additionally τ_{00} shows that there is significant variation between states in the teaching of abstinence and marriage among elementary school teachers who have no desire for additional training on sexuality related topics.

The same process that was used above regarding abstinence and marriage was also used for each of the remaining topic areas: sexual orientation, condoms and pregnancy prevention. Results of these analyses are presented below.

Research Question 4

The fourth research question examines the likelihood of teaching about sexual orientation/identity. The question asks: How do variables at different ecological levels predict the likelihood of teaching about sexual orientation?

These analyses are similar to those done in research question three, however the outcome variable for this question is dichotomous and therefore these analyses are necessarily somewhat different. The model below does not include a r_{ij} term and therefore there is no estimate of within state variance (Raudenbush & Bryk, 2002). As in Research Question 3, the first step was to compute a fully unconditional model with no predictors. The equation used to conduct this analysis was

Level-1 Model

$$\text{Sexual Orientation}_{ij} = \beta_0$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

The level-1 equation above means that for a given classroom (i) in a given state (j), the teaching of sexual orientation/identity is predicted by the average teaching of sexual orientation/identity in that state (β_0). The level-2 equation indicates that a state's likelihood of teaching sexual orientation/identity (β_0) is equal to the likelihood of teaching of sexual orientation/identity for all states (γ_0) plus the amount that given state varies from this (u_0).

The results of this analysis do provide an estimate of τ_{00} , but do not provide an estimate of σ^2 . However with dichotomies one can assume that the dimension has a logistic distribution with a variance of $\pi^2/3$ (Wayne Osgood, personal communication March 25, 2002). Therefore to compute the intraclass correlation, one would use the following equation, $\tau_{00}/[\tau_{00}+(\pi^2/3)]$, or $.307/ [.304 + (3.14^2)/3] = 0.085$. This indicates that only 9% of the variance in the teaching of sexual orientation/identity is between state variance and the remaining 91% of the variance is within state variance. Meaning that the majority of variance in teaching sexual orientation/identity is not accounted for by state but rather by differences between different classrooms in the same state.

Research Questions 4b-4e

The models used to compute the results to these questions can be seen below.

Level-1 Model

$$\text{Sexual orientation}_{ij} = \beta_{0j} + \beta_{1j}(\text{school level})_{ij} + \beta_{2j}(\text{teacher training})_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_{00} + \gamma_{01}(\text{abstinence policy}) + \gamma_{02}(\text{contraception policy}) + \gamma_{03}(\text{state sponsored training}) + u_{0j}$$

$$\beta_1 = \gamma_{10} + \gamma_{11}(\text{abstinence policy}) + \gamma_{12}(\text{contraception policy}) + \gamma_{13}(\text{state sponsored training})$$

$$\beta_2 = \gamma_{20} + u_{2j}$$

The level-1 equation above means that for a given classroom (i) in a given state (j), the likelihood of teaching sexual orientation/identity is predicted by the average likelihood of teaching sexual orientation/identity in elementary school classrooms in that state where the teacher feels the need for no additional training on sexuality related topics (β_0) plus the average slope for school level (β_1) plus the average slope of teacher's desire for training (β_2).

The first of the level-2 equations predicts the intercept of the level-1 model (β_0), a given state's likelihood of teaching sexual orientation/identity for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics. This is predicted by the likelihood of teaching sexual orientation/identity for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics in all states (γ_{00}) plus the slope for abstinence policy (γ_{01}) plus the slope for contraceptive policy (γ_{02}) plus the slope of state sponsored teacher training (γ_{03}) plus the extent to which the given state differs from the average of all states

regarding teaching of sexual orientation/identity for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics (u_{0j}).

The second level-2 equation looks for a relationship between teaching sexual orientation/identity and school level. This model shows that the slope of school level for a given state (β_1) is predicted by the average slope of school level for all states (γ_{10}) plus the slope for abstinence policy (γ_{11}) plus the slope for contraceptive policy (γ_{12}) plus the slope of state sponsored teacher training (γ_{13}). The third level-2 equation addresses the prediction of the slope of the teacher's desire for training level in the level-1 equation above. This model shows that the slope of desire for training in a given state (β_2) is predicted by the average slope of desire for training in all states (γ_2) plus the amount that given state varies from this mean (u_2).

Table 10 shows that on average elementary teachers who do not feel that they need more training on sexuality topics are less likely to teach about sexual orientation/identity (OR = .087, $p < .001$) than are other teachers. However high school teachers are more than twice as likely as junior high/middle school teachers (OR = 2.140, $p < .05$) to teach about sexual orientation/identity. Additionally there was a significant effect of teachers' desires for training, with teachers desiring training being nearly twice as likely (OR = 1.859, $p < .05$) to teach about sexual orientation as are teachers who do not desire additional training. Finally, Table 10 shows that both the intercept and the slope of teacher's desire for training vary significantly between states.

Table 10
The Relationship of Teaching Sexual Orientation to School Level and Desire for Teacher Training

Fixed Effect	OR	SE	t-ratio
Average topics taught for elementary classes with teachers feeling the need for no training on topics relating to sexuality, β_0			
Intercept, γ_{00}	0.087	0.603	-4.058***
Abstinence policy, γ_{01}	0.961	0.270	-0.149
Contraception policy, γ_{02}	1.603	0.396	1.193
State sponsored training, γ_{03}	0.938	0.729	-0.088
Rate of change by school level, β_1			
Intercept, γ_{10}	2.140	0.297	2.564*
Abstinence policy, γ_{11}	1.229	0.131	1.575
Contraception policy, γ_{12}	0.744	0.203	-1.460
State sponsored training, γ_{13}	1.107	0.379	0.269
Rate of change by desire for teacher training, β_2			
Intercept, γ_{20}	1.859	0.230	2.700*
Random Effect	Estimate	χ^2	df
Var (u_0) = τ_0	0.257	62.466**	36
Var (u_2) = τ_2	0.588	54.795*	39

* $p < .05$, ** $p < .01$, *** $p < .001$

Research Question 5

The fifth research question asks: How do variables at different ecological levels predict teaching about condoms? To answer this research question there were several sets of models that needed to be estimated. The first step was to estimate the model with no level-1 or level-2 predictors. This allowed for the intraclass correlation to be computed. The equation used to conduct this analysis was

Level-1 Model

$$\text{Condoms}_{ij} = \beta_0 + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

The level-1 equation above means that for a given classroom (i) in a given state (j), the teaching of condoms is predicted by the average teaching of condoms in that state (β_0) plus the amount that the classroom varies from that mean (r_{ij}). The level-2 equation indicates that a state's mean (β_0) is equal to the average teaching about condoms for all states (γ_0) plus the amount that the given state's slope differs from the average (u_1).

The results of this analysis provided estimates of σ^2 and τ_{00} . Resulting in the following computation for the intraclass correlation: $.009/(.143 + .009) = .060$. This indicates that only 6% of the variance in the teaching of condoms is between state variance and the remaining 94% of the variance is within state variance. This means that the majority of variance in teaching condoms is not accounted for by state but rather by differences between different classrooms in the same state.

Since the proportion of the variance that is between states is very small, there was no need to conduct follow-up analyses examining the proportion of the between state variance that is accounted for by the predictors. However since such a high percentage of the variance is within state, it was important to conduct follow-up analyses to determine the percentage of within state variance that is accounted for by the level-1 predictors of grade and need for teacher training. To do this the model shown below was run.

Level-1 Model

$$\text{Condoms}_{ij} = \beta_0 + \beta_1(\text{school level}) + \beta_2(\text{training}) + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

$$\beta_1 = \gamma_1$$

$$\beta_2 = \gamma_2$$

The level-1 equation above means that for a given classroom (i) in a given state (j), the teaching of condoms is predicted by the average teaching of condoms in elementary school classrooms in that state where the teacher feels the need for no additional training on sexuality related topics (β_0) plus the average slope for school level (β_1) plus the average slope of teacher's desire for training (β_2) plus the amount that the classroom varies from what is predicted for that state (r_{ij}).

The first level level-2 equation describes the prediction of the intercept of the level-1 equation. This equation says that the average teaching of condoms in elementary school classrooms in that state where the teacher feels the need for no additional training

on sexuality related topics (β_0) is computed by the average teaching of condoms (γ_0) plus the amount that given state varies from this mean (u_0).

Preliminary analyses indicated that the slopes of school level and teacher training were not significantly different by state and therefore were held constant in the current analysis, allowing for greater degrees of freedom (Randenbush & Bryk, 2002). The second level 2 equation addresses the prediction of the slope of school level in the level-1 equation above. This model shows that the slope of school level for a given state (β_1) is predicted by the average slope of school level for all states (γ_1). The third level-2 equation addresses the prediction of the slope of the teacher's desire for training level in the level-1 equation above. This model shows that the slope of desire for training in a given state (β_2) is predicted by the average slope of desire for training in all states (γ_2).

To obtain the proportion of within state variance accounted for by the predictor variables, the value for σ^2 obtained from the means-as-outcomes regression model was used along with the value for σ^2 obtained from the unconstrained model. The equation below was used to determine this proportion.

$$[\sigma^2(\text{unconstrained model}) - \sigma^2(\text{means as outcomes regression model})] / \sigma^2(\text{unconstrained model})$$

Results of this analysis showed $(.143 - .122) / .143 = .147$ or 15% of the within state variance is accounted for by grade and the teacher's desire for training. The results in Table 11 show that on average elementary school teachers with no desire for additional training teach something about condoms, ($\gamma_{00} = .06, p < .05$), however the value of the coefficient does indicate that these teachers often teach very little on the subject. While

teachers in higher level schools teach more about condoms ($\gamma_{01} = .21$, $p < .001$) and with teachers who have a greater desire for training teaching more about condoms ($\gamma_{01} = .121$, $p < .001$). Additionally Table 11 shows that there are significant between state differences in the average teaching of condoms for elementary teachers with no desire for additionally training.

These results taken together indicate that the majority of the variance in teaching abstinence is predicted by within state variance rather than between state variance and that while some of that variance is accounted for by school and teacher's desire for training, there is a great deal of variance that remains unaccounted for by the current predictors.

Research Questions 5c-5f

The models used to compute the results of research questions 5a through 5f can be seen below.

Level-1 Model

$$\text{Condoms}_{ij} = \beta_{0j} + \beta_{1j}(\text{school level})_{ij} + \beta_{2j}(\text{teacher training})_{ij} + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{abstinence policy}) + \gamma_{02}(\text{contraception policy}) + \gamma_{03}(\text{state sponsored training}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{abstinence policy}) + \gamma_{12}(\text{contraception policy}) + \gamma_{13}(\text{state sponsored training})$$

$$\beta_{2j} = \gamma_{20}$$

Table 11
The Relationship of Student Level and Desire for Training to Teaching about Condoms

Fixed Effect	Coefficient	SE	t-ratio
For base level for elementary grades, β_0			
Intercept, γ_0	0.060	0.023	2.613*
For rate of change from elementary school, β_1			
Intercept, γ_1	0.210	0.017	12.316***
Rate of change by desire for teacher training, β_2			
Intercept, γ_2	0.121	0.032	3.744***
Random Effect	Estimate	χ^2	df
Var (u_0) = τ_0	0.006	88.674***	42
Var (r) = σ^2	0.122		

* $p < .05$, *** $p < .001$

The level-1 model is the same as in the previous model. The level-2 models include some additional predictors. The first of these equations predicts the intercept of the level-1 model (β_{0j}), a given state's average teaching of condoms for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics. This equation shows that it is predicted by the average teaching of condoms for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics in all states (γ_{00}) plus the slope for abstinence policy (γ_{01}) plus the slope for contraceptive policy (γ_{02}) plus the slope of state sponsored teacher training (γ_{03}) plus the extent to which the given state differs from the average of all states regarding teaching of condoms for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics (u_{0j}).

The second level-2 equation looks for a relationship between teaching of condoms and school level. This model shows that the slope of school level for a given state (β_{1j}) is predicted by the average slope of school level for all states (γ_{10}) plus the slope for abstinence policy (γ_{11}) plus the slope for contraceptive policy (γ_{12}) plus the slope of state sponsored teacher training (γ_{13}). The third level-2 equation addresses the prediction of the slope of the teacher's desire for training in the level-1 equation above. This model shows that the slope of desire for training in a given state (β_{2j}) is predicted by the average slope of desire for training in all states (γ_{20}).

Table 12 shows that when level-2 predictors are included in the equation, on average elementary teachers who do not want more training on sexuality topics, coverage of condoms is not significantly different from zero ($\gamma_{00} = 0.028$, $p < .7$). While teachers in

Table 12
The Relationship of Teaching Condoms to School Level and Desire for Teacher Training

Fixed Effect	Coefficient	SE	t-ratio
Average topics taught for elementary classes with teachers feeling the need for no training on topics relating to sexuality, β_0			
Intercept, γ_{00}	0.028	0.062	0.451
Abstinence policy, γ_{01}	0.004	0.025	0.151
Contraception policy, γ_{02}	0.021	0.031	0.653
State sponsored training, γ_{03}	0.026	0.066	0.397
School level effect, β_1			
Intercept, γ_{10}	0.168	0.037	4.588***
Abstinence policy, γ_{11}	0.027	0.020	1.375
Contraception policy, γ_{12}	-0.010	0.023	-0.440
State sponsored training, γ_{13}	0.009	0.042	0.215
Desire for teacher training effect, β_2			
Intercept, γ_{20}	0.120	0.032	3.764***
Random Effect	Estimate	χ^2	df
Var (u_0) = τ_0	0.005	81.007***	39
Var (r) = σ^2	0.122		

***p<.001

higher level schools teach more about condoms than teachers in lower level schools, none of the state policy variables significantly predict the teaching of condoms. There is however a significant relationship between the desire for teacher training and the teaching of condoms, with teachers who want more training, teaching more about condoms than teachers who do not want more training on sexuality topics.

Research Question 6

How do variables at different ecological levels predict the teaching of pregnancy prevention? To answer the final research question there are also several sets of models that needed to be estimated. The first step was to estimate the model with no level-1 or level-2 predictors. This then allowed for the intraclass correlation to be computed, providing the proportion of the variance in the outcome variable that is between states. The equation used to conduct this analysis was

Level-1 Model

$$\text{Pregnancy prevention}_{ij} = \beta_0 + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

The level-1 equation above means that for a given classroom (i) in a given state (j), the teaching of pregnancy prevention is predicted by the average teaching of pregnancy prevention in that state (β_0) plus the amount that the classroom varies from that mean (r_{ij}). The level-2 equation indicates that a state's mean (β_0) is equal to the average teaching of pregnancy prevention for all states (γ_0) plus the amount that the given state differs from the average (u_0).

The results of this analysis provided estimates of σ^2 and τ_{00} . Resulting in the following computation for the intraclass correlation. $.003/ (.177 + .003) = .016$. This indicates that only 2% of the variance in the teaching of pregnancy prevention is between state variance and the remaining 98% of the variance is within state variance. This means that the majority of variance in teaching pregnancy prevention is not accounted for by state but rather by differences between different classrooms in the same state.

Since the proportion of the variance that is between states is very small, there is no need to conduct follow-up analyses examining the proportion of the between state variance that is accounted for by the predictors. However since such a high percentage of the variance is within state, it is important to conduct follow-up analyses to determine the percentage of within state variance that is accounted for by the level-1 predictors of grade and need for teacher training. To do this the model shown below was run.

Level-1 Model

$$\text{Pregnancy prevention}_{ij} = \beta_0 + \beta_1(\text{grade}) + \beta_2(\text{training}) + r_{ij}$$

Level-2 Model

$$\beta_0 = \gamma_0 + u_0$$

$$\beta_1 = \gamma_1$$

$$\beta_2 = \gamma_2$$

The level-1 equation above means that for a given classroom (i) in a given state (j), the teaching of pregnancy prevention is predicted by the average teaching of pregnancy prevention in elementary school classrooms in that state where the teacher feels the need for no additional training on sexuality related topics (β_0) plus the average

slope for school level (β_1) plus the average slope of teacher's desire for training (β_2) plus the amount that the classroom varies from what is predicted for that state (r_{ij}).

The first level-2 equation describes the prediction of the intercept of the level-1 equation. This equation says that a state's mean for teaching pregnancy prevention in elementary school classrooms in that state when the teacher feels the need for no additional training on sexuality related topics (β_0) is equal to the average teaching of pregnancy prevention plus the amount that the given state differs from the average for all states (u_0). Preliminary analyses indicated that the slopes of school level and teacher training were not significantly different by state and therefore were held constant in the current analysis. This also allowed for greater degrees of freedom (Randenbush & Bryk, 2002).

The second level-2 equation addresses the prediction of the slope of school level in the level-1 equation above. This model shows that the slope of school level for a given state (β_1) is predicted by the average slope of school level for all states (γ_1). The third level-2 equation addresses the prediction of the slope of the teacher's desire for training in the level-1 equation above. This model shows that the slope of desire for training in a given state (β_2) is predicted by the average slope of desire for training in all states (γ_2).

To obtain the proportion of within state variance accounted for by the predictor variables, the value for σ^2 obtained from the means-as-outcomes regression model was used along with the value for σ^2 obtained from the unconstrained model. The equation below was used to determine this proportion.

$[\sigma^2(\text{unconstrained model}) - \sigma^2(\text{means as outcomes regression model})] / \sigma^2(\text{unconstrained model})$

Results of this analysis showed $(.177 - .151) / .177 = .124$ or 12% of the within state variance is accounted for by grade and the teacher's desire for training. The results in Table 13 shows that on average elementary schools do not teach about pregnancy prevention, however teachers in higher level schools teaching more about pregnancy prevention than teachers in lower level schools and teachers who have a greater desire for training, teaching more about pregnancy prevention than teachers with less desire for training. These results taken together indicate that the majority of the variance in teaching pregnancy prevention is predicted by within state variance rather than between state variance and that while school level and teacher training predict some of this variance, there is a quite a bit of variance that remains unaccounted for by the current predictors.

Research Questions 6c-6f

The models used to compute the results to these questions can be seen below.

Level-1 Model

$$\text{Pregnancy prevention}_{ij} = \beta_{0j} + \beta_{1j}(\text{school level})_{ij} + \beta_{2j}(\text{teacher training})_{ij} + r_{ij}$$

Table 13
The Relationship of Student Level and Desire for Training to Teaching about Pregnancy Prevention

Fixed Effect	Coefficient	SE	t-ratio
For base level for elementary grades, β_0			
Intercept, γ_0	-0.006	0.016	-.420
School level effect, β_1			
Intercept, γ_1	0.234	0.017	14.039***
Desire for teacher training effect, β_2			
Intercept, γ_2	0.100	0.036	2.766**
Random Effect	Estimate	χ^2	df
Var (u_1) = τ_0	0.002	56.453+	42
Var (r) = σ^2	0.151		

+ $p < .10$, ** $p < .01$, *** $p < .001$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{abstinence policy}) + \gamma_{02}(\text{contraception policy}) + \gamma_{03}(\text{state sponsored training}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{abstinence policy}) + \gamma_{12}(\text{contraception policy}) + \gamma_{13}(\text{state sponsored training})$$

$$\beta_{2j} = \gamma_{20}$$

The level-1 model is the same as above. The level-2 models include some additional predictors. The first of these equations predicts the intercept of the level-1 model (β_{0j}), a given state's average teaching of pregnancy prevention for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics. This is predicted by the average teaching of pregnancy prevention for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics in all states (γ_{00}) plus the slope for abstinence policy (γ_{01}) plus the slope for contraceptive policy (γ_{02}) plus the slope of state sponsored teacher training (γ_{03}) plus the extent to which the given state differs from the average of all states regarding teaching of pregnancy prevention for elementary school classrooms where the teacher feels the need for no additional training on sexuality related topics (u_{0j}).

The second level-2 equation looks for a relationship between teaching of pregnancy prevention and school level. This model shows that the slope of school level for a given state (β_1) is predicted by the average slope of school level for all states (γ_{10}) plus the slope for abstinence policy (γ_{11}) plus the slope for contraceptive policy (γ_{12}) plus the slope of state sponsored teacher training (γ_{13}). The third level-2 equation addresses

the prediction of the slope of the teacher's desire for training level in the level-1 equation above. This model shows that the slope of desire for training in a given state (β_2) is predicted by the average slope of desire for training in all states (γ_{20}).

Table 14 shows that on average, for elementary teachers who do not feel that they need more training on sexuality topics, coverage of pregnancy prevention is not significantly different from zero ($\gamma_{00} = 0.003$, $p < .95$). Additionally there is a significant relationship between school level and the teaching of pregnancy prevention. Surprisingly this relationship is also significantly predicted by the state's abstinence policy. This relationship indicates that the greater emphasis a state places on abstinence the stronger the relationship between teaching pregnancy prevention and school level. Figure 4 shows the relationship of school level and teaching of pregnancy prevention based upon state abstinence policy. Figure 4 assumes that the teacher does not desire additional training.

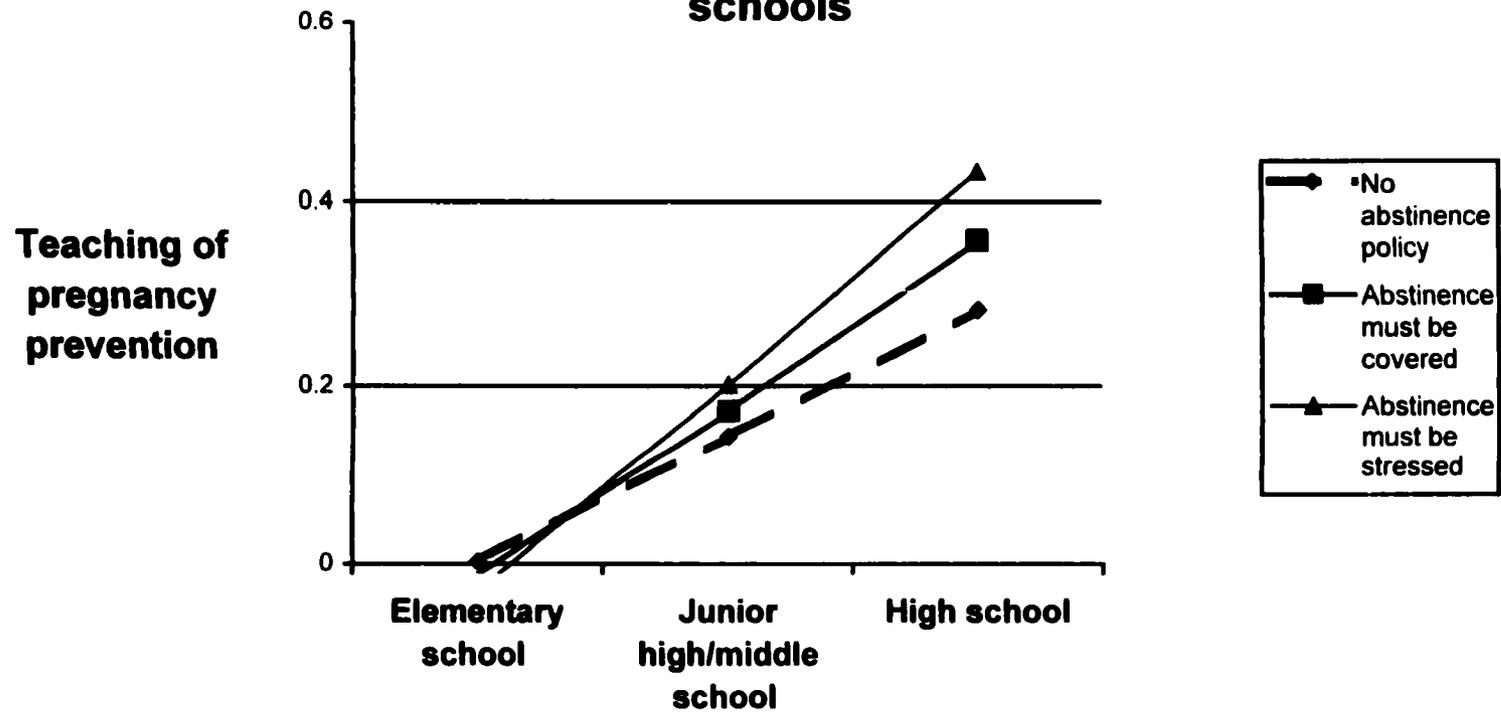
Teacher's desire for training also significantly predicts the teaching of pregnancy prevention. Table 14 shows that teachers who feel that they need more training on sexuality related topics teach more pregnancy prevention topics ($\gamma_{20} = 0.101$, $p < .01$). Additionally τ_0 shows that there is no significant variation between states in the average teaching of pregnancy prevention in elementary schools for teachers with no desire for additional training.

Table 14
The Relationship of Teaching Pregnancy Prevention to School Level and Desire for Teacher Training

Fixed Effect	Coefficient	SE	t-ratio
Average topics taught for elementary classes with teachers feeling the need for no training on topics relating to sexuality, β_0			
Intercept, γ_{00}	0.003	0.420	0.081
Abstinence policy, γ_{01}	-0.017	0.017	-0.963
Contraception policy, γ_{02}	0.013	0.023	0.543
State sponsored training, γ_{03}	0.013	0.048	0.266
Rate of change by school level, β_1			
Intercept, γ_{10}	0.140	0.033	4.200***
Abstinence policy, γ_{11}	0.046	0.017	2.737**
Contraception policy, γ_{12}	-0.011	0.017	-0.657
State sponsored training, γ_{13}	0.039	0.041	0.955
Desire for teacher training effect, β_2			
Intercept, γ_{20}	0.101	0.036	2.820**
Random Effect	Estimate	χ^2	df
Var (u_2) = τ_0	0.001	47.248	39
Var (r) = σ^2	0.151		

** $p < .01$, *** $p < .001$

Figure 4: The relationship of state abstinence policy to school level and the teaching of pregnancy prevention in schools



CHAPTER 5: DISCUSSION

The primary goal of the current study was to explore the relationships between predictors at multiple levels (state and classroom) and sexuality education course content in relation to developmental needs of youth. According to Bronfenbrenner (1986), human development is impacted by both proximal and distal contextual factors, including social policy. Furthermore understanding social policy as it impacts the lives of young people is an important role for developmental research (Moen, 1995). The current study utilizes this perspective to examine sexuality education content. This study is unique in that it uses Hierarchical Linear Modeling to examine the impact of state level policy on the information that is provided to young people.

Three main issues were addressed in this study. The first examined topics which discriminated among different levels of schools. The second addressed the extent to which state policy mandates differed based upon the level of the school they targeted. The third main issue was to assess how state and classroom level variables interact to predict the teaching of specific sexuality related topics.

This study resulted in three primary findings. First, both course content and state policies were significantly different by school level. Second and perhaps somewhat surprisingly, despite the attention of politicians, NGOs and the media, state policy was not found to be a good predictor of the course content being taught in the classroom. The third main finding of this study was that teachers' desires for additional training significantly predicted the sexuality education course content taught in schools. These

findings have serious implications for both research and practice. Each will be addressed both individually and then as a whole in the following discussion.

School Level Effects

Course Content

The first research question specifically focused on providing a picture of what topics are actually taught at various school levels. The analysis indicated that consistent with previous research (Kaiser Family Foundation, 1999), all sexuality education topics are taught more frequently to older students than to younger students. The discriminant analysis also indicated that some topics when taken together are able to discriminate between school levels. This is consistent with what the developmental literature indicates is appropriate as older adolescents have an increasingly greater need for information about certain topics, specifically STDs, condoms, and contraception (CDC, 2001).

The results indicated that human development issues are more likely to be taught in junior high/middle school than elementary school. This is despite the possibly increased importance of learning about human development for very young students who are about to experience or are in the midst of puberty. Some researchers have hypothesized that learning about puberty prior to its occurrence will lead to less anxiety about the experience (Graber et al., 1996; Ryan, et al., 1996).

Despite this one area for concern, these findings are consistent with literature suggesting that older students have more complex needs around sexuality than younger students (Koch, 1993; Miller & Benson, 1999). They also have higher rates of sexual intercourse, and decreasing rates of condom use as birth control pills gain popularity

among older adolescents (CDC, 2001). Additionally, a number of models of sexuality education both in North America and Europe would suggest that teaching more information to older students and less to younger students is an appropriate and desirable practice (Berne & Huberman, 2000; Lenderyou, 1994; SIECUS, 1996).

In both the United Kingdom and France, countries with a lower prevalence of negative consequences related to sexual behavior than the United States, the teaching of some limited topics early on and then increasing the type and quantity of information as students age is encouraged (Berne & Huberman, 2000; Lenderyou, 1994). SIECUS (1996) has published guidelines for educators in the United States recommending that they increase the type and quantity of information provided to children as they mature. However, these guidelines advocate the inclusion of many more details than the current data suggest are being integrated into classrooms. For example, SIECUS recommends first introducing the concepts of sexual orientation and contraception during elementary school and educating junior high/middle school students about the importance of using contraception unless trying to get pregnant.

Policy

The research on adolescent sexuality clearly indicates that as adolescents age their experiences around sexuality change (CDC, 2001; Koch, 1993), thus resulting in changing needs regarding sexuality education. Consistent with these changing needs, results of this study indicate that schools with older students are mandated to teach a greater number of sexuality related topics than are lower level schools. This finding is important, as policies are intended to guide teachers and schools in what they teach

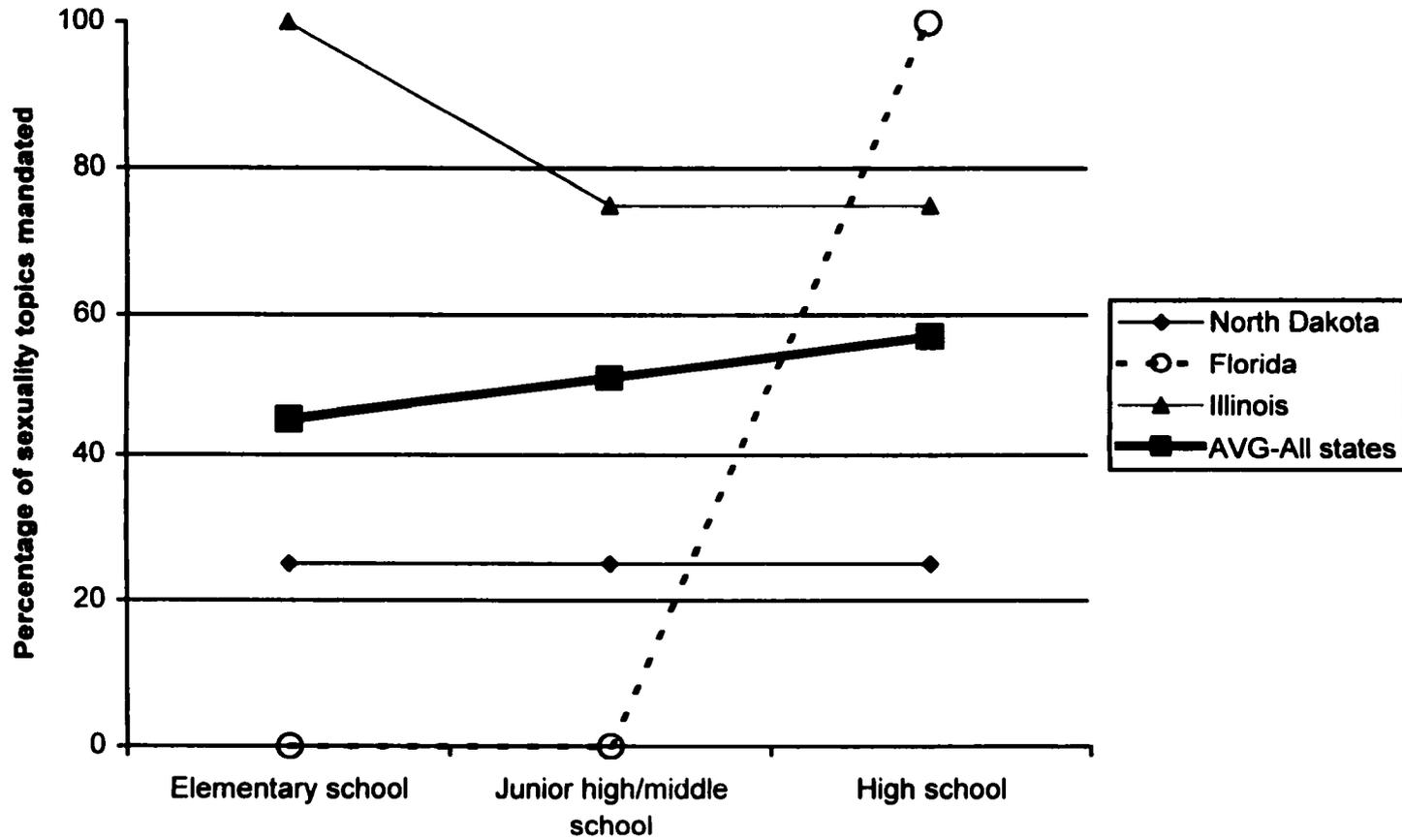
young people. Insuring that state policies acknowledge developmental differences in students is a key role that developmental policy research can play.

Results also indicate that this finding did vary across states. There is significant between state variation in both the average policy mandate for all elementary schools and the degree to which policy mandates change by school level. While not a representation of all states, Figure 5 provides a snapshot of how some of the data appear visually. This figure illustrates some possible ways in which the slopes and intercepts can vary from the average. The average state policy mandates teaching some topics in elementary school with a slight increase as students age, while individual states vary both in the policy mandate for elementary schools and the change in policy mandates from elementary school to the higher level schools.

The Role of Policy in Sexuality Education

Few studies have focused on state policy as a factor in the sexual development of young people. This is not to say that people across disciplines do not consider state policy important. In fact, some advocacy organizations dealing with issues of adolescent sexuality have published fact sheets, monographs and editorials focusing specifically on state policy and school-based sexuality education (Alan Guttmacher Institute, 2001; Kaiser Family Foundation, 2000). Additionally, SIECUS, the only national organization with an exclusive focus on sexuality education, recently created a new position in their Washington, D.C. office focusing exclusively on state policy (Fox, personal communication, July 24, 2002).

Figure 5: Sample Relationships of State Policy to School Level



With all of these indications of the perceived importance of state policy on sexuality education, it is surprising that the results of this study indicate that state policy plays a very small role in the topics that are addressed in school-based sexuality education classes. In fact, the amount of between state variance in topics taught ranged from two to nine percent; the remaining 91% to 98% of the variance were explained not by state but by classroom variation within the same state. As mentioned previously, school level and teacher's desire for training were significant predictors of the topics taught. Between 10% and 15% of the within state variance was explained by these two variables. For each of the topics, both school level and teacher's desire for training were significant predictors of the topics taught.

Furthermore, state policy accounted for a very small percentage of the variance in topics taught. Contraception policy and state sponsored training on sexuality topics did not significantly predict the teaching of any of the sexuality topics. However, abstinence policy was a significant predictor of teaching about abstinence and marriage and pregnancy prevention, although it does not significantly predict teaching about sexual orientation/identity or condoms.

In states where a greater emphasis on abstinence is required, older students are taught more information about abstinence and marriage and pregnancy prevention than in states that do not require that abstinence be stressed. Abstinence and marriage is taught less in elementary school classes in states that require that abstinence be stressed than in states that do not require that abstinence be stressed.

Teachers' Desires for Additional Training

Kirby (1997) found that well-trained teachers were more likely to be effective at teaching their students to refrain from risky sexual behaviors. Therefore, it was somewhat surprising that those teachers who felt the need for more information about sexuality were more likely to teach about sexuality than are those teachers who did not desire additional training. This initially may appear troubling. All four research questions found that teachers who felt the need for more training on sexuality topics taught more of all four of the topics studied.

The current study does not provide sufficient information to necessarily explain this finding. While it is possible that those teachers who have less training in sexuality topics are teaching them more frequently than other teachers, there is another possible explanation. A more encouraging possibility is that teachers who teach sexuality topics may be more interested in learning more about them and therefore would like more information about them, not because they feel incompetent, but rather because they are genuinely interested in the topic area and have more experience with student questions and concerns. Therefore, it may be their interest in and experience with the topic area that accounts for both the greater coverage of sexuality related topics and the desire for more training.

Consideration of Findings

Taken together these three overall findings indicate school-based sexuality education may be less political and more responsive to student needs than one might have expected. Despite vocal political debates about the context and content of sexuality

education, results of the current study indicate that at least in some classrooms, young people are provided with the opportunity to receive developmentally appropriate sexuality education.

Through the use of multi-level statistical analyses it can be seen that to the extent course content is developmentally appropriate, teachers more than policy-makers appear to be responsible. In a time when funding restrictions and limitations imposed by both state and local governments have made developmentally appropriate sexuality education difficult, it is essential that these results be interpreted as an accomplishment for some teachers rather than a failure for some policy-makers. However, this is not to say that these results indicate that sexuality education in this country is adequate. According to the current study approximately one-third of health teachers did not address any sexuality education topics at all and two-thirds of health teachers did not discuss pregnancy prevention or sexual orientation/identity. These figures indicate that despite trends in the appropriate direction, comprehensive sexuality education still has a long way to go before it is readily available to all young people.

Results of this study provide unequivocal support to the notion that classroom level variables predict much more of the variance in course content than does state policy. Hence, classroom teachers likely play a more important role in determining the sexuality education course content than is often acknowledged. In a Kaiser Family Foundation (1999) survey of public school principals, over 70% of principals indicated teachers do not have the ability to choose their own course materials. The current study

finds that despite teachers' inability to make decisions regarding curriculum materials, they do make the final decision in what information they provide in the classroom.

Yet, teachers are not alone in the classrooms where they teach. The results of the current study show that teacher characteristics do explain some of the variance in course content, however there is still a great deal of unexplained variance at the classroom level. The current study did not address the role of students in determining the topics that are discussed as part of school-based sexuality education. Research shows that as young people develop they are likely to become more interested in issues relating to sexuality, with older youth especially becoming more focused on romantic relationships and the sexual relationships that often accompany them (Granello, 1997). This increased interest on the part of the student may account for some of the increases in topics covered in classes of older students.

The current study did not include data to test this hypothesis. However, developmental research suggests that adolescence is a period where young people often believe they are becoming more responsible and more deserving of respect and decision-making opportunities (Eccles, Lord & Buchanan, 1996). This belief could lead them to initiate more conversations in the classroom, especially about topics that are of interest to them, such as sexuality. This could explain the large amount of classroom level (not state) variability in topics covered and the greater number of topics addressed. This would also explain the greater desire for training on sexuality by teachers who address these issues. If this is the case, then classroom environment including factors such as students' relationships with one another and the teacher's willingness to respond to issues

brought up by the students, could predict sexuality education course content.

Additionally, it is likely that teachers' understanding of their students and their students' developmental needs regarding sexuality may be responsible for these findings, as teachers attempt to cover topics that will help their students develop into sexually healthy adults.

One finding from the current study indicated that in states requiring that abstinence be stressed, older students are provided with sexuality education on more topics than are younger students, specifically abstinence and marriage and pregnancy prevention. Furthermore, elementary teachers in those states provide less information on abstinence and marriage than do elementary teachers in other states. This finding may indicate that teachers in states that require abstinence be stressed may try to provide sexuality education that increases as students age, within the confines of their states policies. What is surprising is that there is no effect of contraception policy on either teaching about condoms or pregnancy prevention.

The developmental and evaluation literature suggest that it is appropriate for young people of all ages to receive information on abstinence and marriage (Kirby, 2001). Additionally the literature suggests that as adolescents age they are more likely to have engaged in sexual intercourse, perhaps making teaching about condoms and pregnancy prevention more important (CDC, 2001). While this does not lessen the importance of including teaching about abstinence and marriage, it does change the priorities in case of the time constraints that teachers often encounter (Castle & Watts, 2000). In sum, while teachers are more likely to teach about abstinence and marriage as

students age, it is worth investigating if this practice is consistent with the developmental needs of the students, who are encountering progressively more complex sexual situations as they age (Koch, 1993; Miller & Benson, 1999).

The discussion above attempts to explain some of the factors that may be operating on a classroom level based upon the results of the current study. However they do not discuss what could be going on at a state level. It is possible that state policies are either not enforced and/or not publicized. State departments of education are often overburdened with little time to either train classroom level teachers or even inform them of state policies regarding sexuality education. This could result in teachers who are unaware of the policies of their state or are untrained in how to implement them, possibly explaining the small amount of variance explained by state policy.

A second possibility is that state policies do not require enough from schools. States make policies that legislate the absolute minimums of what must be taught to students. Research has shown that in the area of sexuality education, parents, teachers, school administrators and students are in agreement that the minimum is not enough (Kaiser Family Foundation, 1999, 2002). Young people need enough information to make informed choices. Perhaps state policies are not requiring that and therefore there is very little between state differences in the sexuality education topics taught.

Limitations To The Current Study

The current study was intended as a first attempt to understand the role of proximal and distal contexts in shaping a young person's environment relating to sexuality education. What makes this research so unique and important is the inclusion

of developmental and policy variables within the same research. Additionally, the use of multi-level statistical analysis allows for an examination of how these contexts work together to create an environment, that research has told us, is a strong predictor of sexual behavior in adolescents (Kirby, 2001, Visser & van Bilsen, 1994).

This study provides a means of examining state policy as a predictor of sexuality education course content and thus a key influence on the sexual development of young people. However, there are a number of limitations to the current study. The data were collected for purposes other than the current research and hence these data do not perfectly match the needs of the current study. To conduct this research it was imperative to have a nationally representative sample, large sample size and a high response rate. To obtain a data set with these characteristics, some other characteristics of the data needed to be compromised.

In particular, the outcome variables used in the current study only provide an indication of whether or not the topic is covered, but do not specifically address how much or what type of information is provided. The most glaring example of this is the question regarding condom efficacy. While many educators teach that condoms when used properly can be an effective means of preventing HIV/AIDS, STDs and pregnancy, others teach that condoms often fail. Both of these approaches address the efficacy of condoms however they do so in very different ways that could not possibly be captured by the current data.

Furthermore, it is possible that a teacher could address many topics in a single classroom session on sex education. Prevention research tells us that for education to

have an impact on student outcomes it must be sustained over an adequate period of time (Kirby, 1997; Dusenbury, Falco & Lake, 1997) and we do not have data on the amount of time spent on each specific topic. A final concern with the teacher data is that there is no indication if the teacher responding is the only teacher providing sexuality education to students. This is a minor concern since we do know that to be included in the sample they must be responsible for teaching courses that were partially or entirely focused on health, and sexuality is certainly related to health and could be incorporated.

There are also some limitations on the policy variables. Two separate types of policy variables were used in this study to assess policy in multiple ways in different questions. Due to the great variation in state policies the most efficient way to quantify policy data is to use measures that simplify the policies and assess standard issues within each policy. To account for this complexity, the SHPPS policy variable only captured mandates to teach general topic areas. SHPPS did, however, distinguish among policies for elementary, junior high/middle school and high school. The Alan Guttmacher data provided a bit more information on the content of the policy but did not attempt to address differences in school levels within the state. By using both measures in different ways the current study attempted to maximize the available data. Future research could benefit from more specific policy variables that more accurately address both content and school level considerations.

Directions For Future Research

The current study has provided strong support for a rich new area of developmental research. When legislation passes, policy analysts from both within and

outside the government spend time analyzing and reporting on the policy. However, in most instances policy analysts are not trained developmental researchers, while developmental researchers rarely focus on studying policy. The current study highlights the importance of research that addresses policy from a developmental perspective.

Future research should address the intersection of not only state policy but also local policy and classroom characteristics as a means of better understanding sexuality education practices and their effectiveness. Additionally, it is important that when these studies are completed, results are interpreted and disseminated in such a way as to be accessible to policy makers, students, school administrators, teachers and parents. The true implications of this type of research can only be realized when they are utilized to improve school-based sexuality education thereby ensuring developmentally appropriate education that results in sexually healthy young people.

The current study highlights the utility in using multi-level statistics to conduct this type of research, thereby distinguishing the unique contributions of both proximal and distal variables to developmental phenomena. Future research should follow this model of examining state policies with developmental implications with more proximal variables. In particular there is the need to take the current research one step further by examining policy as a predictor of sexual health. This would involve collecting policy data as well as indicators of sexual well-being from youth.

The current study also highlights the importance of teachers as a predictor of sexuality education course content. Future research should build upon this finding to begin to develop an understanding of how this relationship operates. Although the

classroom level variables included in the current study were significant predictors of course content, there is still a large amount of variance that remains unexplained. Future research should focus on teacher characteristics as a means of accounting for within state (between classroom) differences. Teacher characteristics including desire for training but also knowledge and attitudes about sexuality, should be included in evaluations of sexuality education programs to determine how teacher characteristics, affect the learning that occurs in the classroom about sexuality. Furthermore it is important to determine what if any other teacher characteristics influence the teaching of sexuality related topics in school.

Implications For Practice

Beyond future research, the current study has implications for practice. Regardless of the trends reported in the current study, only 66% of the health classes in the current sample included any information on human sexuality, HIV/AIDS, STDs or pregnancy prevention. As all young people need access to quality sexuality education, it is an important goal to continue to improve the ability of schools to provide this education.

Since the majority of educational policy is developed at the state and local levels (Bullough et al., 1998; Imber & van Geel, 2000) a great deal of effort by NGOs and advocacy organizations is focused on influencing state policies. If, as the current study shows, state policy only minimally impacts what is taught in school-based sexuality education classes, these efforts and resources may be misplaced. Perhaps these organizations should re-evaluate their activities and provide less focus on changing state

policy and a greater focus on those characteristics which might better influence sexuality education course content, such as providing education to classroom teachers.

One area of future consideration should be providing teacher education that fits the needs of interested educators. Since teachers who desire more training teach more sexuality topics, filling the training needs of these teachers should be an important goal. Additionally, since the most sexuality topics are taught in higher level schools, high schools and even junior high/middle schools should focus on hiring teachers who are both interested and informed about sexuality topics.

Summary

The current study has provided a unique blend of developmental research and policy analysis that provides valuable information on school-based sexuality education. This research resulted in a number of new questions that need answers, as well as some implications for practice. This study highlights the importance of utilizing hierarchical models to develop a better understanding of the interrelations of various contexts that influence young peoples' development. A traditional linear model could not capture the meaning gleaned from this analysis. By building upon the findings from the current study researchers can develop a clearer understanding of the intersection between policy and developmental research particularly in regard to sexuality education. These findings may hold particular significance for professionals who work in the field of sexuality education. By using research results to influence practice, sexuality education can be improved thus promoting the development of sexually healthy young people.

APPENDIX A: Human Subjects Exemption Letter

Human Subjects Protection Program
http://www.irb.arizona.edu



1350 N. Pine Avenue
P.O. Box 245137
Tucson, AZ 85724-5137
520/636-6721

4 October 2002

Karen Hoffman, Ph.D. Candidate
Advisor: Sherry Betts, Ph.D.
School of Family/Consumer Sciences
FCS Building, Room 103
PO BOX 210033

RE: SHPPS 2000

Dear Ms. Hoffman:

We received documents concerning your above cited project. This project involves secondary analysis of existing, publically-available data (without individual identifiers). Therefore, regulations published by the U.S. Department of Health and Human Services [45 CFR Part 46.101(b) (4)] exempt this type of research from review by our Institutional Review Board.

Exempt status is granted with the understanding that no further changes or additions will be made to the procedures followed (which we have on file) without the review and approval of the Human Subjects Committee and your College or Departmental Review Committee.

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely,

A handwritten signature in cursive script that reads "Rebecca Dahl".

Rebecca Dahl, R.N., Ph.D.
Director
Human Subjects Protection Program

RD/js
cc: Departmental/College Review Committee

APPENDIX B: Health Education Classroom Questionnaire

Form Approved
OMB No: 0920-0445
Expiration Date: 10/31/2002

Health Education Classroom Questionnaire

Health Education Classroom Questionnaire

Questions

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Physical Activity.....	32 – 34
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Public reporting burden for this collection of information is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: CDC ATSDR Reports Clearance Officer, 1600 Clifton Road NE, Mailstop D-24, Atlanta, GA 30333, Attention PRA (0920-0445).

Special Instructions

This questionnaire will be administered using Computer Assisted Personal Interviewing. The interviewer will read the questions aloud and type responses to the questions into the laptop computer. The interview program will 1) display the correct tense of verbs, 2) provide alternate answers to questions (e.g., not applicable, "I don't know"), 3) navigate complex skip patterns, 4) access information that was provided in previous contact with a school, and 5) perform other useful functions. The programming specifications for the interview are not included in this printed version of the questionnaire.

If you would like more information about this study or would like clarification of any questions in this questionnaire, please call Tim Smith at 1-800-647-9664, extension 6095.

General Course Characteristics and Content

If this is an elementary school, answer Q1-Q3. If this is a middle, junior, or senior high school, skip to Q4.

1. I would like to talk with you about teaching health topics in _____ grade. Are you currently teaching health topics to a group of _____ graders?

Yes.....1
 No.....2

→ Thank you for your time and patience. That is the end of the interview.

2. How many different groups of _____ graders are you teaching health topics to?
 _____ Groups

If only one group, skip to Q10. Otherwise, continue with Q3.

3. For this interview, I need to ask about one specific group. If you would name each group, for example your "morning class" or your "afternoon class," I will type the names into the computer. The computer will then select the group that I will ask about during the interview. Please tell me the names of all the groups.

- Group 1 _____
- Group 2 _____
- Group 3 _____
- Group 4 _____
- Group 5 _____
- Group 6 _____
- Group 7 _____
- Group 8 _____
- Group 9 _____
- Group 10 _____
- Group 11 _____
- Group 12 _____

The computer has selected _____. Throughout this interview, please think about

General Course Characteristics and Content

what will take place by the time you finish teaching this group of _____ graders.

Skip to Q10.

4. During this interview, I would like to talk about teaching _____. In what month and year did you last finish teaching a section of the class?

_____ Month
 _____ Year

5. In what month and year did you begin teaching that section of the class?

_____ Month
 _____ Year

6. Are you currently teaching a section of the class?

Yes..... 1
 No 2

7. At that time, how many sections of the class were you teaching?

_____ Sections

If only one section, skip to Q9. Otherwise, continue with Q8.

General Course Characteristics and Content

8. For this interview, I need to ask about one specific class section. If you would name each section, for example your "first period class" or your "afternoon period," I will type the names into the computer. The computer will then select the section that I will ask about during the interview. Please tell me the names of all the sections.

Section 1 _____
 Section 2 _____
 Section 3 _____
 Section 4 _____
 Section 5 _____
 Section 6 _____
 Section 7 _____
 Section 8 _____
 Section 9 _____
 Section 10 _____
 Section 11 _____
 Section 12 _____

The computer has selected _____. Throughout this interview, please think about what took place when you taught this class section.

SHOW CARD 1

9. Which one of the statements listed on this card best describes the class? Was this class...

Devoted to health topics, such as alcohol or other drug
 use prevention?.....1
 A combined health education and physical education
 class?.....2
 Mainly about some subject other than health education,
 such as science, social studies, or English?.....3

10. At the end of the class, how many students were enrolled in the class?

_____ Students

SHOW CARD 2

General Course Characteristics and Content

11. Please look over this list to see what health topics I am including in health education. As I read the topics listed on the card, please tell me if you taught about each one in the class. By teach, I mean some advanced planning on your part was involved; the subject was not just brought up in class. Did you teach about...

	Yes	No
1. Personal hygiene?	1	2
2. Dental and oral health?	1	2
3. Nutrition and dietary behavior?	1	2
4. Physical activity and fitness, that is classroom instruction, not a physical activity period?	1	2
5. Growth and development?	1	2
6. Human sexuality?	1	2
7. Pregnancy prevention?	1	2
8. HIV (human immunodeficiency virus) prevention?	1	2
9. STD (sexually transmitted disease) prevention?	1	2
10. Emotional and mental health?	1	2
11. Suicide prevention?	1	2
12. Death and dying?	1	2
13. Tobacco use prevention?	1	2
14. Alcohol or other drug use prevention?	1	2
15. Violence prevention, for example bullying, fighting, or homicide?	1	2
16. Accident or injury prevention?	1	2
17. CPR (cardiopulmonary resuscitation)?	1	2
18. First aid?	1	2
19. Immunizations or vaccinations?	1	2
20. Sun safety or skin cancer prevention?	1	2
21. Consumer health, such as choosing sources of health-related information, products, and services wisely?	1	2
22. Environmental health, such as how air and water quality can affect health?	1	2

Accident or Injury Prevention

If you have taught about accident or injury prevention in the class (Q11p is Yes), answer Q14-Q16. Otherwise, skip to Q17.

SHOW CARD 3

14. Next, I am going to ask about instruction on ways to prevent unintentional injuries or accidents like car crashes, fires, or drownings. As I read the topics listed on this card, please tell me if you taught about each one in the class. When you taught about accident or injury prevention, did you teach about...

	Yes	No
1. Fire safety?	1	2
2. Water safety?.....	1	2
3. Road or transportation safety?	1	2
4. Use of protective equipment for biking, skating, or other sports ?.....	1	2
5. First aid or CPR ?.....	1	2

Accident or Injury Prevention**SHOW CARD 4**

15. As I read the topics listed on this card, please tell me if you taught about each one. Did you teach about...

	Yes	No
1. How many young people do things that cause accidents like drinking and driving?.....	1	2
2. The number of injuries and deaths from accidents such as the number of people who die from fires or drownings?	1	2
3. The influence of families on risk behaviors related to accidents?	1	2
4. The influence of the media on risk behaviors related to accidents?	1	2
5. Social or cultural influences on risk behaviors related to accidents?	1	2
6. How to find valid information or services to prevent accidents?	1	2
7. Communication skills to avoid accidents such as convincing friends not to drink and drive?	1	2
8. Decision-making skills to avoid accidents such as deciding to wear a bike helmet?	1	2
9. Goal-setting skills to protect oneself from accidents such as learning to swim before going boating?	1	2
10. Resisting peer pressure that would increase risk of accidents?	1	2
11. How students can influence or support others to prevent accidents?	1	2

Accident or Injury Prevention

16. How many hours did you spend teaching about accident or injury prevention?

Less than 1 hour	0
1 Hour	1
2 Hours	2
3 Hours	3
4 Hours	4
5 Hours	5
6 Hours	6
7 Hours	7
8 Hours	8
9 Hours	9
10 Hours	10
11 or more hours	11

Violence Prevention

If you taught about violence prevention in the class (Q11o is Yes), answer Q17-Q19.
Otherwise, skip to Q20.

SHOW CARD 5

17. The next several questions are about instruction on violence prevention and intentional injuries, including topics such as bullying, fighting, or homicide. As I read the topics listed on this card, please tell me if you taught about each one in the class. When you taught about violence prevention and intentional injuries, did you teach about...

	Yes	No
1. Personal safety, for example, dealing with strangers?	1	2
2. Anger management?	1	2
3. Bullying?	1	2
4. Risks associated with physical fighting?	1	2
5. Techniques to avoid interpersonal conflicts and fights?	1	2
6. Prosocial behaviors such as cooperation, praise, or showing support for others?.....	1	2
7. Gun safety?	1	2
8. Sexual harassment?.....	1	2
Answer i and j if this is a middle, junior, or senior high school.		
9. Dating violence?.....	1	2
10. Sexual assault?	1	2
Answer k if this is an elementary school.		
11. Inappropriate touching?	1	2
12. How to handle stress in healthy ways?	1	2
13. Recognizing stressors and signs of depression that might be associated with suicide?.....	1	2
14. What to do if someone is thinking about suicide?	1	2

SHOW CARD 6

18. As I read the topics listed on this card, please tell me if you taught about each one. Did you teach about...

	Yes	No
1. How many young people do things that can lead to violence or suicide, like carrying a weapon?	1	2
2. The number of injuries or deaths from violence or suicide, such as the number of people who commit suicide?	1	2
3. The influence of families on suicidal behaviors or violence?	1	2
4. The influence of the media on suicidal behaviors or violence?	1	2
5. Social or cultural influences on suicidal behaviors or violence?	1	2
6. How to find valid information or services to prevent suicidal behaviors or violence?	1	2
7. Communication skills to avoid violence, such as talking out problems?	1	2
8. Decision-making skills to avoid violence, such as deciding to walk away from conflicts?	1	2
9. Goal-setting skills to avoid violence, such as handling conflicts without violence?	1	2
10. Resisting peer pressure that would increase risk of suicidal behaviors or violence?	1	2
11. How students can influence or support others to prevent suicidal behaviors or violence?	1	2

Violence Prevention

19. How many hours did you spend teaching about violence prevention?

Less than 1 hour	0
1 Hour.....	1
2 Hours	2
3 Hours	3
4 Hours	4
5 Hours	5
6 Hours	6
7 Hours	7
8 Hours	8
9 Hours	9
10 Hours	10
11 or more hours	11

Tobacco Use Prevention

If you taught tobacco use prevention in this class (Q11m is Yes), answer Q20-Q23.
Otherwise, skip to Q24.

SHOW CARD 7

20. As I read the topics listed on this card, please tell me if you taught about each one in the class. When you taught about tobacco use prevention, did you teach about...

	Yes	No
1. Short-term health consequences of cigarette smoking? 1	2	2
2. Long-term health consequences of cigarette smoking? 1	2	2
3. Benefits of not smoking cigarettes ?..... 1	2	2
4. Short-term health consequences of using smokeless tobacco?..... 1	2	2
5. Long-term health consequences of using smokeless tobacco?..... 1	2	2
6. Benefits of not using smokeless tobacco?..... 1	2	2
7. Risks of cigar or pipe smoking?..... 1	2	2
8. Addictive effects of nicotine in tobacco products?..... 1	2	2

SHOW CARD 8

21. As I read the topics listed on this card, please tell me if you taught about each one. Did you teach about...

	Yes	No
1. How many young people use tobacco?	1	2
2. The number of illnesses and deaths related to tobacco use?	1	2
3. The influence of families on tobacco use?	1	2
4. The influence of the media on tobacco use?	1	2
5. Social or cultural influences on tobacco use?	1	2
6. How to find valid information or services related to tobacco use prevention or cessation?	1	2
7. Communication skills to avoid tobacco use, such as expressing your decision not to smoke?	1	2
8. Decision-making skills to avoid tobacco use, such as deciding not to use tobacco?	1	2
9. Goal-setting skills to avoid tobacco use, such as setting a quit date?	1	2
10. Resisting peer pressure to use tobacco?	1	2
11. Making a personal commitment not to use tobacco?	1	2
12. How students can influence or support others to prevent tobacco use?	1	2
13. How students can influence or support others in efforts to quit using tobacco?	1	2

22. Students sometimes say that using tobacco helps them achieve personal goals such as reducing stress, losing weight, or "fitting in" with peers. Did you teach about alternative ways to achieve such goals?

Yes..... 1
 No 2

Tobacco Use Prevention

23. How many hours did you spend teaching about tobacco use prevention?

Less than 1 hour	0
1 Hour.....	1
2 Hours	2
3 Hours	3
4 Hours	4
5 Hours	5
6 Hours	6
7 Hours	7
8 Hours	8
9 Hours	9
10 Hours	10
11 or more hours.....	11

Alcohol and Other Drug Use Prevention

If you taught about alcohol or other drug use prevention in this class (Q11n is Yes), answer Q24-Q27. Otherwise, skip to Q28.

SHOW CARD 9

24. As I read the topics listed on this card, please tell me if you taught about each one in the class. When you taught about alcohol and other drug use prevention, did you teach about...

	Yes	No
1. Short-term health consequences of alcohol use?	1	2
2. Long-term health consequences of alcohol use and addiction?	1	2
3. Benefits of not using alcohol?	1	2
4. Drink equivalents and blood alcohol content?	1	2
5. Short-term health consequences of illegal drug use, such as marijuana?	1	2
6. Long-term health consequences of illegal drug use?	1	2
7. Benefits of not using illegal drugs?	1	2
8. Distinguishing between medicinal and non-medicinal drug use?	1	2
9. Risks associated with illegal steroid use?	1	2
10. Effects of alcohol or other drug use on decision-making?	1	2

Alcohol and Other Drug Use Prevention**SHOW CARD 10**

25. As I read the topics listed on this card, please tell me if you taught about each one. Did you teach about...

	Yes	No
1. How many young people use alcohol or other drugs?.....	1	2
2. The number of illnesses and deaths related to alcohol or other drug use?	1	2
3. The influence of families on alcohol or other drug use?	1	2
4. The influence of the media on alcohol or other drug use?	1	2
5. Social or cultural influences on alcohol or other drug use?	1	2
6. How to find valid information or services related to alcohol or other drug use prevention or cessation?	1	2
7. Communication skills to avoid alcohol and other drug use, such as telling a friend why you do not use drugs?	1	2
8. Decision-making skills to avoid alcohol and other drug use, such as deciding not to drink alcohol?.....	1	2
9. Goal-setting skills to avoid alcohol and other drug use, such as not attending parties where alcohol is served?.....	1	2
10. Resisting peer pressure to use alcohol and other drugs? ...	1	2
11. Making a personal commitment not to use alcohol and other drugs?	1	2
12. How students can influence or support others in efforts to prevent alcohol and other drug use?.....	1	2
13. How students can influence or support others in efforts to quit using alcohol and other drugs?.....	1	2

26. Students sometimes say that using alcohol or other drugs helps them achieve personal goals such as reducing stress or "fitting in" with peers. Did you teach about alternative ways to achieve such goals?

Yes..... 1
No 2

27. How many hours did you spend teaching about alcohol or other drug use prevention?

Alcohol and Other Drug Use Prevention

Less than 1 hour.....	0
1 Hour.....	1
2 Hours.....	2
3 Hours.....	3
4 Hours.....	4
5 Hours.....	5
6 Hours.....	6
7 Hours.....	7
8 Hours.....	8
9 Hours.....	9
10 Hours.....	10
11 or more hours.....	11

Nutrition and Dietary Behavior

If you taught about nutrition and dietary behavior in this class (Q11c is Yes), answer Q28-Q31. Otherwise, skip to Q32.

SHOW CARD 11

28. As I read the topics listed on this card, please tell me if you taught about each one in the class. When you taught about nutrition and dietary behavior, did you teach about...

	Yes	No
1. The benefits of healthy eating?	1	2
2. The Food Guide Pyramid?	1	2
3. The Dietary Guidelines for Americans?	1	2
4. Using food labels?	1	2
5. Eating a variety of foods?	1	2
6. Balancing food intake and physical activity?	1	2
7. Eating more fruits, vegetables, and grain products?	1	2
8. Choosing foods that are low in fat, saturated fat, and cholesterol?	1	2
1. Using salt and sodium in moderation?	1	2
10. Using sugars in moderation?	1	2
11. Eating more calcium-rich foods?	1	2
12. Preparing healthy meals and snacks ?	1	2
13. Risks of unhealthy weight control practices ?	1	2
14. Accepting body size differences?	1	2
15. Eating disorders?	1	2
16. Foods from different cultures?	1	2
17. Food safety?	1	2

29. When you taught about nutrition and dietary behavior, did students have opportunities to taste new foods as part of a lesson?

Yes..... 1
 No 2

Nutrition and Dietary Behavior
SHOW CARD 12

30. As I read the topics listed on this card, please tell me if you taught about each one.
Did you teach about...

Yes No

- | | | |
|---|---|---|
| 1. The number of illnesses or deaths related to poor nutrition or unhealthy dietary behavior? | 1 | 2 |
| 2. The influence of families on dietary behavior? | 1 | 2 |
| 3. The influence of the media on dietary behavior? | 1 | 2 |
| 4. Social or cultural influences on dietary behavior? | 1 | 2 |
| 5. How to find valid information or services related to nutrition and dietary behavior? | 1 | 2 |
| 6. Communication skills for healthy eating, such as how to ask parents to buy more fresh fruit? | 1 | 2 |
| 7. Decision-making skills for healthy eating, such as choosing healthy snacks? | 1 | 2 |
| 8. Goal-setting skills for healthy eating, such as eating five fruits or vegetables every day? | 1 | 2 |
| 9. Resisting peer pressure related to unhealthy dietary behavior? | 1 | 2 |
| 10. How students can influence or support others' healthy dietary behavior? | 1 | 2 |

31. How many hours did you spend teaching about nutrition and dietary behavior?

- | | |
|------------------------|----|
| Less than 1 hour | 0 |
| 1 Hour | 1 |
| 2 Hours | 2 |
| 3 Hours | 3 |
| 4 Hours | 4 |
| 5 Hours | 5 |
| 6 Hours | 6 |
| 7 Hours | 7 |
| 8 Hours | 8 |
| 9 Hours | 9 |
| 10 Hours | 10 |
| 11 or more hours | 11 |

Physical Activity

If you taught physical activity and fitness topics in this class (Q11d is Yes), answer Q32-Q34. Otherwise, skip to Q35.

SHOW CARD 13

32. As I read the topics listed on this card, please tell me if you taught about each one in the class. When you taught about physical activity, did you teach about...

	Yes	No
1. The physical, psychological, or social benefits of physical activity?.....	1	2
2. Health-related fitness, that is cardiovascular endurance, muscular endurance, muscular strength, flexibility, and body composition?.....	1	2
3. Basic anatomy?.....	1	2
4. Phases of a workout, that is warmup, workout, and cool down?.....	1	2
5. How much physical activity is enough, that is determining frequency, intensity, time and type of physical activity?.....	1	2
6. Developing an individualized physical activity plan?.....	1	2
7. Monitoring progress toward reaching goals in an individualized physical activity plan?.....	1	2
8. Overcoming barriers to physical activity?.....	1	2
9. Decreasing sedentary activities, such as TV watching?.....	1	2
10. Opportunities for physical activity in the community?.....	1	2
11. Preventing injury during physical activity?.....	1	2
12. Weather-related safety, for example avoiding heat stroke, hypothermia, and sunburn while physically active?.....	1	2
13. Dangers of using performance-enhancing drugs, such as steroids?.....	1	2

Respondent Background

SHOW CARD 18

64. As I read the list of teaching methods on this card, please tell me if you received any staff development on each one during the past 2 years. During the past 2 years, did you receive any staff development on...

		Yes	No
1.	Teaching students with permanent physical or cognitive disabilities?	1	2
2.	Teaching students of various cultural backgrounds?.....	1	2
3.	Teaching students with limited English proficiency? ...	1	2
4.	Using interactive teaching methods, such as role plays or cooperative group activities?	1	2
5.	Encouraging family or community involvement?	1	2
6.	Teaching skills for behavior change?	1	2

65. Which of these teaching methods would you like to receive further staff development on? MARK ALL THAT APPLY.

1.	Teaching students with permanent physical or cognitive disabilities.....	1
2.	Teaching students of various cultural backgrounds.....	2
3.	Teaching students with limited English proficiency.....	3
4.	Using interactive teaching methods, such as role plays or cooperative group activities.....	4
5.	Encouraging family or community involvement.....	5
6.	Teaching skills for behavior change.....	6
7.	None	7

66. My supervisor may wish to call you to ask about how I conducted this interview. Would you please tell me a telephone number where we might reach you starting with the area code?

() -

- 1) Daytime or
- 2) Evening/Weekend

Thank you very much for taking the time to complete this interview.

Human Sexuality

If you taught human sexuality in this class (Q11 f, g, h, or i is Yes), answer Q35.
Otherwise, skip to Q36.

SHOW CARD 15

35. You mentioned that when you taught the class, you taught about human sexuality topics. As I read the topics listed on this card, please tell me if you taught about each one. When you taught about human sexuality, did you teach about...

	Yes	No
1. Abstinence as the most effective method to avoid pregnancy, HIV, or STDs?	1	2
2. Dating and relationships?	1	2
3. Marriage and commitments?	1	2
4. Human development issues, such as reproductive anatomy and puberty?	1	2
Answer e, f, g, and h if this is a middle, junior, or senior high school.		
5. Risks associated with having multiple sexual partners?	1	2
6. Condom efficacy, that is, how well condoms work and don't work?	1	2
7. How to correctly use a condom?	1	2
8. Sexual identity and sexual orientation?	1	2

Human Sexuality

If you taught about HIV prevention in this class (Q11h is Yes), answer Q36-Q37.
Otherwise, skip to Q38.

36. When you taught about HIV prevention, did you teach about...

	Yes	No
1. How HIV is transmitted?	1	2
2. How HIV affects the human body?	1	2
3. Compassion for persons living with HIV or AIDS (acquired immunodeficiency syndrome)?.....	1	2
4. How to find valid information or services related to HIV or HIV testing?.....	1	2

37. How many hours did you spend teaching about HIV prevention?

Less than 1 hour	0
1 Hour.....	1
2 Hours	2
3 Hours	3
4 Hours	4
5 Hours	5
6 Hours	6
7 Hours	7
8 Hours	8
9 Hours	9
10 Hours	10
11 or more hours	11

If you taught about STD prevention in this class (Q11 is Yes), answer Q38-Q39.
Otherwise, skip to Q40.

38. When you taught about STD prevention, did you teach about...

	Yes	No
1. How STDs, other than HIV, are transmitted?	1	2
2. Signs and symptoms of STDs?.....	1	2
3. How to find valid information or services related to STDs or STD testing?	1	2

39. How many hours did you spend teaching about STD prevention? Please do not include hours teaching about HIV prevention.

Less than 1 hour	0
1 Hour.....	1
2 Hours	2
3 Hours	3
4 Hours	4
5 Hours	5
6 Hours	6
7 Hours	7
8 Hours	8
9 Hours	9
10 Hours	10
11 or more hours	11

If you taught about pregnancy prevention in this class (Q11g is Yes), answer Q40-Q41.
Otherwise, skip to Q42.

40. When you taught about pregnancy prevention, did you teach about...

Yes No

Answer a if this is a middle, junior, or senior high school.

- | | | | |
|--|---|-------|---|
| 1. Methods of contraception? | 1 | | 2 |
| 2. Risks associated with teen pregnancy? | 1 | | 2 |
| 3. How to find valid information or services related to
pregnancy or pregnancy testing? | 1 | | 2 |

41. How many hours did you spend teaching about pregnancy prevention?

- | | |
|------------------------|----|
| Less than 1 hour | 0 |
| 1 Hour | 1 |
| 2 Hours | 2 |
| 3 Hours | 3 |
| 4 Hours | 4 |
| 5 Hours | 5 |
| 6 Hours | 6 |
| 7 Hours | 7 |
| 8 Hours | 8 |
| 9 Hours | 9 |
| 10 Hours | 10 |
| 11 or more hours | 11 |

SHOW CARD 16

42. As I read the topics listed on this card, please tell me if you taught about each one. Did you teach about...

Yes No

- 1. How many young people are sexually active?..... 1 2
- 2. The number of teenage pregnancies?..... 1 2
- 3. The number of young people who get STDs or HIV? 1 2
- 4. The influence of families on sexual behavior? 1 2
- 5. The influence of the media on sexual behavior? 1 2
- 6. Social or cultural influences on sexual behavior? 1 2
- 7. Communication skills related to sexual behaviors, such as telling your date you do not want to have sex?..... 1 2
- 8. Decision-making skills related to sexual behaviors, such as deciding when to start dating? 1 2
- 9. Goal-setting skills related to sexual behaviors, such as waiting until marriage to have sex? 1 2
- 10. Resisting peer pressure to engage in sexual behavior? 1 2
- 11. How students can influence or support others to make healthy decisions related to sexual behaviors? 1 2

43. Were any students excused by parental request from attending the class when specific topics related to human sexuality were presented?

Yes..... 1
No 2 → Skip to Q45

44. How many students were excused by parental request from attending class when topics related to human sexuality were presented?

_____ Students

Teaching and Evaluation Techniques

Now, I would like to ask a few more general questions about the class. Please remember to answer these questions about this class only.

45. The next questions ask about the use of various teaching methods. Did you use...

	Yes	No
1. Group discussions?.....	1	2
2. Cooperative group activities?.....	1	2
3. Role play, simulations, or practice?.....	1	2
4. Visual, performing, or language arts?.....	1	2
5. Pledges or contracts for behavior change?.....	1	2
6. Guest speakers?.....	1	2
7. Peer teaching?.....	1	2
8. The Internet?.....	1	2
9. Computer-assisted instruction?.....	1	2

46. The next questions ask about the use of methods to highlight diversity or the values of various cultures. When teaching the class did you...

	Yes	No
1. Use textbooks or curricular materials reflective of various cultures?.....	1	2
2. Use textbooks or curricular materials designed for students with limited English proficiency?.....	1	2
3. Ask students to share their own cultural experiences related to health topics?.....	1	2
4. Teach about cultural differences and similarities?.....	1	2
5. Modify teaching methods to match students' learning styles, health beliefs, or cultural values?.....	1	2

Teaching and Evaluation Techniques

47. Did you ask students to...

	Yes	No
a. Perform volunteer work at a hospital, a local health department, or any other local organization that addresses health issues?	1	2
2. Participate in or attend a community health fair?	1	2
3. Gather information about health services that are available in the community, such as health screenings?	1	2
4. Visit a store to compare prices of health products?	1	2
5. Identify potential injury sites at school, home, or in the community?	1	2
6. Identify advertising in the community designed to influence health behaviors?	1	2
7. Advocate for a health-related issue?	1	2

48. Did you...

	Yes	No
1. Provide families with information on the class?	1	2
2. Give students homework or projects that involve family members?	1	2
3. Invite family members to attend the class?	1	2

If you are an elementary school classroom teacher, answer Q49. Otherwise, skip to Q50.

49. Did you make time for students to wash their hands using instant hand sanitizers or a bathroom or classroom sink ...

	Yes	No
1. Before lunch?	1	2
2. Before snacks?	1	2
3. After recess?	1	2

50. To assess or evaluate students, did you use...

Teaching and Evaluation Techniques

	Yes	No
1. Written examinations?	1	2
2. Oral presentations or oral reports?	1	2
3. Journal writing?	1	2
4. Student portfolios?	1	2
5. Homework assignments?	1	2
6. Group projects?	1	2
7. Student self-assessment?	1	2

My next questions ask about teaching students with permanent physical or cognitive disabilities. Examples of such disabilities include blindness, Down's Syndrome, learning disabilities, and conditions that require permanent use of a wheelchair.

51. Were there any students with permanent physical or cognitive disabilities in the class?

Yes..... 1
 No 2 → Skip to Q53

52. Was there...

	Yes	No
1. A special education teacher with whom you coordinated assignments for students with permanent disabilities?	1	2
2. A teacher or aide who came in to assist with the students with permanent disabilities?	1	2
3. Assigned note takers or readers for class work?	1	2
4. Simplified instructional content or variations in the amount or difficulty of material taught?	1	2
5. More skill modeling, practicing, or repetition?	1	2
6. Preferential seating for the students with permanent disabilities?	1	2

Respondent Background

My last set of questions asks about your educational background and teaching experience.

53. Counting this year as a full year and including years spent teaching health education topics or classes at any other schools, how many years of experience do you have teaching health education topics or classes?

_____ Years

54. Do you have an undergraduate degree?

Yes..... 1
 No 2 → Skip to Q60

55. What did you major in?
 MARK ALL THAT APPLY.

Health education and physical education combined 1
 Health education..... 2
 Physical education 3
 Other education 4
 Kinesiology 5
 Exercise physiology 6
 Exercise science..... 7
 Nursing 8
 Nutrition..... 9
 Public health 10
 Biology or other science 11
 Home economics 12
 Other..... 13

56. Do you have an undergraduate minor?

Yes..... 1
 No 2 → Skip to Q58

Respondent Background

57. What did you minor in?
MARK ALL THAT APPLY.

Health education and physical education combined	1
Health education.....	2
Physical education	3
Other education	4
Kinesiology	5
Exercise physiology	6
Exercise science.....	7
Nursing	8
Nutrition.....	9
Public health	10
Biology or other science	11
Home economics	12
Other.....	13

58. Do you have a graduate degree?

Yes.....	1
No	2 → Skip to Q60

59. In what area or areas?
MARK ALL THAT APPLY.

Health education and physical education combined	1
Health education.....	2
Physical education	3
Other education	4
Kinesiology	5
Exercise physiology	6
Exercise science.....	7
Nursing	8
Nutrition.....	9
Public health	10
Biology or other science	11
Home economics	12
Other.....	13

60. Currently, are you certified, endorsed, or licensed by the state to teach health education in...

Respondent Background

	Yes	No
1. Elementary school?.....	1	2
2. Middle or junior high school?	1	2
3. Senior high school?.....	1	2
61. Are you a Certified Health education Specialist or CHES?		
Yes.....		1
No		2

Respondent Background**SHOW CARD 17**

62. As I read the list of topics on this card, please tell me if you received any staff development on each topic during the past 2 years. This might include workshops, conferences, continuing education, graduate courses, or any other kind of in-service. During the past 2 years, did you receive any staff development on...

	Yes	No
1. Personal hygiene?	1	2
2. Dental and oral health?	1	2
3. Nutrition and dietary behavior?	1	2
4. Physical activity and fitness, that is classroom instruction, not a physical activity period?	1	2
5. Growth and development?	1	2
6. Human sexuality?	1	2
7. Pregnancy prevention?	1	2
8. HIV prevention?	1	2
9. STD prevention?	1	2
10. Emotional and mental health?	1	2
11. Suicide prevention?	1	2
12. Death and dying?	1	2
13. Tobacco use prevention?	1	2
14. Alcohol or Other drug use prevention?	1	2
15. Violence prevention, for example bullying, fighting, or homicide?	1	2
16. Accident or injury prevention?	1	2
17. CPR?	1	2
18. First aid?	1	2
19. Immunizations or vaccinations?	1	2
20. Sun safety or skin cancer prevention?	1	2
21. Consumer health, such as choosing sources of health-related information, products, and services wisely?	1	2
22. Environmental health, such as how air and water quality can affect health?	1	2

Respondent Background

63. Which of these topics would you like to receive further staff development on?
 MARK ALL THAT APPLY.

Personal hygiene.....	1
Dental and oral health.....	2
Nutrition and dietary behavior.....	3
Physical activity and fitness, that is classroom instruction, not a physical activity period.....	4
Growth and development.....	5
Human sexuality.....	6
Pregnancy prevention.....	7
HIV prevention.....	8
STD prevention.....	9
Emotional and mental health.....	10
Suicide prevention.....	11
Death and dying.....	12
Tobacco use prevention.....	13
Alcohol or other drug use prevention.....	14
Violence prevention, such as bullying, fighting, or homicide.....	15
Accident or injury prevention.....	16
CPR.....	17
First aid.....	18
Immunizations or vaccinations.....	19
Sun safety or skin cancer prevention.....	20
Consumer health, such as choosing sources of health- related information, products, and services wisely.....	21
Environmental health, such as how air and water quality can affect health.....	22
None.....	23

Physical Activity**SHOW CARD 14**

33. As I read the list of topics on this card, please tell me if you taught about each one. Did you teach about...

	Yes	No
1. The number of illnesses and deaths related to a lack of physical activity?.....	1	2
2. The influence of families on physical activity?	1	2
3. The influence of the media on physical activity?	1	2
4. Social or cultural influences on physical activity?	1	2
5. How to find valid information or services related to physical activity and fitness?	1	2
6. Communication skills to encourage physical activity, such as how to explain to others that physical activity is important to you?.....	1	2
7. Decision-making skills for physical activity, such as deciding to take the stairs?.....	1	2
8. Goal-setting skills for physical activity, such as developing an individualized physical activity plan?.....	1	2
9. Resisting peer pressure that discourages physical activity?.....	1	2
10. How students can influence or support others to engage in physical activity?.....	1	2
34. How many hours did you spend in the classroom teaching about physical activity? Please do not include time students spent actually being active.		
Less than 1 hour	0	
1 Hour.....	1	
2 Hours	2	
3 Hours	3	
4 Hours	4	
5 Hours	5	
6 Hours	6	
7 Hours	7	
8 Hours	8	
9 Hours	9	
10 Hours	10	
11 or more hours	11	

APPENDIX C: Health Education State Questionnaire

Form Approved
OMB No: 0920-0445
Expiration Date: 10/31/2002

Health Education State Questionnaire

Health Education State Questionnaire

Questions

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Public reporting burden for this collection of information is estimated to average 40 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: CDC ATSDR Reports Clearance Officer, 1600 Clifton Road NE, Mailstop D-24, Atlanta, GA 30333; Attention PRA (0920-0445).

Special Instructions

1. This questionnaire focuses on your state practices and policies.
2. When we use the word "policy," we mean any mandate issued by the state school board, state legislature, or other state agency that affects health education in districts or schools throughout your state. Please consider any policies officially adopted at the state level. These include policies developed by your state, or those based on model policies developed elsewhere.
3. We recognize that there may be some exceptions to the policies, but please answer the questions based on what is customary in your state. Please do not consider district or school practices or policies when answering the questions. (We will ask about district and school practices and policies when we collect information from districts and schools across the country.)
4. If you would like more information about this study or would like clarification of any questions in this survey, please call Tim Smith at 1-800-647-9664, extension 6095.

Standards and Guidelines

1. Has your state adopted a policy stating that districts or schools will follow any national or state health education standards or guidelines? These might cover topics such as the goals and objectives of health education or expected student outcomes.

Yes..... 1 → Skip to Question 3
 No..... 2

2. Has your state adopted a policy encouraging (e.g., in memoranda or guidelines) districts or schools to follow any national or state health education standards or guidelines?

Yes..... 1
 No..... 2 → Skip to Question 5

3. Are these health education standards or guidelines based on the National Health Education Standards?

Yes..... 1
 No..... 2
 Don't Know..... 3

4. Which of the following methods does your state education agency use to improve district or school compliance with these health education standards or guidelines?

	Yes	No
1. Staff development for health education teachers.....	1	2
2. Monitoring student achievement	1	2
3. Submission of written reports by districts or schools	1	2
4. Teacher evaluations or classroom monitoring	1	2
5. Teachers mentoring other teachers	1	2

Elementary School Instruction

5. Has your state adopted goals, objectives, or expected outcomes for elementary school health education?

Yes..... 1

No..... 2 → Skip to Question 7

6. Do these goals or objectives for elementary school health education specifically address each of the following student outcomes?

	Yes	No
1. Comprehension of concepts related to health promotion and disease prevention	1	2
2. Ability to access valid health information and health promoting products and services.....	1	2
3. Ability to analyze the influence of culture, media, technology, and other factors on health.....	1	2
4. Ability to practice health-enhancing behaviors and reduce health risks	1	2
5. Ability to use interpersonal communication skills to enhance health	1	2
6. Ability to use goal-setting and decision-making skills to enhance health	1	2
7. Ability to advocate for personal, family, and community health	1	2

Elementary School Instruction

7. Has your state adopted a policy stating that elementary schools will teach each of the following health topics?

	Yes	No
1. Personal hygiene.....	1	2
2. Dental and oral health.....	1	2
3. Nutrition and dietary behavior.....	1	2
4. Physical activity and fitness - classroom instruction, not a physical activity period.....	1	2
5. Growth and development.....	1	2
6. Human sexuality.....	1	2
7. Pregnancy prevention.....	1	2
8. Human immunodeficiency virus (HIV) prevention.....	1	2
9. Sexually transmitted disease (STD) prevention.....	1	2
10. Emotional and mental health.....	1	2
11. Suicide prevention.....	1	2
12. Death and dying.....	1	2
13. Tobacco use prevention.....	1	2
14. Alcohol or other drug use prevention.....	1	2
15. Violence prevention, for example bullying, fighting, or homicide.....	1	2
16. Accident or injury prevention.....	1	2
17. Cardiopulmonary resuscitation (CPR).....	1	2
18. First aid.....	1	2
19. Immunizations or vaccinations.....	1	2
20. Sun safety or skin cancer prevention.....	1	2
21. Consumer health, such as choosing sources of health- related information, products, and services wisely.....	1	2
22. Environmental health, such as how air and water quality can affect health.....	1	2

8. Has your state education agency developed its own curricula for elementary school health education?

Yes..... 1
No 2

9. During the past 2 years, has your state education agency provided the following information or materials for elementary school health education?

Elementary School Instruction

- | | Yes | No |
|---|-----|----|
| 1. A list of one or more recommended elementary school health education curricula | 1 | 2 |
| 2. Elementary school health education curricula | 1 | 2 |
| c. A chart describing the scope and sequence of instruction for health education | 1 | 2 |
| 4. Lesson plans or learning activities for health education..... | 1 | 2 |
| 5. Plans for how to assess or evaluate students in health education..... | 1 | 2 |
10. Based on policies adopted by your state, how much health education are students required to receive while in elementary school? States use many ways to describe these requirements, such as minutes per week, hours per quarter, or hours per year. If it is more convenient for you, please mark the "Requirements enclosed" box and include a copy of your requirements when you return this questionnaire.

If your state does not have specified time requirements for elementary school students, mark this box and skip to Question 11.

Requirements enclosed

Middle/Junior High School Instruction

11. Has your state adopted goals, objectives, or expected outcomes for middle/junior high school health education?

Yes.....1

No2 → Skip to Question 13

12. Do these goals or objectives for middle/junior high school health education specifically address each of the following student outcomes?

	Yes	No
1. Comprehension of concepts related to health promotion and disease prevention.....1	1	2
2. Ability to access valid health information and health promoting products and services.....1	1	2
3. Ability to analyze the influence of culture, media, technology, and other factors on health.....1	1	2
4. Ability to practice health-enhancing behaviors and reduce health risks.....1	1	2
5. Ability to use interpersonal communication skills to enhance health.....1	1	2
6. Ability to use goal-setting and decision-making skills to enhance health.....1	1	2
7. Ability to advocate for personal, family, and community health.....1	1	2

Middle/Junior High School Instruction

13. Has your state adopted a policy stating that middle/junior high schools will teach each of the following health topics?

	Yes	No
1. Personal hygiene.....	1	2
2. Dental and oral health.....	1	2
3. Nutrition and dietary behavior.....	1	2
4. Physical activity and fitness - classroom instruction, not a physical activity period.....	1	2
5. Growth and development.....	1	2
6. Human sexuality.....	1	2
7. Pregnancy prevention.....	1	2
8. HIV prevention.....	1	2
9. STD prevention.....	1	2
10. Emotional and mental health.....	1	2
11. Suicide prevention.....	1	2
12. Death and dying.....	1	2
13. Tobacco use prevention.....	1	2
14. Alcohol or other drug use prevention.....	1	2
15. Violence prevention, for example bullying, fighting, or homicide.....	1	2
16. Accident or injury prevention.....	1	2
17. CPR.....	1	2
18. First aid.....	1	2
19. Immunizations or vaccinations.....	1	2
20. Sun safety or skin cancer prevention.....	1	2
21. Consumer health, such as choosing sources of health- related information, products, and services wisely.....	1	2
22. Environmental health, such as how air and water quality can affect health.....	1	2

14. Has your state education agency developed its own curricula for middle/junior high school health education?

Yes 1
No2

Middle/Junior High School Instruction

15. During the past 2 years, has your state education agency provided the following information or materials for middle/junior high school health education?

Yes No

- | | | |
|---|---|--------|
| 1. A list of one or more recommended middle/junior high school health education curricula | 1 |2 |
| 2. Middle/junior high school health education curricula | 1 |2 |
| 3. A chart describing the scope and sequence of instruction for health education | 1 |2 |
| 4. Lesson plans or learning activities for health education..... | 1 |2 |
| 5. Plans for how to assess or evaluate students in health education..... | 1 |2 |

16. Based on policies adopted by your state, how much health education are students required to receive while in middle/junior high school? States use many ways to describe these requirements, such as minutes per week, hours per quarter, or hours per year. If it is more convenient for you, please mark the "Requirements enclosed" box and include a copy of your requirements when you return this questionnaire.

If your state does not have specified time requirements for middle/junior high school students, mark this box and skip to Question 17.

Requirements enclosed.....

Senior High School Instruction

17. Has your state adopted goals, objectives, or expected outcomes for senior high school health education?

Yes..... 1

No.....2 → Skip to Question 19

18. Do these goals or objectives for senior high school health education specifically address each of the following student outcomes?

	Yes	No
1. Comprehension of concepts related to health promotion and disease prevention.....	1	2
2. Ability to access valid health information and health promoting products and services.....	1	2
3. Ability to analyze the influence of culture, media, technology, and other factors on health.....	1	2
4. Ability to practice health-enhancing behaviors and reduce health risks.....	1	2
5. Ability to use interpersonal communication skills to enhance health.....	1	2
6. Ability to use goal-setting and decision-making skills to enhance health.....	1	2
7. Ability to advocate for personal, family, and community health.....	1	2

Senior High School Instruction

19. Has your state adopted a policy stating that senior high schools will teach each of the following health topics?

	Yes	No
1. Personal hygiene.....	1	2
2. Dental and oral health.....	1	2
3. Nutrition and dietary behavior	1	2
4. Physical activity and fitness - classroom instruction, not a physical activity period.....	1	2
5. Growth and development.....	1	2
6. Human sexuality	1	2
7. Pregnancy prevention	1	2
8. HIV prevention	1	2
9. STD prevention.....	1	2
10. Emotional and mental health.....	1	2
11. Suicide prevention.....	1	2
12. Death and dying.....	1	2
13. Tobacco use prevention.....	1	2
14. Alcohol or other drug use prevention.....	1	2
15. Violence prevention, for example bullying, fighting, or homicide	1	2
16. Accident or injury prevention.....	1	2
17. CPR	1	2
18. First aid.....	1	2
19. Immunizations or vaccinations	1	2
20. Sun safety or skin cancer prevention	1	2
21. Consumer health, such as choosing sources of health- related information, products, and services wisely.....	1	2
22. Environmental health, such as how air and water quality can affect health.....	1	2

20. Has your state education agency developed its own curricula for senior high school health education?

Yes 1
No

Senior High School Instruction

21. During the past 2 years, has your state education agency provided the following information or materials for senior high school health education?

	Yes	No
1. A list of one or more recommended senior high school health education curricula	1	2
2. Senior high school health education curricula.....	1	2
c. A chart describing the scope and sequence of instruction for health education	1	2
4. Lesson plans or learning activities for health education.....	1	2
5. Plans for how to assess or evaluate students in health education.....	1	2

22. Based on policies adopted by your state, how much health education are students required to receive while in senior high school? States use many ways to describe these requirements, such as minutes per week, hours per quarter, or hours per year. If it is more convenient for you, please mark the "Requirements enclosed" box and include a copy of your requirements when you return this questionnaire.

If your state does not have specified time requirements for senior high school students, mark this box and skip to Question 23.

Requirements enclosed.....

Student Assessment

23. Has your state adopted a policy stating that elementary school students will be tested on health topics?

Yes.....1
 No.....2 → Skip to Question 26

24. Is elementary school testing on health topics based on the National Health Education Standards?

Yes.....1
 No.....2
 Don't Know.....3

25. Is elementary school testing on health topics based on the State Collaborative on Assessment and Student Standards (SCASS)?

Yes.....1
 No.....2
 Don't Know.....3

26. Has your state adopted a policy stating that middle/junior high school students will be tested on health topics?

Yes.....1
 No.....2 → Skip to Question 29

27. Is middle/junior high school testing on health topics based on the National Health Education Standards?

Yes.....1
 No.....2
 Don't Know.....3

Student Assessment

28. Is middle/junior high school testing on health topics based on the State Collaborative on Assessment and Student Standards (SCASS)?

Yes..... 1
 No..... 2
 Don't Know..... 3

29. Has your state adopted a policy stating that senior high school students will be tested on health topics?

Yes..... 1
 No..... 2 → Skip to Question 32

30. Is senior high school testing on health topics based on the National Health Education Standards?

Yes..... 1
 No..... 2
 Don't Know..... 3

31. Is senior high school testing on health topics based on the State Collaborative on Assessment and Student Standards (SCASS)?

Yes..... 1
 No..... 2
 Don't Know..... 3

Staffing and Staff Development

32. Has your state adopted a policy stating that newly-hired staff who teach health education at each of the following levels will have undergraduate or graduate training in health education?

Yes No

1. Elementary school 1 2
 2. Middle/junior high school 1 2
 3. Senior high school 1 2

33. Has your state adopted a policy stating that newly-hired staff who teach health education at each of the following levels will be Certified Health Education Specialists (CHES)?

Yes No

1. Elementary school 1 2
 2. Middle/junior high school 1 2
 3. Senior high school 1 2

34. Does your state offer certification, licensure, or endorsement to teach health education?

Yes 1

No 2 → Skip to Question 38

Staffing and Staff Development

35. Which of the following types of certification, licensure, or endorsement does your state offer for health education teachers?

	Yes	No
1. Health education for grades K-12.....	1	2
2. Health education for elementary school.....	1	2
3. Health education for middle/junior school high.....	1	2
4. Health education for senior high school.....	1	2
5. Combined health education and physical education for grades K-12	1	2
6. Combined health education and physical education for elementary school.....	1	2
7. Combined health education and physical education for middle/junior high school.....	1	2
8. Combined health education and physical education for senior high school.....	1	2

36. Has your state adopted a policy stating that newly-hired staff who teach health education at each of the following levels will be certified, licensed, or endorsed by the state to teach health education? If your state does not offer certification, licensure, or endorsement to teach health education at a level, please mark the "Not offered" box in the last column.

	Yes	No	Not offered
1. Elementary school	1	2	3
2. Middle/junior high school	1	2	3
3. Senior high school	1	2	3

37. Has your state adopted a policy stating that teachers will earn continuing education credits on health education topics to maintain state certification, licensure, or endorsement to teach health education?

Yes..... 1
No 2

Staffing and Staff Development

38. Has your state adopted a policy stating that each school will have someone to oversee or coordinate health education at the school (e.g., a lead health education teacher)?

Yes..... 1
 No..... 2

39. During the past 2 years, has your state education agency provided any funding for or offered staff development on each of the following topics to those who teach health education? This might include workshops, conferences, continuing education, graduate courses, or any other kind of in-service.

	Yes	No
1. Personal hygiene.....	1	2
2. Dental and oral health.....	1	2
3. Nutrition and dietary behavior.....	1	2
4. Physical activity and fitness - classroom instruction, not a physical activity period.....	1	2
5. Growth and development.....	1	2
6. Human sexuality.....	1	2
7. Pregnancy prevention.....	1	2
8. HIV prevention.....	1	2
9. STD prevention.....	1	2
10. Emotional and mental health.....	1	2
11. Suicide prevention.....	1	2
12. Death and dying.....	1	2
13. Tobacco use prevention.....	1	2
14. Alcohol or other drug use prevention.....	1	2
15. Violence prevention, for example bullying, fighting, or homicide.....	1	2
16. Accident or injury prevention.....	1	2
17. CPR.....	1	2
18. First aid.....	1	2
19. Immunizations or vaccinations.....	1	2
20. Sun safety or skin cancer prevention.....	1	2
21. Consumer health, such as choosing sources of health- related information, products, and services wisely.....	1	2
22. Environmental health, such as how air and water quality can affect health.....	1	2

Staffing and Staff Development

40. During the past 2 years, has your state education agency provided any funding for or offered staff development on each of the following teaching methods to those who teach health education?

	Yes	No
1. Teaching students with permanent physical or cognitive disabilities.....	1	2
2. Teaching students of various cultural backgrounds.....	1	2
3. Teaching students with limited English proficiency.....	1	2
4. Using interactive teaching methods, such as role plays or cooperative group activities.....	1	2
5. Encouraging family or community involvement.....	1	2
6. Teaching skills for behavior change.....	1	2

Health Education Collaboration

41. During the past 12 months, have state health education staff worked on health education activities with the following groups?

	Yes	No
1. State physical education staff	1	2
2. State health services staff	1	2
3. State mental health or social services staff.....	1	2
4. State food service staff.....	1	2

42. During the past 12 months, have state health education staff worked on health education activities with staff or members from each of these organizations?

	Yes	No
1. State-level AAHPERD (American Alliance for Health, Physical Education, Recreation, and Dance).....	1	2
b. State school health association	1	2
3. State-level health organization, such as the American Heart Association or the American Cancer Society	1	2
4. State health agency	1	2
5. State mental health or social services agency	1	2
6. Colleges or universities	1	2
7. Businesses	1	2

Health Education Evaluation

43. During the past 2 years, have the following aspects of your state health education program been evaluated?

	Yes	No
1. Student satisfaction with the health education program	1	2
2. Family satisfaction with the health education program	1	2
3. Health education policies	1	2
4. Health education curricula	1	2
5. Health education staff development or in-service programs	1	2

Health Education Coordinator

44. Currently, does someone in your state oversee or coordinate health education?

Yes 1

No2 → That is the last question. Thank you very much for taking the time to complete this questionnaire.

45. Are you this person?

Yes 1

No2 → That is the last question. Thank you very much for taking the time to complete this questionnaire.

46. Do you have an undergraduate degree?

Yes 1

No2 → Skip to Question 52

Health Education Coordinator47. What did you major in?Mark all
that apply.

- Health education and physical education combined..... 1
 Health education.....2
 Physical education.....3
 Other education4
 Kinesiology.....5
 Exercise physiology6
 Exercise science.....7
 Nursing.....8
 Nutrition.....9
 Public health 10
 Biology or other science 11
 Home economics 12
 Other 13

48. Do you have an undergraduate minor?

- Yes I
 No2 → Skip to Question 50

49. What did you minor in?Mark all
that apply.

- Health education and physical education combined..... 1
 Health education.....2
 Physical education.....3
 Other education4
 Kinesiology.....5
 Exercise physiology6
 Exercise science.....7
 Nursing.....8
 Nutrition.....9
 Public health 10
 Biology or other science 11
 Home economics 12
 Other 13

Health Education Coordinator

50. Do you have a graduate degree?

Yes 1

No2 → Skip to Question 52

51. In what area or areas?

Mark all
that apply.

Health education and physical education combined..... 1
 Health education.....2
 Physical education.....3
 Other education4
 Kinesiology.....5
 Exercise physiology6
 Exercise science.....7
 Nursing.....8
 Nutrition.....9
 Public health10
 Biology or other science11
 Home economics12
 Other13

52. Are you certified, licensed, or endorsed by the state to teach health education at each of the following grade levels? If your state does not offer certification, licensure, or endorsement to teach health education at a level, please mark the "Not offered" box in the last column.

	Yes	No	Not offered
1. Elementary school.....	1.....	2.....	3.....
2. Middle/junior high school.....	1.....	2.....	3.....
3. Senior high school.....	1.....	2.....	3.....

53. Are you a Certified Health Education Specialist or CHES?

Yes.....1

No.....2

Research Triangle Park, NC 27709

REFERENCES

- Abma, J., Chandra, A., Mosher, W., Peterson, L. & Piccinino, L. (1997). *Fertility, family planning, and women's health: New data from the 1995 National Survey of Family Growth*. Washington DC: National Center for Health Statistics.
- Alan Guttmacher Institute (1999, September). *Teen sex and pregnancy: Facts in brief*. New York: Author.
- Alan Guttmacher Institute (2001, November). *State policies in brief: State sexuality education policy*. New York: Author.
- Andre, T., Dietsch, C. & Cheng, Y. (1991). Sources of sex education as a function of sex, coital activity and type of information. *Contemporary Educational Psychology*, 16, 215-240.
- Babbie, E. (1995). *The practice of social research*. Belmont, Ca: Wadsworth Publishing.
- Baltes, P.B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology*, 23, 611-626.
- Bandura, A. (1989). Social cognitive theory. *Annals of Child Development*, 6, 1-60.
- Bearman, P.H. & Bruckner, H. (2001). Promising the future: Virginity pledges and first intercourse. *American Journal of Sociology*, 106, 859-912.
- Berger, K.S. & Thompson, R.A. (1996). *The Developing Person Through Childhood*. New York: Worth.
- Berne, L.A. & Huberman, B.K. (2000). Lessons learned: European approaches to adolescent sexual behavior and responsibility. *Journal of Sex Education and Therapy*, 25, 189-199.
- Blum, R.W., Beuhring, T. & Rinehart, P.M. (2000). *Protecting teens: Beyond race, income and family structure*. Minneapolis: University of Minnesota, Center for Adolescent Health.
- Breakwell, G.M. & Millward, L.J. (1997). Sexual self-concept and sexual risk-taking. *Journal of Adolescence*, 20, 29-41.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, 22, 723-742.

- Bronfenbrenner, U. (1974). Developmental research, public policy and the ecology of childhood. *Child Development*, 45, 1-5.
- Brooks-Gunn J., & Graber, J. (1999). What's sex got to do with it? The development of sexual identities in adolescence. In R.J. Contrada & R.D. Ashmore (Eds.), *Self, social identity and physical health: Interdisciplinary explorations* (pp. 155-182). New York: Oxford University Press.
- Brooks-Gunn, J., & Paikoff, R. (1997). Sexuality and developmental transitions during adolescence. In J. Schulenberg, J. L. Maggs & K. Hurrelmann (Eds.), *Health risks and developmental transitions during adolescence* (pp. 190-219). New York: Cambridge University Press.
- Brown, B.B. (1999). "You're going out with who?": Peer group influences on adolescent romantic relationships. In W. Furman, B.B. Brown and C. Feiring (Eds.), *The development of romantic relationships in adolescence*. Cambridge, UK: Cambridge University Press.
- Bullough, R.V. Jr, Burbank, M., Gess-Newsome, J., Kauchak, D. & Kennedy, C. (1998). 'What matters most: Teaching for America's future?' A faculty response to the Report of the National Commission on teaching and America's future. *Journal of Education for Teaching*, 24, 7-26.
- Buyse, A. (1996). Adolescents, young adults and AIDS: A study of actual knowledge vs. perceived need for additional information. *Journal of Youth and Adolescence*, 25, 259-271.
- Cairns, R.B. (2000). Developmental science: Three auspicious implications. In L.R. Bergman, R.B. Cairns, L. Nilsson & L. Nystedt (Eds.), *Developmental science and the holistic approach* (pp. 49-62). Mahwah, N.J.: Lawrence Erlbaum.
- Castle, S. & Watts, G.D. (2000) Temporal tensions: The tyranny of time. Retrieved September 9, 2002 from
- Centers for Disease Control and Prevention (2001). *YRBS: Youth Risk Surveillance System*. Retrieved July 12, 2002, from <http://apps.nccd.cdc.gov/YRBSS/ListV.asp?site1=XX&Cat=4>
- Centers for Disease Control and Prevention (2001a). *Overview School Health Policies and Programs Study 2000*. Retrieved December 24, 2001, from http://www.cdc.gov/nccdphp/dash/shpps/shpps_overview2000.htm

- Centers for Disease Control and Prevention (2001b). *HIV/AIDS Surveillance Report: U.S. HIV and AIDS Cases Reported Through June 2001*. Retrieved March 13, 2002, from <http://www.cdc.gov/hiv/stats/hasr1301.htm>
- Centers for Disease Control and Prevention (n.d.) *School health policies and programs study*. Retrieved July 23, 2002, from <http://www.cdc.gov/nccdphp/dash/shpps/1994.pdf?main.pdf>
- Chernoff, R.A. & Davison, G.C.(1999). Values and their relationship to HIV/AIDS risk behavior among late-adolescent and young adult college students. *Cognitive Therapy and Research*, 23, 453-467.
- Chilman, C.S. (1983). The development of healthy sexuality. *Journal of Research & Development in Education*, 16, 16-26
- Chilman, C.S. (1990). Promoting healthy adolescent sexuality. *Family Relations*, 39, 123-131.
- Christopher, F.S. (1995). Adolescent pregnancy prevention. *Family Relations*, 44, 384-391.
- Christopher, F.S. & Roosa, M.W. (1990). An evaluation of an adolescent pregnancy prevention program: Is "just say no" enough? *Family Relations*, 39, 68-72.
- Conoley, J.C. & Rotto, P.C (2000). Ecological interventions with students. In J.L. Swartz & W.E. Martin, Jr. (Eds.), *Applied ecological psychology for schools within communities: Assessment and intervention*. (pp.55-76). Mahwah, NJ: Lawrence Erlbaum.
- Crockett, L.J. & Peterson, A. C. (1993). Adolescent development: Health risks and opportunity for health promotion. In S.G. Millstein, A.C. Peterson, & E.O. Nightingale (Eds.), *Promoting the health of adolescents: New directions for the 21st century* (13-37). New York: Oxford University Press.
- Crosby, R.A. & Yarber, W.L. (2001). Perceived versus actual knowledge about correct condom use among U.S. adolescents: Results from a national study. *Journal of Adolescent Health*, 28, 415-420.
- Dailard, C. (2001). Sex education: Politicians, parents, teachers and teens. [Electronic Version]. *Alan Guttmacher Report on Public Policy*, 4(1), 9-12.
- Darroch, J.E., Landry, D.J. & Singh, S. (2000). Changing emphases in sexuality education in U.S. public secondary schools, 1988-1999. [Electronic Version] *Family Planning Perspectives*, 32 (5).

- Davies, P. & Windle, M. (2000). Middle adolescents' dating pathways and psychosocial adjustment. *Merrill-Palmer Quarterly*, 46, 90-118.
- Devaney, B., Johnson, A., Maynard, R. & Trenholm, C. (2002, April). The evaluation of abstinence education funded under title V section 510: Interim report. [Electronic Version] <http://www.mathematica-mpr.com/PDFs/evalabstinence.pdf>
- Diamond, L. (1998). Development of sexual orientation among adolescent and young adult women. *Developmental Psychology*, 34, 1085-1095.
- Donovan, P. (1998, October). Falling teen pregnancy, birthrates: What's behind the declines? *The Guttmacher Report on Public Policy*, 1(5).
- Dusenbury, L., Falco, M. & Lake, A. (1997). A review of the evaluation of 47 drug prevention curricula available nationally. *Journal of School Health*, 67, 127-132.
- Dworkin, J.B. (2002, April). *Redefining risk-taking toward a model of normative experimentation*. Paper presented at the Society for Research on Adolescence in New Orleans, LA.
- Eccles, J., Lord, S. & Buchanan, C.M. (1996). School transitions during early adolescence: What are we doing to our young people? In J.A. Graber, J. Brooks-Gunn & A. C. Petersen (Eds.), *Transitions through adolescence: Interpersonal domains and context*. Mahwah, NJ: Lawrence Erlbaum.
- Eccles, J., Midgley, C., Wigfield, A., Buchanan, C.M., Reuman, D., Flanagan, C. & Mac Iver, D. (1993). Development during adolescence: The impact of stage-environment fit on young adolescents' experiences in schools in families. *American Psychologist*, 48(2), 90-101.
- Ehrhardt, A. (1996). Editorial: Our view of adolescent sexuality-A focus on risk behavior without the developmental context. *American Journal of Public Health*, 86, 1523-1525.
- Entwisle, D.R. (1990). Schools and the adolescent. In S.S. Feldman & G.R. Elliott (Eds.), *At the threshold: The developing adolescent*. (pp. 197- 224). Cambridge, MA: Harvard University Press.
- Erikson, E.H. (1959). *Identity and the life cycle*. New York: Norton.
- Erikson, E.H. (1968). *Identity: Youth and crisis*. New York: Norton.
- Erikson, E.H. (1982). *The life cycle completed*. New York: Norton.

- Fine, M. (1988). Sexuality, schooling, and adolescent females: The missing discourse of desire. *Harvard Educational Review*, 58, 29-51.
- Fisher, W.A. (1990, April/May). All together now: An integrated approach to preventing adolescent pregnancy and STI/HIV infection. *SIECUS Report*, 1-11.
- Furman, W. & Buhrmeister, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, 63, 103-115.
- Graber, J.A., Britto, P.R. & Brooks-Gunn, J. (1999). What's love got to do with it? Adolescents' and young adults beliefs about sexual and romantic relationships. In W. Furman, B.B. Brown and C. Feiring (Eds.), *The development of romantic relationships in adolescence*. London, UK: Cambridge University Press.
- Graber, J.A., & Brooks-Gunn, J. (1996). Transitions and turning points: Navigating the passage from childhood through adolescence. *Developmental Psychology*, 32, 768-776.
- Graber, J.A., Petersen, A.C. & Brooks-Gunn, J. (1996). Pubertal process: Methods, measures, and models. In J.A. Graber, J. Brooks-Gunn & A. C. Petersen (Eds.), *Transitions through adolescence: Interpersonal domains and context*. Mahwah, NJ: Lawrence Erlbaum.
- Granello, D.H. (1997). Using Beverly Hills, 90210 to explore developmental issues in female adolescents. *Youth and Society*, 29, 24-53.
- Gruseit, A., Kippax, S., Aggleton, P., Baldo, M. & Slutkin, G. (1997). Sexuality education and young people's sexual behavior: A review of studies. *Journal of Adolescent Research*, 12, 421-453.
- Havinghurst, R.J. (1972). *Developmental tasks and education*. David Mackay: New York.
- Herd, G., & Boxer, A. M. (1993). Children of horizons: How gay and lesbian teens are leading a new way out of the closet. Beacon Press, Boston.
- Hoff, T., Greene, L., McIntosh, M., Rawlings, N. & D'Amico, J. (2000). *Sex education in America*. Retrieved on January 25, 2002 from <http://www.kff.org/content/2000/3048/SexED.pdf>.

- Holmbeck, G.N. (1996). A model of family relational transformations during the transition to adolescence: Parent-adolescent conflict and adaptation. In J. Graber, J. Brooks-Gunn, & A.C. Peterson (Eds.), *Transitions through adolescence: Interpersonal domain and constructs* (pp. 167-199). Mahwah, NJ: Erlbaum.
- Holmbeck, G.N., Crossman, R.E., Wandrei, M.L. & Gasiewski, E. (1994). Cognitive development, egocentrism, self-esteem, and adolescent contraceptive knowledge, attitudes and behaviors. *Journal of Youth and Adolescence*, 23, 169-193.
- Imber, M. & van Geel, T. (2000). *Education law*. Mahwah, NJ: Lawrence Erlbaum.
- Jemmott, J.B. Jemmott, L.S & Fong, G.T. (1998). Adolescence and safer sex HIV risk reduction interventions for African American adolescents: A randomized controlled trial. *Journal of the American Medical Association*, 279, 1529-1536.
- Kachigan, S.K. (1991). *Multivariate statistical analysis*. New York: Radius.
- Kaiser Family Foundation (2002, April). *The sexual health of adolescents and young adults: What they need to know and who they listen to*. Retrieved July 20, 2002 from <http://www.kff.org/content/2002/3217/snapshot-final.pdf>.
- Kaiser Family Foundation (1999, December). *National survey of public secondary school principals: The politics of sex education*. Retrieved on November 10, 2001 from <http://www.kff.org/content/1999/1560/Toplines.pdf>.
- Kaiser Family Foundation (2000, September). *Sex education in the U.S.: Policy and politics: Issue update*. Retrieved on November, 10, 2001 from <http://www.kff.org/content/1999/1560/Issue%20Update.PDF>
- Kirby, D. (2001). *Emerging answers: Research findings on programs to reduce teen pregnancy*. Washington DC: National Campaign to Prevent Teen Pregnancy.
- Kirby, D. (1997). *No easy answers: Research findings on programs to reduce teen pregnancy*. Washington DC: National Campaign to Prevent Teen Pregnancy.
- Kirby, D. (n.d.). *Effective curricula and their common characteristics*. Retrieved March 8, 2002, from <http://www.etr.org/recapp/programs/effectiveprograms.htm>.
- Koch, P.B. (1993). Promoting healthy sexual development during early adolescence. In R. M. Lerner (Ed.), *Early adolescence: Perspectives on research, policy and intervention*. Hillsdale, NJ: Lawrence Erlbaum.

- Kolbe, L.J., Kann, L. & Brener, N.D. (2001). Overview and summary of finding: School Health Policies and Programs Study 2000. *Journal of School Health, 71*, 253-259.
- Leffert, N. & Peterson, A. (1996). Healthy adolescent development: Risks and opportunities. In P.M. Kato & T. Mann (Eds.), *Handbook of diversity issues in health psychology*. (pp.117-140). New York: Plenum.
- Lenderyou, G. (1994). Sex education: A school-based perspective. *Sexual and Marital Therapy, 9*, 127-144.
- Lerner, E.K. & Homes, M.E. (1998). *AIDS crisis in America: A reference handbook*. Santa Barbara, CA: ABC-CLIO.
- Lerner, R.M. (1993). Early adolescence: Toward an agenda for the integration of research, policy and intervention. In R. M. Lerner (Ed.), *Early adolescence: Perspectives on research, policy and intervention*. (pp.1-16) Hillsdale, NJ: Lawrence Erlbaum.
- Lerner, R. M., Freund, A.M., De Stefanis, I. & Habermas, T. (2001). Understanding developmental regulation in adolescence: The use of selection, optimization and compensation model. *Human Development, 44*, 29-50.
- Lerner, R.M, Lerner, J.V., von Eye, A., Ostrom, C.W., Nitz, K., Talwar-Soni, R & Tubman, J. (1996). Continuity and discontinuity across the transition to early adolescence: A developmental contextual perspective. In J.A. Graber, J. Brooks-Gunn & A.C. Peterson (Eds.), *Transitions through adolescence: Interpersonal domains and context*. (pp. 3-22). Mahwah, NJ: Lawrence Erlbaum Associates.
- Lindberg, L.D., Ku, L. & Sonenstein, F. (2000). Adolescents' reports of reproductive health education, 1988-1995. *Family Planning Perspectives, 32(5)*, 220-226.
- Maggs, J.M. & Hurrelmann, K. (1998). Do substance use and delinquency have differential associations with adolescents' peer relations? *International Journal of Behavioral Development, 22*, 367-388.
- Magnusson, D. (2000). The individual as the organizing principle in psychological inquiry: A holistic approach. In L.R. Bergman, R.B. Cairns, L. Nilsson & L. Nystedt (Eds), *Developmental science and the holistic approach* (pp. 49-62). Mahwah, N.J.: Lawrence Erlbaum.
- Marsiglio, W. & Mott, F. (1986). The impact of sex education on sexual activity, contraceptive use, and premarital pregnancy among American teenagers. *Family Planning Perspectives, 18*, 151-162.

- McCall, R.B. & Applebaum, M.I. (1991). Some issues in conducting secondary analyses. *Developmental Psychology*, 2, 911-917.
- Miller, B. & Benson, B. (1999). Romantic and sexual relationship development during adolescence. In W. Furman, B.B. Brown and C. Feiring (Eds.), *The development of romantic relationships in adolescence*. (pp. 99-124). London, UK: Cambridge University Press.
- Moan, E.R. & Mellott, R.N. (1997). Assessment and intervention with schools. In J.L. Swartz & W.E. Martin, Jr. (Eds), *Applied ecological psychology for schools within communities: Assessment and intervention*. (pp.117-137). Mahwah, NJ: Lawrence Erlbaum.
- Moen, P., (1995). Introduction. In P. Moen, G.H. Elder Jr., & K. Lusher (Eds.), *Examining lives in context: Perspectives on the ecology of human development*. Washington, DC: American Psychological Association.
- Morbidity and Mortality Weekly Report (2000, July 14). *National and state-specific pregnancy rates among adolescents —United States, 1995–1997*. Atlanta, GA: Centers for Disease Control and Prevention. Retrieved on January, 2, 2002 from <http://www.cdc.gov/mmwr/PDF/wk/mm4927.pdf>
- National Education Goals Panel (1999). *The national education goals report: Building a nation of learners, 1999*. Washington, DC: US Government Printing Office.
- National Center for Health Statistics. (2001). *Healthy People 2000: Final review*. Retrieved on January, 25, 2002 from <http://www.cdc.gov/nchs/data/hp2000/hp2k01.pdf>
- Newcomer, S. & Baldwin, W. (1992). Demographics of adolescent sexual behavior, contraception, pregnancy and STDs. *Journal of School Health*, 62, 265-270.
- Offer, D. & Offer, J. (1975). *From teenage to manhood: A psychological study*. New York: Basic Books.
- Ohannessian, C., & Crockett, L. (1993). A longitudinal investigation of the relationship between educational investment and adolescent sexual activity. *Journal of Adolescent Research*, 8, 167-182.
- Orton, M.J. (1994). Institutional barriers to sexual health: Issues at the federal, provincial, and local program levels-Ontario as a case study. *Canadian Journal of Human Sexuality*, 3, 209-225.

- Panchaud, C., Singh, S., Feivelson, D. & Darroch, J.E. (2000). Sexually transmitted diseases among adolescents in developed countries. *Family Planning Perspectives, 32*, 24-32, 45.
- Petersen, A.C. (1993). Presidential address: Creating adolescents: The role of context and process in developmental trajectories. *Journal of Research on Adolescence, 3*, 1-18.
- Petersen, A. C., Leffert, N. & Graham, B.L. (1995). Adolescent development and the emergence of sexuality. *Suicide and Life-Threatening Behavior, 25*, 4-17.
- Raudenbush, S.W. & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, Ca: Sage.
- Remez, L. (2000). Oral sex among adolescents: Is it sex or is it abstinence? [Electronic version] *Family Planning Perspectives, 32*, 6.
- Resnick, M.D. (2000). Protective factors, resiliency, and healthy youth development. *Adolescent Medicine, 11*, 157-164.
- Resnick, M.D., Bearman, P.S., Blum, R.W., Bauman, K.E., Harris, K.M., Jones, J., Tabor, J., Beuhring, T., Sieving, R.E., Shew, M., Ireland, M., Bearinger, L.H. & Udry, J.R. (1997). Protecting adolescents from harm: Findings from the National Longitudinal Study of Adolescent Health. *Journal of American Medical Association, 278*, 823-832.
- Richards, M. H., Abell, S.N. & Petersen, A.C. (1993). Biological development. In P. Tolan & B. Cohler (Eds.), *Handbook of clinical research and practice with adolescents*. (pp.21-44). New York: John Wiley & Sons.
- Rodriguez, M., Young, R., Renfro, S., Asencio, M., & Haffner, D. (1996). Teaching our teachers to teach: A SIECUS study on training and preparation for HIV/AIDS prevention and sexuality education. New York: SIECUS.
- Rosenberg, P.S. & Biggar, R.J. (1998). Trends in HIV incidence among young adults in the United States. *Journal of the American Medical Association, 279*, 1894.
- Rosenthal, D.A. & Smith, A.M.A. (1997). Adolescent sexual timetables. *Journal of Youth and Adolescence, 26*, 619-636.
- Rotheram-Borus, M.J., Mahler, K.A. & Rosario, M. (1995). AIDS prevention with adolescents. *AIDS Education and Prevention, 7*(3), 320-336.

- Russell, S.T., Seif, H. & Truong, N.L. (2001). School outcomes of sexual minority youth in the United States: Evidence from a national study. *Journal of Adolescence*, 24, 111-127.
- Rutter, M., Champion, L., Quinton, D., Maughan, B. & Pickles, A. (1995). Understanding individual differences in environmental-risk exposure. In P. Moen, G.H. Elder Jr., & K. Lusher (Eds.), *Examining lives in context: Perspectives on the ecology of human development*. Washington, DC: American Psychological Association.
- Ryan, S.A., Millstein, S.G. & Irwin, C. (1996). Puberty questions asked by early adolescents: What do they want to know? *Journal of Adolescent Health*, 19, 145-152.
- Savin-Williams, R.C. & Diamond, L. (2000). Sexual identity trajectories among sexual-minority youths: Gender comparisons. *Archives of Sexual Behavior*, 29, 607-627.
- Sellars, D.E., McGraw, S.A. & McKinlay, J.B. (1994). Does the promotion and distribution of condoms increase teen sexual activity? Evidence from an HIV prevention program for Latino youth. *American Journal of Public Health*, 84, 1952-1959.
- SIECUS (1996). *Guidelines for comprehensive sexuality education: Kindergarten-12th grade*. New York: Author.
- Simmons, R.G. & Blyth, D.A. (1987). *Moving into adolescence: The impact of pubertal change and school context*. New York: Aldine.
- Singh, S. & Darroch, J. E. (2000). Adolescent pregnancy and childbearing: Levels and trends in developed countries. [Electronic version] *Family Planning Perspectives*, 32, 14-23.
- Small, S.A. & Luster, T. (1994). Adolescent sexual activity: An ecological risk-factor approach. *Journal of Marriage and the Family*, 56, 181-192.
- Smith, J. & Baltes, P.B. (1999). Life-span perspectives on development. In Marc H. Bornstein & Michael Lamb (Eds.), *Developmental Psychology*. (pp.47-72). Mahwah, NJ: Lawrence Erlbaum.
- Smith, T. K., Brener, N.D., Kann, L., Kinchen, S.A., McManus, T. & Thorne, J. (2001). Methodology for the school health policies and programs study 2000. *Journal of School Health*, 71, 260-265.

- Stattin, H., & Magnusson, D. (1990). *Paths through life*. Hillsdale, NJ: Lawrence Erlbaum.
- Steele, J.R. (1999). Teenage sexuality and media practice: Factoring in the influences of family friends and school. *Journal of Sex Research, 36*, 331-341.
- Swartz, J. L. & Martin, W.E. Jr. (1997). Ecological psychology theory: Historical overview and application to educational ecosystems. In J.L. Swartz & W.E. Martin, Jr. (Eds). *Applied ecological psychology for schools within communities: Assessment and intervention*. (pp.3-30). Mahwah, NJ: Lawrence Erlbaum.
- Terry, E., & Manlove, J. (2000). *Trends in sexual activity and contraceptive use among teens*. Washington, DC: National Campaign to Prevent Teen Pregnancy.
- U.S. Department of Education (n.d.). *Progress of education in the United States of America: 1990 through 1994*. Retrieved on January 26, 2002 from <http://www.ed.gov/pubs/Prog95/>
- U.S. Department of Health and Human Services. (2000). *Healthy People 2010: Understanding and Improving Health*. Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services (1997). *Trends in the well-being of America's children & youth*. Retrieved on January 22, 2002 from <http://aspe.os.dhhs.gov/hsp/97trends/intro-web.htm>
- U.S. Department of Health and Human Services. (1990). *Healthy People 2000*. Washington, DC: U.S. Government Printing Office.
- Upchurch, D. M., Levy-Storms, L., Sucoff, C. L., & Aneshensel, C. S. (1998). Gender and ethnic differences in the timing of first sexual intercourse. *Family Planning Perspectives, 30*, 121-127.
- Visser, A.P. & van Bilsen, P. (1994). Effectiveness of sex education provided to adolescents. *Patient Education and Counseling, 23*, 147-160.
- Ventura, S.J., Matthews, T.J. & Hamilton, B.E. (2001). Births to teenagers in the United States, 1940-2000. *National vital statistics reports, 49(10)*. Retrieved on January 10, 2002 from www.cdc.gov/nchs/data/nvsr49/nvsr49_10.pdf
- Ventura, S.J., Mosher, W.D., Curtin, S.C., Abma, J.C., & Henshaw, S. (2000). Trends in pregnancy rates for the United States, 1976-97: An update. *National Center for Health Statistics. Vital health stat 49(4)*. Retrieved on January 10, 2002 from www.cdc.gov/nchs/releases/01news/trendpreg.htm

- Wachs, T.D. (2000). Necessary but not sufficient: The retrospective roles of single and multiple influences on individual development. Washington DC: American Psychological Association.
- Welsh, D.P., Rososky, S.S., & Kawaguchi, M.C. (2000). A normative perspective of adolescent girls' developing sexuality. In C. B. Travis & J. W. White (Eds). *Sexuality, society, and feminism* (pp. 111-140). Washington DC: American Psychological Association.
- Whitchurch, G. G. & Constantine, L.L. (1993). Systems theory. In P.G. Boss, W.J. Doherty, R. LaRossa, W. R. Schumm & S. K. Steinmetz (Eds.), *Sourcebook of family theories and methods: A contextual approach*. (pp. 325-352). New York: Plenum.
- White, C.P. & White, M.B. (1991). The Adolescent Family Life Act: Content, findings, and policy recommendations for pregnancy prevention programs. *Journal of Clinical Child Psychology*, 20, 58-70.