TEACHERS' ATTITUDES AND OPINIONS CONCERNING ELEMENTARY SCHOOL STUDENTS' UNDERSTANDING OF HIV/AIDS

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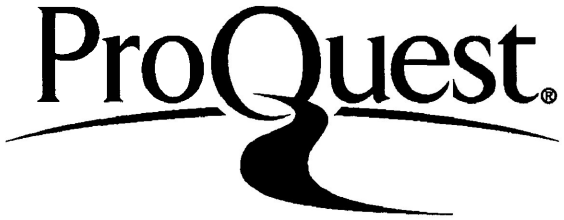
A THESIS
SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER IN EDUCATION

FACULTY OF EDUCATION
LAKEHEAD UNIVERSITY
THUNDER BAY, ONTARIO

MAY 2000



ABSTRACT

The purpose of this study was to investigate teachers' views on HIV/AIDS education and their students' readiness for HIV/AIDS education. How the emotional developmental stages of the students relate to the implementation of HIV/AIDS education programs in elementary schools was also investigated. Forty-three public elementary teachers of Grades 5 to 8 from one school board participated in a 46-six item questionnaire. It was found that all the teachers, especially the younger ones, are overwhelmingly willing to teach their students about various topics related to HIV/AIDS education. The participants also clearly did not believe that they are the most qualified professionals to provide this education or that they have sufficient, suitable resources available to them. The respondents believed that public health nurses, along with specially trained teachers are the best providers of HIV/AIDS education. The teachers of Grades 7 and 8 students were more likely to have taught about HIV/AIDS over the past school year. On average, the teachers believed that HIV/AIDS education should begin in Grade 6; this finding is similar to the beliefs outlined in Piaget's stages of cognitive development. Analyses also revealed a low level of teachers' accuracy regarding what their students understand about HIV/AIDS.

ACKNOWLEDGEMENTS

Sincere appreciation must be extended to a number of individuals who were sources of support and encouragement throughout this research endeavor. First, I would like to express my appreciation to my thesis supervisor, Dr. Alan Bowd, whose guidance throughout this journey was invaluable. I thank him for his time, patience and research advice.

Sincere thanks are extended to the supporting members of my thesis committee, Dr. Jim Haines and Dr. Tom Puk, whose comments, constructive criticisms, and encouragement kept me motivated and focussed on completing the final draft.

Next, to my parents, Pentti and Marion Paularinne, who instilled in me the importance of education and taught me about dedication, perseverance, and commitment. These invaluable life long traits, as well as your support, guided me through the ups and downs of this study.

Finally, I would like to thank Mark Cernjul, whose continuous love, support, and advice I am always grateful for.

I would also like to express gratitude to the participating school board and its principals and teachers for allowing me to conduct my research in their schools. Thanks is also extended to Barb for assisting in copyediting this paper.

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CHAPTER 1

INTRODUCTION

A number of studies were conducted to survey children's and young adolescents' knowledge about HIV/AIDS. The results of many of the studies show that children, especially preadolescents, do not have sufficient, current knowledge about the disease, indicating that a significant number of them may be at risk for contracting HIV, the virus that causes AIDS (Brown & Fritz, 1988; Brown, Nassau, & Barone, 1990; Brown, Reynolds, & Brenman, 1994; Dolan, Corber, & Zaccour, 1990; Fassler, McQueen, Duncan, & Copeland, 1990; Obeidallah et al., 1993). The majority of these studies concluded that HIV/AIDS education needs to begin in midelementary school (Grades 4, 5, & 6), if not earlier, in order to best inform preadolescents about contracting HIV/AIDS, how it is contracted, and how it can affect them personally.

Previous research also indicated that educating students while they are still in midelementary school positively increases their knowledge of HIV/AIDS (Chandarana, Conlon, Noh, & Field, 1990; Gill & Beazley, 1993; Yarber & Torabi, 1997). If students learn about HIV/AIDS while they are in elementary school, they will retain the information and will remain informed about how HIV/AIDS can affect them personally (Chandarana et al.; Conlon et al.). Subsequently, they will be able to make informed decisions before they become sexually active. Even with the significant success rates of early intervention programs dealing with building HIV/AIDS awareness (Chandarana et al.,), very few schools conduct formal HIV/AIDS education before Grades 7 or 8 in North America. These studies also demonstrated that educating students as early as Grade 5 can

positively affect their attitudes and beliefs about HIV/AIDS.

In order to facilitate a useful HIV/AIDS curriculum, teachers can benefit from an understanding of Piaget's theory of cognitive development as it relates to children's understanding of illness and disease (Piaget & Inhelder, 1969). Two studies that analyzed children's developmental understanding of illness were conducted (Bibace & Walsh, 1980; Perrin & Gerrity, 1981). These studies focussed on the comparison between the stages of children's understanding of how an illness is contracted and how these stages are consistent with the developmental stages described by Piaget. Both of these studies suggested that the age of 7 or 8, which correlates with Piaget's concrete operations stage, is the optimal time to begin educating children about illness and disease and how they are spread. At this stage, children are less egocentric and more able to understand the notion of infection. By the end of this stage, at the age of 11 or 12, children are able to understand basic instruction pertaining to the spread of disease. By the time students reach the formal operations stage between the ages of 12 and 16, they are able to formulate a more complex understanding of contagion and illness transmission. During this latter stage of development, students can understand and learn about the more abstract aspects of HIV/AIDS.

Most of the research conducted in the area of HIV/AIDS education suggested that HIV/AIDS-related issues should be taught to children as early as possible (Langille, Andreou, Beazley, & Delaney, 1998; Price, Desmond, & Kukulka, 1985; Thomas, DiCenso, & Griffith, 1998). This is not happening in Ontario. According to the current Ontario curriculum guidelines, HIV/AIDS education does not have to be implemented

until Grade 8 (Ministry of Education and Training [MET], 1998). Some researchers suggested that HIV/AIDS education be taught in the middle grades in elementary school (Thomas et al.). Other researchers found that educating children about HIV/AIDS in midelementary school produces positive effects (Chandarana et al., 1990; Gill & Beazley, 1993). However, the question arises: Why are more schools not educating children at a younger age? This leads to a second question: Do teachers think that students are cognitively and emotionally ready to begin learning about HIV/AIDS before Grade 8?

A number of early HIV/AIDS education interventions for children as young as 10 years of age proved to be successful in positively changing students' attitudes, beliefs, and knowledge about HIV/AIDS (Chandarana et al., 1990; O'Hara, Messick, Fichtnen, & Parris, 1996; Yarber & Torabi, 1997). The children not only learned the information but retained what they had learned for months after the formal lessons. Early HIV/AIDS intervention programs in midelementary school are beneficial in increasing the awareness of HIV/AIDS-related issues in children at the formal operations stage. More elementary schools need to adopt early HIV/AIDS intervention programs in order to foster an awareness of health risks that their students may encounter.

Earlier research also showed that approximately 50% of adolescents in Canada and the United States engage in sexual intercourse before the age of 16 (Thomas et al., 1998). This fact indicates that educating children in Grades 7 or 8 may be too late to inform a significant number of them about behaviours that may put them at risk for contracting HIV/AIDS. Intervention needs to begin earlier in order to increase the awareness of HIV/AIDS among preadolescents and to help them deal with peer pressure

in situations that may put them at risk for contracting HIV/AIDS.

Evidence supports the view that teachers are reasonably accurate judges of their students' academic achievements but are less accurate judges of their students in other areas, such as intelligence and creativity (Doherty & Conolly, 1985; Hoge & Butcher, 1984; Kenoyer, 1982; Kishor, 1994; Stevenson, Parker, & Wilkinson, 1976). The lack of literature in this area suggests that more research needs to be done regarding the accuracy of teachers' perceptions of their students in nonacademic issues. With respect to judging students' emotional and developmental capabilities, the sparse research that is available suggests that teachers are not accurate judges of their students (Ryall & Rykken, 1975).

Purpose of the Study

The purpose of this study was to examine teachers' knowledge and beliefs about their students' cognitive and emotional developmental stages. How these emotional developmental stages relate to the implementation of HIV/AIDS education programs in midelementary school was also investigated. A survey questionnaire was distributed to teachers of students in Grades 5, 6, 7, and 8 over a 3-week period. The purpose of the survey was to allow this researcher to gain a better understanding of whether teachers believe that their students are cognitively and emotionally ready to begin learning about HIV/AIDS in Grades 5, 6, 7, or 8.

Significance of the Study

The significance of this study relates to its relevance to the following issues:

1. There is very little research about elementary classroom teachers' opinions regarding

what their students understand, or are ready to understand, about HIV/AIDS.

2. An examination of teachers' attitudes and opinions about what their students understand about HIV/AIDS should help identify educators' needs to teach this topic, as well as the need for their students to learn about this topic. This may provide a basis for continuing research pertaining to when elementary school students would best benefit from learning about HIV/AIDS.

3. The results may have implications for education curriculum designers.

CHAPTER 2

LITERATURE REVIEW

Piaget's Theory Of Children's Understanding of Disease

A number of previous studies linked children's perceptions of illness to Piaget's theory of cognitive development (Bibace & Walsh, 1980; Burbach & Peterson, 1986; Maddux, Roberts, Sledden, & Wright, 1986; Perrin & Gerrity, 1981; Whitt, Dykstra, & Taylor, 1979). According to Piaget, children experience four major stages of cognitive development: (a) the sensorimotor stage from birth to age 3; (b) the preoperational stage from ages 3 to 8; (c) the concrete operations stage from ages 8 to 12, although some writers suggest that this stage can continue until age 15 or 16, depending on the domain, for example, disease or illness; and (d) the formal operations stage, beginning anywhere between ages 12 and16 onward (Bowd, McDougall, & Yewchuk, 1998). Piaget's theory of the cognitive development of children acts as a foundation that health education researchers can use to understand the level of understanding that children, regardless of age, have of disease.

Sensorimotor Stage

According to Piaget, children at the sensorimotor stage are very self-oriented. He stated that "the child's initial universe is an egocentrism as total as it is unconscious (for lack of consciousness of the self)" (Piaget & Inhelder, 1969, p. 13). Learning involves direct sensory experience, so it is difficult for children at this age to comprehend the existence of a virus or any object that cannot be experienced through any one of the

senses.

Preoperational Stage

During the preoperational stage, children begin to develop internal or cognitive representations of the world. This stage "consists of the ability to represent something (a signified something: object, event, conceptual scheme, etc.) by means of a 'signifier' which is differentiated and which serves only a representative purpose: language, mental image, symbolic gesture, and so on" (Piaget & Inhelder, 1969, p. 51). At this stage, most children's perceptions are empirical rather than logical. Thinking is infralogical and is often characterized by contradictions and errors in judgement. This means that children aged 2 to 7 would be confused in their perceptions of illness.

Bibace and Walsh (1980) supported this theory of limited understanding when they asked children at the preoperational stage about illness: "How do people get colds? 'From the sun.' How does the sun give you a cold? 'It just does, that's all.' " (p. 914).

Children at this stage cannot comprehend contagion. Perrin and Gerrity (1981) confirmed this by stating that thinking for the child at the preoperational stage "is focused on externally perceived events" (p. 847). They gave the example of a child who believes that he or she is ill because of not having done something, such as failing to get enough sleep the night before. Of course, this is not the cause of the child's illness, but this is how a child at the preoperational stage of development understands illness and how one contracts it.

Concrete Operations Stage

At the concrete operations stage, children's thinking is characterized by cognitive

operations. Their ability to understand classes of objects and principles develops rapidly. During this stage, Piagetian theory implies that students begin to understand contagion. It is at this stage when children begin to differentiate between themselves, on whom they have been primarily focussed until this time, and others (Piaget & Inhelder, 1969). Essentially, children become less egocentric. According to Bibace and Walsh (1980), children at the concrete operations stage are able to distinguish between what externally causes illness and disease and how these cause agents can affect them internally.

Perrin and Gerrity (1981) described developments at this stage:

> Fourth and sixth graders usually define illness by a set of multiple concrete symptoms. They believe illnesses are attributed only or primarily to germs, which have a predetermined, powerful, and almost magical effect on their bodies, and that illness can thus be simply prevented by avoiding these germs.... (p. 847)

These authors argued that children at this stage believe taking care of themselves will cure or prevent illness. These children believe that taking medicines and listening to expert advice will cure illness, but they do not fully understand how their bodies can heal themselves. "While thought remains limited to the youngsters' own concrete experiences, concrete operational children are able to focus simultaneously on several dimensions of a situation..." (Whitt et al., 1979, p. 332). At the end of the concrete operations stage, children begin to understand how illness is contracted; therefore, children can be formally educated about disease and illness contraction by the end this stage.

Formal Operations Stage

Piaget's fourth stage of cognitive development is the formal operations stage (Piaget & Inhelder, 1969). The formal operations stage can begin as early as 11 or 12

years of age or as late as 15 years of age, depending on the domain being examined. Piaget and Inhelder defined this stage as "...the age of great ideals and of the beginning of theories, as well as the time of simple present adaptations to reality" (p. 130). A number of studies pertaining to children's understanding of illness argued that this is the time when children begin to formulate a logical and abstract understanding of contagion and illness transmission (Bibace & Walsh, 1980; Perrin & Gerrity, 1981; Schvaneveldt, Lindauer, & Young, 1990).

In their study, conducted to help doctors understand children's perceptions of illness, Whitt et al. (1979) identified the developmental progression reaching the formal operations stage as "...changing from primitive, egocentric reasoning to more abstract and concretely logical views" (p. 332). It is at this stage that preadolescents gain a better understanding of abstract ideas, such as the spread of disease (Whitt et al.)..

Piaget's Theory of Children's Developmental Concepts of Illness

Bibace and Walsh (1980) reached a similar conclusion to Whitt et al. (1979) in their study of children aged 3 to 13. The authors found that "...the explanation of illness varied as a function of the developmental status of our subjects" (p. 915). In this quote, "developmental status" is directly related to the formal operations stage of Piaget's theory. As children age, their thought processes become more complex, and they are able to understand illness at a more abstract level.

Perrin and Gerrity (1981) generally supported the conclusions of Whitt et al. (1979) and Bibace and Walsh (1980). Perrin and Gerrity noted:

> The complexity of the mechanisms that must interrelate to cause illness is not understood until eighth grade at the earliest. At approximately 12 or 13 years of age, children begin to understand that there are multiple causes of illness, that the body may respond variably to any or a combination of agents, and [that] the host factors interact with the agent to cause and cure illness. (p. 841)

This research suggested that children do not achieve the abstract reasoning necessary to understand complex facets of disease and illness until approximately Grade 8. The contrast is that Bibace and Walsh and Whitt et al. found that 11-year-old children begin to engage in thinking characteristics, as defined by Piaget, of the formal operations stage and that by age13, most have reached this stage. Perrin and Gerrity argued that the ages of 12 or 13 are a transitional period when children begin to show some characteristics of the formal operational stage.

It is apparent that Piaget's stages of cognitive development are consistent with the development of children's levels of understanding of the concepts of illness and contagion (Piaget and Inhelder, 1969). The maturing sophistication of their understanding of illness depends on the children's ages and their stages of cognitive development. As stated earlier, previous studies found that these stages of developmental understanding do exist and are consistent with Piaget's observations about child development related to the stages of cognitive development.

Even after conducting an extensive literature search, the current author found only a few studies that analyzed young adolescents' and elementary school students' knowledge and understanding of HIV/AIDS (Brown & Fritz, 1988; Brown et al., 1990; Brown et al., 1994; Dolan et al., 1990; Fassler et al., 1990; Obeidallah et al., 1993).

Although each study targetted different age groups, similar conclusions were made in respect to their levels of understanding and cognitive development.

Developmental Aspects

As noted earlier, according to Piaget's theory of cognitive development, children begin to understand the concepts of illness and contagion at the concrete operations stage, which occurs approximately between Grades 4 and 7. Obeidallah et al. (1993) found that at the concrete operations stage, children begin to develop more complex thinking skills and can "...describe disease cause or cure in terms of direct contact with a contaminant...are able to describe, in general terms, the disease's effect on the internal body" (p. 128).

Although students still revealed misconceptions about HIV/AIDS, all of these researchers found that children in Grade 5, in particular, had begun to develop a more logical level of thinking in understanding the spread of HIV/AIDS and the effects HIV/AIDS can have on the human body (Brown et al., 1990: Brown et al., 1994; Fassler et al., 1990; Obeidallah et al., 1993). These researchers expressed the need to begin educating children about HIV/AIDS and preventative behaviours as early as Grade 1. Children as young as 6 or 7 demonstrated that they are aware of HIV/AIDS, leading these researchers to believe that students in Grade 1 should begin to receive age-appropriate HIV/AIDS-related education.

According to the findings in the aforementioned studies, it appears that by Grade 5, many students can understand sophisticated concepts such as disease transmission and development. This finding is in contrast to what Perrin and Gerrity (1981) stated earlier,

namely, that children begin to develop this abstract reasoning at approximately the Grade 8 level.

Brown et al. (1990) found that "grade-related differences in AIDS-related knowledge, attitudes, and coping were apparent" (p. 273). This finding was similar to an earlier study conducted by Brown and Fritz (1988), who studied 908 7th- and 10th- grade students.

An interesting finding was also made by Brown et al. (1990) and Fassler et al. (1990). Both studies found that fifth graders were more knowledgeable than older and younger elementary students about certain information relating to HIV/AIDS. In their study of 147 children aged 6 to 12, Fassler et al. found that fifth-grade students had more correct information regarding the definition of the term AIDS. That is, students in Grade 5 had a better understanding of how the virus could be transmitted, as well as whether or not the disease was contagious or had a cure, than their older and younger counterparts.

In a study of 441 5th-, 7th-, and 10th- grade students, Brown et al. (1990) stated that fifth-grade students were more knowledgeable than older students on three items: The students knew that one cannot contract AIDS from having blood taken or, from kissing, but that one could possibly contract AIDS through maternal transmission. The researchers offered a possible explanation for this variance when they stated that "... younger children attend only to major messages of the media and further speculation is limited by their concrete thinking abilities" (p. 273). Perhaps their peer interactions are also less complex; thus, the subject of HIV/AIDS is not discussed in this regard. Nonetheless, it is evident that children are developmentally ready to begin HIV/AIDS education before

adolescence.

Demographics

Sexual Experience

Studies conducted on the sexual behaviour of adolescents raise some serious issues. Thomas et al. (1998) found that in the United States, 39% of 15-year-olds, 48% of 16-year-olds, and 62% of 17-year-olds have had sex at least once. Thomas et al. also cited similar statistics from the 1989 Canada Youth and AIDS Study. In 1993, Stephens and Fowler reported the same findings in Canada's Health Promotion Survey of 1990. These studies found that 60% of males aged 15 to 19 and 57% of females aged 15 to 19 have engaged in sexual intercourse at least once.

In their study of adolescent sexual behaviour in Ontario, Thomas et al. (1998) reported that by the age of 16, 50.3% of males and 49.7% of females have had sexual intercourse on at least one occasion. As well, these same researchers found that by the age of 12 (or by Grade 7), 11.6% of males and 4.9% of female students have had sexual intercourse at least once. They also concluded that by Grade 9, approximately 20% of all students in Ontario have had sexual intercourse at least once.

In their study of teenagers in Nova Scotia, Langille et al. (1998) found that "sexually transmitted disease (STD) occurs most frequently in those aged 15 to 24, and 4% to 5% of Nova Scotia women aged 15 to 19 become pregnant annually" (p. 85). This raises the issue as to whether or not these students are receiving adequate education about preventative measures to avoid pregnancy and contraction of STDs and HIV/AIDS. A

similar question was raised recently in Dryden, Ontario, by the Dryden and District AIDS Committee, noting the rise in HIV/AIDS and identifying contributors as being university and college students. The committee hypothesized that students are leaving the community to go to university or college; are having unprotected sexual intercourse while away, possibly contracting an STD or HIV; and are then returning to the small community and having unprotected sexual intercourse with other partners, consequently infecting them (Meadows, 1999).

HIV/AIDS Statistics

There is sufficient evidence to suggest that teachers should be offering education intervention programs about HIV/AIDS to preadolescents before they become sexually active in order to increase their awareness of how this disease can be contracted. Because HIV can remain dormant in the body for up to 10 years, it is important to educate students before they become sexually active (King et al., 1989; Richter, Valois, McKeown, & Vincent, 1993).

Recent statistical data reported that "AIDS has become the leading cause of death among all Americans aged 25-44, with many of these persons acquiring HIV during adolescence" (Yarber & Torabi, 1997, p. 74). Main et al. (1994) reached similar conclusions. They found that "nearly one quarter of all AIDS cases are reported among young adults age 20-29 years who were probably infected as teenagers" (p. 409). Levy et al. (1995) further emphasized the risks that adolescents face when they stated that "thus, the increasing rate of HIV disease and AIDS among young adults more accurately reflects the growing presence of HIV infection in the adolescent population" (p. 145). Fetter

(1989) supported this by declaring that "[a] recent Centers for Disease Control estimate shows that approximately 33,950 youths between 15 and 29 are already infected with the AIDS virus (HIV) and do not know it" (p.150). These statistics clearly demonstrate that early HIV/AIDS awareness programs are necessary to educate and inform youth about the risks involved in engaging in unprotected sexual activity.

HIV/AIDS Education Interventions in Elementary School

In the absence of a vaccine, education is the best way to protect students from HIV/AIDS. Education should also be directed toward encouraging students to avoid risky sexual behaviours. A number of studies concluded that HIV/AIDS education needs to be provided to young midelementary school students in order to inform them about the disease (Beazley, 1992; Brown et al., 1990; Price et al., 1985; Robenstine, 1994; Svenson, Varnhagen, Godin, & Salmon, 1992; Tatum, 1988; Thomas et al., 1998; Yarber & Torabi, 1997).

Yarber and Torabi (1997) concluded that "...HIV/AIDS education should begin in early adolescence, before damaging health patterns are established" (p. 74). The authors went on to state that "...interventions must begin before age 13" (p. 74). According to a number of studies, HIV/AIDS education programs have been in place in both elementary and high schools for more than 10 years (Darroch-Forrest & Silverman, 1989; Gill & Beazley, 1993; Kenny, Guardado, & Brown, 1989; Montauk & Scoggin, 1989).

Thomas et al. (1998) agreed that HIV/AIDS education should begin before Grade 8, stating that "since 40% of those who are not sexually active at ages 12 and 13 years

(and older) report intermittent sexual intercourse over the subsequent 3 years, programs aimed at this age group might effectively reduce the frequency of sexual intercourse" (p. 92). Beazley (1992) suggested that "students should begin receiving age-appropriate information in the early grades and should continue to receive it throughout their school experience" (p. 253). As mentioned previously, by understanding the stages of children's cognitive development, teachers can design age-appropriate lessons that will help students deal with peer pressure issues and educate them about the risks involved in inappropriate sexual activity.

Successful HIV/AIDS Education Programs

There have been a number of successful HIV/AIDS education programs that have increased students' knowledge and changed students' beliefs toward HIV/AIDS. Some programs concentrated solely on changing students' attitudes, beliefs, and knowledge towards HIV/AIDS; others chose to approach the subject of HIV/AIDS by focussing on reducing the number of preadolescents having unprotected sexual intercourse.

A number of HIV/AIDS education programs were tested in elementary school classrooms (Chandarana et al., 1990; Gill & Beazley, 1993; Main et al., 1994; O'Hara et al., 1996; Stewart & Beazley, 1993; Yarber & Torabi, 1997). These awareness programs were found to positively affect students' beliefs and attitudes toward HIV/AIDS. In their study, which was conducted in a city in southern Ontario, Chandarana et al. tested students before, immediately following, and a month after an HIV/AIDS program had been implemented in elementary classrooms. They found that the students had a high retention of the information that was presented to them about HIV/AIDS. "We conclude

that the classroom education of AIDS is effective in imparting knowledge and changing students' beliefs about AIDS" (Chandarana et al., p. 285). Short lessons appeared to increase retention of the information for a significant amount of time after the program was completed.

Yarber and Torabi (1997) conducted a study similar to that of Chandarana et al. (1990) with Grade 8 students as their participants. They also found that education did improve students' attitudes toward HIV/AIDS, but only minimally. The authors suggested that participants may have already received adequate HIV/AIDS-related information, thus implying that children do retain illness-related information for more than one month.

O'Hara et al. (1996) set up a peer-led HIV/AIDS-related intervention program in an alternative school. They found that through education, the students in this program increased their knowledge about HIV/AIDS and reported increased condom use. It is evident that intervention programs pertaining to HIV/AIDS-related information has a positive effect on increasing the knowledge and understanding of the disease among young and preadolescent children.

Interestingly, one study of HIV/AIDS education intervention was found to have no impact on the beliefs and knowledge of students. Stewart and Beazley (1993) examined the effects of HIV/AIDS education on the attitudes and knowledge of Grade 9 students in Nova Scotia after they had met a person with AIDS. The researchers found that when the students met a person with HIV/AIDS in the classroom, there was "no measurable impact on students' perceived susceptibility to HIV infection nor on their

attitudes toward a person with HIV/AIDS" (p. 265).

Who Should Teach Elementary Students About HIV/AIDS?

The HIV/AIDS curriculum that was set for the 1998-1999 school year in Ontario placed a heavy burden on classroom teachers to develop and implement suitable and thorough units of study related to HIV/AIDS. Teachers, principals, and parents throughout North America have acknowledged that HIV/AIDS-related information needs to be taught to students in the elementary classroom to ensure that every student has some rudimentary knowledge of the disease (Basch, 1989; Darroch-Forrest & Silverman, 1989; Fetter, 1989; Guttmacher, Lieberman, Ward, Radosh, Rafferty, & Freudenberg, 1995; Kerr, Allensworth, & Gayle, 1989; Levenson-Gingiss & Basen-Engquist, 1994; Quinn, Thomas, & Smith, 1990).

The dilemma that teachers face is that they do not necessarily feel comfortable finding the information and conveying the data to their students. Silin (1995) stated, "If teachers are to be successful change agents–and HIV/AIDS always involves change–then professional education programs must prepare them for their extra-classroom roles" (p. 67). Quinn et al. (1990) and Fetter (1989) agreed that HIV/AIDS education should only be taught by specially trained teachers who have taken inservice training related to HIV/AIDS and health education.

Experienced teachers are used to making curriculum changes and additions, a situation that may make some hesitant teachers more willing to learn about how to teach their students about HIV/AIDS. These teachers will only be willing to teach about HIV/AIDS if resources become more readily available to them. Another explanation for

the low level of comfort in teaching about HIV/AIDS could be the lack of health-related education and preparation in preservice programs. Anderson and Thorsen (1997) found that 85% of preservice respondents in Ontario received less than 6 hours of instruction dealing with health-related issues, including HIV/AIDS, in their training programs.

Teachers' Abilities to Judge Students

After an extensive literature search, this author found no studies that pertained specifically to teachers' judgements of their students' understanding of illness. However, some studies pertaining to teachers' judgements of their students' academic achievement, social status, and creativity were found.

Academic achievement. A number of studies were conducted on the accuracy of teachers' judgements of their students' academic achievement (Coladarci, 1986, 1992; Demaray & Elliott, 1998; Doherty & Conolly, 1985; Hoge & Butcher, 1984; Hoge & Coladarci, 1989; Kenoyer, 1982; Kishor, 1994; Mulholland & Berliner, 1992; Ryall & Rykken, 1975; Stevenson et al., 1976). Some of the researchers who conducted studies found that teachers' ratings and judgements of their students were done with high accuracy. In their study, Analysis of Teacher Judgements of Pupil Achievement Levels, Hoge and Butcher revealed that teachers are able to judge students' levels of achievement as accurately as educational tests do. These teachers accurately judged the academic successes and failures of their students. Similarly, Kenoyer concluded that teachers can accurately judge which students need compensatory education, and that teachers are good assessors of their students' levels of achievement.

Nevertheless, Doherty and Conolly (1985) cautioned:

> The processes that are involved in this judging and assessing are as yet imperfectly understood, but one thing we can be certain of: These processes do not take place within a vacuum, nor do they necessarily operate within a stimulus-response framework. Judging and assessing children is heavily dependent on symbolic functioning, on both the part of the teacher and of the child. (p. 41)

Symbolic functioning refers to the ways in which teachers perceive their students. Teachers perceive each of their students differently. Doherty and Conolly pointed out that "... there is a great deal of flexibility in the way that teachers and children do symbolize themselves, each other and their interactions; nevertheless, there is, over time, a pattern to the things" (p. 42). When judging academic performance, teachers need to remember to forget all the preconceived judgements that they may have about a student and focus solely on assessing the task at hand, without any outside influences that may skew their judgement.

In a study that compared teachers' judgements of their students' educational attainment to the students' scores on the Kaufman Test of Educational Achievement, Demaray and Elliott (1998) found that "teachers' judgments of students' academic achievement on the Academic Competence Scale were correlated moderately high (r = .70) with students' actual K-TEA scores" (p. 8). These data support the notion that teachers are accurate judges of their students' educational attainment.

Hoge and Coladarci (1989) completed a review of literature based on teachers' judgements of their students' academic achievement levels. The authors found that "on the whole, the results revealed high levels of validity for the teacher-judgement measures" (p. 297).

Coladarci (1992) made two noteworthy points regarding teachers' assessments of their students' academic achievements. First, teachers have different areas of expertise and may have difficulty in accurately ranking or assessing students in all academic areas. Secondly, "...accuracy depends on which student is being judged. Teachers were considerably less accurate in judging lower-ability than higher-ability students" (p. 36).

Teachers' biases must be taken into consideration when examining teachers' judgements. Another factor that must be considered is the teachers' years of experience in the profession. According to Mulholland and Berliner (1992), when estimating student achievement, experienced teachers are more accurate in their predictions of their students than novice teachers are.

Overall, teachers appear to be quite accurate when assessing their students' performances in academic situations. However, according to a number of studies, teachers tended to be a little less accurate in judging their students' performances in nonacademic situations.

Social status. In their study examining the popularity of students, as seen by their peers and by their teachers, Taylor, Trickett, and Tall (1987) found that when compared to peer rankings of popularity, teachers agreed more with peer rankings when assessing the social status of children in younger grades (Junior Kindergarten to Grade 1) and not as accurate with peer rankings of students in higher grades (Grades 2 - 5). According to Taylor et al., "...differences in teacher preference are assessed with differences in teacher-child behavior and child outcomes in school" (p. 8). Teachers are more likely to base their assessments of students' popularity in relation to how well they do in school.

Landau, Milich, and Whitten (1984) also found that Kindergarten teachers were accurate judges of their students' social status when compared to their students' rankings of one another. No studies were found relating specifically to teachers' rankings of the social status of junior or intermediate level students.

Creativity. Ryall and Rykken (1975) explored whether teachers are accurate judges of their students in nonacademic situations. Teachers' ratings were found to be unreliable when judging the creativity of their students. Teachers' assessments were compared to the circles subtest of the Torrance Tests of Creative Thinking, and a high number were found to be inaccurate.

Another interesting finding made by Ryall and Rykken (1975) was that teachers' abilities to accurately judge their students' creativity decreased as the age of their students increased, a finding similar to that of Taylor et al. (1987) in teachers' assessments of the popularity of their students. This finding is consistent with Mayfield's (1979) results in her study of teachers assessing both the academic and nonacademic, or creative, potential of their students. She stated, "For the most part, the teacher ratings of intelligence and achievement corresponded well with standardized test performances. In contrast, the teachers seemed unable to judge the creativity dimension well" (p. 817).

Although no studies were found relating specifically to teachers' judgements of their students' understanding of HIV/AIDS or illness, the research suggested that teachers vary in their accuracy when judging students' academic and nonacademic achievements. The research previously discussed in this chapter may suggest that teachers are not accurate judges of their students in nonacademic situations. This may further suggest that

teachers are not accurate assessors of the students' understanding of health-related issues such as HIV/AIDS.

CHAPTER 3

DESIGN OF THE STUDY

Expectations

This study was essentially exploratory in nature because no study of teachers' attitudes and opinions toward their students' understanding of HIV/AIDS was reported in the literature.

This study had six principal expectations:

1. Having taught HIV/AIDS-related information previously will correlate positively with teaching about HIV/AIDS-related information over the school year.
2. Teachers will be willing to teach their students about HIV/AIDS-related information but will not feel comfortable that they are the most qualified professionals available to do so.
3. Teachers will not have or feel that they do not have sufficient knowledge or resources pertaining to HIV/AIDS-related information to qualify them to teach their students about HIV/AIDS.
4. Teachers will be consistent in their judgements of their students' cognitive and emotional readiness for HIV/AIDS instruction.
5. Teachers will have the opinion that students should begin learning about HIV/AIDS-related information before Grade 8, as set by the new Ontario curriculum guidelines.
6. Certain demographic factors are expected to be associated with aspects of teachers' willingness to teach about HIV/AIDS, specifically:

6.1 The ages of the teachers will be expected to correlate negatively with teachers' willingness to teach HIV/AIDS-related topics and knowledge. The older teachers are, the less likely they will be willing to teach about HIV/AIDS-related topics.

6.2 Teachers' grade level taught will be expected to correlate positively with their willingness to teach HIV/AIDS-related topics and knowledge.

6.3 Teachers' levels of education will be expected to correlate positively with their willingness to teach HIV/AIDS-related topics.

6.4 Teachers' experiences teaching health education will be expected to correlate positively with their willingness to teach HIV/AIDS-related topics.

Methodology

Participants and Data Collection

Eighty-six surveys with covering letters (see Appendices A & B) and self-addressed stamped envelopes were distributed personally by the researcher to 13 elementary schools in early May. Once the appropriate clearances from Lakehead University's Ethics Committee and the participating board of education were received, the researcher contacted the principals of 14 public elementary schools in the city and requested a brief meeting with the teachers of the Grades 5, 6, 7, and 8 classes. One principal declined the request for participation in this survey because the staff were already involved in data collection for another research endeavour. Principals of 5 schools agreed to a 10-minute meeting, between the researcher and their teachers. The researcher briefly described the rationale, purpose of the study, and the research

instrument with the potential participants. It was also explained to each teacher during the brief meeting that participation in the survey was optional and that withdrawal from the study at any time was permitted. The teachers were cooperative and enthusiastic about the project, despite the fact that it was a hectic time of year for them. The surveys were left with the participants, and they were invited to complete the survey at home or school and to return the survey within 2 weeks to the researcher in the self-addressed stamped envelope that was provided. This process ensured the anonymity and confidentiality of all the participating teachers. The distribution of surveys in this manner accounted for 29 of the total (86) surveys distributed.

This study was designed to assess teachers' perceptions of their students' readiness to learn about HIV/AIDS in the classroom. A total of 43 of the 86 teachers of Grade 5, 6, 7, and 8 students voluntarily provided information for this study by completing and returning a survey, a return rate of 50%. The survey was designed to collect data on the beliefs and opinions of teachers pertaining to their students' cognitive and emotional development. The survey was also designed to incorporate several attitudinal scale-type items, true-false items, and items allowing participants to give personal opinions.

Because it was a busy time of year, 8 principals decided, for a variety of reasons, that they would be supportive of this research endeavour but that they would rather personally distribute the surveys as part of a weekly memo to all teachers of Grades 5, 6, 7, and 8. A brief explanation was placed in the memo about participation being voluntary and that the researcher would appreciate it if the surveys were returned within 2 weeks.

Fifty-seven surveys were distributed in this manner.

Two weeks after the surveys were distributed, a memo was sent as a reminder to all participating teachers to return the surveys as soon as possible. By late-June, all data were collected; as promised, the researcher sent these same teachers the answers to the multiple-choice questions related to HIV/AIDS trivia, along with a letter of gratitude for their participation.

Fifteen of the 43 surveys (35%) were returned by teachers of split grades. Because all the surveys were returned by mail to protect the anonymity of the participants, knowing the breakdown of students in the split grades was impossible. It was decided that the higher of the two grades being taught would be used in the data analysis.

Instrument

The survey used in this study was constructed by the author. The initial survey was composed of 46 items and was distributed to five teachers of Grades 5, 6, 7, and 8 as a pilot study. These teachers were not participants in the final study. As a result of the pilot study, two items were altered because they were found to be repetitious, and minor wording changes were made to some other items.

This survey was organized into 7 parts. The first part of the survey sought information regarding the background of the teachers. Seven questions sought information regarding gender, age, teaching experience, grade taught, and the level of postsecondary education the teachers had personally obtained, as well as any courses related to health education or health-related issues.

Following the background information were five yes-no questions regarding

whether discussions about HIV/AIDS had been or would be taught over the school year and whether the classroom teachers or health care professionals would be presenting the lessons. The last question asked whether or not there had been any informal discussions regarding HIV/AIDS in the classroom.

The third portion of the survey included five positively worded statements regarding the willingness of teachers to teach their classes various HIV/AIDS-related topics . A 5-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5) was employed.

Following the "willingness" statements was another set of eight 5-point Likert scale-type questions that sought information regarding their opinions about health education and who should teach about HIV/AIDS.

Also included in this section were five questions to determine what grade certain aspects of HIV/AIDS education should be taught. Responses were checked on a scale ranging from Grade 1 to Grade 12/OAC. A "Never" alternative was also provided.

Part 5 consisted of five multiple-choice questions that assessed the teachers' knowledge about HIV/AIDS.

Data relating to respondents' personal experiences were collected in two different ways. The first question in part 6 was a yes-no type question dealing with having taught a child with HIV/AIDS. The remaining five items employed positively worded statements using a 5-point Likert scale.

The final portion of the survey examined teachers' opinions of student readiness for HIV/AIDS education. Five items employed a 5-point Likert scale ranging from

"strongly disagree" (1) to "strongly agree" (5) for positively worded statements, with weights reversed for negatively worded statements.

Data Analysis

The Statistical Package for Social Sciences was used in analyzing all the data. Simple descriptive statistics (means and standard deviations) were calculated for the following variables: age of teachers, years spent teaching, and grade at which teachers felt certain HIV/AIDS-related topics should be taught.

Five-point Likert scales were used to measure teachers' expressed willingness to teach various topics related to HIV/AIDS, teachers' comfort and knowledge level in discussing HIV/AIDS, and the availability of resources. Teachers' judgements of their students' emotional/social readiness for HIV/AIDS instruction, as well as their determination of the best source of students' HIV/AIDS education, were also measured using a 5-point Likert scale.

Anticipated relationships between several demographic variables and an expressed willingness to teach various topics related to HIV/AIDS education were described by calculating correlation coefficients. Because broad expectations were outlined, one- tailed tests of significance rather than directional hypotheses were used.

CHAPTER 4

RESULTS

Data collection began in mid-May of 1999. Surveys were received until the end of June. Eighty-six questionnaires were distributed to 13 public elementary schools. Forty-three questionnaires were returned (N = 43), a return rate of 50%. Twenty-nine participants took part in a short meeting with the researcher, during which time the survey was briefly discussed. Fifty-seven participants received the questionnaires with their weekly memos from the school principals.

Participants

Twelve of the participants were male, and 31 of the participants were female. The mean age of the participants was 39.57 years, with a standard deviation (SD) of 9.97 years. The mean years teaching was 14.86 years (SD = 11.02). Table 1 indicates that 10 surveys were returned by Grade 5 teachers, 8 by Grade 6 teachers, 10 by Grade 7 teachers, and 15 by Grade 8 teachers.

Table 1

Number of Surveys Returned by Grade*

	Grade			
	5	6	7	8
Number of surveys distributed	17	22	23	24
Number of surveys returned	10	8	10	15
Total percent returned	59%	36%	43%	63%

* In the case of split grades, the higher grade was recorded. All percentages were rounded off.

Experience in Teaching About Health or HIV/AIDS

Nearly half of the teachers (20 participants, [47%]) indicated that they had taught a formal course concerning health-related issues. This was assumed to include any health courses, not just related to HIV/AIDS, offered by the school board, health unit, university, or college. The remaining 53% of the participants indicated that they had not.

About one third of the teachers stated that they had taught about HIV/AIDS to their class over the past school year (see Table 2). The Grade 7 teachers were more likely to have taught about HIV/AIDS than the Grade 5, 6, and 8 teachers. The Grade 6 teachers were least likely to have taught about HIV/AIDS. Twenty-three percent of the teachers also indicated that they were planning a formal lesson related to HIV/AIDS before school ended in June. The Grade 7 teachers were more likely to be planning to teach about HIV/AIDS over the present school year than the teachers of Grades 5, 6, and 8. The Grade 6 teachers were the least likely to be planning to teach their present class about HIV/AIDS.

Table 2

Teachers Who Have Taught or Are Planning to Teach About HIV/AIDS Education By Grade Level

		Number of Respondents By Grade				
Item	N = 43	Gr.5	Gr.6	Gr.7	Gr.8	P
Have taught HIV/AIDS awareness to their class	14	1	0	7	6	33
Have not taught HIV/AIDS awareness to their class	29		8		9	67
Planning to teach HIV/AIDS awareness	10		0		5	23
Not planning to teach HIV/AIDS awareness	33	9	8	6	10	77

Teaching a Child With HIV/AIDS

Using a 3-point Likert scale (yes, no, maybe), only one teacher in the study indicated that he or she had taught a child who had HIV/AIDS. The percentage of teachers (49%) who indicated that they had not taught a child with HIV/AIDS was identical to the percentage of those who were not sure if they have ever taught a child with HIV/AIDS. Most respondents agreed (47%) or strongly agreed (33%) that students with HIV/AIDS should attend public school.

Teachers' Levels of HIV/AIDS Knowledge and Available Resources

When asked to respond to the question, "Have you taken any in-service workshops, additional qualification courses, college courses, or any other formal course work related to health education?", 23% of the teachers surveyed indicated that they had, and 73% indicated that they had not taken any health-related courses. Using a 5-point Likert scale, 58% of elementary teachers agreed, and 35% strongly agreed, with the statement, "I am comfortable discussing HIV/AIDS-related information with my colleagues" (see Table 3). Sixty-five percent of the teachers agreed, and 14% strongly agreed, that they were "comfortable that they had enough knowledge to help prevent the spread of HIV/AIDS". Fifty-one percent of the participants disagreed with the statement, "I feel that there are sufficient resources readily available to me to teach effectively about HIV/AIDS," 19% strongly disagreed, and19% indicated that they were unsure. Forty-four percent of the teachers agreed that they were willing to learn more about HIV/AIDS so that they could better educate their students in the future, and 26% strongly agreed.

Table 3

Teachers' Levels of HIV/AIDS Knowledge and Available Resources

Item	Percentages for Responses on a 5-Point Likert Scale				
	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Comfortable discussing HIV/AIDS-related information with my colleagues	0%	0%		58%	35%
Comfortable with the amount of HIV/ AIDS knowledge they have to help stop the spread of AIDS	2%	5%	14%	65%	14%
Comfortable that there are sufficient resources to teach about HIV/AIDS	19%	51%	19%	9%	2%
Willing to learn more about HIV/AIDS in order to better educate their students	2%	12%	16%	44%	26%

Teachers' Knowledge Regarding HIV/AIDS

Fifty-three percent of the teachers surveyed responded correctly that a person can be infected with HIV without showing symptoms for a maximum of 10 years (see Table 4). Thirty-three percent of the teachers surveyed knew that by the age of 16, approximately 50% of Ontario adolescents have had sexual intercourse. Forty-two percent of the teachers responded correctly that approximately10% of male students have had sexual intercourse by the age of 12 (Grade 7). Forty-nine percent of the teachers knew that approximately 5% of female students have had sexual intercourse by the age of 12 (Grade 7). Forty-two percent of the teachers surveyed knew that approximately 20% of Ontario Grade 9 students have had sexual intercourse at least once.

Table 4

Frequency of Teachers' Responses For Knowledge Questions From Questionnaire

	Response Options																			
	Years					Years of age					Approximate %					Approximate %				
Item	six months	1	5	10	NR	15	16	17	17+	NR	5	10	15	20+	NR	Less than 5	10	20	25+	NR
Research has shown that a person can be infected by HIV without showing symptoms for a maximum of:			11	23*																
To the best of your knowledge, according to recent statistics, by what age have approximately 50% of Ontario adolescents had sexual intercourse:							14*	15												
To the best of your knowledge, according to recent statistics, by the age of 12 (grade 7), what percentage of Ontario males have had sexual intercourse:											15	18*	7							
To the best of your knowledge, according to recent statistics, by the age of 12, what percentage of Ontario females have had sexual intercourse:											22*	12	6							
To the best of your knowledge, according to recent statistics, what percentage of Ontario grade 9 students have had intercourse at least once:																2	15	18*	7	1

* correct response; NR = No Response; N = 43

On the "knowledge quiz" portion of the questionnaire, which included knowing the aforementioned information, 9% of the teachers surveyed responded incorrectly to all items (see Table 4). Twelve percent of the participants had only one question correct, 40% had two questions correct, 30% had three questions correct, and 18% had four questions correct. None had all five questions correct. In all but one case, the correct answer was also the most popular response.

Teachers' Opinions Regarding Students With HIV/AIDS Attending Public School

Using a 5-point Likert scale, in response to the statement, "Students with HIV/AIDS should be allowed to attend public school," no teachers disagreed or strongly disagreed that students with HIV/AIDS should attend public school, 21% were not sure, 65% agreed, and 14% strongly agreed.

Teachers' Judgements of Their Students' Emotional/Social Readiness for HIV/AIDS Instruction

Questions related to teachers' judgements of their students' emotional/social readiness for HIV/AIDS instruction were measured using a 5-point Likert scale. As demonstrated in Table 5, 44% of the teachers believed that their students used magical reasoning when explaining processes related to their bodies. Equal numbers of teachers (23%) indicated that they either did not believe that or they were not sure if their students used magical reasoning. Sixty-five percent of the teachers responded that their students understood the process of blood flow through their bodies, whereas14% were not sure. Forty percent of the teachers were not sure whether their students were aware that HIV/AIDS was relevant to them. An additional 35% believed that their students were

aware. Sixty-eight percent of the teachers believed that their students understood that disease may be caused by bacteria or viruses, and 16% did not believe this. Fifty-one percent of the teachers strongly disagreed that teaching their students about sexuality would encourage them to experiment with sex, and 33% disagreed.

Table 5

Teachers' Judgements of Their Students' Emotional/ Social Readiness for HIV/AIDS Instruction*

Item	Percentages for Responses on a 5-point Likert Scale				
	strongly disagree	disagree	not sure	agree	strongly agree
Most of my students use magical (non- scientific) reasoning	2%	23%	26%	44%	5%
Most of my students are able to explain the heart and blood flow	0%	12%	14%	65%	9%
Most of my students are aware HIV/AIDS has relevance to them	2%	16%	40%	35%	7%
Most of my students understand disease may be caused by bacteria or viruses	0%	16%		68%	9%
Teaching elementary students about sexuality will encourage experimentation with sex	51%	33%	14%	2%	0%

*N = 43; Judgements were made on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree)

Teachers' Opinions Regarding the Age at Which Specific Aspects of HIV/AIDS Education Should Begin and the Possible Sources of Information

The surveyed teachers believed that different aspects of HIV/AIDS education should, on average, begin sometime during Grade 6 (see Table 6). All the teachers indicated that HIV/AIDS should be taught in public school. Two percent of the teachers

indicated that the immune system should begin to be taught to students in Grade 1, 5% in Grade 4, 21% in Grade 5, 30% in Grade 6, 35% in Grade 7, and 7% in Grade 8. Two percent of the teachers stated that students should begin to learn about different ways to contract HIV/AIDS in Grade 4, 16% in Grade 5, 33% in Grade 6, 42% in Grade 7, and 7% in Grade 8. With regards to discussions on different methods of protection against HIV/AIDS, 2% of the teachers believed it should begin in Grade 4, 9% in Grade 5, 28% in Grade 6, 49% in Grade 7, 7% in Grade 8, and 5% of teachers felt that this issue should not be taught until Grade 9. Another 2% of the teachers expressed the belief that students should begin to learn about how best to deal with peer pressure as it relates to HIV/AIDS risk in Grade 4. Nineteen percent indicated it would be appropriate for students in Grade 5 to begin learning about this, 33% in both Grades 6 and 7, and the remaining 13% thought Grade 8 would be appropriate. Two percent of the teachers expressed the belief that formal HIV/AIDS education in Ontario's elementary schools should begin in Grade 1, 5% in Grade 4, 21% in Grade 5, 28% in Grade 6, 37% in Grade 7, and 7% in Grade 8.

As shown in Table 7, 30% of the teachers strongly agreed, and 47% agreed, that public health nurses should be the main source of students' HIV/AIDS education. Thirty-five percent of the teachers felt that specially trained teachers should be the main source of this aspect of students' HIV/AIDS education, and 21% strongly agreed. The teachers also disagreed (30%) and strongly disagreed (60%) that peer groups should be the students' main source of information. Thirty-percent of the teachers responded the same way about the media.

Table 6

Mean Grade at Which Teachers Believe Certain HIV/AIDS-Related Topics Should Be Taught*

Item	M	SD
At what grade should students be learning about how HIV/AIDS is contracted?	6.35	.92
At what grade should students be learning about how HIV/AIDS affects the immune system?	6.07	1.28
At what grade should students be learning about methods of protection against HIV/AIDS prevention?	6.63	1.00
At what grade should students be learning about how to deal with peer pressure as it relates to HIV/AIDS risk?	6.33	1.00
At what grade do you think formal HIV/AIDS education should begin in Ontario's elementary schools?	6.09	1.29

*Rated on a scale ranging from Grade 1 to Grade 12/OAC

Table 7

Teachers' Opinions of Who Would Be a Desirable Source for Students' HIV/AIDS Information*

	Percentages for Responses on a 5-point Likert Scale				
Item	strongly disagree	disagree	not sure	agree	strongly agree
Public Health Nurse	2%	9%	12%	47%	30%
Specially Trained Teachers	5%	19%	20%	35%	21%
Classroom Teachers	12%	42%	26%	18%	2%
Family	2%	33%	26%	26%	13%
Media	30%	53%	9%	8%	0%
Peer Groups	60%	30%	10%	0%	0%

*N = 43; measured using a 5-point Likert scale (1 = "strongly disagee", 5 = "strongly agree")

Teachers' Willingness to Teach About Various HIV/AIDS-Related Topics

The participants were asked to rate their willingness to teach about various HIV/AIDS-related topics (see Table 8). The items employed a 5-point Likert scale.With regards to teachers' willingness to teach their class about preventative behaviours, 42% of the teachers agreed that they were willing to teach this issue, and 35% strongly agreed. An equal number of teachers agreed and strongly agreed (42%) that they were willing to teach their classes about peer pressure issues as they relate to HIV/AIDS risk situations. Forty-nine percent of the teachers agreed that they were willing to teach their students about HIV/AIDS-related statistics, including adolescent mortality statistics; and 33% strongly agreed. Fifty-three percent of the teachers were willing to teach their students about HIV/AIDS contraction, and 35% strongly agreed. Thirty-five percent of the teachers were willing to teach their students about peer pressure as it relates to sexual intercourse, and 33% strongly agreed.

Table 8

Teachers' Willingness to Teach Their Classes About Different Aspects of HIV/AIDS Education*

Aspect	Percentages for Responses on a 5-Point Likert Scale				
	strongly disagree	disagree	not sure	agree	strongly agree
Preventative behaviours	7%	2%	14%	42%	35%
Peer pressure as it relates to risk situations	2%	2%	12%	42%	42%
HIV/AIDS-related statistics	7%	2%	9%	49%	33%
Contraction of HIV/AIDS	2%	0%	9%	53%	36%
Peer pressure and sexual intercourse	7%	0%	25%	35%	33%

* N = 43; measured on a 5-point Likert scale (1 = "strongly disagree", 5 = "strongly agree")

Teachers' Willingness To Teach About Preventative Behaviours Related To HIV/AIDS

The ages of the teachers, their years of teaching experience, and the grades being taught had all correlated with the teachers' willingness to teach about preventative behaviours (see Table 9). Three significant correlations were determined: two low and one moderate. The ages of the teachers correlated negatively with their willingness to teach about preventative behaviours ($r = -.265$, $p < .05$), as did the years of teaching experience they had ($r = -.267$, $p < .05$). The grades taught positively correlated with the teachers' willingness to teach about preventative behaviours ($r = .531$, $p < .01$). Previous health education teaching experience by teachers showed no significance.

Table 9

Demographic Factors Relating to Teachers' Willingness to Teach About Preventative Behaviours

Demographic	r	p*
Age of teacher	-.264	< .05
Years of teaching experience	-.267	< .05
Grade being taught	.531	< .01
Previous Health Education Experience	-.224	NS

* one-tailed test

Teachers' Willingness to Teach About Peer Pressure as It Relates to HIV/AIDS Risk Situations

One demographic factor correlated significantly with the teachers' willingness to

teach about peer pressure as it relates to HIV/AIDS risk situations (see Table 10). The grades taught correlated moderately with teachers' willingness to teach about peer pressure as it relates to HIV/AIDS risk situations ($r = .354$, $p < .05$).

Table 10

Demographic Factors Relating to Teachers' Willingness to Teach About Peer Pressure As It Relates to HIV/AIDS Risk Situations

Demographic	r	p*
Age of teacher	-.183	NS
Years of teaching experience	-.201	NS
Grade being taught	.354	.05
Previous Health Education Experience	-.054	NS

* one-tailed test

Teachers' Willingness To Teach About HIV/AIDS-Related Statistics

The grade levels taught correlated positively, on a moderate level, with teachers' willingness to teach about HIV/AIDS-related statistics, including adolescent mortality rates ($r = .459$, $p < .01$); (see Table 11). No other demographic variables correlated significantly with this factor.

Teachers' Willingness To Teach About HIV/AIDS Contraction

Consistent with expectations, the teachers' willingness to teach about HIV/AIDS contraction correlated negatively, at a low level, with their ages ($r = -.306$, $p < .05$) and positively, on a moderate level, with grades being taught ($r = .491$, $p < .01$); (see

Table 12). The younger the teachers were, the more willing they were to teach about how HIV/AIDS can be contracted. In addition to this, the higher the grades being taught, the more willing teachers were to teach about HIV/AIDS contraction. Previous health education experience and years of teaching experience failed to correlate significantly with teachers' willingness to teach about HIV/AIDS contraction.

Table 11

Demographic Factors Significant to Teachers' Willingness to Teach About Mortality Rates

Demographic	r	p*
Age of teacher	-.065	NS
Years of teaching experience	-.058	NS
Grade level taught	.459	.01
Previous Health Education Experience	-.115	NS

* one-tailed test

Table 12

Demographic Factors Significant to Teachers' Willingness to Teach About HIV/AIDS Contraction

Demographic factors	r	p*
Age of teacher	-.306	.05
Years of teaching experience	-.244	NS
Grade being taught	.491	.01
Previous Health Education Experience	-.080	NS

* one-tailed test

Teachers' Willingness To Teach About Peer Pressure and Sexual Intercourse

As hypothesized, teachers' willingness to teach about peer pressure as it relates to sexual intercourse correlated positively with grades being taught (see Table 13).

Table 13

Demographic Factors Significant to Teachers' Willingness to Teach About Peer Pressure as It Relates to Sexual Intercourse

Demographic factors	r	p*
Age of teacher	-.116	NS
Years of teaching experience	-.060	NS
Grade being taught	.640	.01
Previous health education experience	-.222	NS

* one-tailed test

The higher the grades being taught, the more willing teachers were to teach about peer pressure as it relates to sexual intercourse ($r = .640$, $p < .01$). No other variables were significant.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

This exploratory study examined elementary school teachers' attitudes and opinions regarding their students' cognitive and emotional development and how they relate to HIV/AIDS programs in public elementary schools. The initial objectives were to determine:

1. Whether having taught about HIV/AIDS previously makes teachers more likely to teach the subject again;
2. What teachers of Grades 5, 6, 7, and 8 are comfortable and willing to teach their students about HIV/AIDS;
3. Whether teachers felt they had sufficient resources and knowledge pertaining to HIV/AIDS to qualify them to teach their elementary students about HIV/AIDS;
4. How accurate teachers' judgements of their students' emotional and cognitive readiness for HIV/AIDS education are;
5. What age teachers believe is the appropriate time for elementary students to begin learning about HIV/AIDS; and
6. How certain demographic factors relate to teachers' willingness to teach various topics related to HIV/AIDS.

This chapter discusses the results and findings that address the research hypotheses. It concludes with the limitations of the study. The implications related to future research and practice in the area of health education in Ontario's elementary schools are also examined.

Previous Health Education

It is surprising that only 23% of the elementary educators participating in this study stated that they had taken a course related to health education of any kind. What is surprising is that despite the small percentage of teachers who had taken a course related to health education, the teachers are predominantly willing to teach HIV/AIDS-related topics to their classes. The teachers believe previous health education experience they had is not related to their willingness to educate their students about various HIV/AIDS-related topics. The teachers are willing to teach a number of aspects of HIV/AIDS education, whether or not they had received prior appropriate training. Tatum (1988) acknowledged that schools have traditionally carried out health education because the school system sees education as the best defense against AIDS and other health epidemics. The large percentage of teachers in this survey who are willing to teach their students about HIV/AIDS (results ranging from 68% to 89%, depending on the topic) suggests that teachers also feel that school is the best place to provide such education, whether or not appropriate training has been provided.

Adequate training of teachers needs to be provided to ensure that all adolescents and preadolescents receive appropriate HIV/AIDS education. Robenstine (1994) determined that more than 40% of school boards requiring HIV/AIDS education do not provide inservice training. Robenstine also stated that even when preparation programs are provided for teachers teaching HIV/AIDS, the most predominant form of inservice training provided is written information on how to plan lessons independently.

Quinn et al. (1990) supported Robenstine's (1994) claim. They found that when

inservice courses are offered to teachers, these courses are often not adequate for teaching the general student population. The courses do not provide the teachers with sufficient training or materials to best educate either themselves or their students. This inadequate preparation does not give teachers an incentive to provide their students with adequate HIV/AIDS education.

Further evidence from American research supports the fact that many teachers have not been offered sufficient inservice training pertaining to current methods or content for HIV/AIDS education (Basch, 1989). Basch also pointed out that teachers do not receive an adequate amount of preparation and reflection time necessary to provide beneficial HIV/AIDS education to elementary school students.

A possible reason that few teachers surveyed in the present study have taken courses related to health education is that this particular school board's main initiative has been the promotion of early literacy and writing (M. Clarke, personal communication, March19, 2000). According to Clarke, Ontario's MET has defined the core subjects as language, math, and science; thus inservice training predominantly focusses on these areas. Professional development sessions related to health education have been offered infrequently by this school board. HIV/AIDS and other health education training programs are often overpowered by more popular initiatives (Levenson-Gingiss & Basen-Engquist, 1994).

Because the MET is focussing time, money, and effort on literacy initiatives, teachers are expected to attend a number of professional development sessions, at least two per month, that are related to a specified writing program, most of which are held

after school hours. This focus on reading and writing could possibly contribute to the lack of professional development sessions related to health education. There is no question that academic subjects such as reading and writing are essential and that professional development and preparation courses need to be offered to teachers, but serious attention also needs to be paid to health education, more specifically to HIV/AIDS-related education.

If school boards are lacking in providing health education inservice training for teachers, so are preservice teaching programs. In Ontario, Anderson and Thorsen (1997) found that 85% of preservice teachers surveyed receive less than 6 hours of health education-related instruction. The authors also found that more than 80% of the respondents receive no instruction related to teaching students about, among other topics, AIDS and STDs. Preservice as well as inservice programs need serious reevaluation in order to provide students with adequate health education.

Significant Demographic Factors Relating to Teachers' Willingness to Teach Various HIV/AIDS-Related Topics

Age of the Teacher

This study found that younger teachers are more likely to be willing to teach about preventative behaviours associated with HIV/AIDS, as well as the contraction or transmission of HIV/AIDS. Younger teachers may be more willing to teach about these topics for two reasons. First, younger teachers attended elementary and high school in the 1980s, when issues surrounding HIV/AIDS were just surfacing and being considered as

essential to be taught in school (Chandarana et al., 1990; Darroch-Forrest & Silverman, 1989; Kenny et al., 1989; Montauk & Scoggin, 1989). Because they are more familiar with HIV/AIDS, younger teachers may be more comfortable teaching about it.

The second reason younger teachers may be more willing to teach about HIV/AIDS education programs is that they may have had direct education in school regarding HIV/AIDS. This generation has also been provided with information through television commercials, public service messages, movies, and celebrity spokespersons. Condom use and the risks of unprotected sexual intercourse have received increased attention in recent years (Chandarana et al., 1990; Fassler et al., 1990; Price et al.,1985). This education has provided young people with a familiarity regarding HIV/AIDS-related information and the knowledge of the dangers of unprotected sexual intercourse. Perhaps the comfort level of younger teachers with this topic is reflected in their greater willingness to teach their elementary students about preventative behaviours and the transmission of HIV/AIDS.

An interesting finding relating to the ages of teachers is that neither the younger nor the older teachers are more willing to teach their students about peer pressure as it relates to either HIV/AIDS risk situations or sexual intercourse. This finding suggests two outcomes. First, teachers of all ages are willing to teach about peer relationships as they relate to HIV/AIDS-related topics; second, it also suggests that teachers do not feel they have a clear understanding of how their students interact with their peers or how they can best foster peer-to-peer relationships. This may indicate that teachers believe their students need some form of HIV/AIDS education and that they are willing to provide this

information, but they do not feel that they are the most qualified professionals to do so. Teachers strive to provide their students with appropriate social skills and responses while providing their students, especially adolescents, with opportunities to establish their own personal peer interaction skills.

Tatum (1988) stated that "the idea that we can 'tell' young people shows a lack of understanding of the developmental stages of adolescents" (p. 16). Children need the involvement of a number of parties, such as parents, community groups, teachers and church leaders, to teach them about appropriate social responses and peer interactions. Svenson et al. (1992) found that the combined initiatives of family, religious beliefs, and educational institutions in STD education positively influence adolescents' decisions in high-risk situations.

Students of the 1990s require a different approach to education in order to increase the possibility that they will make positive decisions. Kerr and Gascoigne (1996) outlined a number of characteristics that today's adolescents have in common. These include, but are not limited to, a high need for stimulation, for example, hands-on activities to engage them in learning, personal contact, as well as concrete, and specific information. These two researchers cautioned that the traditional teacher-directed style of instruction may cause students to rebel against authority. It should also be noted that a traditional teacher-directed style of instruction has been successful in increasing the knowledge, attitudes, and behaviour of students in relation to HIV/AIDS transmission (Main et al., 1994). Perhaps a combination of both approaches would be most effective in providing students with appropriate HIV/AIDS education.

Interactive methods of learning, such as group or cooperative activities and discussions, are effective in helping students formulate and follow through on their own opinions and decisions (Kerr & Gascoigne, 1996). Adolescents need to weigh the positive and negative aspects of issues such as unprotected sex, and they need information and skills from more than one source to help them make informed decisions. Robenstine (1994) reminded us that adolescents need to feel that they are "capable of making behavior changes, that those changes will reduce their risk of infection and that the benefits of doing so outweigh the costs" (p. 57).

Kerr and Gascoigne (1996) and Richter et al. (1993) stressed the need to provide students not only with facts and information pertaining to HIV/AIDS but also with decision-making skills to prepare them for the different internal and external influences they will face. Students today also need sufficient communication skills such as assertiveness and refusal skills in order to support the decisions they have made. Kerr and Gascoigne also stated that students need to be taught stress management skills to assist them in situations influenced by peer pressure.

Peer pressure is a strong motivator for young adolescents to engage in sexual intercourse. Svenson et al. (1992) cautioned that adolescents in high school need to become more assertive in the use of protection (e.g. condoms). They found that a large percentage of students did not buy condoms because they were embarrassed. In addition to these skills, students also need goal-setting skills in order to consider the consequences of unprotected sex on their long-term goals. Only after students have these skills can we expect this generation of adolescents to begin to behave more responsibly (Kerr &

Gascoigne, 1996). As Robenstine (1994) noted, teaching about abstinence is not enough, for students need to feel responsible for their own decisions.

Grade Level Taught

The present study finds that teachers of higher grades are more likely to be willing to teach their students about preventive behaviours; peer pressure, as it relates to HIV/AIDS risk situations; mortality rates; contraction; and peer pressure, as it relates to sexual intercourse. A possible reason for this greater willingness is that the current Grade 8 curriculum in Ontario mandates that all but one of these HIV/AIDS issues (mortality rates) must be taught to students. Ontario's MET curriculum guidelines of 1998 state that Grade 8 teachers must identify the symptoms, methods of transmission, prevention and high-risk behaviours related to common STDs, HIV, and AIDS.

The Grade 7 curriculum includes almost identical expectations that "identify the methods of transmission and the symptoms of sexually transmitted diseases (STDs), and ways to prevent them" (MET, 1998, p.18). Although they are not mandated to teach about HIV/AIDS, Grade 7 teachers are possibly acknowledging the importance of this issue by including discussions relating to HIV/AIDS in health education classes. Tatum (1988) stated that "integrating AIDS education into a full and comprehensive health and/or family life education program can help avoid controversy" (p. 18). Tatum also predicted that HIV/AIDS education will remain controversial for some time and that the only way to overcome this is to provide close home-school relations in order to arrive at some consensus about what should be taught, when it should be taught, and by whom. Studies have shown that parents are very supportive of progressive HIV/AIDS education,

especially when they are asked for their input (Guttmacher et al., 1995; Robenstine, 1994). The Grade 7 curriculum does not mandate that HIV/AIDS-related issues be taught. However, by teaching about HIV/AIDS in Grade 7, the teachers participating in this study acknowledge that this sensitive health issue should be taught to students of this age, whether the curriculum presently requires it or not.

Need For HIV/AIDS Education Identified by Public Elementary School Teachers

Need For Earlier Education

The teachers participating in this study were asked to rate their willingness to teach their present classes about various topics related to HIV/AIDS on a 5-point Likert Scale. The large majority of the teachers (77%) either agreed or strongly agreed that they are willing to teach their classes about preventative behaviours related to HIV/AIDS. It should also be noted that 54% of the teachers disagreed, or strongly disagreed that classroom teachers should be responsible for teaching about HIV/AIDS. Essentially, the teachers are willing to teach about HIV/AIDS if there are no other appropriate professionals to do so. There is a clear need for education about HIV/AIDS to begin before Grade 8 in Ontario, according to these teachers.

The need for earlier education was discussed in a study by Levenson-Gingiss and Basen-Engquist (1994). They found that teachers believe HIV/AIDS education is important for adolescents and that they support such education for their elementary classes. Darroch-Forrest and Silverman (1989) also found that education about AIDS and other STDs is taught less frequently and later than teachers thought it should be. Yarber

and Torabi (1997) cautioned that education needs to begin before adolescence and before damaging health patterns became part of a lifestyle. As mentioned earlier, adolescents today need a different style of education in order to provide them with the skills necessary to encourage them to make and follow through with positive decisions. There is clearly a feeling that HIV/AIDS education needs to begin before, or during, the early adolescent years, around Grade 5 or 6, in order to be optimally effective.

A reason why education may not be happening earlier is that there is very little time available in the classroom for HIV/AIDS and health education. Can students effectively learn about the dangers of unprotected sexual intercourse and HIV/AIDS in one lesson from a public health nurse? Robenstine (1994) cautioned that there is insufficient instructional time for HIV/AIDS intervention programs to make them effective.

Teachers are aware, as is the public, that the rates of HIV/AIDS infection are still rising, especially among adolescents (Guttmacher et al., 1995; Robenstine, 1994). In some cases young adolescents and children are engaging in unprotected sexual intercourse, and putting themselves at risk for contracting HIV (Levy et al., 1995). This further supports the finding of this study that HIV/AIDS education needs to begin before Grade 8. As reviewed in chapter 2, there are a number of ways to teach students about HIV/AIDS in the classroom. If teachers are willing to teach their students, they also must believe that their students are ready for HIV/AIDS-related education before Grade 8.

Most Appropriate Time To Begin HIV/AIDS Education

On average, the teachers who participated in this study believe that some time

during Grade 6 would be the most appropriate time to begin teaching about how HIV/AIDS is contracted, how HIV/AIDS affects the immune system, how to use various methods of protection against HIV/AIDS, and how to deal with peer pressure that relates to HIV/AIDS risk situations. Grade 6 was found to be the average grade for HIV/AIDS education to begin. It should also be noted that 86% of the teachers felt HIV/AIDS education should begin between Grades 5 and 7.

Most Ontario students in Grade 6 are 11 or 12 years of age. These students are nearing the end of the concrete operations stage, according to Piaget and Inhelder (1969). Piaget and Inhelder believed that the age of 11 or 12 is the optimal time for children and young adolescents to begin learning about such concepts such as contagion. Piaget's observations are consistent with the results of this study. Most teachers surveyed believed that Grade 6 is the optimal time for adolescents to begin learning about HIV/AIDS. However, it should be pointed out that there is some evidence supporting the view that students are best suited to begin learning about HIV/AIDS and other contagious diseases in Grade 5 (Brown et al., 1990; Brown et al., 1994; Fassler et al., 1990; Obeidallah et al., 1993). Fassler et al. suggested that Grade 5 is the optimal time to begin education on increasingly complex health issues. The researchers argued that students at this age have not begun to form incorrect or stereotyped conclusions about issues such as HIV/AIDS. However, the findings of the present study suggest that teachers may not be very accurate judges of their students' emotional and developmental levels.

Need for Outside Involvement

As discussed previously, although the majority of teachers in this study are

willing to teach their classes more about HIV/AIDS, they are also willing to learn more about HIV/AIDS themselves. In addition, these teachers are willing to discuss HIV/AIDS-related topics with colleagues and believe that they have enough information to help prevent the spread of HIV/AIDS.

After an extensive literature search, no studies relating specifically to Ontario were found regarding teachers' feelings on their preparedness to teach HIV/AIDS education. A study by Levenson-Gingiss and Basen-Engquist (1994) found that more than half of the Texas high school teachers they surveyed feel adequately prepared to teach about HIV/AIDS, but they did not believe that there were adequate counselling or compassionate services available for students within schools. Clearly, these teachers are willing to teach their students about HIV/AIDS education, but they do not feel that they are the best or the most knowledgeable sources of help for young adolescents and pre-adolescents when additional services outside the classroom are required. Anderson and Thorsen (1997) cautioned that "effective teaching methods for health are not easily inferred or directly transferred from a general methods course" (p. 10). This should be kept in mind when preparing any educator to teach about health-related issues such as HIV/AIDS. Although teachers are willing to provide the education, they do not necessarily have the techniques to convey health-related information effectively.

Teachers' Choices For Educating Elementary School Students

The predominant choice of these teachers (77% agreed or strongly agreed) as the most qualified individual to provide students with suitable HIV/AIDS education is the public health nurse. This is not surprising. Having a third party come to a class to discuss

a serious and sensitive topic such as HIV/AIDS is advantageous for a number of reasons. First, students may better appreciate the seriousness of the topic, especially because the information or encouragement to make positive behaviour changes is coming from a guest speaker. Second, students may feel more comfortable asking sex-related questions to a stranger rather than to a classroom teacher whom they see daily. This conclusion may relate to the 54% of teachers who disagreed or strongly disagreed that classroom teachers should be responsible for teaching HIV/AIDS. Third, public health nurses generally have more current information regarding HIV/AIDS and are accustomed to sharing that information in a sensitive manner with others. Fourth, public health nurses can offer "real-world" stories and experiences that students can relate to because they have more direct experience with people with HIV/AIDS.

The next most popular option among teachers (56% agreed or strongly agreed) is to have specially trained teachers provide HIV/AIDS information. The public elementary school system in Ontario generally does not have subject specialists. Specially trained teachers would have current information and, ideally, would be provided with adequate time to prepare sensitive yet essential HIV/AIDS information and activities to change attitudes and foster positive behaviour choices. This would help provide an HIV/AIDS curriculum in a way that students in elementary grades can relate to and that elementary teachers can evaluate appropriately. A subject specialist can combine the information from a health professional with the knowledge of a teacher on developmental and age-appropriate curriculum and activities.

An American study conducted by Kerr et al. (1989) surveyed 11 different groups

of people. The sample groups were chosen nationwide through the American School Health Associations in collaboration with other national organizations. Among the participants were teachers, parents, and students. Teachers were chosen as the preferred group to provide HIV/AIDS education to adolescents, followed by parents and school health nurses. However, Levenson-Gingiss and Basen-Engquist (1994) mentioned that teachers should not be their students' primary source for health education. The researchers found that classroom teachers who taught about HIV/AIDS developed their own teaching materials and had minimal, or no, formal health education training. The researchers also found that elementary teachers were uncomfortable teaching about HIV/AIDS and wanted additional health education training. In some circumstances, having classroom teachers teach about HIV/AIDS can be more damaging than helpful, especially if they are not properly prepared or present erroneous information.

"Those educators directly responsible for implementing programs must receive much more specific training about HIV/AIDS education, and they should receive continuing education to ensure that they have the most current information and strategies" (Robenstine, 1994, p. 57). Keeping current on new information is essential when dealing with issues related to health education. As the present study reports, only 23% of teachers surveyed responded correctly to the fact that HIV can stay dormant for up to 10 years. This fact appears in many general information pamphlets and articles. This suggests that a significant number of classroom teachers may not be sufficiently informed about HIV/AIDS to teach adolescents, contrary to what this survey found respondents to believe.

The teachers participating in this study do not appear particularly knowledgeable about the sexual activities of adolescents within the age group they teach. According to the results of this survey, 14% of the participants correctly answered that 50% of adolescents have engaged in sexual intercourse by the age of 16. Similarly low results were found in their recognition that approximately 10% of males and approximately 5% of females in Grade 7 have had sexual intercourse. The small percentage of teachers who are aware of this information further suggests that classroom teachers may lack an awareness of the sexual activities of adolescents.

A multifaceted approach to AIDS education was proposed by Tatum (1988). Tatum argued that a combination of teachers, parents, and trained peer leaders can give the most rounded health education to young people. She encouraged parents and teachers to work together to develop curricula that both parties are confident with and agree is beneficial. In addition to this, Tatum favoured parents continuing discussions at home about HIV/AIDS, along with encouraging their children's decisions to engage in appropriate behaviour.

Regardless of who provides this education, a number of implications deserve consideration: First, personal values and views must be excluded as much as possible in order that students might form their own attitudes and opinions. Second, as Basch (1989) suggested, a combined effort should be made by teachers, parents, religious and social groups, government, media, and other community organizations to help protect adolescents from the AIDS epidemic. Students need information about HIV/AIDS presented in a variety of forums from a number of sources in order to foster positive

attitudinal and behavioural change. Third, Levenson-Gingiss and Basen-Engquist (1994) suggested developing a theory-based model for HIV/AIDS education, perhaps following Piaget's cognitive development theory to help ensure that an age-appropriate curriculum is established.

Need For Resources

As mentioned earlier, despite being willing to provide HIV/AIDS education, teachers do not believe they are the most qualified professionals to educate their students about HIV/AIDS. In addition to this, the teachers surveyed believe that there are insufficient resources available for them to provide suitable education. This point is further supported by the fact that 21% of the teachers surveyed are not sure whether students with HIV/AIDS should attend public elementary schools. Nobody believes that they should not. There is clearly a continuing need to provide up-to-date information for teachers to educate their students about HIV/AIDS.

HIV/AIDS-related resources are often in the form of videos or printed information provided to teachers to assist them in developing suitable curricula (Robenstine, 1994). The use of audiovisual material is important, but it should not be the only source of information for today's adolescents. Kerr et al. (1989) found that the greatest need is for age-appropriate literature, pamphlets, and current magazine articles. Although they are useful, videos alone are not the most effective way to educate our students. Videos are merely the easiest, the most accessible, and the least controversial method of HIV/AIDS education (Tatum, 1988). In conjunction with printed information, class discussions, and current literature, videos can also provide students with effective education.

Few people question the effectiveness of HIV/AIDS education when it consists only of a video (Tatum, 1988). However, brief exposure to controversial topics is often ineffective in changing attitudes. Nevertheless, Levenson-Gingiss and Basen-Engquist (1994) found that videos are the most widely used method of educating students because they are easy to use and minimal planning is involved. A lot of curriculum can be covered in a short time by a video, and teachers who are less comfortable teaching health-related issues may find it easier to show a video than attempt to foster a discussion independently. Students learn less effectively from videos when they are not used in connection with a discussion or follow-up activity because the impact of the videos is not long term, nor do videos provide opportunities for interactions among the students (Tatum). If used in combination with small group activities, class discussions, or other supporting activities, videos can positively contribute to HIV/AIDS education. Providing students with information presented in a number of formats is the most effective approach.

As mentioned earlier, adolescents need verbal interaction with peers, information related to HIV/AIDS, and appropriate skills to deal with changing social pressures. Main et al. (1994) found that an HIV/AIDS curriculum unit based on a social-cognitive theory and a theory of reasoned action, as established by the researchers, provides students with enough skills to be used in HIV/AIDS risk situations. They noted that adolescents indicate that they intend to practise safer sexual behaviours. Yarber and Torabi (1997) found that teachers using a social-cognitive theory-based curriculum with short-term interventions helps change attitudes of young students, but it does not improve

HIV/AIDS-related knowledge.

Facilitating discussions with a person with AIDS in a Grade 9 health class was found to have little impact on changing the students' attitudes regarding susceptibility to HIV or on their attitudes toward a person with AIDS (Stewart & Beazley, 1993). Levy et al. (1995) suggested that education be based on a social influence model. This model encourages the use of peer group activities; skills training; and support from family, community, and media to teach students about health-related issues such as HIV/AIDS. The researchers found that all programs improve with community support, and they believed that successful HIV/AIDS programs include peer group activities; skills training; and family, community, and media support. There is a clear need for a concise and current HIV/AIDS curriculum that appeals to adolescents and facilitates discussion to provide students with the necessary skills to make positive, informed decisions.

Teachers' Perceptions of Emotional and Social Readiness of Adolescents

Findings relating to the statement, "Most of my students use magical (non-scientific) reasoning" are scattered among agree (44%), not sure (26%), and disagree (22%). According to Piaget and Inhelder's (1969) research, children in Grade 5 should be able to differentiate between magical and scientific reasoning (as cited in Obeidallah et al., 1993). Teachers are not necessarily accurate judges of this topic. Coladarci (1992) suggested that "teacher judgement accuracy depends on the particular academic task being judged" (p. 36). A large percentage (40%) of the teachers surveyed for this study are not very confident that most of their students are aware that HIV/AIDS has relevance

to them.

Whether or not students use magical or nonscientific reasoning to understand that HIV/AIDS has relevance to them involves teachers having personal information about their students. Teachers may not have knowledge regarding personal information about their students because it is something that teachers are not necessarily required to teach and assess. Knowing about students' personal opinions is not something that needs to be covered by the curriculum or evaluated by teachers. Thus, it is likely that teachers will not have this information. Teachers are required to know what students have learned, not how the topics relate to the students personally. This helps to explain the large percentage of teachers who indicated that they are "not sure" about what their students believe. In addition to this, a number of teachers (67%) surveyed have not engaged in formal discussions relating to HIV/AIDS in class. Consequently, they may not have any idea what their students think about HIV/AIDS. On the other hand, processes such as blood flow and contagion are taught, evaluated, and discussed, so teachers may have a better idea of their students' thinking as related to these concepts.

The majority (84%) of the teachers also indicated that they do not feel that teaching elementary students about sexuality encourages experimentation with sex. This may indicate that teachers acknowledge that family life education has been taught for decades within the public health system without such an apparent negative consequence as increasing promiscuity. As mentioned earlier, students need to be taught about their options, for example, that it is acceptable to abstain from sexual intercourse until they can make informed decisions. Tatum (1988) also found that teaching adolescents about sex

does not encourage them to engage in promiscuous behaviour.

Limitations

One limitation placed on the results of this study arises from the fact that participation was voluntary. A clear idea of what the entire teaching population from this elementary school board believes may not be accurately reflected, because some teachers may have not returned the survey for personal reasons and others may not have had time to complete and return the survey. Caution should be exercised when generalizing results because only one public school board in Ontario was employed by this study, with participation of the individual teachers relying on the permission of the principal of the school. Results should not be generalized for the whole province. This sample was taken from a Northwestern Ontario city where the issues surrounding HIV/AIDS may not be discussed as they often are in larger cities. Teachers in different areas of the province may have different experiences related to HIV/AIDS-related issues.

It should also be noted that this study was administered during a hectic time of year. Teachers were preparing report cards, in addition to completing daily marking and planning associated with a substantial new curriculum. The time of year, an unfamiliar curriculum, and a topic that some teachers might still find controversial may contribute to explaining the 50% return rate of the survey. Nevertheless, the response rate is considered acceptable for research purposes.

In an examination of these findings, it must also be remembered that the results only reflect the attitudes and opinions of the teachers who participated. A further study

may also examine the attitudes and opinions of parents or various community or church groups in order to design a curriculum that everyone is comfortable with.

Another limitation should be recognized in regard to the "knowledge quiz" portion of the questionnaire. Care should be exercised in the examination of data from this portion because a small number of items (5) were used to evaluate knowledge on a broad topic. A more valid measure of what teachers know about HIV/AIDS-related issues would be to present a more encompassing questionnaire that would include a wide range of questions including information on statistical facts, medical evidence, and sources for HIV/AIDS information. The results of this survey suggest that teachers are not knowledgeable about HIV/AIDS, but it should be acknowledged that the questions posed in this study did not accurately reflect a full spectrum of HIV/AIDS information. The results are rather limited because the items mainly related to the sexual activities of young adolescents and included only one general knowledge-type question.

Implications

The data presented in the present study have several implications for further research and practices in HIV/AIDS education for adolescents and preadolescents.

Further research into what adolescents and preadolescents understand about HIV/AIDS, as well as how they deal with such information, needs to be conducted. A more comprehensive understanding of how adolescents and preadolescents make decisions and why the decisions they make are not always healthy needs to be assessed and the appropriate curriculum mandated. Having a firmer understanding of peer-to-peer

relationships and providing HIV/AIDS educators with this information contributes to a higher quality HIV/AIDS education program.

Research also needs to be done in order to become more clear about adolescents' opinions regarding HIV/AIDS. Surveying students about what they understand and what their beliefs are about HIV/AIDS are favourable starting points.

In order to develop an effective curriculum, further research needs to compare successful and less successful elementary HIV/AIDS education programs currently in use to determine the efficacy of different strategies and theories. Establishing a theoretical framework for HIV/AIDS education can offer structure to a subject that is often taught in generalities and over a limited time period. Perhaps making HIV/AIDS education more theory based would give teachers the confidence and direction to lead productive classroom discussions and activities. In addition to this, surveying teachers about the knowledge required to provide effective teaching of HIV/AIDS to students of various ages and grade levels would be beneficial.

Although the current elementary curriculum was established in 1998, it is suggested that educators and the Ministry of Education and Training, reevaluate the most appropriate grade when HIV/AIDS first should be taught. If students have not previously received such education, Grade 8 students are learning about how to protect themselves from HIV/AIDS for the first time. This is after a number of students, up to 10% for males and 5% for females, have already become sexually active. The failure to disseminate information to preadolescents and adolescents to change their attitudes and behaviours may contribute to the rise of HIV/AIDS transmission.

An extended examination of teachers' understanding of their students' knowledge regarding HIV/AIDS should be carried out. At the same time, an examination of how well public health nurses are informed about adolescent and preadolescent developmental levels and understandings, as well as the appropriateness of their own HIV/AIDS knowledge, should be explored.

Universities offering preservice training programs should also consider what they can offer to student teachers in order to best equip them with information regarding adolescents and their understanding of HIV/AIDS. Preservice programs need to provide new teachers with some skills to help them teach about sensitive health issues such as HIV/AIDS and to teach effective coping skills to deal with peer pressure regarding sexual behaviours. These skills and teaching methods could be examined in preservice physical education courses.

It is essential that all adolescents and preadolescents learn about the risks of unprotected sexual intercourse and other risky behaviours, such as sharing needles, that may put them in danger of contracting HIV/AIDS. HIV/AIDS education needs to focus not only on sharing information about the potentially harmful effects of promiscuity, needle sharing, and unprotected sexual intercourse but also on teaching students the necessary skills to make appropriate decisions. School is the only institution that can ensure that all children receive this education. Education programs and research, as well as effective theories on which to base HIV/AIDS education, need to be developed in Ontario so that parents can expect youth to increasingly make healthy choices regarding their sexual activities.

Conclusions

One very important responsibility of the elementary school system is to educate students about serious health issues such as the threat of HIV/AIDS in order to provide students with the knowledge to make informed decisions and to change their attitudes and behaviours. Ultimately, it is the obligation of the school system to help reduce the spread of AIDS among young people. The results of this study suggest several conclusions.

The present study indicates that the majority of public elementary school teachers in this study are willing to provide HIV/AIDS education but that they strongly agree that there is a need for more quality HIV/AIDS-related resources. There is a clear need for appropriate resources, and if teachers are to be expected to provide HIV/AIDS education to elementary school students, appropriate inservice training is required. Pamphlets and videos should merely supplement or introduce informed, multifaceted lessons. More than one teaching style needs to be used when implementing HIV/AIDS curriculum in order to provide students with enough knowledge and skills to make informed, positive decisions and to engage in behaviour less likely to put them at risk of infection.

The majority of public elementary teachers surveyed in the present study indicate that they are very willing to teach about various aspects related to HIV/AIDS education and that many are already providing education that is not mandated by current curriculum guidelines. Because younger teachers are more comfortable and willing to teach their students about sensitive topics, such as preventative behaviours associated with HIV/AIDS and transmission of the disease, these teachers may be best suited to help develop an appropriate curriculum. More experienced teachers may also benefit from

discussions led by younger teachers on HIV/AIDS-related topics in order to help them become more comfortable and familiar with specific topics. On the other hand, more experienced teachers can offer younger teachers a wealth of personal experiences, especially if they have children of their own whom they have educated personally about HIV/AIDS and the risks involved in unprotected sexual intercourse. Experienced and young teachers need to share their opinions and ideas that sexual intercourse is not just a physical act but that it also involves the feelings and emotions of individuals.

If these discussion sessions or workshops are deemed suitable to aid in designing a beneficial HIV/AIDS education program, then it must also be recognized that information related to HIV/AIDS changes rapidly and that appropriate upgrading sessions are essential. Evaluating successful classroom HIV/AIDS education programs is also pertinent for teachers and students in order to ensure that best practices are being applied. However the curriculum is determined, the materials must be adapted and updated regularly for them to be optimally effective.

According to the majority of teachers participating in this study, there is a very clear need for HIV/AIDS education to begin before Grade 8. More specifically, the majority of teachers suggest that Grade 6 is an optimal time to begin various aspects of HIV/AIDS education, only one year after a number of studies suggested this education begin. If public health nurses are to educate students about HIV/AIDS, teachers need to be directly involved in the planning and assessment of the curriculum.

There is also a clear need for age-appropriate curriculum. A province wide, theory based AIDS education curriculum focussing on social and cognitive development needs

to be compiled. This curriculum needs to include age-appropriate activities and can best be developed by a panel of teachers, public health nurses, community groups, parents, and students in order to be optimally effective.

The majority of teachers participating in this survey do not appear to have a sound knowledge of the developmental levels of their students' understanding of disease and contagion, or of their students' emotional and social readiness for HIV/AIDS education. The teachers are not confident that their students no longer used magical reasoning to explain illness, nor are they confident that their students are aware that HIV/AIDS has relevance to them. According to Piaget, most students should understand these concepts by the time they enter Grade 5. This suggests that teachers may not be the most qualified people to be providing adolescents and preadolescents with HIV/AIDS education. This implies that more inservice HIV/AIDS-related courses need to be offered both to practising and preservice teachers.

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APPENDIX A: A COVER LETTER

APPENDIX A

Dear Participant,

Thank you for agreeing to consider participating in this study titled: **Teacher's Attitudes and Opinions Concerning Elementary Students' Understanding of HIV/AIDS**. This study is being conducted by Sarah Paularinne, who is completing the requirements of a Master's of Education degree at Lakehead University.

The purpose of this study is to survey teachers of grades 5, 6, 7, & 8, in Thunder Bay, in order to better understand their knowledge and beliefs about their student's cognitive development and how these relate to HIV/AIDS education. This study will help gain a better understanding of whether teachers believe that their students are cognitively and emotionally ready to begin learning about HIV/AIDS in grades 5, 6, 7, & 8. Questions include, but are not limited to the following: age, work experience, education, HIV/AIDS related knowledge, time spent on HIV/AIDS education, willingness to teach about HIV/AIDS. The information gained will offer insight into when teacher's think HIV/AIDS education should begin based on what they perceive their students are ready to learn.

This survey will take approximately 15 to 30 minutes to complete and the participant may withdraw from the study at any time. There are no risks involved in this research and with the exception of the knowledge quiz, no "correct" answers.

If you are willing to participate in this research project, please return the completed survey within the next week, in the self-addressed stamped envelope that has been provided for you. All measures will be taken to ensure confidentiality and no individuals will be identified in any report of the results. The findings of this study will be made available by request upon the completion of this research project and all data will be stored in the office of the supervisor, Dr. Alan Bowd, for seven (7) years. If you have any other questions please don't hesitate to contact me by e mail at smpaular@ ice.lakeheadu.ca, or by phone at 76X-XXXX. Leave your name and phone number and I will contact you as soon as possible. Thank you for your time.

Sincerely,

Sarah Paularinne

APPENDIX B: QUESTIONNAIRE

APPENDIX B

Elementary AIDS Education Survey

This survey is designed to help us learn about teachers' perceptions of student readiness for AIDS education. *Please note that we are interested in your perceptions of students in grades 5,6, 7 and 8.*

Please take some time to complete this survey and return it in the stamped addressed envelope that is provided. It is entirely voluntary and anonymous. The return of a completed survey indicates your consent to be a participant in this study. Thank you for your participation.

Background Information *(please check appropriately)*:

1. Are you male or female? M___ F___

2. What is your age? _____

3. How many years have you taught? _____

4. What grade are you teaching this current year at this school? _____

5. What university degrees do you hold? (Circle appropriate responses)

B.A. B.Sc. H.B.A. H.B.Sc. B.Ed. M.Ed. Other (please specify)_____

6. Have you taken any in-service workshops, Additional Qualification courses, college courses, or any other formal course work *related to health education*?

Yes_____ No____

7. Have you taught a course about health related issues before?

Yes _____ No _____

Classroom time spent on HIV/AIDS education *(please check appropriately):*

8. Have you taught anything about HIV/AIDS to your class this school year?

Yes_____ No _____

9. Are you planning any formal lessons on HIV/AIDS this current school year?

Yes _____ No _____

10. Has a health professional (e.g. nurse) visited your classroom this year to discuss HIV/AIDS?

Yes _____ No ____

11. Would you consider having a health professional (e.g. nurse) visit your classroom to discuss HIV/AIDS related information in the future?

Yes_____ No _____

12. Has there been any informal discussion in your classroom about HIV/AIDS?

Yes _____ No _____

Willingness to teach HIV/AIDS related topics: *(Please indicate your agreement/ disagreement with each statement by circling the appropriate response)*.

13. I am willing to teach my students about preventative behaviours related to HIV/AIDS.

strongly disagree disagree not sure agree strongly agree

14. I am willing to teach my students about how to best deal with peer pressure to help them in situations where they might be at risk for HIV/AIDS.

strongly disagree disagree not sure agree strongly agree

15. I am willing to teach my students HIV/AIDS related statistics including mortality rates of adolescents and young adults.

strongly disagree disagree not sure agree strongly agree

16. I am willing to teach my students about how HIV/AIDS can be contracted.

strongly disagree disagree not sure agree strongly agree

17. My students would benefit from learning about how best to deal with peer pressure as it related to having intercourse and its relationship to HIV/AIDS.

strongly disagree disagree not sure agree strongly agree

Opinions about elementary HIV/AIDS education:

18. Formal HIV/AIDS education should begin before Grade 8 in Ontario.

strongly disagree disagree not sure agree strongly agree

19. Elementary health education should include some discussion of death.

strongly disagree disagree not sure agree strongly agree

20. Family should be the main source HIV/AIDS information for elementary students.

strongly disagree disagree not sure agree strongly agree

21. Public health nurses should be the main source of HIV/AIDS related information for elementary students.

strongly disagree disagree not sure agree strongly agree

22. Teachers should be the main source of HIV/AIDS education for elementary students.

strongly disagree disagree not sure agree strongly agree

23. Specially trained teachers should be the main source of HIV/AIDS education for elementary students.

strongly disagree disagree not sure agree strongly agree

24. Peer groups should be the main source of HIV/AIDS related information for elementary students.

strongly disagree disagree not sure agree strongly agree

25. The media should be the main source of HIV/AIDS related information for elementary students.

strongly disagree disagree not sure agree strongly agree

26. At what grade should students be learning about how HIV/AIDS affects the immune system?

1 2 3 8 10 11 12/OACnever

27. At what grade should students be learning about how HIV/AIDS is contracted?

1 2 3 8 10 11 12/OACnever

28. At what grade should students be learning about methods of protection against HIV/AIDS prevention?

1 2 3 8 10 11 12/OACnever

29. At what grade should students be learning how to deal with peer pressure as it relates to HIV/AIDS risk?

1 2 3 11 12/OACnever

30. At what grade do you think formal HIV/AIDS education should begin in Ontario elementary schools?

11 12/OACnever

Knowledge About AIDS:

31. Research has shown that a person can be infected by HIV (the AIDS virus) without showing symptoms for a maximum of:(circle only one please)

six months one year five years ten years

32. To the best of your knowledge, according to recent statistics, by what age have approximately 50% of Ontario adolescents had sexual intercourse: (circle only one please)

15 years of age 16 years of age 17 years of age more than 17 years of age

33. To the best of your knowledge, according to recent statistics, by the age of 12 (grade 7), what percentage of Ontario males have had sexual intercourse? (circle only one please)

approximately 5% approximately10% approximately 15% more than 20%

34. To the best of your knowledge, according to recent statistics, by the age of 12, what percentage of Ontario females have had sexual intercourse? (circle only one please)

approximately 5% approximately 10% approximately 15% more than 20%

35. To the best of your knowledge, according to recent statistics, what percent of Ontario grade nine students have had intercourse at least once: (circle only one please)

less than 5% approximately 10% approximately 20% more than 25%

Personal Experience:

36. I have taught a child with HIV/AIDS.

Yes _____ No _____ Not Sure _____

37. I have some of the knowledge necessary to help prevent the spread of HIV/AIDS.

strongly disagree disagree not sure agree strongly agree

38. Students with HIV/AIDS should be allowed to attend a public school.

strongly disagree disagree not sure agree strongly agree

39. I am comfortable discussing HIV/AIDS related topics with my colleagues.

strongly disagree disagree not sure agree strongly agree

40. I feel that there are sufficient resources readily available to me to teach effectively about HIV/AIDS.

strongly disagree disagree not sure agree strongly agree

41. I would like to learn more about HIV/AIDS education, so I could better teach students in the future.

strongly disagree disagree not sure agree strongly agree

Perceptions of student readiness for AIDS education:

42. Most of my students use magical (non-scientific) reasoning when explaining processes related to their bodies (e.g. believe that a cold could be caused by not wearing a hat on a cold day).

strongly disagree disagree not sure agree strongly agree

43. Most of my students are able to explain the function of the heart and blood flow through the body.

strongly disagree disagree not sure agree strongly agree

44. Most of my students are aware that HIV/AIDS has some relevance to their lives.

strongly disagree disagree not sure agree strongly agree

45. Most of my students understand how disease may be caused by bacteria or viruses.

strongly disagree disagree not sure agree strongly agree

46. Teaching elementary students about sexuality will encourage them to experiment with sex.

strongly disagree disagree not sure agree strongly agree

Thank you for your time.