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Application of the Information, Motivation and Behavioural Skills (IMB) model for targeting HIV-risk behaviour among adolescent learners in South Africa.

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CHAPTER ONE
INTRODUCTION

1.1 Background

Although HIV and AIDS might no longer make news headlines in the local and global media, the pandemic continues to decimate populations worldwide. An estimated 33,3 million people worldwide were living with HIV at the end of 2009. An estimated 2.6 million became newly infected with HIV, while another estimated 2,8 million lost their lives to AIDS (UNAIDS, 2010).

While Swaziland has the highest HIV prevalence rate in the world, with over a quarter of adults (25,9%) living with HIV, South Africa still has the biggest HIV positive population in the world, with an estimated 5,6 million people living with HIV in 2009 (UNAIDS, 2010). In fact, South African has about 1 500 new infections each day (Rehle et al., 2007), with an estimated 1 000 people dying of HIV and AIDS every day in South Africa (UNAIDS, 2008).

In 2001 adolescents were among the fastest growing population at risk for HIV (United Nations Children's Fund, Joint United Nations Programme on HIV/AIDS & World Health Organization, 2002). In 2008, out of an estimated 6 800 new infections a day, 45% of all new infections were between 15 and 24 years of age (UNAIDS, 2008). This age-group is currently considered being at highest risk for infection (UNAIDS, 2010).

About 5,4 million youth are living with HIV globally, with 61% (3,28 million) living in sub-Saharan Africa (UNAIDS, 2007). Previous national surveys on HIV prevalence among 15-24-year-olds in South Africa have shown an incidence of 9,3% in 2002, 10,3% in 2005 and a substantial decrease to 8,7% in 2008 (Shisana et al., 2009).

According to the HSRC, a 'turning tide' in the incidence of HIV infection is noticed among teenagers in recent years.

However, despite this decrease, the HIV epidemic has not significantly declined at a national level, as many South African adolescents still believe that they are at low-risk for HIV infection (Pettifor, MacPhail, Rees & Cohen, 2008). The high rates of risk behaviours, multiple sex partners, and less frequent condom use, reported in earlier research (Eaton, Flisher & Aarob, 2003; Kelly, 2000; Reddy, Meyer-Weitz, Van Den Borne & Kok, 2000; Siegel, DiClemente, Durbin, Krasnovsky & Saliba, 1995), are likely to increase the potential for more HIV infection among adolescents in South Africa.

While the statistics on HIV infections are shown as between the 15-24 age-group in this chapter, it is not clear whether the adolescent age-group constitutes a larger portion of the infections, and infections decrease above the 20-year-old group. Furthermore, township HIV statistics on adolescents in townships are not available in current literature. However, despite these gaps, this study will assume that currently available statistical information will be applicable to adolescent learners in Alexandra township.

Previously, the rising rates of sexually transmitted infections (including HIV) have signaled a rise in unsafe sex, especially among adolescents (UNAIDS, 2002). Female young people appear to have been the main victims of HIV infection. For instance, globally, the gender distribution of HIV infection among youth shows that 59% were female, while only 41% were male (UNAIDS, 2007).

In South Africa, young women between the ages of 15 and 24 years were four times more likely to be HIV infected than were young men; in 2005 prevalence among young women was 17% compared with 4,4% among young men (Shisana et al., 2004). These infection levels confirm those found in the 2003 national survey of 15-24 year-olds, when 15,5% of young women and 4,8% of young men were found to be HIV infected (Pettifor et al., 2004).

The high rate of female teenage pregnancies in South African schools attests to the fact that female adolescents do engage in unprotected sex, thus rendering themselves vulnerable to HIV infection. For instance, the *Sowetan,* March 11, 2011, published a report by the MEC for Education in KwaZulu-Natal Province, stating that no fewer than 17 260 learners got pregnant in one year in the province of KwaZulu-Natal, South Africa, with as many as 60 pregnant learners coming from one school. The province of KwaZulu-Natal may not be the only South African province with female adolescents engaging in unprotected sex.

1.2 Statement of the Problem

In 2001, Manzini pointed out that the adolescent population in South African schools was increasingly at risk to HIV infection (Manzini, 2001). This observation was consistent with earlier findings confirming that adolescents, in general, did not practice safe sex (Craig & Richter-Strydom, 1983; Flisher, Parker & Walters, 1993; Buga, 1996; Kuhn, Steinberg & Matthews, 1993; Richter, 1996; Harvey, 1997). This could be attributed to the significant increase in the rates of sexual activity among adolescents who, by the time they leave high school, 50%-70% have become sexually active (Johnson & Jefferson-Aker, 2001).

Later, research confirmed that an increasing number of learners attending primary and secondary schools in South Africa were living with HIV (Francis & Francis, 2004). Although adolescent infection rates in South Africa have shown a downward trend lately (UNAIDS, 2009), there is an urgency to develop and implement prevention intervention programmes to motivate adolescents to adopt and maintain HIV-preventive practices. Most existing HIV/AIDS interventions are based on the premise that improved knowledge leads to behaviour change (Morris, Baker & Huscroft, 1992). For instance, Kirby (1992) observed that existing HIV/AIDS programmes have significantly increased adolescents' knowledge about HIV/AIDS, consequently reducing the prevalence of commonly held myths about HIV/AIDS as well as increasing the use of condoms by adolescents.

However, despite the increase of HIV/AIDS knowledge among adolescents, bolstered by the proliferation of knowledge-based HIV/AIDS interventions, HIV infections among adolescents continue to rise. In his review of the sexual behaviour of adolescents in South Africa, Hartell (2005) observes that adolescents do not practice safe sex in general; their use of preventive measures are poor; more than 50% of the sexually active adolescents never use a condom; and less than 10% use a condom regularly during sexual intercourse.

These findings are consistent with those of Makiwane and Mokomane (2010) which show that, despite increased condom use and reduced incidence of other sexually transmitted infections, multiple partnerships and inconsistent condom use is widespread among South African young people. Similarly, earlier South African researchers found that many adolescents engaged in high-risk sexual behaviour, while their knowledge of HIV/AIDS was generally good (Dickson-Tetteh & Ladha, 2000; Kuhn, Steinberg & Matthews, 1993; Harvey, 1997).

In their studies, Matthews, Kuhn, Metcalfe, Joubert and Cameron (1990) and Simbayi (1999) found that township high school students in South Africa had a high level of knowledge about HIV/AIDS, but did not practice safe sex. More studies confirm the ineffectiveness of HIV/AIDS knowledge in changing unsafe sex practices among youth (Odirile, 2000; Campbell, 2003). More importantly, researchers in South Africa observe that, although South African adolescents have knowledge about HIV/AIDS, this knowledge has not translated into substantial behavioural change (James, Reddy, Ruiter, McCauley & van den Borne, 2006; Galloway, 1999; Harvey, 1997; Kuhn, Steinberg & Matthews, 1993).

While it may be argued that adolescents in South Africa possess adequate knowledge about HIV/AIDS, there is a paucity of research providing a more comprehensive understanding of why adolescent risky behaviours continue to increase, despite this knowledge. The pertinent questions to ask are, What knowledge about HIV/AIDS do adolescents have? How is that knowledge presented to adolescents? Do pedagogical practices incorporate the adolescents' socio-cultural backgrounds and values? This

study attempts to address the gaps of knowledge that exist in adolescents before the intervention. The study also emphasizes the importance of taking into account the socio-cultural milieu of adolescents in all school-based HIV preventive programmes. Such inclusion is more likely to result in behavioural changes in adolescents.

Against this background, the Department of Health (1994, p.14) adds, "It is of urgent importance that every child should receive education that will enable them to adopt and maintain healthy behaviour patterns that eliminate the risk of … sexually transmitted diseases such as AIDS." In South Africa, the Department of Education has responded to the challenge of HIV/AIDS through its National Policy on AIDS and Life Skills programme (Government Gazette, 1999), and through its National Curriculum Statement on Life Orientation (Grades 10-12) (Kaschula, 2007). Schools are expected to communicate knowledge, instil values and promote behaviours that will enable learners to protect themselves against HIV infection.

However, according to Mannah (2002), the National Life Skills and HIV/AIDS education programme has been difficult to implement in South African schools for some reasons. Firstly, the programme is generally under-resourced, with the better resourced schools experiencing the most benefits. Secondly, in the school curriculum, issues relating to sexuality and HIV infection are mainly confined to the Life Orientation learning area. Although Life Orientation includes HIV/AIDS education in its learning outcomes, it does not adequately cover the wider scope of HIV/AIDS. Thirdly, most schools have used information-based approaches for their HIV/AIDS education lessons.

The role of educators in HIV/AIDS education and sexuality cannot be over-emphasized. In fact, educators are considered to be well-positioned to play a role in sexual health promotion (Ahmed et al., 2006; Alldred, David & Smith, 2003; Kirby, Laris & Rolleri, 2006). However, studies on attitudes of educators towards teaching HIV/AIDS and Sexuality show that educators are, generally, reluctant to engage in discussions about sexuality (Gallant & Maticka-Tyndale, 2004). Sexuality education, in particular, has been regarded as challenging to teach (Schaalma, Abraham, Gillmore & Kok, 2004).

The difficulties faced by educators in teaching HIV/AIDS education and sexuality may be attributed to the legacy of the apartheid era, when most approaches to teaching were didactical and rote learning. With such a teaching and learning background, it is challenging for educators to adopt more facilitative approaches to teaching, especially in HIV/AIDS education.

According to Schaalma et al., (2004), educators already feel over-burdened, and the teaching of Life Orientation has been seen as an increased burden of teaching something they were not properly trained to teach. For them, sex education, morals and values need to be taught by parents. In a way, current approaches in schools do not seem to be effective in changing the sexual behaviour of adolescents (James et al., 2006). Given these challenges to educators, this study considers as critically important the training of Life Orientation educators to equip them with skills and attitudes that will assist them to deal with current challenges in HIV/AIDS education.

Focusing only on information-based HIV/AIDS education has clearly failed to translate into behaviour change. In attempting to change people's risky behaviour, it is not enough to just tell them that they are at risk of developing a disease (Leventhal et al., 1997). For HIV/AIDS education to be effective, teachers need to acquire the ability, skills and confidence to move away from giving fact-based information to methodologies that engage learners in discussion, role-play, and active learner participation (James et al., 2006; Schenker & Nyirenda, 2002).

In sub-Saharan Africa, findings and recommendations of an international project which focused on assessing the impact of HIV/AIDS on primary and secondary schooling in Botswana, Malawi and Uganda, indicated that there is little evidence to show that school-based HIV/AIDS education has had a major impact on sexual behaviour, despite the fact that learners were well informed about the causes and consequences of HIV/AIDS (Bennell, Hyde & Swainson, 2002).

Similarly, DiClemente (1992) argues that emphasis on didactic transfer of information about HIV transmission or risk-reduction strategies is not likely to be effective in modifying adolescents' sexual risk behaviour. Fisher and Fisher (1992) add that, while adolescent HIV knowledge is necessary, it is not a sufficient condition for adolescents adopting preventive practices. This view is shared by Eaton and Flisher (2000) who claim that secondary school learners have basic knowledge of HIV/AIDS, but that knowledge alone is not enough to assure safe sexual behaviour.

There is a need for educational strategies that move beyond simply imparting knowledge about HIV/AIDS, in order to achieve safer sexual practices among adolescents. In other words, alternative approaches to teaching HIV/AIDS education need to be explored. Adolescent learners need to be empowered through intervention programmes that provide them with appropriate *information*, *motivation* to change risky sexual behaviour, as well as relevant *behavioural skills* to avoid risky sexual behaviour.

This study seeks to establish whether, in the context of existing HIV/AIDS education in high schools in Alexandra township, the Information, Motivation and Behavioural Skills (IMB) model may lead to reduced HIV risk behaviour among adolescent learners.

1.3 Statement of Research Questions

1.3.1 The following ***primary*** research question was addressed in this inquiry:

Can an intervention based on the Information, Motivation and Behavioural Skills (IMB) model be used to effect appropriate sexual behaviour and practices and thereby reduce the likelihood of HIV risk behaviour amongst adolescent learners in township public high schools in South Africa?

1.3.2 The following ***secondary*** research questions supported the exploration of the primary research question:

- What intervention initiatives have been used in the schools in the last two years to reduce HIV risk behaviour?
- What is the learners' exposure to and perceptions of existing HIV/AIDS interventions within their school and township?
- How effective have existing initiatives been in imparting information, motivating and imparting behavioural skills aimed at reducing HIV risk behaviour (as demonstrated by the baseline study)?

  Sub-questions: What HIV/AIDS *information* do high school adolescent learners possess? Are adolescent learners in South African public high schools *motivated* to act upon the HIV/AIDS information and maintain consistent, healthy practices? To what extent are adolescent learners in South African township public high schools empowered with *behavioural skills* that are intended to help them to adopt and perform behaviours that support sexual health?
- How effective would an intervention based on the Information, Motivation and Behavioural Skills (IMB) model be in improving the information, motivation and behavioural skills of high school adolescent learners (as demonstrated by the post-intervention test)?

  Sub-questions: How effective is the IMB based intervention in improving the HIV/AIDS *information* of adolescent high school learners? How effective is the IMB based intervention in improving the *motivation* to act upon the HIV/AIDS information and maintain consistent, healthy practices? How effective is the IMB based intervention in improving the behavioural skills that are intended to help them to adopt and perform behaviours that support sexual health?

1.4 Aims of the Study

1.4.1 In general, the study sought to address the following research aims:

To apply the Information, Motivation and Behavioural Skills (IMB) model in a school-based programme for the reduction of HIV risk behaviour amongst adolescents in South Africa.

1.4.2 Specifically, the study aimed to do the following:

- To identify existing and prior intervention initiatives targeting HIV-risk behaviour within the schools in Alexandra township, Johannesburg.
- To establish to what extent existing intervention initiatives incorporate the Information, Motivation and Behavioural skills model (IMB) approach.
- To identify perceptions of high school adolescent learners on the nature and effectiveness of existing and prior HIV/AIDS interventions targeting HIV risk behaviour within the schools in Alexandra township.
- To establish the existing levels of HIV information, motivation to act upon the information, and behavioural skills in high school adolescent learners, given their exposure to HIV/AIDS education prior to intervention initiatives targeting HIV risk behaviour initiatives within the schools in Alexandra township.
- To implement an Information, Motivation and Behavioural skills (IMB) model to improve the information, motivation and behavioural skills of high school adolescent learners.
- To evaluate the effectiveness of the Information, Motivation and Behavioural skills (IMB) model in improving levels of information, motivation to act upon the information, and imparting behavioural skills aimed at reducing HIV risk behaviour in high school adolescent learners.

1.5 Value of the study

It is hoped that the study would make a meaningful contribution to HIV/AIDS education in high schools in Alexandra township, in particular, and in South Africa, in general, in a variety of ways:

1.5.1 This study will expose the magnitude of the HIV/AIDS problem among adolescent learners in South African township high schools, particularly their vulnerability to HIV infection, despite the HIV/AIDS knowledge they possess. Such exposure will highlight the importance of more effective HIV/AIDS education programmes in schools.

1.5.2 This study will motivate curriculum planners and educators in HIV/AIDS education not only to focus on information-only HIV/AIDS education lessons for high school learners, but to include material and strategies that will also motivate learners to act upon the HIV/AIDS knowledge they possess, as well as develop behavioural skills to perform HIV preventive behaviours.

1.5.3 This study will re-emphasise to researchers in the field of HIV/AIDS prevention the importance of socio-cultural contexts and structural matters of groups being studied, especially if the model being used has its origins outside the environmental context of the targeted group. For example, the question of whether caution must be exercised when using models like the Information, Motivation and Behavioural Skills model to study learners in a South African context.

1.5.4 According to this study, behaviour change remains an important method to prevent HIV transmission among adolescents. The Information, Motivation and Behavioural Skills (IMB) model serves to highlight information, motivation and behavioural skills as important prerequisites to behaviour change. Accordingly, the study will make a contribution to literature on health behaviour change theory.

1.6 Hypothesis

This study hypothesized that levels of HIV/AIDS information, motivation and behavioural skills among the Grade 11 learners in the two participating schools were likely to increase as a result of an HIV-risk reduction intervention based on the Information, Motivation and Behavioural skills (IMB) model.

1.7 Structure of the thesis

This thesis is structured as follows:

Chapter Two proceeds after the current chapter (Chapter One), and provides an overview of the relevant literature on adolescence and HIV/AIDS. Specifically, the chapter describes physical development and sexualty in both male and female adolescents. HIV-risk behaviour and adolescent vulnerability to HIV infection are then examined.

Chapter Three is a further study on adolescent development, this time focusing on social cognition and cognitive development. The chapter concludes with a look at David Elkind's theory of social cognition, with special emphasis on adolescent egocentrism.

Chapter Four looks at particular theories of behavioural change – The Theory of Planned Behaviour and the AIDS Risk Reduction Model. A larger portion of this chapter is dedicated to the Information, Motivation and Behavioural Skills model, on which this study is based.

Chapter Five is the methodology and design of this study. The chapter first outlines how data were collected and ends with ethical considerations in this study.

Chapters Six and Seven are the Results chapters. **Chapter Six** deals with qualitative findings in this study, while **Chapter Seven** focuses on quantitative findings. Conclusions and discussions on specific aspects of the study are also made in Chapters Six and Seven.

Chapter Eight is dedicated to a more general discussion on the findings, as well as conclusions, limitations and recommendations of the entire study.

Appendices and References are all placed at the end of this thesis.

CHAPTER TWO
ADOLESCENCE AND HIV/AIDS

2.1 Introduction

In order to understand risky sexual behaviour among adolescents, it is important to first understand who adolescents are, how they develop both physically, cognitively and socially. It is also important to reflect on how these areas of development influence each other and, ultimately, lead to risky sexual behaviour.

This chapter first reviews literature pertaining to the conceptual framework around adolescence by first explaining what 'adolescence' is about. Physical and cognitive development in adolescence is then examined, followed by a review of literature and discussion on adolescent risky behaviour and vulnerability to HIV infection.

2.2 Adolescence, Physical Development and Sexuality

The term 'adolescence' derives from the Latin verb *adolescere*, meaning 'to grow up'. The term refers to a development phase in the human life cycle that is situated between childhood and adulthood (Gouws, Kruger & Burger, 2000). Since the general characteristics of adolescence are not easily defined, demarcating adolescence is not that easy (Louw & Louw, 2007).

However, the same authors argue that, depending on biological and socio-cultural factors, as well as on individual differences, the age at which adolescence as a separate developmental stage begins, varies from 11 to 13 years, while the age at which it ends is between 17 and 21. More importantly, they suggest that it would be "more acceptable to demarcate the adolescent developmental stage on the basis of specific physical and

psychological developmental characteristics and socio-cultural norms, rather than on chronological age" (Louw & Louw, 2007, p.279). The adolescent period may be subdivided into early, mid- and late adolescence (Gouws et al., 2000).

The concept of adolescence is defined differently in different cultures (UN DESA, 2003). With a gap in literature on features of adolescence in South Africa in general, and Black African townships in particular, this study will not accurately describe adolescents under study. However, demographic information has been collated to give more clarity on the participants (see Table 7.1, pp. 86-87). This information includes the gender of the adolescent, main language(s) of the adolescent, adolescents' living arrangements, the level of parental education, as well as the adolescent's household income.

Adolescence is a period of rapid and transformative physical, psychological, socio-cultural, and cognitive development. During early adolescence there is rapid and extensive physical growth, also known as the 'growth spurt' (Louw & Louw, 2007, p. 284), as well as the development of sexual maturity or 'puberty' (Louw & Louw, 2007, p.284). As various organ systems such as the reproductive organs and the brain grow and mature during physical changes of puberty, a biological foundation is laid for the other developmental changes.

The growth spurts usually differ between boys and girls: it is between 10 and 11 years for girls and between 12 and 13 for boys. Although the growth spurts begin earlier in girls, boys tend to grow faster than girls, usually having grown taller than girls of the same age by the end of the growing phase. Louw and Louw (2007) note that the most dramatic sign of sexual maturation in girls is *menarche* (the first menstruation); the puberty sign in boys is *spermarche* or *semenarche* (the first discharge of semen).

Sexual maturation or 'puberty' in girls starts with the development of primary characteristics (i.e. the enlargement of the ovaries, uterus, labia and clitoris). Secondary characteristics also appear: breast buds, bodily hair (pubic and armpit areas); hips begin to broaden, and an increase in body weight is noticeable due to accumulation of fat in

the body. On the other hand, in boys puberty starts when primary characteristics, that is, the reproductive system develops (i.e. testes, scrotum begins to enlarge). With the development of secondary characteristics, pubic hair appears, the voice deepens, the beard begins to grow, as well as other bodily hair (i.e. the armpits).

Adolescence is the most important time for the development of sexuality in the human life cycle. Steinberg (1993) sees the link between puberty and sexuality as a possible explanation for this importance. Firstly, hormonal changes increase sex drive in early adolescence. Secondly, the capability of sexual reproduction in adolescents enable male adolescents to ejaculate semen and females to ovulate. Hormonal changes lead to all of these consequences which are part of the same development. Steinberg adds that this sexual development in adolescents changes the nature and meaning of sexual activity for the adolescent. For instance, what was previously sex play now becomes serious business as pregnancy is now a possibility.

The secondary characteristics that develop at puberty serve as a sexual attraction, indicating that a person is no longer a child (Steinberg, 1993). Steinberg further points out that sexual activity at adolescence begins to take on a new social meaning in that sexual behaviour becomes a deliberate activity, recognized by oneself and others, rather than children's sex play.

Coleman and Hendry (1990) distinguish modern adolescents from those of twenty or thirty years ago in three ways: 1) today's adolescents are more open about sexual matters; 2) today's adolescents see sexual behaviour as more a matter of private rather than public morality; and 3) today's adolescents view sex as being associated with stable, long-term relationships.

The above authors argue that sexual lives of adolescents have been influenced, to a large extent, by shifts in attitudes towards sexual behaviour in the adolescents' social environment. For instance, extra-marital sex, divorce, homosexuality, advertisements, films, television, etc. have introduced what Coleman and Hendry (1990, p.141) refer to as " … a new sexual morality …" among adolescents. In addition to their own

maturational changes, adolescents have to cope with the inconsistency of the adult world, as well as the lack of "any clear standard or moral code of conduct" (Coleman & Hendry, 1990, p.146).

The adolescent environment is charged with highly suggestive stimuli (television, films, literature, pop music, peer pressure, and so on). Consequently, adolescents reach "social puberty" in that they are "bullied into sexual activity by the social environment long before they are mature or have reached puberty proper" (Coleman & Hendry, 1990, p.148). Adolescence is a turbulent time, when young people develop a sense of their own identity as distinct from their parents. Not only is it a time of engaging with and making sense of the world around them, adolescence is a time of social and sexual experimentation (Walker, Reid & Cornell, 2004).

Several studies confirm that sexual activity among adolescents commences at an early age (Goliath, 1995; Harvey, 1997; Matthews et al., 1990). Acknowledging the early sexual activity in adolescents, Rasing (2003) points out that Zambian adolescents engage in early sexual relationships just to get sexual experience. The writer adds that getting sexual experience is culturally acknowledged for both boys and girls. A study of Zulu-speaking Grade 10 learners in KwaZulu-Natal by Harvey (1997) found that more than one third of the learners were sexually active. This raises much concern since adolescents who begin sexual activity early are more likely to have more sexual partners and, therefore, greater exposure to the risk of HIV (UNAIDS, 2004).

Another study by the Health Systems Development Unit (1997) supported the above findings when it indicated that many adolescents in the Limpopo province, South Africa, were sexually active by the age of 15 years, with some reporting up to seven partners. This confirms the view by Campbell (2003, p.7) that, "while sexuality cannot be divorced from the physical body, and from our instincts and emotions, it is also socially constructed."

The above research reports the extent of early sexual activity among adolescents in Zambia, and South Africa's rural KwaZulu-Natal and Limpopo provinces. Although

reasons for these patterns in sexual activity are not explained in the research, adolescents in these societies live in poverty-stricken socio-economic environments which promote early and risky sexual behaviours. Similarly, as adolescents in Alexandra township are subjected to poor living conditions, they remain vulnerable to HIV risky behaviours.

After their research on sexual activity among South African adolescents, Eaton, Flisher and Aarob (2003) concluded the following:

- at least 50% of young people in South Africa are sexually active by the age 16 and probably 80% by the age 20;
- the majority of school-going adolescents reported having had one or two partners; 1% to 5% of females had more than four sexual partners per year, compared to 10% to 25 % of males;
- between 10% and 30% of sexually active adolescents have more than one sexual partner at a given time; and
- between 50% and 60% of sexually active adolescents never use condoms.

The above statistics clearly indicate the high rates of sexual activity prevailing among male and female adolescents in South Africa. Given the unacceptably high number of children and youth of school-going age in South Africa who are not only sexually active, but also HIV positive (Moletsane, 2003; Harris & Meredith, 2005), it is necessary to address adolescent risky behaviour through interventions that will, among other things, incorporate adolescent sexuality. Kelly (2002) is critical of HIV/AIDS prevention strategies that focus too early on knowledge, attitudes and skills involved in sexual practice, without striving to embed these in a more holistic approach that takes account of the roots of human behaviour, including socio-cultural dimensions.

Accordingly, the above writer suggests an understanding of sexuality and relationships among adolescents as the starting point in preventive programmes. When adolescents have affirmed the value and wonder of a relationship, they will see it as something that needs safeguards, whether these be of no sex, deferred sex or protected sex.

2.3 Adolescence and Cognitive Development

Piaget (1971) believes that children's cognitive development goes through different phases, each bearing particular characteristics. For example, *formal operational phase* is the highest level of intellectual development, and begins during adolescence. According to Piaget (1972), adolescents develop formal operational thinking which enables them to deal with abstract concepts and understand abstract relationships. Gouws, Kruger and Burger (2000) summarise key features of the formal operations stage of cognitive development in adolescents, with greater focus on the social dimension of adolescent development. During the formal operations stage of development, adolescents:

- begin to display an understanding of the rationales, intentions and behaviours of other people and start to question them; adolescents question and examine social, political and religious systems;
- are far more critical about themselves; they constantly measure themselves against ideal models or against the peer group;
- are capable of reflecting on their own ideas, and they try to penetrate the conceptual world of others;
- are extremely sensitive about the impression they make on others; besides reflecting on their own ideas, adolescents try to enter imaginatively into the world of other people's ideas;
- want to be part of the group; and
- are egocentric in that they think others are just as preoccupied with them as they are with themselves.

The above features indicate that adolescents at the formal operations stage of cognitive development have, among other things, a questioning attitude towards their social environment, including parents and other adults. They are more critical of themselves, carefully reflecting on their own ideas. While they focus on themselves, they also judge

themselves according to standards set by their chosen role models as well as their peer group. Adolescents are also egocentric, as seen later in this section.

Fischoff, Crowell and Kipke (1999) contend that, during adolescence, there is an increasing capacity for abstract reasoning, counterfactual reasoning, systematic reasoning, and a growing capacity for hypothetico-deductive reasoning. As an important feature of formal operational thinking, the adolescents' cognitive ability to develop alternative ways or hypotheses to solve a problem (hypothetico-deductive reasoning) makes them better able than children to think about possibilities, to think multi-dimensionally, and to think about thoughts (Steinberg, 1993).

Because adolescents become aware of various alternatives and possibilities in solving problems, they often become so overwhelmed by wide varieties of choices, making it difficult for them to make wise decisions regarding matters of importance. For instance, their decision-making competency is frequently challenged when they have to decide in matters of career choice, drug use and sexual activity. According to Louw and Louw (2007), even though adolescents sometimes find it difficult to arrive at the correct solution to a problem, they still resist parental help and guidance, preferring to make their own decisions.

Furthermore, adolescents usually require their parents to explain to them their reasons for what they expect from them. Louw and Louw (2007) argue that if parents fail to give satisfactory reasons to their adolescent children, or if they do not accept that adolescents have their own views, tensions are created between parents and their children.

Adolescents are further described as idealists who invent perfect worlds and envision logical solutions to problems they detect in an imperfect world around them. When the world around adolescents fails to respond to their so-called flawless logic, adolescents usually get irritated (Sigelmann & Rider, 2006). In their idealist and perfectionist perspective, adolescents may imagine alternative family, religious, political and moral systems, leaving no room for the shortcomings of everyday life. This disparity between

adults' and adolescents' world views is often called the 'generation gap' (Louw & Louw, 2007).

The cognitive structure in adolescents allows them to recognize wrong choices and risky behaviour and associate these with undesirable consequences (van Dyk, 2005). Therefore, it can be argued that adolescents readily perceive long-term future benefits of HIV/AIDS prevention messages. With the development and consolidation of formal operational thought, adolescent behaviour is characterized by experimentation and testing of new ideas and behaviours – particularly in middle adolescence (Nutbeam & Booth, 1994). It is such behavioural tendencies that may lead to risky sexual behaviour in adolescents.

2.4 Adolescent Risky Behaviour

Risky behaviour is a common aspect of the adolescent experience. Risk can be defined as "the appraised likelihood of a negative outcome for behaviour" (Zuckermann, 1994, p.124). Risk-taking behaviours are "volitional, purposive, goal-oriented and carry potential for harm" (Lightfoot, 1997, p.22). The motivation for risk-taking behaviour is an attempt to gain personal control over an environment perceived by adolescents as mostly within the control of adolescents (Lyng, 1993).

Risk-taking behaviour among adolescents is explained by Irwin and Millstein (1991) and Irwin (1993) in terms of the interaction between the biopsychosocial processes of adolescence and the environment. On the basis of this perspective, adolescent risk taking behaviour has the following factors:

- *Gender differences:* Male adolescents are less likely to engage in sexual risk behaviours than females. Studies among South African adolescents have shown that, compared with females, males are more likely to report having used condoms at first or last sex (Pettifor et al., 2004; Simbayi, Chaveau & Shisana, 2004). For this reason, in a study conducted among the 15-24-year-olds in South Africa, 16% of the females were HIV positive, compared with only 5% of the males (Pettifor et al., 2004).

- *Self-esteem:* Most risky behaviours are associated with poor self-esteem. Poor self-esteem is usually found among female adolescents who are often dissatisfied and unhappy with transformations in their body shape, size and appearance (Brooks-Gunn & Graber, 1994; Brooks-Gunn & Paikoff, 1993). The female adolescents' low self-esteem tends to affect their educational achievement negatively, prompting adolescents to associate and develop a positive self-esteem when with older males outside their school environment. It is in such company that female adolescents tend to engage in risky sexual behaviours.
- *Race and ethnicity:* Risky sexual behaviour is also linked to race and ethnicity. For instance, in South Africa, the median age at first sex for Blacks is 16,5 years, while that of Whites, Coloureds and Indians is 17,5 years (Simbayi et al., 2004). These researchers also add that Blacks in South Africa are less likely than other races to report consistent condom use with their most recent partner. This evidence is consistent with the findings in the United States of America, where Black American youth were found to initiate sexual activity earlier than youth of other races (Bakken & Winter, 2002).

Irwin & Millstein (1991) and Irwin (1993) further identify other factors contributing to adolescent risky behaviour, which include: high sensational tendency; developmental propensity toward risk taking; spontaneity/impulsivity; egocentrism; aggressiveness; cognitive factors; lack of knowledge of consequences; social transitions, i.e. school transitions; socioeconomic status; poverty; family factors, i.e. parenting behaviour/style; peer behaviour/influences; and community/neighbourhood variables.

Similarly, adolescent behaviour may be based on the '*sensation-seeking theory*' where most adolescents are filled with thrill, excitement and a sense of achievement as they engage in risky conduct, including sexual behaviour (Rolison, 2002). When adolescents take risks, the consequences can be negative: car accidents can occur while driving drunk, smoking can lead to cancer, unprotected sex can lead to unwanted pregnancies and disease (Worrell & Danner, 1989).

Since adolescence is the period in the life cycle when the risk-related sexual activities begin (Hein, 1992), risky sexual behaviour is often part of a larger pattern of adolescent behaviour which increases adolescents' vulnerability to HIV infection.

2.5 Vulnerability of Adolescents to HIV Infection

Homans (2008) sums up some important features of vulnerable young people. These are young people who:

- are most-at-risk young people;
- have parents or siblings who inject drugs or sell/exchange sex;
- live without parental care (on the streets or in institutions, or live with older relatives or guardians, or in dysfunctional families);
- have dropped out of school or have limited access to information and education;
- use substance (alcohol and other drugs) that may impair their judgement;
- have limited access to health and social services;
- live in extreme poverty or are unemployed;
- live in areas of high HIV prevalence;
- are socially excluded (for example, national minorities)

In their study, Brook, Morojele, Zhang and Brook (2006) group the above features into three main predictors of risky behaviour among adolescents: *proximal* predictors (associated with individual personality, behavioural and peer factors); *intermediate* predictors (family-related factors); and *distal* predictors (socio-demographic factors like age, family poverty).

2.5.1 Proximal Predictors

Adolescents become vulnerable to HIV infection because of their individual personality. For instance, adolescents who are increasingly involved in risky sexual behaviour tend to be rebellious and violate social norms (Brook, Brook, Pahl & Montoya, 2002). Such adolescents also have difficulty with emotional control (impulsivity); they act without thought to consequences (Kahn, Kaplowitz, Goodman & Emans, 2002). They also

engage in delinquent behaviour (Ketterlinus, Lamb, Nitz & Elster, 1992). Another strong feature of adolescents engaging in risky sexual behaviour is depressive symptomatology or psychological distress (DiClemente et al., 2001; Ramrakha, Caspi, Dickson, Moffitt & Paul, 2000).

The attitudes of adolescents towards HIV/AIDS also determines their vulnerability to the pandemic. For instance, many adolescents deny that they are vulnerable to HIV infection; they do not perceive themselves to be at risk. For instance, in their study of learners from four Cape Town township high schools, Matthews et al., (1990), found that few adolescents perceived themselves to be at risk. In another study, Harvey (1997) found that although most Zulu-speaking learners in KwaZulu-Natal acknowledged the severity of the HIV/AIDS pandemic, few reported feeling personally susceptible, playing down the immediacy of the threat.

In their study of the knowledge, risk perception of AIDS and reported sexual behaviour among secondary schools and colleges in Tanzania, Maswanya et al., (1999), found that only 26% of male students interviewed felt that they were 'high-risk' for HIV/AIDS, even though 48% felt that their friends were at high risk. The adolescents' general belief that they themselves are not vulnerable to HIV/AIDS leads many young people to ignore the risk of infection and thus take no precaution (Fidelmann, 2007; Macintyre, Rutenberg & Brown, 2004; Collins, 2000; Peersman & Levy, 1998; Thompson, Anderson, Freedman & Swan, 1996; Moore & Rosenthal, 1991).

Adolescents may also be vulnerable to HIV infection because of their failure to grasp the risk of HIV/AIDS. Because HIV has a relatively long incubation period, a person's risky behaviour does not have immediately apparent consequences. Therefore, for most adolescents, being infected is not real and possible. Weiss, Whelan and Gupta (1996) argue that a young person sees preventing an HIV infection as costing him/her socially: loss of a relationship, loss of trust, loss of peer acceptance.

Many adolescents are unaware of what constitutes risky sexual behaviour (Sarker et al., 2005; Barden-O'Fallon et al., 2004; Pettifor et al., 2004; Macintyre et al., 2004;

MacPhail & Campbell, 2001; Maswanya et al., 1999; Tillotson & Maharaj, 2001; Weiss & Gupta, 1998). Tallis (1998) identifies lack of accurate information about AIDS and sexuality, attitudes towards HIV and lack of personal skills which make safe sex possible, as important areas that make individuals vulnerable to HIV infection.

Adolescents are also vulnerable to HIV infection due to lack of knowledge about the HIV virus. Rasing (2003) states that, although young people have acquired knowledge about HIV/AIDS through HIV/AIDS education at schools, there are still certain aspects that remain doubtful for some youngsters. For instance, there are still some misconceptions about condoms – some think they are unsafe; HIV/AIDS is still associated with promiscuous sex and, therefore, the infected person is always to blame, and so on.

The vulnerability of adolescents to HIV/AIDS is further exacerbated by the adolescents' limited knowledge and experience of sexuality. A study of the adolescents' knowledge and experience of sexuality in five South African provinces by UNICEF (1995) found that adolescents received conflicting messages about sex and sexuality. The study also showed that adolescents lack knowledge, confidence and skills to discuss sexual issues, including contraception and prevention of infection.

Adolescents also believed in myths that reinforced negative attitudes about safer sex. Hartell (2005) adds that the adherence of adolescents to myths and cultural beliefs may increase the adolescents' risk for HIV, resulting in their failure to acknowledge the disease to be a problem that may affect their personal lives or their immediate environment.

Adolescents are also vulnerable to HIV infection because most of them living with HIV do not know they are infected (UNAIDS, 2004). Furthermore, studies indicate that the prevalence of Sexually Transmitted Infections (STIs) other than HIV is high among young people. Being infected with another STI increases the likelihood of both acquiring and transmitting HIV (United Nations World Youth Report, 2003).

Brook et al., (2006) note that adolescents from poor backgrounds tend to associate with deviant peers, making them vulnerable to risky sexual behaviour. Concurring with that view, MacPhail & Campbell (2001) state that there exists strong levels of peer disapproval of condom use and peer pressure to be sexually active. In their view, this results in reduced levels of condom use and increased levels of sexual activity.

Varga (1997) observes that peer pressure may push South African adolescents not only to initiate sex early, but to engage in multiple sexual partnerships, since having multiple sex partners also appears to be part of the requirement of peer acceptance. Using the Zulu youth culture as an example, Varga points out that there is continued emphasis on the importance of not only sexual involvement, but unprotected sex as proof of love and commitment, since condom use suggests promiscuity and lack of trust.

To illustrate some factors that shape sexual behaviour in rural KwaZulu-Natal, Brook et al., (2006) point out that, for Zulu boys, having many sexual partners is proof of manliness; for Zulu girls, sexually experienced women must exclude the inexperienced girls from their discussions, as these are still 'children'. More studies show that, in general, sexual behaviours of adolescents are peer-driven (Eaton et al., 2003; Pedlow & Carey, 2004; Le & Kato, 2006).

Highlighting the role of peer pressure in adolescent risky behaviour, Jessor, Donovan and Costa (1991) argue that adolescents who engage in risky behaviour are more likely to have peers who engage in other problem behaviours, e.g. alcohol, drug use. Most significantly, when drugs are used in social situations, which usually involve peers, adolescents are more prone to voluntarily or involuntarily engage in unplanned or unintended acts of sexual intercourse and unprotected sex (Morojele, Brook & Kachieng'a, 2006). Similarly, adolescents with sexually active friends are more likely to have sex themselves and to have multiple partners (Marston & King, 2006).

The vulnerability of adolescents to HIV infection is, among others, an important aspect of this study. Participants were asked to indicate what they thought were their own chances and those of their friends, getting HIV/AIDS. They also reported whether they

were afraid of HIV/AIDS or not (see Appendix F, p. 206). It was hoped that as a result of their reflection, participating adolescents would feel motivated to have second thoughts about engaging in HIV risk behaviour.

2.5.2 Intermediate Predictors

HIV risk behaviour has been exacerbated by the breakdown of family systems through labour migration in South Africa (Van den Bergh, 2008). Children have been left in the care of older siblings, most of whom have been poor models for the younger ones. Traditional instruction and parental authority have been reduced, resulting in dysfunctional homes. It is such poor parent-child relationships, characterized by parental absence, that increase sexual risk behaviour among adolescents (Brook et al., 2006).

A recent study on predictors of risky sexual behaviours among adolescents in Tanzania shows that in-school adolescents are three times more likely to have multiple sexual partners and unprotected sex than out-of-school adolescents (Masatu, Kazaura, Ndeki & Mwampambe, 2009). These authors identified peer pressure within the school environment as responsible for the adolescents' risky sexual behaviour. More importantly, they saw loose parental monitoring during the school-days when adolescents are at school as another contributing factor.

These findings are consistent with a study in the United States of America by Jones, Darroch and Singh (2005), in which a strong correlation between the number of hours that American youth are unsupervised and their sexual activity was found. In their view, low parent-child attachment and decreased monitoring of behaviours played a role in risky sexual behaviours of adolescents.

The way adolescents relate to their families may also influence adolescents' attitudes towards risky sexual behaviour. For instance, adolescents who have a strained relationship with their parents usually display personality and behavioural attributes

such as increased levels of psychological distress, rebelliousness, deviance and impulsivity. According to Brook et al., (2006), such adolescents tend to relate with deviant peers; such involvement is usually associated with engagement in risky sexual behaviour.

The above research done in Tanzania and the USA is in agreement with that recently conducted by Salama (2011) among Xhosa-speaking children in Cape Town. The research addressed whether the quality of parent-child relationship and parental involvement were related to risk factors, including sexual attitudes. Findings in this research show that children whose relationship with their parents was poor reported attitudes that placed them at risk for HIV infection. In other words, the children's attitudes to early sexual activity, condom use, sex with older adults, and so on, were associated with the quality of the relationship between parents and their children.

This aspect of the study is further pursued in the methodology chapter, where participants were asked to state who they lived with (see Table 7.1, pp. 87-88). Responses would assist in assessing if the adolescent had a family support system to help him/her to avoid risky sexual behaviours.

2.5.3 Distal Predictors:

Many young people at risk of HIV infection or already living with HIV/AIDS are found in the world's poorest regions. Their vulnerability to HIV operates within a broader context of poverty, which may include lack of access to education, economic opportunities, and health services. Hallman (2004) states that poor populations, unskilled workers and people with a low educational level have become increasingly vulnerable to HIV infection and are disproportionately affected by the pandemic.

Hallman (2004) further argues that risky behaviour among these populations is not only a matter of lack of access to information, education and health services, but also of poverty and lack of power that may compel them into sexual behaviour and practices that put them at risk. The role of poverty in adolescent risky sexual behaviour is also

highlighted by Hartell (2005) when he notes that poor young people start their sexual experience at an even younger age, and often lack the knowledge and the skills to protect themselves.

Poverty may be a major contributing factor to risky sexual behaviour among adolescents. Research evidence shows that poor socio-economic conditions and lack of opportunities as well as a poor school environment can enhance high risk sexual behaviour (Brook et al., 2006; Breinbauer & Maddalene, 2005; Simbayi et al., 2004). More studies in South Africa confirm that most poor parents are less nurturing and involved in their adolescent children's lives (Govender & Moodley, 2004; Paruk, Petersen, Bhana, Bell & McKay, 2005).

In their rural case study in KwaZulu-Natal, South Africa, Nair and Campbell (2008) found that inadequate support and guidance for young people from the family unit, and low involvement of parents in their children's activities, were the key impediments to behaviour change. In fact, South African adolescents, in general, report poor communication with parents about sexual matters (Eaton et al., 2003).

The association between poverty and risky behaviour has been particularly observed in females (Hallman, 2004; Simbayi et al., 2004; MacPhail & Campbell, 2001). Several studies on risky behaviours of high-school pupils show that most female adolescents from schools in poor communities engaged in unprotected sex with older partners from outside the school system (Shisana et al., 2009; Frank, Esterhuizen, Jinabhai, Sullivan & Taylor, 2008; Chatterji, Murray, London & Anglewicz, 2005; Ganyaza-Twala & Seager, 2005; LeClerc-Madlala, 2003). According to these studies, learners exchanged unprotected sex for money and gifts from men who, sometimes, had a history of multiple relationships, thus exposing themselves to HIV infection. This practice of age-mixing or intergenerational sex (Shisana et al., 2009) has been identified as a major factor in the spread of HIV (Katz & Low-Beer, 2008). Adolescents who live in poverty are more vulnerable to risky sexual behaviour than their more wealthy counterparts, owing to their relative lack of knowledge about risky sexual behaviours, lack of access to condoms, and lack of empowerment with respect to the negotiation of safer sex

behaviours, including condom use. Therefore, this study seeks to address similar challenges faced by adolescent learners in Alexandra township.

2.6 Conclusion

This chapter has attempted to clarify adolescence as a concept as well as identify key features of the adolescent stage of development. Among other things, the chapter has shown that adolescents are capable of sexual reproduction and have an increased sex drive brought about by hormonal changes. Physical changes in adolescents significantly influence sexual behaviour patterns in adolescents, prompting risky behaviour, if left unharnessed.

The adolescent social environment has also been identified in this chapter as having an important influence on adolescents' sexual lives, suggesting that risky sexual behaviour in adolescents may also be a socially constructed phenomenon. In view of the powerful influence of the environment on adolescent sexual conduct, this chapter has pointed out patterns of early engagement in sexual activities among communities in South Africa. This chapter has also highlighted cognitive development in adolescents as a contributing factor to risky sexual behaviours among adolescents. In particular, it has been noted that the majority of school-going adolescent learners in South African township high schools engaged in unprotected sex.

The need for strategies and interventions aimed at young people is becoming increasingly critical as young people are said to be particularly vulnerable to HIV infection due to their risky sexual behaviour (Kelly, 2001; Van Dyk & Van Dyk, 2003). Adolescents will continue to be at risk for HIV/AIDS unless appropriate HIV/AIDS education and risk reduction programmes are implemented in our schools.

CHAPTER THREE
SOCIAL COGNITION IN ADOLESCENTS

3.1 Introduction

Adolescence is also marked by significant changes in the relationship of a young person to the social world. To the adolescent, social circles of peers, adult worlds of work, pleasure and social responsibility become more central. During this developmental period, adolescents not only begin to look like adults, they also start to think more like adults (Louw & Louw, 2007). The adolescent also develops a new perception of himself/herself. Therefore, adolescent behaviour may be understood in the context of both personal processes and social influences (Batohi, 2005). The social cultural milieu must be taken into account when reasoning about HIV and AIDS prevention and mitigation.

Social cognition refers to the way in which we think about ourselves, other people, social relationships and social institutions (Louw & Louw, 2007; Beer & Ochsner, 2006). Because the way adolescents think about their social world, the people they interact with, and the groups they participate in, is influenced by their cognitive development, this chapter discusses social cognition in adolescents within the context of adolescent cognitive development.

This chapter examines social cognition and cognitive development in adolescents within the framework of the social cognitive theory (Elkind, 1967), ecological systems (Bronfenbrenner, 1977) and the developmental niche (Super & Harkness, 1986).

3.2 David Elkind's Social Cognition Theory

According to Louw & Louw (2007), with the phasing out of childhood egocentrism, and the onset of the formal operations stage of cognitive development, a new kind of

egocentrism evolves during adolescence called *adolescent egocentrism*. Abstract thinking in adolescents contributes to adolescent egocentrism, a significant feature in Elkind's social cognition theory. Adolescents are unable to differentiate between what is important to them and what is of interest to others; they also fail to differentiate between their own point of view and that of others (Elkind, 1967).

According to Rycek, Stuhr, McDermont, Benker & Swartz, (1998), adolescent egocentrism is a developmentally normal cognitive limitation in adolescents based on the belief that others are interested in and attentive to their behaviour and appearance. Gouws et al (2000) add that adolescents are egocentric in that they think others are just as preoccupied with them as they are with themselves, persuading themselves that others share their favourite concerns.

The ability of adolescents to reflect on their own thoughts, combined with the physical and psychological changes they are undergoing, mean that they start to think more about themselves (Louw & Louw, 2007). Focus on oneself, to the exclusion of others is characteristic of this type of adolescent thinking (Berger, 2008). According to Elkind's theory, adolescent egocentrism leads to two false conclusions in adolescents: the *imaginary audience,* and the *personal fable*.

3.2.1 The Imaginary Audience

Because the adolescent believes that others are always watching and evaluating them, he/she constructs and lives according to an **imaginary audience**. It is an 'audience' because the adolescent is the centre of attention; it is 'imaginary' because in most situations, this is not the case (Elkind, 1967). The adolescents' "*self-consciousness"* preoccupies them with themselves and their own imaginary audience, usually the peer group (Muuss, 1988). To them, the peer group is the source of emotional satisfaction and psycho-social development.

The peer group not only provides information, but also provides adolescents with opportunities for socialization. The adolescent will attempt to appeal to the audience's

tastes in terms of dress, hairstyle, physical appearance, and so on, in order to win their respect and admiration.

Hence, the adolescent is constantly on stage, and sees himself as the principal actor, and all peers are the audience (Muuss, 1988; Conger & Peterson, 1984). Regrettably, the usual tendency for an adolescent is to conform or give in to peer pressure, even in matters requiring high-risk behaviour, such as drinking alcohol, doing drugs and other anti-social behaviours, including early sexual activity.

3.2.2 Personal Fable

The **personal fable** is another thinking problem of adolescents featuring in Elkind's social cognition theory. In terms of this aspect of the theory, the adolescent has a firm belief in his own *"uniqueness"* (Muuss, 1988). In other words, adolescents have the conviction that their beliefs, feelings and ideals are very special and unique, and that others do not have, and cannot understand, their feelings and experiences (Elkind, 1967). In terms of the personal fable, adolescents maintain an unrealistic, almost mythical perception of themselves and their experiences (Berger, 2008).

Because they feel unique, adolescents will generally argue, "Others cannot understand what I'm going through", "That won't happen to me", "I can handle anything", "I am different", "I can never be hurt". This belief in one's own indestructibility and invincibility, according to Muuss (1988, p.271), "impairs judgement in critical situations since it provides a false sense of power, often with catastrophic consequences".

Much of the risk-taking behaviour engaged in by adolescents can be explained partly in terms of the personal fable (Steinberg, 1993). This view is echoed by Fischoff, Crowell and Kipke (1999), when they say that adolescents' involvement in risky behaviours has often been attributed to their thinking of themselves as invulnerable – as thinking that bad consequences will not happen to them.

Elkind's social cognitive theory argues that, as adolescents begin to discover who they are, and redefine themselves in the context of their social environment, they also exhibit new ways of behaviour. Consistent with this view, Aalsma, Lapsley and Flannery (2006) identify three features of adolescent egocentrism captured by the personal and imaginary audience fables discussed in this section. First, adolescents are convinced of their personal uniqueness. Second, often as a result of their uniqueness, adolescents evaluate risks in a way that emphasizes a sense of invulnerability. Third, egocentric adolescents believe themselves to be a source of power or influence within a social setting.

3.3 Bronfenbrenner's Ecological Systems

The Ecological Systems theory argues that child development happens within four multiple, interdependent ecologies or environmental systems, which interact to shape lasting aspects of development. These are: the microsystem, mesosystem, exosystem, macrosystem and chronosystem.

For Bronfenbrenner (1977), the *microsystem* refers to the physical and social setting in daily life in which the child experiences interaction with other people (family, school, neighbourhood). The *mesosystem* applies to the connections or interrelationships between settings or contexts of everyday life, for example, school/family connections. Contexts outside the child's direct participation (but with a direct bearing on parents and other adults who interact with the child, for example, the the workplace, school boards, are the *exosystem*. The *macrosystem* is the larger social institutional forces (e.g. economic recession, war, technological changes, cultural values, norms).

Finally, the *chronosystem* refers to the dimension of *time* as an environmental influence in the development of a child. This system encompasses external and internal elements relating to time and its impact on a child's development. For instance, externally, the timing of a parent's death may negatively affect the emotional development of a child. Internally, physiological changes that occur with the aging of a child may influence the way a child interacts with his/her environment. According to Bronfenbrenner, there is a

dynamic and reciprocal relationship between an individual and his or her environment. Based on that reasoning, adolescents are not only affected by the settings in which they spend time, but they also affect those settings. For instance, in this study, adolescents living in a township where risky sexual behaviour is common are likely to adopt risky sexual behaviour patterns, and, in turn, influence other young people to do the same.

Bronfenbrenner's theory provides further support for the view that adolescent risky sexual behaviour is socially constructed. For that reason, any HIV-prevention initiative should take into consideration the different levels of the adolescents' social environment.

3.4 Super and Harkness' Developmental Niche

In an attempt to explain how culture shapes child development, Super & Harkness (1986) developed the Developmental Niche theory. According to this theory, it is not only the organism that provides structure and direction to child development; **culture** also possesses structure and direction (Gauvain, 1998). This view is consistent with that of the microsystem (described earlier), where the physical and social settings of daily life shape child development.

According to Super & Harkness (1986), the Developmental Niche comprises three subsystems which interact in child development. Firstly, the nature of *physical space and social settings* around the child may determine how the child will develop. For instance, the type of shelter used by the child, as well as the people interacting with the child daily, could impact on the child's development. Secondly, child development may be influenced by *customs and practices of child rearing*. For instance, how the child is nurtured, entertained, educated and protected, may determine what type of child that will be. Finally, the *psychology of the caregivers* (e.g. parents) may also have a bearing on the development of a child. Child development may be shaped by theories parents hold on child development and parenting.

Ideally, development niche subsystems must operate together to provide a stable cultural environment, favourable customs and child-rearing practices, as well as appropriate physical and social settings for child development. Inconsistencies in the development niche may lead to social and cultural practices that may promote delinquency in adolescents with anti-social tendencies that may include HIV-risky behaviours. At the same time, HIV/AIDS interventions must address the socio-cultural aspects associated with the developmental niche.

3.5 Conclusion

Social cognition remains a vital aspect in understanding risky behaviours in adolescents. This chapter has shown the bigger picture in adolescent behaviour – that it is also socially influenced. Theories discussed in this chapter have attempted to explain the social milieu in which most adolescents in South African townships live and how their environment shapes their lives, which in turn, influences their conduct. More importantly, this chapter has given some direction on how future HIV/AIDS interventions should be conducted – that is, to take into account the socio-cultural challenges facing adolescents in township high schools.

The next chapter further develops the discussion on social influences on adolescent behaviour by focusing on specific theories of behavioural change.

CHAPTER FOUR
THEORIES OF BEHAVIOURAL CHANGE

4.1 Introduction

A number of theories on behavioural change have been advanced to explain the behaviour and reasoning behind why individuals are encouraged to change their risky behaviour to avoid particular diseases, including becoming infected with HIV/AIDS.
This chapter describes the Theory of Planned Behaviour (Ajzen, 1988), the Aids Risk Reduction Model (ARRM) (Catania, Kegeles & Coates, 1990), and the Information, Motivation and Behavioural Skills Model (IMB) (Fisher & Fisher, 1992) attempt to explain why and how people change their behaviours. These are also called 'social-cognitive' theories and deal with behaviour, personal factors, interpersonal factors and processes that are implicated in ill health (Eaton et al, 2003). They also focus on HIV prevention efforts on the elements believed to be essential for individuals to enact and sustain behaviour change.

4.2. Theory of Planned Behaviour

The theory of Planned Behaviour (Ajzen, 1988) is an improvement on the Theory of Reasoned Action (Ajzen & Fishbein, 1980). Initially, the Theory of Reasoned Action was used by Ajzen and Fishbein to explain the voluntary nature of human behaviour. From subsequent research, Ajzen noted that human behaviour can be controlled, and therefore, deliberative and planned. Consequently, the Theory of Planned Behaviour predicts deliberate behaviour. The theory proposes that intentions should be 'plans of action in pursuit of behavioural goals' (Ogden, 2004, p.32).

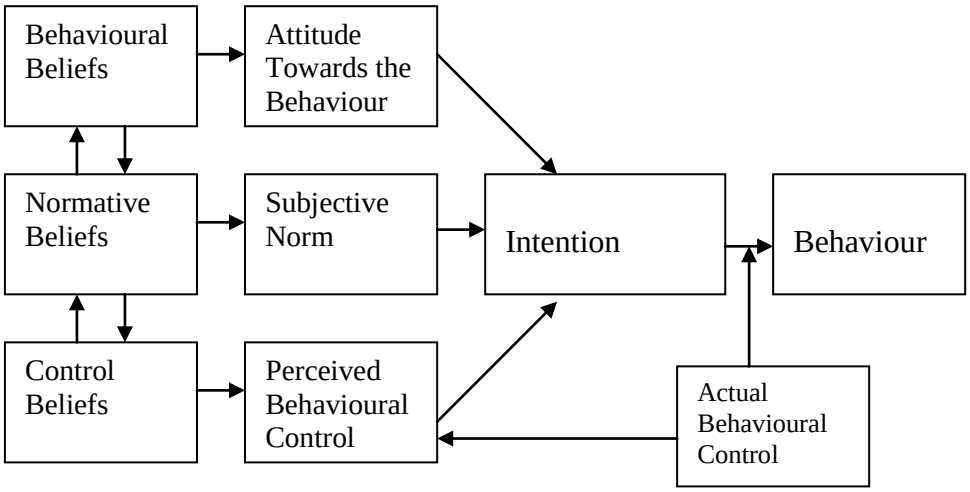
The Theory of Planned Behaviour identifies three important features that guide human behaviour: behavioural beliefs, normative beliefs and control beliefs. **Behavioural** beliefs are about the likely outcomes of the behaviour and the evaluations of these outcomes. An evaluation of a particular behaviour may produce a favourable or

unfavourable *attitude* towards the behaviour. **Normative** beliefs are about the normative expectations of others and motivation to comply with these expectations.

While engaging in a particular behaviour, an individual may be under pressure to win approval from people who are important to him or her (Ogden, 2004). **Control** beliefs are beliefs about the presence of factors that may facilitate or impede performance of the behaviour and the perceived power of these factors (Ajzen, 2006). An individual's perceived behaviour control may be determined by internal factors (skills, abilities, information) and external control factors (obstacles, opportunities), both of which relate to past behaviour (Ogden, 2004).

According to the Theory of Planned Behaviour, a behavioural intention is formed by a combination of the attitude toward a behaviour, subjective norm, and perception of behavioural control. The theory states that the more favourable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behaviour in question (Ajzen, 2006). **Figure 4.1** shows a schematic presentation of the Theory of Planned Behaviour:

Figure 4.1 Theory of Planned Behaviour, adapted from Ajzen (1991)



The Theory of Planned Behaviour is unique from other theories of behavioural change in that it encapsulates common features identifiable in most behavioural change theories. The comprehensive nature of the theory makes it most appropriate in explaining behavioural change in this study.

Drawing from common features in behavioural change theories (synthesized in the Theory of Planned Behaviour), Weinreich (1999) articulates some important beliefs and perceptions adolescents must possess for behavioural change to occur. According to the above author, adolescents must believe that they are at risk for the HIV/AIDS pandemic and the consequences are severe. They must also believe that changing the risky sexual behaviours will lower the risk of HIV infection, believe that the advantages of avoiding risky sexual behaviours outweigh the disadvantages, and intend to perform safe sexual behaviours.

Adolescents must possess the skills to perform the safe sexual behaviours, believe that they can perform the safe sexual behaviours (self-efficacy), perceive greater social pressure to perform the safe sexual behaviours than not to perform them, and experience fewer barriers to perform safe sexual behaviours than not to perform them.
In this study, adolescent learners were helped to reconsider their beliefs about sexual behaviour by, among other things, informing them about the outcomes of risky sexual practices as well as advising them to carefully evaluate such outcomes. Furthermore, it was necessary to appreciate the enormous social pressure adolescents are subjected to as they attempt to change their risky sexual behaviours. It is hypothesized that, with positive attitudes and supportive social environments to change their behaviour, adolescent learners would develop favourable attitudes as well as strong intentions to engage in safe and healthy sexual practices.

4.3 AIDS Risk Reduction Model

While most behavioural change theories identified in this study focus on explaining underlying factors to behaviour change, the AIDS Risk Reduction Model (Catania et al., 1990) describes the **process** one goes through in changing HIV-risk behaviour.

According to this model, behavioural change is a three-stage process: (1) *recognition and labeling* one's behaviour as high-risk, (2) *making a commitment* to reduce high-risk sexual contacts or to increase low-risk activities, and (3) *taking action* (seeking information, obtaining remedies and enacting solutions). Each of these stages is briefly described below:

Stage 1: Recognition and labelling of one's behaviour as high risk

In order for an individual to recognise and label his or her behaviour as high risk, one needs to be aware of the sexual activities associated with HIV transmission. One also needs to believe that having AIDS is undesirable and that he or she is personally susceptible to contracting HIV. Influenced by the social norms around him or her, the individual will finally make up his or her mind about whether the behaviour is high risk or not.

Stage 2: Making a commitment to reduce high-risk sexual contacts and to increase low-risk activities

Having recognised and labelled one's behaviour as high risk, an individual moves to the next stage of making a commitment to reduce high-risk sexual contacts and increase low-risk activities. To achieve this, one has to weigh the costs and benefits of such a commitment. For instance, one has to consider how the commitment will affect one's enjoyment of sex, reduce one's risk of HIV infection. What effect will changes affect one's self-efficacy as well as group norms and social support?

Stage 3: Taking action

This stage of the model involves an individual seeking information, obtaining remedies and enacting solutions. One may need to engage in social networks and make problem-solving choices in order to get help. Taking action might also be influenced by how an individual handled prior problems and arrived at solutions. Besides, one's level of self-esteem, ability to communicate verbally with the sexual partner as well as the sexual parner's beliefs and behaviours, may influence one's desire to take action.

This model suggests that adolescents must be provided with information that will make them aware that they are susceptible to contracting HIV and that AIDS is deadly and undesirable. Adolescents must also be motivated to commit themselves to reducing high-risk sexual contacts and, instead, engage in low-risk sexual behaviours. More importantly, the model suggests an important climax in adolescent behaviour change: taking action. This may require essential behavioural skills to promote safe sex.

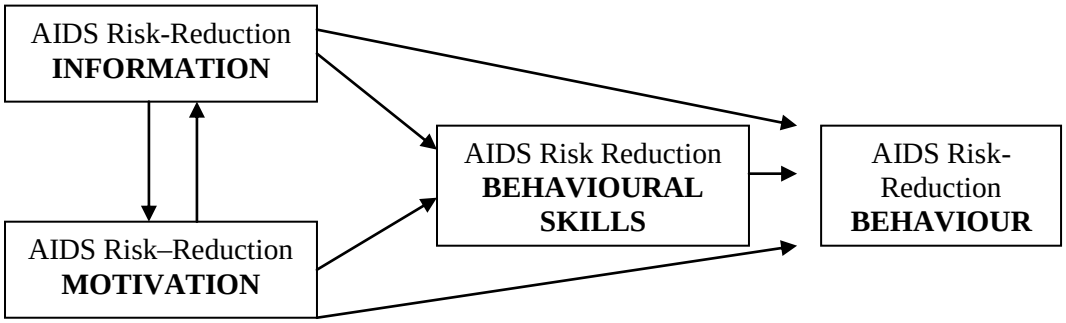
However, the AIDS Risk Reduction model has a major limitation: it focuses on the individual. It ignores the fact that sometimes risky sexual behaviour may be influenced by other sexual partners, especially where socio-cultural issues may limit one's choice to increase low-risk sexual activities. In the context of this study, many adolescents in township high schools are overwhelmed by powerful environmental forces that militate against engaging in low-risk sexual conduct. This model does not seem to address that challenge.

4.4 Information, Motivation and Behavioural Skills (IMB) Model

This study contributes to literature on health behaviour change theories. The Information, Motivation and Behavioural Skills model (Fisher & Fisher, 1992) is based on a health behaviour theory that implicates cognitive determinants of HIV risk and prevention, such as AIDS knowledge, personal attitudes, and behavioural intentions to practice prevention (Ajzen & Fishbein, 1980). According to this model, two cognitive and one behavioural factor determine AIDS prevention behaviour, namely: (a) information, or knowledge about transmission and prevention; (b) motivation to reduce risk, or personal attitudes about preventive behaviour, perceived normative support for HIV prevention, and behavioural intentions; and (c) behavioural skills to practice prevention, including perceived self-efficacy and the ability to negotiate AIDS prevention with a partner.

Figure 4.2 illustrates the main elements of the Information, Motivation and Behavioural Skills model (IMB):

Figure 4.2 The Information, Motivation and Behavioural Skills model (adapted from Fisher & Fisher, 1992).



The application of the IMB model involves a basic three-step process: *elicitation*, *intervention* and *evaluation*. These steps may be summarized as follows:

- **Elicitation**: By conducting focus groups or administering survey questionnaires, the researcher identifies the level of relevant information, motivation, and behavioural skills that the target population has that is directly related to specific HIV-risk behaviours. The *Teen Health Survey* is the standardized instrument designed specially for this purpose.
- **Intervention**: Based on the elicitation research findings, the researcher designs and implements an intervention programme that seeks to address gaps that exist in information, motivation and behavioural skills.
- **Evaluation**: Evaluation is conducted to determine whether the intervention has had significant, sustained effects on the information, motivation and behavioural skills.

4.5 Empowerment of Adolescents through the IMB Model

In this study, the Information, Motivation and Behavioural Skills (IMB) model is relevant as it focuses on issues of adolescent empowerment in behavioural change. The notion of empowering individuals is discussed by Campbell (2003) who identifies three dimensions to it: provision of *information* to assist individuals' rational health choices; *motivation* to perform healthy behaviours, as well as training them in the appropriate *behavioural skills.* Similarly, one of the outstanding features of successful behavioural prevention programmes identified by the Global HIV Prevention Working Group (2008) is that knowledge, attitude, practices and behaviours must be affected by such programmes.

Furthermore, people need *motivation* to change a health-related behaviour (Godin & Kok, 1996). These authors add that changing a health related behaviour is influenced by two sets of beliefs: firstly, beliefs about the current behaviour in terms of its risk and the effect of behavioural change on the particular risk; secondly, beliefs about the ability to change one's behaviour (how easy will it be for one to change one's behaviour and does one have the skills to adopt this new behaviour?)

Motivation is, therefore, an important step towards any action or change of behaviour. Generally, people will not perform desired behaviours unless or until they are motivated to do so. However, motivation alone will not necessarily lead to change of behaviour. Along with information, adolescents' high risk behaviour may be changed by empowering them with *behavioural skills* to put into practice their HIV/AIDS information (Carelse, 1994).

The effectiveness of the IMB model and its preference over other models is articulated by Suls & Wallston (2003:92) when they say,

"The presence of health promotion information, motivation and behavioural elements appears to be associated with health promotion impact, and the more strongly these elements are represented, the greater the intervention's impact on health promotion behavioural change".

4.5.1 Empowerment through HIV/AIDS Information

Most interventions contain only informational content (Suls & Wallston, 2003). Based on research done by these authors, interventions with information, motivation and behavioural skills content were more effective in promoting health behaviour change than interventions that did not have all three elements (Suls & Wallston, 2003). This observation is consistent with that of Fisher & Fisher (2000), who confirm that 'information only' interventions are unlikely to change health behaviour (Fisher & Fisher, 2000).

For HIV preventive interventions to be effective among adolescents, correct and relevant information needs to be disseminated to adolescents. Moya (2002) identifies types of important information needed by adolescents in order to facilitate change in their sexual behaviour:

- correct information about HIV prevention, modes of transmission and common misconceptions about HIV and AIDS;
- information about sexual and reproductive health (sexuality and intimacy, contraceptive use for dual protection, safer sex, sexually transmitted infections); where to obtain sexual and reproductive health services;
- information about dangers of unprotected sex; where to obtain male and female condoms;
- information about where to access appropriate services if you are sexually exploited; and
- information about positive living (good nutrition and healthy lifestyles); the likely progression of disease; treatment and care options; how to prevent transmission to others, including mother-to-child transmission.

4.5.2 Empowerment through Motivation

In order to translate information into the desired sexual behaviour, adolescents must be **motivated** to act upon the HIV-risk information they receive. HIV-risk reduction

programmes must, therefore, address *personal* and *social* motivational factors needed to bring about behavioural change, as follows:

- Personal motivation: an individual's attitudes and beliefs in relation to specific HIV risk behaviour strongly predicts whether or not that individual engages in that behaviour.
- Social motivation: A person's beliefs regarding social norms, or their perceptions of social support pertaining to relevant sexual behaviours are likely to influence behavioural change. For instance, in this study, adolescent learners are likely to adapt unhealthy HIV-risk practices if they understand these to be socially acceptable and normal in their immediate surroundings and the community in general.

4.5.3 Empowerment through Behavioural Skills

In a review of behaviour change interventions, Harrison, Smit and Meyer (2000) emphasize that intervention programmes should develop negotiation and decision-making skills, especially among girls. DiClemente (1992) suggests a focus on developing and redefining communication skills around sex negotiation, and modifying adolescents' perceptions about peer norms with respect to safer sex behaviour. Skills are one of the factors that determine the decision to modify sexual behaviour in young people (USAID, 2002). Young people need the ability to make healthy decisions and negotiate in sexual situations. Adolescents are sometimes pressurized or coerced by their peers and others to have sex, often unprotected. In addition, they need the self-efficacy to voice their beliefs and resist peer pressure (USAID, 2002).

The Information, Motivation and Behavioural skills model has been used worldwide. For instance, in the USA, the Information-Motivation-Behavioural Skills model has confirmed the relationship of HIV/AIDS prevention information, motivation and behavioural skills in the research studies of gay men and heterosexual university students (Fisher, Fisher, Williams & Malloy, 1994) and ethnically diverse heterosexual college students (Fisher, Fisher, Misovich, Kimble & Malloy, 1996).

The model has also been administered in South Africa. For example, in their study of 131 men and 60 women with sexually transmitted infections (STI) in Cape Town, Kalichman, Simbayi, Jooste, Skinner & Cherry (2006) concluded that the IMB model may generalize to South Africa and may therefore be useful in guiding HIV risk reduction interventions. Similarly, Simbayi et al., (2004) confirm that recent research has supported the IMB model in South Africa, with IMB constructs predicting sexual risk reduction behaviours in STI clinic patients. More literature shows that IMB constructs have been associated with risk behaviours in South Africa (Pettifor et al., 2004).

The researcher believes that the successful use of the Information, Motivation and Behavioural skills model (IMB) among high school adolescents in Alexandra township implies that the model may also be used elsewhere among populations in South Africa.

4.6 Conclusion

A review of literature in this chapter has identified a few theories that may be used to explain behaviour that may lead to HIV preventive acts. In addition, the Information, Motivation and Behavioural Skills (IMB) model has been singled out as most effective in reducing risky sexual behaviour among adolescents. In other words, the IMB model presents a more sustainable alternative in curbing HIV infection.

In order to justify the validity of the above claim, the following research questions were asked in this study: What interventions have been used in public township high schools in South Africa in the last two years or so to reduce HIV-risk behaviour? How effective have existing initiatives been in imparting information, motivating and imparting behavioural skills aimed at reducing HIV-risk behaviour? How effective would an intervention based on the IMB model be in improving the information, motivation and behavioural skills of high school adolescent learners?

The next chapter addresses the above questions by outlining the methodology and design used to implement the IMB model in this study.

CHAPTER FIVE
METHODOLOGY AND DESIGN

5.1 Introduction

The methodology and design in this chapter focuses, firstly, on a preliminary study conducted prior to the IMB intervention. The chapter then focuses on the methodology and design of the main study, which involved the intervention.

5.2. Preliminary Study

The **aim** of the preliminary study was to identify existing and prior intervention initiatives targeting HIV-risk behaviour within the schools in Alexandra township, Johannesburg. This was a **qualitative design** study in which participating learners from two secondary schools reported on HIV and AIDS education prior to the main study and intervention. The **sample** in this preliminary study consisted of 239 Grade 11 learners, of which 123 were from School 1 (ES), and 136 from School 2 (CS). A more extensive description of the sample and study setting is given under the Main Study in section 5.3 of this chapter.

Procedure: Participating learners were asked to respond to open-ended questionnaire items relating to their experience of HIV and AIDS programmes at their schools (**see Appendix F**). Specifically, learners were to reflect on the main HIV and AIDS educators at their schools, topics generally taught, and methods commonly used. They were also expected to state the effects of HIV and AIDS education on their HIV and AIDS information, motivation and behavioural skills. Data was **analysed** by constructing a table showing the frequency and percentages of responses to each item.

5.3 Main Study

5.3.1 Research Design

The design of this study falls within the realm of quasi-experimental research designs. In particular, a quasi-experimental form of the cross-lagged panel design was used. In this study, Grade 11 adolescent learners at Kwa-Bhekilanga High School, School 1 (ES), were used as an experimental group for the first round and the control group for the second round, while Grade 11 adolescent learners from East Bank High School, School 2 (CS), was a control for the first round and the experimental group for the second round.

5.3.2 Setting

This study focused on two high schools located in Alexandra township, Johannesburg, namely, Kwa-Bhekilanga and East Bank High Schools. An understanding of the setting of Alexandra township may help clarify the settings of each of these schools.

Alexandra was established as a residential area in 1905 by a white farmer who wanted to establish a white suburb, and named it after his wife. It was transformed into a "Native Township" where black people were allowed to buy land (Ashley, Poultney & Haysom, 2004). Alexandra township falls within Region 7 of the City of Johannesburg, and is located only 3 kilometres from Sandton. The township borders the industrial areas of Wynberg, and is very close to Limbro Business Park, a base for the city's high-tech and service sector. Alexandra covers an area of 800 hectares and is dissected by the Jukskei River. Several shacks have been built on the banks of the Jukskei River, and its highly polluted water is used for daily consumption. According to Ashley et al., (2004), as part of the Alexandra Renewal Project, 7 000 families have been relocated and the banks of the river have been grassed and cleaned up.

The population of Alexandra is mainly Black (87%), and very young (the age-group in the population is 17-35, and 70% are under 35 years of age, with an average age of 23

years). Alexandra has had a strong population growth of unemployed, young black males moving into the area in search of employment. Due to the proximity of Alexandra to Johannesburg and business centres like Sandton, people have crammed into the township in the hope of finding employment.

According to Wilson (2001), the unemployment rate in Alexandra is close to 60%, with 40% of women and 19% of men unemployed. The same author estimates the average monthly income in Alexandra at R1 029. Currently, Alexandra has an estimated population of 350 000, with a population density of around 45 000 people per square kilometre (Ashley et al., 2004).

As a result of overcrowding in Alexandra, the township suffers from problems of high incidence of crime, heavy strain on engineering services, social services and hospitals, as well as lack of good sanitation. Alexandra township has always been a very poor suburb, lacking in infrastructure. As a result, living conditions have worsened considerably. The first well built houses in Alexandra have been followed by the mushrooming of informal dwellings or shacks, now estimated at over 34 000, of which one third are in backyards and two thirds freestanding (Ashley et al., 2004). Most shacks are not connected to the electricity grid and residents resort to tapping the main power lines. Only about 65% of households have access to piped water.

Roads are not tarred and are obstructed by the uncontrolled expanding of shacks. Less than 20% of households have access to private toilet facilities. According to Ashley et al., (2004), these factors contribute heavily to the unhealthy living conditions, especially since the shortage of space and lack of public parks lead to children playing in the streets.

There are three hostels in Alexandra, two for men and one for women. These hostels are currently occupied by households and single people and house more than 7 000 people in total. To improve the housing situation in Alexandra, some middle-class blocks of flats and formal houses have been built in developed areas of East and Far East Bank.

Violence and crime are the biggest problems in Alexandra. According to Isserow and Everatt (1998), 80% of the local residents in Alexandra thought that crime had increased in Alexandra since 1994, and that the most common crime was car hijacking (28%), followed by rape (27%), housebreaking (18%), murder (17%) and child abuse (6%). The above researchers also found that in Alexandra children and women were easy targets, especially of sexual violence. According to these researchers, petty crimes remain common in Alexandra township, despite a general decrease in crime after the opening of a new police station in the area.

Page, Louw and Pakkiri (2006) argue that the social and economic conditions in which people live affect the way they behave and the choices they make. These choices include their general social behaviour relating to sex. Holden (2004) describes the main features of the poor, which also make them susceptible to HIV infection:

- they cannot afford to take long-term measures to protect their lives;
- they are too busy trying to survive in the short-term;
- if they have few ways of earning a living, they may have to rely on selling sexual services; and
- poor girls and women, in particular, may obtain cash, goods, and favours, either via commercial sex work or through informal sexual exchange.

Due to poor living conditions which hasten the spread of HIV/AIDS (Walker, Reid & Cornell, 2004), an estimated 20% of the population of Alexandra over the age of 15 years is treated at least once a year for a sexually transmitted disease, and 18% of the patients are HIV positive (Motsepe & Perry, 2000). The severity of the HIV/AIDS problem in Alexandra is further described by Motsepe and Perry. The same writers note the rapidly increasing rate of HIV infection and more people becoming ill and ultimately dying from AIDS-related illnesses in Alexandra township.

The above authors also observe that the escalating incidence of HIV infection, accompanied by an increase in numbers of ill people places strain on health institutions

such as hospitals and hospices in the township. According to these authors, "in many areas, care seekers are turned away or discharged due to the incapacity of such institutions to cope".
http://www.mrc.ac.za/urbanbulletin/june2000/pilot.htm

Therefore, when viewed in the context of the socio-economic setting of Alexandra township, adolescents from the two Alexandra high schools are heavily influenced and socialized by the socio-economic conditions of Alexandra township. This study assumes that, as part of the Alexandra population, adolescent learners from the two high schools are greatly influenced by the social and economic challenges facing the greater Alexandra community.

Above all, they are directly or indirectly affected by the poor living conditions which exacerbate the HIV/AIDS problem in Alexandra. Because of their constant exposure to HIV risky sexual behaviour in their community, adolescents in Alexandra are likely to adopt such behaviour and destroy themselves.

The two high schools in Alexandra township were chosen because they were centrally located in the township, servicing the largely impoverished community of Alexandra. Besides, they were easily accessible to the researcher, due to their proximity to the main road. As neighbouring Alexandra township institutions (less than a kilometre apart), these two high schools faced common social and economic challenges which emerge from their disadvantaged socio-economic background and history.

More importantly, social challenges, such as HIV/AIDS, which affect the lives of the Alexandra community, have a direct bearing on the lives of adolescent learners in these two schools. There is no information available to the researcher to suggest that the research sample would be biased in any way, in relation to other high schools situated in Alexandra township.

5.3.3 Research Sample and Sampling Procedure

Participating adolescent learners were drawn from Grade 11 classes at Kwa-Bhekilanga and East Bank High schools in Alexandra township, Johannesburg. Grade 11 learners were chosen as a research sample in this study because they constituted an age-group that was largely in the late adolescence stage. It is the researcher's view that adolescents in this age-group face enormous challenges of adolescent development, including risky sexual behaviour, which renders them vulnerable to HIV infection.

Because the problem of risky sexual behaviour involves both male and female adolescents, who were all potential victims of HIV/AIDS, both boys and girls from two high schools in Alexandra participated in this study. In addition, Grade 11 learners were chosen to participate in this study as they would be least affected by interruptions in their curriculum, hence easily available, as compared to Grade 12 learners who would be mainly preparing for their Matriculation examinations, and therefore unavailable.

According to Dekker (1997) sampling is a process used to study a response to an intervention in a small population that can be applied to a larger population. Participants in this study were sampled using purposive sampling. In purposive sampling, we sample with a purpose in mind (Trochim, 2002). Subjects are selected because of some characteristic and this is done by human, rather than random choice.

In purposive sampling, the researcher hand-picks subjects to participate in the study based on identified variables under consideration, and aims to study the lived experiences of a specific population (Dekker, 1997). This explains the researcher's choice of the sample in this study.

5.3.4 Data Collection

The data collection process in the main study consisted of the following:

- A **pre-test (baseline)** for both schools was carried out about a month prior to the first intervention *(Time 1)*, using the Teen Health Survey
- **Intervention sessions** on Information, Motivation and Behavioural skills for three consecutive weeks for Grade 11 learners at School 1
- A **post-test** (repeated measure) for both schools after the intervention sessions (*Time 2)*
- **Intervention sessions** on Information, Motivation and Behavioural skills for three consecutive weeks for Grade 11 learners at School 2
- A **post-test (**repeated measure) for both schools after the intervention sessions *(Time 3)*
- Another **post-test** was conducted for both schools three months after the intervention sessions *(Time 4)*

A comparison of the scores obtained at both schools was carried out. Differences in the post-test scores between the two schools indicated the effectiveness of the intervention. The design of the main study is illustrated in **Table 5.1** below:

Table 5.1 Research Design

		Time 1		**Time 2**		**Time 3**	**Time 4**
SCHOOL 1 (ES)	Learner Sampling	Pre-test/Baseline Assessment	INTERVENTION (1)	Post-test Repeated Measure	----------	Post-test Repeated Measure	Post-test Repeated Measure
SCHOOL 2 (CS)	Learner Sampling	Pre-test/Baseline Assessment	----------	Post-test Repeated Measure	INTERVENTION (2)	Post-test Repeated Measure	Post-test Repeated Measure
		one week	three weeks	one week	three weeks	one week	one week

Pretest (Schools 1 and 2) – Baseline Assessment

The pre-test (baseline) was conducted on the experimental group (Kwa-Bhekilanga High School, referred to as **School 1 (ES)** in this study), using the Teen Health Survey instrument. A similar pre-test was conducted on the control group (East Bank High School, referred to as **School 2 (CS)** in this study), using the same instrument. The purpose of this pre-test was to establish baseline levels of the participants at both schools in terms of sexual behaviour *information* possessed, *motivation* regarding avoiding risky behaviour, as well as relevant *behavioural skills*.

Intervention: School 1 (ES) and School 2 (CS)

The HIV/AIDS intervention programme/treatment based on the pretest findings was then administered first to Grade 11 learners from Kwa-Bhekilanga High school (School 1), and then to East Bank High School (School 2). Learners attended three 45-minutesessions a week, for three weeks. Content presented during the sessions was based on a resource package prepared by the World Health Organisation (WHO) and United Nations Educational, Scientific and Cultural Organisation (UNESCO) (1994), and "The Stay Alive Programme" designed by Berkhof (2001).

During a three-week period, the researcher conducted sessions on information, motivation and behavioural skills.

Information Sessions

Information sessions in this study were aimed at providing adolescents with HIV/AIDS information to enhance sexual health and enable them to avoid HIV risky sexual behaviours. There were three 45-minute sessions in Week One, focusing exclusively on HIV/AIDS information based on themes like HIV transmission, the use of condoms, and HIV testing. Among other issues discussed under these themes were:

- Transmission through breastfeeding, sharing a needle with an HIV-infected person, infection through utensils used by an infected individual, infection through kissing an infected person, and so on.
- Condoms: acquiring them, carrying them around, negotiating their use and always using them during sexual intercourse. Other related issues surrounding condoms, such as checking the expiry date, using a new condom, using water-based lubricants on latex condoms, were discussed.
- HIV testing: the importance of HIV testing, how and where testing is done, as well as pre- and post-test counselling, were some of the matters looked at during the session.

Motivation Sessions

Like the HIV/AIDS information sessions, during Week Two motivation sessions were conducted in three 45-minute lessons. The aim of the motivation sessions was to create a desire among adolescent learners to reduce HIV-risk behaviour by understanding the nature and transmission of the HIV virus from one person to the next. They would appreciate the importance of avoiding activities that would make them vulnerable to HIV infection. The sessions were also expected to encourage learners to refuse to engage in risky sexual behaviours.

Behavioural Skills Sessions

Behavioural skills sessions were meant to equip adolescents with skills that would enable them to deal with situations of risky sexual behaviour. In the researcher's view, because assertiveness was a fundamental skill to be acquired by adolescents when dealing with risky situations, most sessions would address the skill of assertiveness.

Assertiveness is the ability to express your ideas, beliefs and needs without violating the rights of others. It is appropriately direct, open, and honest communication which is self-enhancing and expressive (http://ubcounseling.buffalo.edu/assertiveness.shtml). This definition highlights that assertive people are direct, clear and open about their

own feelings and needs. They say "no" to unreasonable requests and explain why. They are fully aware of their rights to make their own decisions, have their own values, beliefs, opinions and emotions. They also have the right to tell others how they wish to be treated in an appropriate way.

According to Cooley and Hollandsworth (1977) and Christoff and Kelly (1985), one of the three categories of assertive behaviour is refusal assertiveness. During the intervention in this study, special attention was given to refusal assertiveness as a way of assisting learners to develop HIV-preventive behavioural skills. In particular, learners were taught the following guiding principles in assertive behaviour:

- to say "no" at the right time and in the right way by stating their position ("No, I can't");
- to explain their reason for refusing ("I have something else to do that day"); and
- to express their understanding of their partner ("I hope you can find something else").

It was hoped that, on the basis of the above principles, learners would develop HIV-preventive behavioural skills like delaying sexual intercourse, refusing sex, acquiring condoms, carrying condoms and using them during sexual intercourse. Specific themes were used to teach refusal assertiveness principles. For instance lessons focused on assertiveness and making an assertive message, as well as responding to persuasion to do something one did not want to do.

The details of what transpired during each week of the intervention period are outlined in **Appendices L to N.**

5.4 Outcome Measures

To assess the impact of the intervention on the information, motivation, behavioural skills and behaviour, the following measures were used:

5.4.1 Measures of HIV/AIDS Information

The questionnaire on HIV/AIDS information **(see Appendix H),** adapted from The Teen Health Survey instrument, was used to assess the learners' levels of AIDS prevention information. Specifically, learners were tested on facts about HIV and AIDS that were relevant to the practice of preventive behaviour. Learners were expected to respond to a 23- item questionnaire on *Facts about HIV and AIDS* on a 5-point scale. The questionnaire was on general facts on HIV/AIDS as well as issues like HIV transmission and signs and symptoms of HIV and AIDS. Responses ranged from "definitely true" to "definitely false".

Scoring: Respondents received one point for every response of "definitely true" or "probably true" they made to true items (items 9, 10, 12, 13, 14 and 19). Respondents received one point for every response of "definitely false" or "probably false" they made to false items (items 1, 2, 3, 4, 5, 6, 7, 8, 11, 15, 16, 17, 18, 20, 21, 22 and 23)

The Cronbach Alpha for the scale was 0.71.

5.4.2 Measures of Motivation

Motivation to engage in AIDS preventive behaviour was assessed in accordance with the theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Another Teen Health Survey-based instrument was a questionnaire on *Attitudes Towards AIDS Preventive Acts* which measured learners' attitudes towards performing specified behaviours on a five-point scale, ranging from "very bad" to "very good" **(see Appendix I)**. Respondents were asked questionnaire items relating to things like delaying sexual intercourse, use of condoms during sexual intercourse and so on. In other words, items established the *personal motivation* of the adolescents to engage in safer sexual practices.

Scoring: The respondent received 5 points for every response of "very good", 4 points for every response of "somewhat good", 3 points for every response of "neither good

nor bad", 2 points for each response of "somewhat bad", and 1 point for each response of "very bad".

The Subjective Norms Regarding HIV Preventive Acts scale measured a learner's perceived norms (or social support) for engaging in twelve HIV preventive behaviours on a five-point scale ranging from "very true" to "very untrue". Questionnaire items in this section established the *social motivation* in terms of general opinion and views of people around him/her regarding sexual behaviour. Such opinions could have a large influence on the adolescent's behavioural intentions. For instance, the respondents were asked the opinion of friends regarding delaying sex, use of condoms and so on.

Scoring: The respondent received 5 points for every response of "very true", 4 points for every response of "somewhat true", 3 points for each response of "neither true nor untrue", 2 points for each response of "somewhat untrue", and 1 point for each response of "very untrue".

The Behavioural Intentions to Engage in AIDS Preventive Acts scale measured the learner's intention (or plans) to perform each of the preventive behaviours in the near future. This would be accomplished by having learners rate, on a five-point scale ranging from "very true" to "very untrue" the likelihood that they would perform each of the HIV preventive behaviours in the near future. Questions were on issues like delaying sexual intercourse and using condoms.

Scoring: The respondent received 5 points for every response of "very true", 4 points for every response of "somewhat true", 3 points for every response of "neither true nor untrue", 2 points for each response of "somewhat untrue", and 1 point for each response of "very untrue".

The Perceived Vulnerability scale measured the learners' perceptions of their own and their peers' likelihood of being infected with HIV, and their personal fear associated with being infected with HIV. This would be accomplished by learners rating their perceptions on a five-point scale ranging from "no chance" to "very strong chance", and

"not at all afraid" to "very afraid". Responses to questions like, "What do you think are your friends' and your own chances of getting HIV/AIDS?" and "How afraid are you of getting HIV/AIDS?" would reveal the adolescents' personal susceptibility to HIV infection and motivate him or her to adopt safe sexual behaviours.

Scoring: For items 25 and 26, a respondent received a score of 5 points for each response of "very strong chance", a score of 4 points for each response of "strong chance", a score of 3 points for each response of "about average chance", a score of 2 points for each response of "some chance", and a score of 1 point for each response of "no chance". For item 27, a respondent received 5 points for a response of "very afraid", 4 points for "somewhat afraid", 3 points for "slightly afraid", 2 points for "a little afraid" and 1 point for "not at all afraid".

The Cronbach Alphas for the four sub-scales were 0.58 for attitudes, 0.80 for subjective norms, 0.61 for behavioural intentions and 0.41 for the short vulnerability scale. The reliability for the vulnerability scale was considered too low to be meaningful and was excluded from further analyses.

5.4.3 Measures of Behavioural Skills

AIDS preventive behavioural skills were assessed with an *HIV Prevention Behavioural Skills scale,* which tapped the perceived difficulty or ease with which one could engage in a range of AIDS-preventive behaviours. The scale asked respondents to rate, on five-point scales, how hard or easy it would be for them to perform the series of HIV preventive behaviours, ranging from "very hard to do" to "very easy to do" **(see Appendix J)**. In other words, respondents were asked to show, among other things, how assertive they were when confronted with HIV risk situations. For instance they would reveal how easy or difficult it was for them to be persuaded to do things they did not want to do, such as having sex without a condom and so on.

Scoring: The respondent received 5 points for each "very easy to do", 4 points for each "fairly easy to do", 3 points for each "neither hard nor easy to do", 2 points for each response of "fairly hard to do", and 1 point for each "very hard to do".

The Cronbach Alpha for the behavioural skills was 0.61.

5.5 Method of Data Collection

5.5.1 Biographical Information of Participating Grade 11 learners

The following biographical information was collected **(see Table 7.1)**:
Gender, age, parental education, parental occupation, home language, household income.

5.5.2 Research Instrument: The Teen Health Survey

Data in this study was collected using an adapted version of the "Teen Health Survey", a 13-page questionnaire designed for the Information, Motivation, Behavioural Skills model of AIDS risk behaviour change (Fisher, Bryan, Fisher & Misovich, 2002). The survey was originally administered to 1 500 ninth-grade students in four urban high schools in the United States of America (USA).

5.5.3 Data Analysis

All outcome variables were first inspected for distribution properties using histogram plots. The design allowed for a number of specific questions to be addressed. The primary objective was to establish whether or not there was evidence in the variables of interest associated in time with the intervention. To address this concern a Repeated Measures ANOVA was fitted to the model. The four time periods outlined in the design constituted the Repeated Measures component, while the two schools constituted a Between Subject Effect.

Within the framework of this procedure a series of planned comparisons allowed the testing of specific questions related to the primary question noted above. Planned comparisons (linear contrasts) allowed for the testing of specific linear functions of the estimated model parameters related to particular research questions. The model used was SAS PROC MIXED.

5.5.4 Standardization, Reliability and Validity

Standardization defines the degree to which interpretive errors have been eliminated. For instance, in the Teen Health Survey instrument used in this study, questions were the objective type, allowing for objective scoring, which would eliminate personal bias. This would enable one to arrive at the same score for the same set of responses. Although the test was originally conducted among inner-city high school adolescents in the USA, it would be appropriate for the high school adolescent learners in Alexandra township, Johannesburg, because of the similarity of conditions. For instance, like adolescent learners in Alexandra township, inner-city minority adolescents were exposed to a high risk of sexually transmitted HIV infection (American Academy of Pediatrics, 2001; American Association for World Health, 1998; Thurman, 2000).

However, cultural differences between adolescents in the inner-city in the USA and those of Alexandra township could influence their sexual practices as well. For that reason the researcher decided to adapt the Teen Health Survey instrument to suit the local environment.

Reliability in this study implies the believability of the Teens Health Survey based on its past performance. In other words, it is the extent to which the test is repeatable and yields consistent scores. When used with a university student population, the overall reliability for the scale was as follows: Measuring HIV information: .75; measuring attitudes toward HIV preventive acts: .87; measuring subjective norms regarding HIV-preventive acts: .86; measuring behavioural intentions for HIV prevention: .81; measuring perceived vulnerability to HIV infection: .70; measuring behavioural skills: .74.

Given that reliable tests should be .90 for high reliability, .80 for moderate reliability, and .70 for low reliability (Lohr, 2002), the above scores for the Teen Health Survey are consistent, and therefore, reliable.

The **validity** of the Teen Health Survey is the extent to which the instrument measures what it is supposed to measure. The standardized and reliable nature of the instrument to be used in this study does not necessarily render the test valid. Since the researcher is not aware of any other previous study on the Information, Motivation and Behavioural Skills (IMB) model for the reduction of HIV risk behaviour amongst adolescent learners in South Africa, he is unable to confirm the validity of the Teen Health Survey instrument at the moment.

5.6 Procedures

The researcher first sought permission from the school principals of all participating schools in Alexandra township. This was done by making personal visits to the schools, explaining the study, its purpose, when and how it would be conducted as well as who would be involved in it. Further information was documented and handed to the principals (**see Appendices A and B**). The researcher specifically inquired from the principals if there was a need for him to also request permission from the Gauteng Department of Education.

Once the principals had given verbal consent to have their schools participate in the study, the researcher requested written consent to participate in the study. The researcher then requested a date, time and venue to speak to Grade 11 learners at their school about the study. At a meeting with Grade 11 learners, the researcher introduced the study, explaining its purpose, when and how it would be conducted, and who would be involved in it. The researcher then invited learners to volunteer to participate in it. All potential participants were made aware of their ethical rights.

Potential participants were asked by the researcher to take Subject Information sheets (**see Appendix C)** to their parents or guardians. The document informed

parents/guardians about the study and requested them to indicate if they were willing to have their children participate in the study. They returned the signed documents to the child's school through their children. At a specified date the researcher came back to the schools to collect the signed documents.

Having received consent from the parents, the researcher met with potential participants at a specified venue and gave each learner his/her Subject Information sheet to read information about the study (**see Appendix D**), read and sign an Informed Consent Form thereafter (**see Appendix E**). In this way participating learners were sampled from the Grade 11 classes in the participating schools in Alexandra township, paving the way for the intervention sessions and the data collection process.

5.7 Ethical Considerations

Ethics clearance was granted by the University of the Witwatersrand (see actual Clearance Certificate on **Appendix P**). Informed consent from the school principals, learner participants (both experimental and comparison groups) and their parents was obtained (**see Appendices A, B, C, D and E).** All participants were assured of their confidentiality, privacy and that their participation was voluntary (**see Appendices C and D**). They were made aware that they were free to withdraw from the study at any point if they wished to do so **(see Appendix E).**

With regard to supplying biographical information or responding to questionnaire items, learner participants were informed that they were not obliged to answer any of the questions and that if they felt that some of the questions were too personal, or if they were uncomfortable answering them, they had the right to refuse to answer them. All participants were urged throughout the course of data collection to maintain confidentiality and not to disclose information gathered to anyone other than the researcher and his supervisor. Raw data would be stored for six years after completion of the study.

5.8 Conclusion

As this Chapter has shown, LoveLife programmes (preliminary study) had already been operational before the main study was conducted. Accordingly, the researcher believes that findings in the LoveLife study will have a bearing on the results of the main study, which will be analysed and interpreted in the next chapter.

CHAPTER SIX
RESULTS: PRELIMINARY STUDY

6.1 Overview

This section of the results of the study reflects the participating learners' views concerning HIV/AIDS education at their schools. Specifically, learners responded to questionnaire items relating to whether HIV and AIDS education had been taught at their schools, what HIV and AIDS *topics* were taught, and what *methods* were used to teach the lessons. Furthermore, learners were asked if HIV/AIDS lessons provided to them had relevant *information, motivation* and *behavioural skills* to assist them to adopt healthy sexual practices.

6.2 Results on the Preliminary Study

Data on the results of each of the above questionnaire items (**see Appendix F**) is presented in **Tables 6.1** to **6.7.**

Table 6.1 Teaching of HIV and AIDS education at the participating schools

	SCHOOL 1 (ES) (*n* = 123)		**SCHOOL 2 (CS) (*n* = 136)**	
	Yes	**No**	**Yes**	**No**
Is HIV/AIDS education ever taught at your school?	80	19	73	21
	Educators at school	**Other (Lovelife)**	**Educators at school**	**Other (Lovelife)**
Who teaches HIV/AIDS at your school?	10	75	24	80

Table 6.1 shows the number of learners responding to questionnaire item 7 (see **Appendix F)**, where they were required to say if HIV and AIDS education was ever taught at their school. The table also shows whether, according to the learners' responses, HIV and AIDS was taught by educators from their school, or by someone from outside.

Out of 123 participating learners at School 1 (ES), as many as 80 said HIV and AIDS education had been taught at their school, while only 19 gave a negative response. Similarly, a greater number of learners at School 2 (CS) agreed that HIV and AIDS education was taught at their school, while 21 did not.

Regarding who taught HIV and AIDS education at School 1 (ES), only 10 learners stated that it was taught by educators from their school, while as many as 75 learners stated that HIV and AIDS education was taught by other people from outside the

school. At School 2 (CS), 24 learners said educators from their school taught HIV and AIDS education, while 80 stated that other people from outside their school taught the lessons. Most learners from schools went further to indicate in brackets that 'other people' referred to the LoveLife programme. Through informal discussions with Life Orientation educators from both schools, the researcher confirmed that 'other people' teaching HIV and AIDS definitely referred to the LoveLife programme.

Table 6.2 Topics taught about HIV and AIDS education lessons at the participating schools

	Sch. 1 (ES) ***(n = 123)***	**Sch. 2 (CS)** ***(n = 136)***	**TOTAL** ***(n = 259)***	
TOPICS taught	**Frequency**	**Frequency**	**Total Freq.**	**%**
1. How HIV is transmitted or not transmitted	18	39	57	22
2. Staying away from HIV and AIDS	13	38	51	20
3. Use of condoms	28	21	49	19
4. Safer sex	25	13	38	15
5. Unprotected sex	20	15	35	14
6. Teenage pregnancy	11	10	21	8
7. Causes and effects of HIV and AIDS	5	14	19	7
8. HIV and AIDS awareness	7	11	18	7
9. Tuberculosis; Sexually Transmitted Infections	6	9	15	6
10. Helping people living with HIV and AIDS	3	8	11	4
11. Risk of HIV infection	3	8	11	4
12. Abstaining from sex	2	6	8	3,1
13. Signs, symptoms of people living with HIV	3	3	6	2,3
14. Alcohol, drug and sex abuse	1	4	5	1,9
15. Healthy boy/girl relationships	3	1	4	1,5
16. Making choices	1	3	4	1,5
17. HIV testing	1	2	3	1,2
18. HIV and the immune system	2	0	2	0,77
19. AIDS statistics	1	1	2	0,77

Table 6.2 is a summary of the responses from learners from the participating schools on the topics that were taught to learners before the intervention. Learners reported 19 topics that were taught at both schools. In terms of the percentage of learners who reported on the topics, only the first five were double-digit percentages. For instance, out of a total of 239 learners from the two schools, only 57 (22%) reported the topic on HIV and AIDS transmission as most commonly taught topic at both schools. For both schools, the topic on "Staying way from HIV and AIDS" was the next popular 51 (20%), followed by that of "Use of condoms" 49 (19%), "Safer sex" 38 (15%), and "Unprotected sex" 35 (14%).

The remaining topics (6-19) were reported by fewer learners, as reflected in single-digit percentages on the table. In particular, only 2 learners from each school reported that the topic on "HIV and the immune system" and "AIDS statistics" were the least taught, both of which had a percentage of 0,77%.

Table 6.3 Methods used in HIV and AIDS education lessons at the participating schools

	Sch. 1 (ES) ***(n = 123)***	**Sch. 2 (CS)** ***(n = 136)***	**TOTAL** ***(n = 259)***	
METHODS used	**Frequency**	**Frequency**	**Total Freq.**	**%**
1. Sharing ideas in group discussions on sexual matters	7	7	14	5,4
2. Showing pictures/posters	3	8	11	4,2
3. Telling short stories on HIV and AIDS	7	3	10	3,9
4. Reading a book/pamphlets or booklets on HIV and AIDS	2	5	7	2,7
5. Drama/Playing Games/Staging shows in the school hall	0	7	7	2,7
6. Demonstrating how to use a male or female condom	2	4	6	2,3
7. Explaining HIV and AIDS using the chalkboard	0	3	3	1,1
8. Note-taking	1	1	2	0,77
9. Projects/assignments on HIV and AIDS topics	0	2	2	0,77
10. Debates	1	0	1	0,39
11. Using boards with HIV and AIDS information	0	1	1	0,39

Table 6.3 shows a list of 11 methods which, according to learners, were used in teaching HIV and AIDS education at the two schools. The first three methods were reported by learners as the most commonly used in teaching HIV and AIDS education. For instance, of the 239 learners in both schools, only 14 (5,4%) reported 'group discussions' as a teaching method used prior to the intervention. This was followed by 11 (4,2%) learners who stated that 'pictures and posters' were used to teach HIV and AIDS education, and 10 (3,9%) who reported that HIV and AIDS education was taught using 'short stories on HIV and AIDS'. For each of the remaining methods (4-11), less

than 10 learners reported their use in HIV and AIDS education before the intervention. Only one learner from each school reported that 'debates' and 'HIV and AIDS information boards' were used as teaching methods.

Table 6.4 Feedback provided by learners on HIV and AIDS information on HIV and AIDS education lessons at the participating schools

	Sch. 1 (ES) ***(n = 123)***	**Sch. 2 (CS)** ***(n = 136)***	**TOTAL** ***(n = 259)***	
Learners' feedback on HIV and AIDS Information	**Frequency**	**Frequency**	**Total Freq.**	**%**
Positive				
1. Learned much information I did not know (STIs, HIV virus, etc.)	23	37	60	23,2
2. Learned much information that my parents were not prepared to tell me	32	16	48	18,5
3. Learned to perform healthy and safe sexual behaviours	13	27	40	15,4
4. Learned to make right choices about my future	13	18	31	12
5. Taught about real, practical issues of life	11	11	22	8,5
6. Taught to reach out to or help someone suffering from HIV and AIDS	10	11	21	8,1
Negative				
7. Unprotected sex and teen-age pregnancies are still common among learners	16	20	36	13,9
8. Information about HIV and AIDS should be taught to us daily, to be effective	14	11	25	9,7
9. Outside people teach different information from school educators	10	13	23	8,9
10. Some teachers are shy or afraid to tell learners information about HIV and AIDS	10	12	22	8,5
11. Learners are not given direct information – they are told to find it on their own	11	10	21	8,1
12. Learners have never seen someone or a learner suffering from HIV and AIDS	11	10	21	8,1
13. Learners are taught the same information on HIV and AIDS all the time	11	10	21	8,1
14. Sometimes learners are afraid to ask questions in the presence of classmates	10	11	21	8,1

Table 6.4 reflects a summary of the feedback from 239 learners at both participating schools on HIV and AIDS information they were taught during HIV and AIDS lessons. Feedback on this table is both positive and negative. In other words, there are some aspects of the lessons that improved the levels and quality of HIV and AIDS information among learners, while other aspects were not valuable to the learners.

Positive feedback from the learners was summed up in items 1-6 on the table. Of the total number of learners who responded, 60 (23,2%) lauded HIV and AIDS education for giving them much information they did not know, deepening their understanding of the epidemic. This number was followed by that of 48 (18,5%) learners who felt HIV and AIDS education had taught them information that their parents were unable to teach, and another 40 (15,4%) who claimed they had learned to perform healthy and safe sexual behaviours through HIV and AIDS education.

A smaller number of 31 (12%) reported that HIV and AIDS education had taught them to make right choices about their future. Feedback with the least number of learners (less than 10%) was from 22 learners who believed HIV and AIDS education had taught them about real, practical issues of life, while another 21 confirmed that, because of HIV and AIDS education, they could now reach out to other people suffering from HIV and AIDS.

On the negative side, however, the table shows that there were quite a few learners in both schools who still believed that HIV/AIDS information received was not doing enough to change the sexual behaviours of most learners (36; 13,9%). For instance, they argued that most learners were still engaging in unprotected sex, falling pregnant and being infected with HIV. Other learners (25; 9,7%) felt that, if information on HIV and AIDS was taught and spoken about on a daily basis, it would be more effective to the learners. Learners (23; 8,9%) were concerned about the differences in the HIV and AIDS information taught by their own Life Orientation educators and that taught by people from outside.

There were also some learners (22; 8,5%) who were critical of some of their shy Life Orientation educators who were not open or frank during HIV and AIDS lessons. Some learners (21; 8,1%) felt that the learning environment did not allow for freedom to ask questions and debate sexual matters.

There were also concerns from some learners (21; 8,1%) about the lack of practical evidence of HIV/AIDS infection – they wished to be shown someone suffering from HIV/AIDS. Some learners (21;8,1%) complained about the presentation of the same information on HIV/AIDS all the time – they wanted more variety. There were also some learners (21; 8,1%) who were unhappy about being asked to find HIV and AIDS information on their own.

Table 6.5 Feedback provided by learners on motivation on HIV and AIDS education lessons at the participating schools

	Sch. 1 (ES) ***(n = 123)***	**Sch. 2 (CS)** ***(n = 136)***	**TOTAL** ***(n = 259)***	
Learners' feedback on Motivation	**Frequency**	**Frequency**	**Total Freq.**	**%**
1. Motivation to prevent HIV and to help others prevent it, too.	25	41	66	25,5
2. Motivation to use condoms for sexual intercourse	22	20	42	16,2
3. Motivation to be alert of the dangers of HIV and AIDS	13	22	35	13,5
4. Motivation to make right choices on sexual matters	14	17	31	12
5. Motivation to find HIV and AIDS information on my own	14	12	26	10
6. Motivation to understand and accept HIV positive people	11	12	23	8,9
7. Motivation to do HIV tests	11	11	22	8,5
8. Motivation to abstain from premarital sex	10	11	21	8,1
9. Motivation to take care of my body	10	11	21	8,1

Feedback on how learners were motivated by HIV and AIDS education is shown on **Table 6.5.** According to this table, feedback from the 239 learners who participated at both schools shows that the highest number of learners (66; 25,5%) reported that HIV and AIDS education had motivated them to prevent HIV and to help other people prevent it as well. This number was followed by that of 42 (16,2%) learners who acknowledged that they had been motivated to use condoms as a result of HIV and AIDS education.

The table also identifies 35 (13,5%) learners who felt motivated to be alert to the dangers of HIV and AIDS, 31 (12%) who were motivated to make right choices on

sexual matters, and another 26 (10%) confirmed that HIV and AIDS education had motivated them to find HIV and AIDS information on their own. The remaining feedback items on the learners' motivation reflect fewer learners responding to individual items (less than 10%).

In other words, the smaller figures and percentages on the table represent learners who felt motivated to understand and accept HIV positive people, learners who were motivated to do HIV tests, learners who were motivated to abstain from premarital sex, as well as those who felt encouraged to take care of their bodies.

Table 6.6 Feedback provided by learners on behavioural skills on HIV and AIDS education lessons at the participating schools

	Sch. 1 (ES) ***(n = 123)***	**Sch. 2 (CS)** ***(n = 136)***	**TOTAL** ***(n = 259)***	
Learners' feedback: **behavioural skills**	**Frequency**	**Frequency**	**Total Freq.**	**%**
1. Ability to use condoms	30	35	65	25,1
2. Less interest in sexual activities	13	12	25	9,7
3. Ability to talk with confidence about HIV and AIDS to other people	11	11	22	8,5
4. Ability to make courageous decisions on sex	11	11	22	8,5
5. Ability to take care of one's body	10	11	21	8,1
6. Ability to resist peer pressure to engage in premarital sex	10	11	21	8,1
7. Inability to stop engaging in unprotected sex	10	11	21	8,1

Table 6.6 shows a summary of the responses of learners from the two schools on the effect of HIV and AIDS education on their behavioural skills before the intervention. According to the table, learners identified six things they were able to do as a result of their exposure to HIV and AIDS education. Learners' feedback shows that 65 (25,1%)

of them believed that they were able to use condoms as a result of HIV and AIDS education.

However, fewer learners (less than 10%) reported that they were able to talk with confidence about HIV and AIDS to other people, they were able to make courageous decisions on sexual matters, they were able to take care of their bodies, as well as resist peer pressure to engage in pre-marital sex. However, 21 (8,1%) learners were negative towards the ability of HIV and AIDS education to enhance their behavioural skills. They argued that, despite the programme, they still continued to engage in unprotected sex.

6.3 Further Data Collection: loveLife Programme

As a follow-up on leads from the learners' responses to the preliminary study questionnaire as well as on initial analysis of the quantitative results of the main study, further data collection was done to establish the contribution of loveLife programmes to HIV and AIDS education prior to the intervention. In addition, this further investigation was motivated by evidence based on various studies which suggests that learners in South African public high schools have been exposed to loveLife HIV intervention programmes (Pettifor, MacPhail, Bertozzi & Rees, 2007; Zisser & Francis, 2006; Francis & Rimensberger, 2005; Pettifor et al., 2004; Parker, 2003). Information collected from loveLife would help to clarify the contribution of loveLife programmes to the learners' levels of HIV and AIDS information, motivation and behavioural skills.

6.3.1 Interview with the Lovelife Regional Trainer: Summary of loveLife Initiatives

To find out more about loveLife's activities in high schools in the Gauteng Province, the researcher contacted loveLife through its Gauteng Provincial Manager in Braamfontein, Johannesburg. This initial contact with the Provincial Manager was according to protocol and facilitated a meeting at which the researcher would interview the Regional Trainer. On an agreed date and time, the interview took place at the

researcher's office at Wits School of Education. The interview was guided by a prepared interview schedule (see **Appendix G**) in which the regional trainer responded to questions around loveLife's work in Alexandra township high schools.

Table 6.7 shows a summary of the information gathered from an interview with the regional trainer.

Table 6.7 A summary of information collected from an interview with the LoveLife Regional Trainer

Background	LoveLife is a national initiative promoting a healthy, AIDS-free lifestyle among South African adolescents, launched in 1999. The initiative combined a high-powered multimedia campaign with nationwide youth-friendly health services, school-based, and community-level outreach and support programmes for youth.
Mission	LoveLife provides service and outreach programmes on the basis of 'loveLife style' in which young people are helped to adapt to a new, popular culture and to shape their lifestyle according to LoveLife campaigns. Young people are exposed to more communication about sex, sexuality and gender relations as necessities for adolescent sexual behaviour change. LoveLife aims to promote abstinence and delayed initiation of sexual activity among adolescents, reduction of sexual partners among the already sexually active, and consistent condom use. LoveLife's primary target group is the youth aged 12-17 years. In Alexandra, LoveLife was working with four high schools (including the two participating in this study).
Communication Strategies	Multimedia campaign comprising outdoor, broadcast and print media; the loveLife style must be 'experienced' by young people in an interactive, educational way, using community-based, young peer educators (*groundbreakers* and *mpintshis*)
Methods	Group discussions; use of posters; telling short stories on HIV/AIDS; reading a book/pamphlets on HIV/AIDS; drama/games/shows; explanation using chalk and talk; taking notes from teacher; doing assignments/projects; debates
Topics	HIV and the immune system; HIV transmission; HIV-preventive behaviour; HIV risk behaviour; alcohol, drugs and HIV-risk behaviour; abstaining from sex ; signs and symptoms of HIV and AIDS; HIV testing; HIV and AIDS statistics; helping people living with HIV and AIDS
Materials	Study guide with 10 commitments to making the most of life – commitment to loving life; commitment to reality, reason, independence, purpose, productiveness, honesty, co-operation, justice and rights; Discover Your Career: A ride in the right direction study guide; Mover's Map

According to **Table 6.7,** the LoveLife campaign has been operational in the high schools in Alexandra township for almost 12 years. Targeting adolescents aged 12-17 years, LoveLife aims for adolescent sexual behavioural change through, among other things, more communication about sex, sexuality and gender relations. The campaign reaches young people through outdoor, broadcast and print media, as well as community-based peer educators who, interactively, communicate HIV and AIDS messages to adolescents.

The table also shows a variety of teaching methods employed by LoveLife – group discussions, posters, short stories, games, projects, debates, and the like. A wide range of topics are covered through LoveLife initiatives, including, the HIV immune system, HIV transmission, and so on. Three main study guides are used as materials used in the LoveLife programme: *Ten Commitments to Make the Most of Life; Discover Your Career: A Ride in Right Direction; Mover's Map.*

6.3.2 LoveLife on HIV/AIDS Information, Motivation and Behavioural Skills

The researcher further inquired from the trainer at LoveLife to what extent LoveLife programmes targetted raising the levels of HIV/AIDS information among learners, motivated learners to act upon such information, and developed learners' behavioural skills to reduce HIV risk behaviour.

LoveLife and HIV/AIDS Information

According to the trainer, South Africa's 14 radio programmes reach close to 2 million young people each week. LoveLife produces weekly radio programmes on South Africa's most popular youth radio stations. Radio programming produced and presented by young people trained by LoveLife is broadcast from fully-equipped radio broadcast facilities in LoveLife Y-centres. Through radio, LoveLife talks with young people in their own language, with most of the programmes being call-in talk shows, with segments produced by young people. Some of LoveLife's radio programmes include, "HIV: Face It".

In the *Ukhozi FM* radio station, LoveLife focuses on HIV/AIDS, drugs and many other issues affecting young people. For example, topics such as dealing with pressures to have sex, reasons why HIV and pregnancy rates are escalating, and many more, are discussed on radio. As three out of every four South African households have access to **television,** television programming is an important component on the LoveLife strategy (www.lovelife.org.za).

LoveLife is also informative through its **outdoor media** campaign, which includes 1 700 billboards, to help build awareness of LoveLife's campaign, promote the national information helpline, and encourage young people and parents to talk about sex and HIV/AIDS. With an increasing number of young people becoming computer literate, LoveLife has provided a LoveLife's youth **website** www.lovelife.org.za. This serves as an interactive source of information about sexual health and LoveLife's services.

Printed media is another channel through which HIV/AIDS information is disseminated to adolescents by LoveLife. Once a month, *UNCUT,* a youth lifestyle magazine is published and distributed nationally through a partnership between LoveLife and the Independent Newspaper Group. A youth orientated booklet containing information and advice on sexual health topics like, contraception, sexually transmitted infections and HIV/AIDS, *loveFacts,* is also available from LoveLife.

To involve parents in the provision of HIV/AIDS information to adolescents, a booklet, *Talking and Listening to your Teenager,* is distributed to parents by LoveLife. This booklet is designed to help parents talk to their children about responsible sexual behaviour and answer difficult questions. *Loving life* is a printed guide to anti-retroviral treatment provided by LoveLife.

While the trainer's information shows that LoveLife makes HIV and AIDS information available to adolescents in township high schools, results from the preliminary study suggest that levels of HIV and AIDS information remained low among learners prior to

the intervention. In other words, HIV and AIDS information gaps continued to exist among learners, despite LoveLife initiatives.

LoveLife and Motivation

In addition to providing information to adolescents, LoveLife programmes aim to inspire and motivate young people to take control of their lives, set goals and make healthy choices (Pettifor et al., 2007). Specifically, young people are helped to accept sexual responsibility as an essential part of a healthy lifestyle that will help them to achieve their goals and aspirations. They are motivated to see life as important and that great possibilities exist for every one of them, irrespective of their background.

Accordingly, LoveLife tries to motivate young people to love life and commit themselves to living better lives as individuals, in their social environments, guided by reality, reason, purpose, independence, productiveness, honesty, co-operation, justice and human rights. Young people are encouraged to discuss more openly about sex, sexuality, gender and HIV.

In the regional trainer's view, youth are highly motivated by LoveLife's programmes. The establishment of Y-centres (multi-purpose youth centres) in the poorest parts of South Africa has provided youth with leadership opportunities in the provision of sexual health education, clinical services, skills development and recreational activities. LoveLife has also enabled youth to talk to other youth through volunteer peer educators called groundBREAKERS.

These young people run motivational programmes, promote fitness and health, challenge one to think creatively, discuss sexual health and sexuality, conduct sports and debating leagues and facilitate radio production and broadcasting. Since many adolescents feel alienated from South Africa's public health service, LoveLife launched the National Adolescent-Friendly Clinic Initiative, to assist youth in accessing comprehensive health services.

As a result, adolescents have been motivated to visit these clinics to receive counselling, screening, treatment for HIV, sexually transmitted infections and help for other problems. LoveLife has a peer outreach programme to encourage young people to take advantage of these adolescent clinical services. This outreach is conducted by young LoveLife groundBREAKERS based at the clinics, and are trained and supervised by full-time LoveLife staff.

Information from the regional trainer suggests that adolescents are motivated to engage in healthy sexual behaviours. Yet the preliminary study shows contrasting results in which only a few learners felt motivated before the intervention.

LoveLife and Behavioural Skills

The regional trainer reported that LoveLife advocates delayed initiation of sexual activity, there was a reduction in the number of sex partners among already sexuality active youth, and there was consistent condom use. He added that, through the LoveLife approach, the following core values may be developed among adolescents: *love, dignity, respect, shared responsibility, informed choice* and *healthy sexuality.*

From the trainer's information, core values seem to feature more than behavioural skills. In other words, while LoveLife programmes emphasised particular values in adolescents, these values did not result in the development of behavioural skills. This is confirmed by the preliminary results which show only a few learners reporting that they had acquired behavioural skills prior to the intervention.

6.4 Discussion

This section discusses the findings on the preliminary study with reference to existing and prior HIV and AIDS education at the two high schools in Alexandra township.

The findings in this study show that few learners responded to the questionnaire items on 'topics taught' and 'methods used' during HIV and AIDS education prior to the

intervention. There were also only a few who responded to items on feedback on HIV and AIDS information, motivation and behavioural skills. The vocabulary used in some of the questions may have been the problem. For instance words like "methods", "information", "motivation" and "behavioural skills" may have been complex for the literacy levels at township schools even though these were at high school level.

This suggests that a more simplified vocabulary should have been used to elicit information from the learners. On the other hand, the researcher argues that, with greater exposure to HIV and AIDS information, more learners at these two schools would have responded to the questionnaire items.

Findings on feedback on HIV and AIDS information indicate that, while learners from both schools benefited from HIV and AIDS education in some way, more feedback from learners suggests that there were more concerns about acquiring information through HIV and AIDS education. For instance, issues concerning continued unprotected sex and teenage pregnancies, shy educators, redundant HIV and AIDS information constantly given out, to name some of them.

These results indicate that important gaps existed in the delivery of HIV and AIDS information through HIV and AIDS education before the intervention.

Similarly, only a few of the total respondents gave the requested feedback on motivation. These results indicate that pre-intervention initiatives on HIV and AIDS among learners at the two schools did not adequately address issues of motivation to engage in HIV-preventive acts.

Regarding feedback of learners on behavioural skills, it is noted that the majority of the learners who responded to this question acknowledged that they had developed the ability to use condoms. However, there was a significantly low turnout in learners who responded. As indicated earlier, this could be attributed to the learners' failure to understand what the questionnaire item required. Alternatively, the non-response of

other learners to this item could suggest that learners did not acquire any behavioural skills through HIV and AIDS education. It may be concluded that the majority of learners at the two schools did not possess adequate behavioural skills prior to the intervention.

On the study further conducted on the LoveLife programmes, findings indicate that much on HIV and AIDS is covered through these initiatives. However, contrasting preliminary results which show poor responses from learners to questions related to topics taught in HIV and AIDS education, methods used, HIV and AIDS information, motivation and behavioural skills, raise questions about the effectiveness of the programmes.

Findings on the preliminary study indicate that gaps existed in the topics taught, methods used, HIV and AIDS information, motivation and behavioural skills prior to the intervention. Findings also show that, despite LoveLife initiatives among learners in township high schools, important gaps existed in HIV and AIDS information, motivation and behavioural skills before the intervention.

6.5 Conclusion

This chapter presented findings on what HIV/AIDS education took place among learners at the two participating schools in Alexandra, before the intervention. It was evident from LoveLife, as an organization, that much HIV/AIDS education was going on in township high schools in South Africa. The campaigns were well-organized and designed to achieve noble goals.

From the perspective of the trainer at LoveLife, high school learners were not only being empowered with HIV/AIDS information through LoveLife campaigns, but were also being motivated to change their risky sexual behaviours using behavioural skills that they have acquired through the programmes.

However, based on the results of the preliminary study, only a few learners responded to the questionnaire items that called for feedback on topics taught and methods used during HIV and AIDS education prior to the intervention. In addition, learners' responses regarding HIV and AIDS information, motivation and behavioural skills were very poor.

Accordingly, the ineffectiveness of the prior and existing initiatives on HIV and AIDS education in township high schools justified the implementation of an Information, Motivation and Behavioural skills-based programme that would address gaps left unfilled by pre-intervention initiatives. The next chapter examines quantitative findings on the impact of the IMB intervention on levels of HIV/AIDS information, motivation and behavioural skills among learners at the two participating schools.

CHAPTER SEVEN
RESULTS: MAIN STUDY

7.1 Overview

This chapter presents the quantitative analysis and interpretation of data collected from two secondary schools in Alexandra township, Johannesburg. The data was analysed using the Statistical Analysis System (SAS). Variables analysed included Grade 11 learners' levels of HIV/AIDS information, motivation to engage in safer sex behaviour, as well as behavioural skills to perform healthy and safe sex behaviours.

In the first part of the chapter, the biographical information of participating learners are analysed. Specifically, data relating to the gender, age and language of learners at the two participating schools are examined. Data on people with whom learners lived, as well as the education levels of the learners' parents are also analysed.

A major part of this chapter presents findings on levels of information, motivation and behavioural skills on learners at the two schools before and after the intervention. In order to establish differences between mean scores before and after the intervention, an analysis of mean estimates and a t-test on each of the variables (information, motivation, behavioural skills) under study was carried out.

There is a brief discussion on the findings on each variable, followed by another more general discussion in the next chapter.

7.2 Biographical Information

Table 7.1 shows demographic characteristics of the learner-participants in the study. Specifically, the following variables are reflected: gender, age, language, who learners live with, parental education and household income.

Table 7.1 Demographic characteristics of learner participants: *Gender, Age, Language, Family*

SCHOOL 1 = ES *(n = 130)*					**SCHOOL 2 = CS *(n = 121)***				
Variable	***Freq***	***%***	***Cum Freq***	***Cum %***	***Variable***	***Freq***	***%***	***Cum Freq***	***Cum %***
Gender-*Male*	61	47	61	47	**Gender- *Male***	64	53	64	53
Gender-*Female*	69	53	130	100	**Gender-*Female***	57	47	121	100
Age – 14	1	0.78	1	0.78	Age – 14	----	------	----	----
15	1	0.78	2	1.55	15	2	1.65	2	1.65
16	18	13.95	20	15.50	16	29	23.97	31	25.62
17	45	34.88	65	50.39	17	33	27.27	64	52.89
18	42	32.56	107	82.95	18	39	32.23	103	85.12
19	22	17.05	129	100.00	19	18	14.88	121	100.00
Language:					***Language:***				
Sepedi	29	21.32	29	21.32	Sepedi	45	36.59	45	36.59
Sesotho	3	2.21	32	23.53	Sesotho	11	8.94	56	45.53
SiSwati	1	0.74	33	24.53	SiSwati	2	1.63	58	47.15
Xitsonga	24	17.65	57	41.91	Xitsonga	4	3.25	62	50.41
Setswana	3	2.21	60	44.12	Setswana	16	13.01	78	63.41
Tshivenda	47	34.56	107	78.68	Tshivenda	4	3.25	82	66.67
IsiXhosa	29	21.32	136	100.00	IsiXhosa	40	32.52	122	99.19
IsiZulu	---	------	------	--------	IsiZulu	1	0.81	123	100.00
Live With:					***Live With***:				
mother & father	50	37.59	50	37.59	mother & father	44	37.29	44	37.29
mother	43	32.33	93	69.92	mother	46	38.98	90	76.27
father	14	10.53	107	80.45	father	7	5.93	97	82.20
guardian	19	14.29	126	94.74	guardian	16	13.56	113	95.76
other	7	5.26	133	100.00	other	5	4.24	118	100.00

Table 7.1 Continued: Demographic characteristics of learner participants: *Parental education, Household Income*

SCHOOL 1 = ES *(n = 130)*					**SCHOOL 2 = CS *(n = 121)***				
Variable	***Freq***	***%***	***Cum Freq***	***Cum %***	***Variable***	***Freq***	***%***	***Cum Freq***	***Cum %***
Parental Educ.					***Parental Educ***.				
Primary	4	3.23	4	3.23	Primary	1	0.95	1	0.95
Secondary	51	41.13	55	44.35	Secondary	37	35.24	38	36.19
Tertiary	15	12.10	50	56.45	Tertiary	20	19.05	58	55.24
Don't Know	54	43.55	124	100.00	Don't Know	47	44.76	105	100.00
Household Income:					***Household Income:***				
Under R2 000	22	16.18	22	16.18	Under R2 000	11	9.09	11	9.09
R2 000-R4 000	27	19.85	49	36.03	R2 000-R4 000	10	8.26	21	17.36
R4 100-R6 000	8	5.88	57	41.91	R4 100-R6 000	8	6.61	29	23.97
R6 100-R8 000	1	0.74	58	42.65	R6 100-R8 000	4	3.31	33	27.27
R8 100-R10 000	2	1.47	60	44.12	R8 100-R10 000	4	3.31	37	30.58
Over R10 000	2	1.47	62	45.59	Over R10 000	12	9.92	49	40.50
Don't Know	74	54.41	136	100.00	Don't Know	72	59.50	121	100.00

7.2.1 Gender

According to **Table 7.1,** from a total sample of 251 Grade 11 learners, 130 were extracted from School 1 (ES), and 121 came from School 2 (CS). Of the 130 learners at School 1, 61 (47%) were male and 69 (53%) were female. Of the 121 learners at School 2, 64 (53%) were male and 57 (47%) were female. In other words, there were more Grade 11 male learners at School 2 than School 1, and more Grade 11 female learners at School 1 than School 2.

7.2.2 Age

Table 7.1 above also shows that age groups of the Grade 11 learners participating in this study varied between the two schools. At School 1 (ES), there was only one 14-year-old and
one 15-year-old learner. There was no learner aged 14 years at School 2, and two learners were aged 15 years at the same school. Both schools had a high number of learners aged 16 years, with School 2 reporting 29 learners (24%), compared to 18 learners (14%) at School 1. The age group with the highest number of learners differed from each school. In particular, at School 1, most learners were in the 17-year-old age group, with 45 (35%) learners, compared with School 2, where most learners were in the 18-year-old age group, with 39 (32%) learners.

There were 33 (27%) learners in the 17-year-old age group at School 2, and 42 (33%) learners were 18 years old at School 1. At School 1, 22 (17%) learners were 19 years old, compared with 18 (15%) at School 2 with the same age. The age groups described demonstrate that most learners participating in this study were aged between 16 and 19 years, with the highest number of learners being between 17 and 18 years of age.

7.2.3 Language

Alexandra township is a diverse and disparate area with different cultures who speak different languages (UNESCO, 2002). According to Isserow and Everatt (1998), IsiZulu is the main language spoken in the township (30%), followed by Northern Sotho/Sepedi (26%), Setswana (12%), IsiXhosa (10%), with Xitsonga/Shangaan, South Sotho and Tshivenda making up the rest.

Table 7.1 shows that the sample of learners used in this study came from eight language backgrounds, namely, Sepedi, Sesotho, SiSwati, Xitsonga, Setswana, Tshivenda, IsiXhosa and IsiZulu. The home language spoken by the majority of participating learners differed with each school. At School 1, 47 (35%) most learners spoke Tshivenda at home, compared with only four (3%) who spoke that language at School 2.

However, the language spoken by most learners at School 2 was Sepedi, with 45 (37%) learners who spoke it. At School 1 an equal number of learners spoke Sepedi and IsiXhosa, with 29 (21%) learners at both schools. On the other hand, IsiXhosa was the second most spoken language by learners (after Sepedi), with 40 (33%) learners speaking it at their homes. Only three learners (2%) were Sesotho-speaking at School 1, compared with eleven (9%) at School 2.

Similarly, Setswana was spoken by only three (2%) learners at School 1, compared with sixteen (13%) who spoke that language at School 2. The two least spoken languages among the learners were SiSwati and IsiZulu. Only one learner spoke SiSwati at School 1, while only two spoke it at School 2. While only one learner spoke IsiZulu at School 2, none reported as speaking IsiZulu at home at School 1. From this information, we may conclude that Tshivenda, Sepedi and IsiXhosa were the dominant languages among the sample of learners used in this study.

7.2.4 Who Learners Live With

According to **Table 7.1,** not all learners lived with both mother and father. At School 1, most learners lived with both father and mother (38%), followed by learners who lived with their mothers (32%). Much lower percentages of learners lived with their fathers (11%) and guardians (14%), while only 5% of the learners lived with people other than guardians and parents.

On the other hand, at School 2, the majority of participating learners lived with their mothers (39%), a little higher than those living with their fathers and mothers (37%). As in School 1, 14% of the participating learners lived with guardians at School 2. Fewer learners lived with fathers (6%) and 4% lived with people other than parents and guardians at this school. Clearly, the sample shows that most learners in this study lived either with both parents, or with their mothers.

These family conditions of learners in this study mirror a general challenge for parenting in South African townships. Campbell (2003) observes that a significant number of women in South African townships are supporting families single-handed, both economically and emotionally. In addition, UNESCO (2003) notes a high incidence of single parents in Alexandra township in particular.

Parental absence around adolescents contributes to adolescent risky behaviour. In their study on sexual risk behaviour among South African adolescents, Thurman, Brown, Richter, Maharaj and Magnani (2006) found that adolescents not residing with both parents may be at risk of early sexual intercourse and, ultimately, HIV infection. This finding is consistent with that by Kirby (1999) who observed that adolescents living in a one-parent household engaged in early onset of sexual activity, compared to those in a two-parent household.

Other studies also confirm the potential influence of parental absence on increased adolescent sexual risk. For instance Ngom, Magadi and Owuor (2003) found that female adolescents living in Kenyan slums without their fathers were more likely to

engage in sex. In Zambia and Tanzania, the majority of young commercial sex workers were orphans (Rau, 2003).

These studies point to the potential of adolescent learners in Alexandra to engage in risky sexual behaviour, considering that most of them do not live with both parents.

7.2.5 Parental Education

Table 7.1 also reflects that the highest number of participating learners did not know the level of their parents' education (44% in School 1, 45% in School 2). There may be reasons for this. Firstly, because of the embarrassment caused by disclosing the low educational level of a parent, some learners might have chosen to withhold information about their parents' level of education. Secondly, to protect their ego, some parents with low education might have refused to disclose their level of education to their children. Thirdly, learners may have simply carried on a 'culture of silence' on adult issues (such as the adult's level of education), which is promoted in some cultures. Finally, because some learners were not staying with their own parents, information on parental education was not readily available to them at the time of completing the questionnaire.

However, for those who knew their parents' education, most of the parents had a secondary school education. For instance at School 1, 41% of the learners reported that their parents had acquired a secondary school education, while 37% of the learners reported the same at School 2. A lower percentage of learners reported that their parents had had a tertiary education (12% at School 1, 20% at School 2). According to this study, the least number of parents had a primary education at both participating schools, with only 3% at School 1 and a mere 1% at School 2.

This data reflects that, while the educational background of most parents was unknown to their children, most parents in the participating schools had a secondary education as their highest qualification.

7.2.6 Household Income

As was the case with parental education levels, **Table 7.1** shows that the majority of the learners reported that they did not know about income in their households (54% at School 1, 60% at School 2). Arguments advanced earlier regarding the learners' ignorance about their parents' education could also be used to explain why most learners did not know the income in their households. For instance, the parents refusal to disclose financial information due to the embarrassment that might cause, as well as the 'culture of silence' that, in some cultures, encourages adults to keep particular 'adult issues' (such as personal finance) to themselves. Failure by the majority of learners to provide their household income projects a weakness in using financial income figures to get information about the living standards of a target audience (learners in this case).

Perhaps a more accurate way would be to use questions about assets in the home (for example, having a fridge, television set, etc. at home). Employment or job type, housing and type of accommodation, have also been used (Newby, 2010). However, for those who knew their parents' income, the highest number of learners (20%) at School 1 reported their parents' income as between R2 000 and R4 000 per month. The next largest number of learners at School 1 (16%) reported their parents' income as under R2 000 per month.

At School 2, the highest number of learners (9%) reported their parents' income as over R10 000 per month, compared with only 2% reporting on the same amount at School 1. This was followed by 11% of the learners who reported that their parents earned under R2 000 per month. An estimated 8% of the learners at School 2 reported their parents' income as between R2 000 and R4 000 per month.

While both schools reported an almost equal number of learners with parents whose income was between R4 100-R6 000 (6% at School 1, 7% at School 2), very few learners in both schools reported their parents' income as between R6 100-R8 000 (0.7% at School 1, 3% at School 2). There were equally few learners reporting their parents' income as between R8 100-R10 000 (2% at School 1, 3% at School 2).

Figures representing household income on **Table 7.1** may be better understood in the context of the national poverty line in South Africa. According to Statistics South Africa (2007), "poverty line" implied by the Old Age Pension means test for married persons, assuming a household of five persons and no non-elderly income earners. By estimation, households under "extreme poverty" in 2010 live on less than R1 083.75 per month. These spend more on food items than on non-food items.

Those in the "lower threshold" of the poverty line live on R2 154.20 per month. The "upper threshold" poverty line people live on R3 967.15 per month. While these people spend the same amount on food items as the "lower threshold", they spend more on non-food items. In line with Statistics South Africa (2007) figures, the majority of learners in both School 1 (ES) and School 2 (CS) were in the "lower threshold" of the poverty line, reflecting the general socio-economic condition of the Alexandra township population.

In summary, demographic information shown on **Table 7.1** reveals that learners participating in this study were drawn from an impoverished environment of Alexandra township. Most of the learners were born and bred in single-parent families. With little or no education, most of the parents were unemployed or had little or no household income, compounding the plight of the learners. More importantly, such a poor environment exposed learners to various forms of anti-social behaviours, including HIV-risky behaviour.

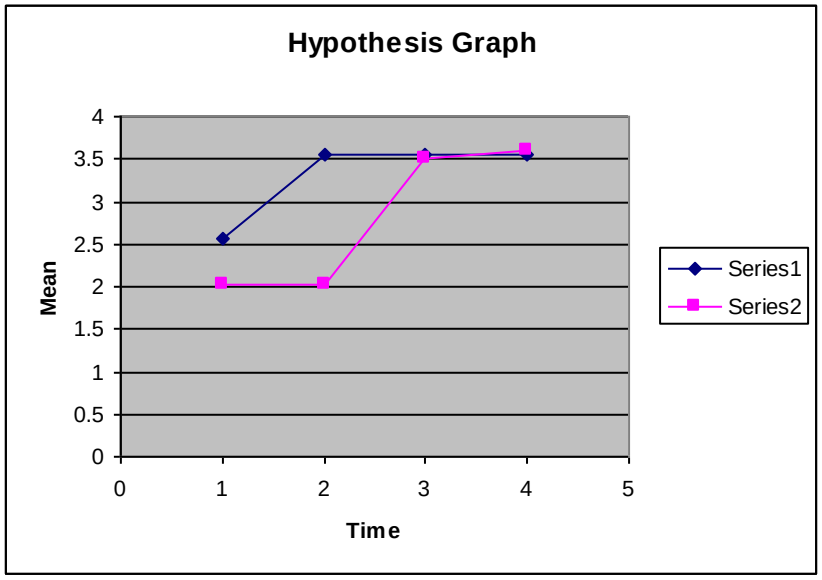
7.3 Hypothesis

This study hypothesised that levels of HIV/AIDS information, motivation and behavioural skills among Grade 11 adolescent learners in the two participating schools are likely to increase as a result of an HIV-risk reduction intervention based on the Information-Motivation-Behavioural skills model. In other words, the mean scores at School 1 (ES) were expected to rise at Time 2, as a result of an intervention at School 1 between Times 1 and 2. However, the scores at School 2 (CS) were expected to remain

unchanged at Time 2, until the intervention at that school between Times 2 and 3, which would raise the score at School 2 at Time 3. Ultimately, the results were expected to be maintained at high levels in both schools at Time 4.

The graph below illustrates what the researcher hypothesized the results would indicate:

Figure 7.1 Hypothesis Graph



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

Although *t-test* results for overall estimates on HIV/AIDS information as well as on motivation generally indicated statistically significant differences (see **Tables 7.2** to **7.5**), these results did not confirm the stated hypothesis. The results show that not all variables at all times reflected statistically significant differences. For that reason, the stated hypothesis was rejected, and a null hypothesis was accepted.

7.4 Repeated Measures ANOVA and Overall Mean Estimates: HIV/AIDS Information

Repeated measures ANOVA, are an extension of paired *t*-tests. Like *t*-tests, repeated measures ANOVA gives us the statistical tools to determine whether or not change has occurred over time. While *t*-tests compare average scores at two different time periods for a single group of subjects, repeated measures ANOVA compare the average score at multiple time periods for a single group of subjects.

According to Pallant (2007), repeated measure ANOVA tests if the mean scores of the participants are different when measured on at least three occasions. In order to successfully perform an ANOVA, Pallant (2007) suggested that tests with repeated measures need to have at least one independent categorical variable and one dependent continuous variable. The ANOVA tests measure the significance of the differences of responses between the two schools and at the different time periods. In the current analysis, two schools (between subject factors) as categorical variables and time (within subject factor) were used as a repeated measure.

Some assumptions have been identified in the repeated measures ANOVA. The first general assumption of is related to the level of measurement. Pallant (2007) argues that the dependent variable should be measured on a ratio scale or on a continuous scale. In the current analysis, the response scores were all measured on a scale basis, consistent with the assumption. The second assumption requires that data must be obtained through random sampling, although this assumption is not always satisfied (Pallant, 2007). The third and final assumption requires that observations independency that is measurement of one observation is not influenced by the measurement of another observation (Pallant, 2007). This assumption was fulfilled as the response measures where all collected independently.

The major significant assumption in repeated measures ANOVA is homogeneity of variance (Pallant, 2007). This assumption requires that the population from which the data was collected should be normally distributed and that the population from which samples were obtained should have equal variances.

This chapter presents an analysis of repeated measures ANOVA on HIV/AIDS information, motivation and behaviourals skills. Specifically, each of these variables were subjected to *multivariate tests, tests of assumption, univariate tests,* and *paired t-tests of mean estimates.*

7.4.1 Multivariate Tests: HIV/AIDS Information

Repeated measures MANOVA was used to test the hypothesis described in **Section 7.3.1** for significant differences between the schools and the different time periods with respect to HIV/AIDS information where the 23 items of the HIV comprised the dependent variables in the multivariate analyses. The independent variables comprised the within subjects variable time, the between subjects variable school and the interaction between them. In this case, multivariate tests between the schools and the different time periods were performed at a 5% level of significance.

Table 7.2 HIV/AIDS Information: Multivariate tests for significant differences for Between and Within Subjects effects

Effect			Value	F	Hypothesis df	Error df	Sig.
Between Subjects							
	School	Pillai's Trace	.235	1.901[a]	23.000	142.000	.012
		Wilks' Lambda	.765	1.901[a]	23.000	142.000	.012
		Hotelling's Trace	.308	1.901[a]	23.000	142.000	.012
		Roy's Largest Root	.308	1.901[a]	23.000	142.000	.012
Within Subjects	Time	Pillai's Trace	.833	6.953[a]	69.000	96.000	.000
		Wilks' Lambda	.167	6.953[a]	69.000	96.000	.000
		Hotelling's Trace	4.998	6.953[a]	69.000	96.000	.000
		Roy's Largest Root	4.998	6.953[a]	69.000	96.000	.000
	Time * School	Pillai's Trace	.510	1.447[a]	69.000	96.000	.047
		Wilks' Lambda	.490	1.447[a]	69.000	96.000	.047
		Hotelling's Trace	1.040	1.447[a]	69.000	96.000	`.047
		Roy's Largest Root	1.040	1.447[a]	69.000	96.000	.047

Table 7.2 shows results for the multivariate tests on HIV/AIDS information. Significant differences were observed on all the effects, such as time and time interaction with school in relation to *within subject effects* and on the schools with respect to *between subject effects.*

7.4.2 Test of Assumptions: HIV/AIDS Information

Data on the HIV/AIDS information were evaluated for validity and whether it satisfied required assumptions before it was analysed. The assumptions included Sphericity, level of measurement, random sampling, independency and homogeneity of variance.

Table 7.3 Mauchly's Test of Sphericity: HIV/AIDS Information

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	Item 1	.781	40.256	5	.000	.880	.902	.333
	Item 2	.848	26.910	5	.000	.907	.930	.333
	Item 3	.880	20.805	5	.001	.928	.951	.333
	Item 4	.776	41.293	5	.000	.866	.887	.333
	Item 5	.784	39.654	5	.000	.867	.887	.333
	Item 6	.751	46.583	5	.000	.862	.882	.333
	Item 7	.898	17.497	5	.004	.943	.967	.333
	Item 8	.953	7.903	5	.162	.971	.996	.333
	Item 9	.915	14.417	5	.013	.945	.969	.333
	Item 10	.969	5.143	5	.399	.981	1.000	.333
	Item 11	.959	6.742	5	.241	.974	1.000	.333
	Item 12	.975	4.162	5	.526	.984	1.000	.333
	Item 13	.966	5.615	5	.346	.977	1.000	.333
	Item 14	.969	5.104	5	.403	.979	1.000	.333
	Item 15	.912	14.938	5	.011	.946	.970	.333
	Item 16	.955	7.488	5	.187	.968	.994	.333
	Item 17	.981	3.163	5	.675	.987	1.000	.333
	Item 18	.840	28.452	5	.000	.900	.922	.333
	Item 19	.904	16.371	5	.006	.934	.958	.333
	Item 20	.980	3.313	5	.652	.986	1.000	.333
	Item 21	.906	16.057	5	.007	.940	.964	.333
	Item 22	.911	15.135	5	.010	.939	.963	.333
	Item 23	.888	19.359	5	.002	.926	.949	.333

Table 7.3 shows Mauchly's Test of Sphericity which assesses the validity of the sphericity assumption that underlies repeated measures analysis of variance (ANOVA). The sphericity assumption is the assumption that the difference scores of paired levels of the repeated measures factor have equal population variance (Mauchly and John 1940). If the test is significant ($p \leq 0.01$) the epsilon (Greenhouse-Geisser, Huynh-Feldt and Lower-bound) is used to adjust the degrees of freedom for the averaged tests of significance. The values for the skewness (-.095) and kurtosis -0.351 of the sum scale are both close to zero; therefore, it can be concluded that the values for the sum scale are more or less normally distributed in the sample.

Cronbach's α (alpha) is a coefficient of reliability. It is used as a measure of the internal consistency or reliability of test scores in a sample (Cronbach, 1951). The Cronbach's alpha of 0.781 obtained for this data can therefore be interpreted as, that 78% of the variability in the sum score is true score variability, that is, true variability between respondents concerning their levels of HIV-risk reduction.

7.4.3 Univariate Tests: HIV/AIDS Information

Univariate tests were used to test for differences in the views of learners during the four testing periods on each item. The fours testing periods are here referred to as Time and represent the single independent categorical variable.

Table 7.4 Univariate tests for HIV Information: Within Subject effect of Time and Time interaction with School.

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time	Item 1	Sphericity Assumed	95.217	3	31.739	24.230	.000
		Greenhouse-Geisser	95.217	2.641	36.054	24.230	.000
		Huynh-Feldt	95.217	2.705	35.207	24.230	.000
		Lower-bound	95.217	1.000	95.217	24.230	.000
	Item 2	Sphericity Assumed	74.078	3	24.693	20.589	.000
		Greenhouse-Geisser	74.078	2.722	27.219	20.589	.000
		Huynh-Feldt	74.078	2.789	26.563	20.589	.000
		Lower-bound	74.078	1.000	74.078	20.589	.000
	Item 3	Sphericity Assumed	136.053	3	45.351	34.952	.000
		Greenhouse-Geisser	136.053	2.784	48.875	34.952	.000
		Huynh-Feldt	136.053	2.854	47.673	34.952	.000
		Lower-bound	136.053	1.000	136.053	34.952	.000
	Item 4	Sphericity Assumed	34.631	3	11.544	12.606	.000
		Greenhouse-Geisser	34.631	2.599	13.324	12.606	.000
		Huynh-Feldt	34.631	2.661	13.015	12.606	.000
		Lower-bound	34.631	1.000	34.631	12.606	.001
	Item 5	Sphericity Assumed	12.655	3	4.218	7.286	.000
		Greenhouse-Geisser	12.655	2.601	4.866	7.286	.000
		Huynh-Feldt	12.655	2.662	4.753	7.286	.000
		Lower-bound	12.655	1.000	12.655	7.286	.008
	Item 6	Sphericity Assumed	27.065	3	9.022	11.677	.000
		Greenhouse-Geisser	27.065	2.585	10.471	11.677	.000
		Huynh-Feldt	27.065	2.646	10.230	11.677	.000
		Lower-bound	27.065	1.000	27.065	11.677	.001
	Item 7	Sphericity Assumed	132.270	3	44.090	38.456	.000
		Greenhouse-Geisser	132.270	2.828	46.779	38.456	.000
		Huynh-Feldt	132.270	2.900	45.613	38.456	.000
		Lower-bound	132.270	1.000	132.270	38.456	.000

Table 7.4 continued: Univariate tests for HIV Information: Within Subject effect of Time and Time interaction with School.

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time	Item 8	Sphericity Assumed	57.233	3	19.078	8.546	.000
		Greenhouse-Geisser	57.233	2.912	19.652	8.546	.000
		Huynh-Feldt	57.233	2.989	19.150	8.546	.000
		Lower-bound	57.233	1.000	57.233	8.546	.004
	Item 9	Sphericity Assumed	26.133	3	8.711	4.557	.004
		Greenhouse-Geisser	26.133	2.834	9.221	4.557	.004
		Huynh-Feldt	26.133	2.907	8.991	4.557	.004
		Lower-bound	26.133	1.000	26.133	4.557	.034
	Item 10	Sphericity Assumed	77.294	3	25.765	15.133	.000
		Greenhouse-Geisser	77.294	2.942	26.269	15.133	.000
		Huynh-Feldt	77.294	3.000	25.765	15.133	.000
		Lower-bound	77.294	1.000	77.294	15.133	.000
	Item 11	Sphericity Assumed	12.102	3	4.034	1.889	.130
		Greenhouse-Geisser	12.102	2.922	4.142	1.889	.132
		Huynh-Feldt	12.102	2.999	4.035	1.889	.130
		Lower-bound	12.102	1.000	12.102	1.889	.171
	Item 12	Sphericity Assumed	22.571	3	7.524	3.144	.025
		Greenhouse-Geisser	22.571	2.951	7.649	3.144	.026
		Huynh-Feldt	22.571	3.000	7.524	3.144	.025
		Lower-bound	22.571	1.000	22.571	3.144	.078
	Item 13	Sphericity Assumed	26.511	3	8.837	5.097	.002
		Greenhouse-Geisser	26.511	2.932	9.043	5.097	.002
		Huynh-Feldt	26.511	3.000	8.837	5.097	.002
		Lower-bound	26.511	1.000	26.511	5.097	.025
	Item 14	Sphericity Assumed	18.446	3	6.149	4.234	.006
		Greenhouse-Geisser	18.446	2.938	6.278	4.234	.006
		Huynh-Feldt	18.446	3.000	6.149	4.234	.006
		Lower-bound	18.446	1.000	18.446	4.234	.041
	Item 15	Sphericity Assumed	44.036	3	14.679	9.136	.000
		Greenhouse-Geisser	44.036	2.838	15.518	9.136	.000
		Huynh-Feldt	44.036	2.911	15.130	9.136	.000
		Lower-bound	44.036	1.000	44.036	9.136	.003
	Item 16	Sphericity Assumed	74.474	3	24.825	15.484	.000
		Greenhouse-Geisser	74.474	2.905	25.635	15.484	.000
		Huynh-Feldt	74.474	2.981	24.981	15.484	.000
		Lower-bound	74.474	1.000	74.474	15.484	.000
	Item 17	Sphericity Assumed	67.554	3	22.518	12.480	.000
		Greenhouse-Geisser	67.554	2.960	22.822	12.480	.000
		Huynh-Feldt	67.554	3.000	22.518	12.480	.000
		Lower-bound	67.554	1.000	67.554	12.480	.001
	Item 18	Sphericity Assumed	51.233	3	17.078	16.603	.000
		Greenhouse-Geisser	51.233	2.701	18.967	16.603	.000
		Huynh-Feldt	51.233	2.767	18.513	16.603	.000
		Lower-bound	51.233	1.000	51.233	16.603	.000
	Item 19	Sphericity Assumed	6.006	3	2.002	1.052	.369
		Greenhouse-Geisser	6.006	2.803	2.143	1.052	.366
		Huynh-Feldt	6.006	2.874	2.090	1.052	.367
		Lower-bound	6.006	1.000	6.006	1.052	.306

Table 7.4 continued: Univariate tests for HIV Information: Within Subject effect of Time and Time interaction with School.

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time	Item 20	Sphericity Assumed	26.560	3	8.853	4.482	.004
		Greenhouse-Geisser	26.560	2.959	8.977	4.482	.004
		Huynh-Feldt	26.560	3.000	8.853	4.482	.004
		Lower-bound	26.560	1.000	26.560	4.482	.036
	Item 21	Sphericity Assumed	62.566	3	20.855	15.916	.000
		Greenhouse-Geisser	62.566	2.820	22.187	15.916	.000
		Huynh-Feldt	62.566	2.892	21.635	15.916	.000
		Lower-bound	62.566	1.000	62.566	15.916	.000
	Item 22	Sphericity Assumed	19.873	3	6.624	2.805	.039
		Greenhouse-Geisser	19.873	2.816	7.057	2.805	.043
		Huynh-Feldt	19.873	2.888	6.882	2.805	.041
		Lower-bound	19.873	1.000	19.873	2.805	.096
	Item 23	Sphericity Assumed	3.283	3	1.094	.548	.650
		Greenhouse-Geisser	3.283	2.777	1.182	.548	.636
		Huynh-Feldt	3.283	2.847	1.153	.548	.640
		Lower-bound	3.283	1.000	3.283	.548	.460
Time * School	Item 1	Sphericity Assumed	3.307	3	1.102	.842	.472
		Greenhouse-Geisser	3.307	2.641	1.252	.842	.459
		Huynh-Feldt	3.307	2.705	1.223	.842	.462
		Lower-bound	3.307	1.000	3.307	.842	.360
	Item 2	Sphericity Assumed	2.367	3	.789	.658	.578
		Greenhouse-Geisser	2.367	2.722	.870	.658	.564
		Huynh-Feldt	2.367	2.789	.849	.658	.567
		Lower-bound	2.367	1.000	2.367	.658	.418
	Item 3	Sphericity Assumed	5.812	3	1.937	1.493	.216
		Greenhouse-Geisser	5.812	2.784	2.088	1.493	.218
		Huynh-Feldt	5.812	2.854	2.036	1.493	.217
		Lower-bound	5.812	1.000	5.812	1.493	.224
	Item 4	Sphericity Assumed	3.583	3	1.194	1.304	.272
		Greenhouse-Geisser	3.583	2.599	1.378	1.304	.273
		Huynh-Feldt	3.583	2.661	1.346	1.304	.273
		Lower-bound	3.583	1.000	3.583	1.304	.255
	Item 5	Sphericity Assumed	3.752	3	1.251	2.160	.092
		Greenhouse-Geisser	3.752	2.601	1.442	2.160	.101
		Huynh-Feldt	3.752	2.662	1.409	2.160	.100
		Lower-bound	3.752	1.000	3.752	2.160	.144
	Item 6	Sphericity Assumed	4.077	3	1.359	1.759	.154
		Greenhouse-Geisser	4.077	2.585	1.577	1.759	.162
		Huynh-Feldt	4.077	2.646	1.541	1.759	.161
		Lower-bound	4.077	1.000	4.077	1.759	.187
	Item 7	Sphericity Assumed	8.896	3	2.965	2.586	.052
		Greenhouse-Geisser	8.896	2.828	3.146	2.586	.056
		Huynh-Feldt	8.896	2.900	3.068	2.586	.055
		Lower-bound	8.896	1.000	8.896	2.586	.110
	Item 8	Sphericity Assumed	5.245	3	1.748	.783	.504
		Greenhouse-Geisser	5.245	2.912	1.801	.783	.500
		Huynh-Feldt	5.245	2.989	1.755	.783	.503
		Lower-bound	5.245	1.000	5.245	.783	.377
	Item 9	Sphericity Assumed	4.464	3	1.488	.778	.506
		Greenhouse-Geisser	4.464	2.834	1.575	.778	.500
		Huynh-Feldt	4.464	2.907	1.536	.778	.503
		Lower-bound	4.464	1.000	4.464	.778	.379

Table 7.4 continued: Univariate tests for HIV Information: Within Subject effect of Time and Time interaction with School.

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time * School	Item 10	Sphericity Assumed	8.330	3	2.777	1.631	.181
		Greenhouse-Geisser	8.330	2.942	2.831	1.631	.182
		Huynh-Feldt	8.330	3.000	2.777	1.631	.181
		Lower-bound	8.330	1.000	8.330	1.631	.203
	Item 11	Sphericity Assumed	18.229	3	6.076	2.845	.037
		Greenhouse-Geisser	18.229	2.922	6.238	2.845	.039
		Huynh-Feldt	18.229	2.999	6.078	2.845	.037
		Lower-bound	18.229	1.000	18.229	2.845	.094
	Item 12	Sphericity Assumed	2.306	3	.769	.321	.810
		Greenhouse-Geisser	2.306	2.951	.781	.321	.807
		Huynh-Feldt	2.306	3.000	.769	.321	.810
		Lower-bound	2.306	1.000	2.306	.321	.572
	Item 13	Sphericity Assumed	5.800	3	1.933	1.115	.342
		Greenhouse-Geisser	5.800	2.932	1.978	1.115	.342
		Huynh-Feldt	5.800	3.000	1.933	1.115	.342
		Lower-bound	5.800	1.000	5.800	1.115	.293
	Item 14	Sphericity Assumed	1.578	3	.526	.362	.780
		Greenhouse-Geisser	1.578	2.938	.537	.362	.776
		Huynh-Feldt	1.578	3.000	.526	.362	.780
		Lower-bound	1.578	1.000	1.578	.362	.548
	Item 15	Sphericity Assumed	2.464	3	.821	.511	.675
		Greenhouse-Geisser	2.464	2.838	.868	.511	.665
		Huynh-Feldt	2.464	2.911	.847	.511	.669
		Lower-bound	2.464	1.000	2.464	.511	.476
	Item 16	Sphericity Assumed	9.486	3	3.162	1.972	.117
		Greenhouse-Geisser	9.486	2.905	3.265	1.972	.119
		Huynh-Feldt	9.486	2.981	3.182	1.972	.118
		Lower-bound	9.486	1.000	9.486	1.972	.162
	Item 17	Sphericity Assumed	20.199	3	6.733	3.731	.011
		Greenhouse-Geisser	20.199	2.960	6.824	3.731	.012
		Huynh-Feldt	20.199	3.000	6.733	3.731	.011
		Lower-bound	20.199	3.000	6.733	3.731	.011
	Item 18	Sphericity Assumed	1.450	3	.483	.470	.703
		Greenhouse-Geisser	1.450	2.701	.537	.470	.683
		Huynh-Feldt	1.450	2.767	.524	.470	.688
		Lower-bound	1.450	1.000	1.450	.470	.494
	Item 19	Sphericity Assumed	10.446	3	3.482	1.830	.141
		Greenhouse-Geisser	10.446	2.803	3.727	1.830	.145
		Huynh-Feldt	10.446	2.874	3.634	1.830	.143
		Lower-bound	10.446	1.000	10.446	1.830	.178
	Item 20	Sphericity Assumed	1.675	3	.558	.283	.838
		Greenhouse-Geisser	1.675	2.959	.566	.283	.835
		Huynh-Feldt	1.675	3.000	.558	.283	.838
		Lower-bound	1.675	1.000	1.675	.283	.596
	Item 21	Sphericity Assumed	1.241	3	.414	.316	.814
		Greenhouse-Geisser	1.241	2.820	.440	.316	.802
		Huynh-Feldt	1.241	2.892	.429	.316	.807
		Lower-bound	1.241	1.000	1.241	.316	.575
	Item 22	Sphericity Assumed	8.169	3	2.723	1.153	.327
		Greenhouse-Geisser	8.169	2.816	2.901	1.153	.326
		Huynh-Feldt	8.169	2.888	2.829	1.153	.327
		Lower-bound	8.169	1.000	8.169	1.153	.285
	Item 23	Sphericity Assumed	11.789	3	3.930	1.968	.118
		Greenhouse-Geisser	11.789	2.777	4.245	1.968	.123
		Huynh-Feldt	11.789	2.847	4.141	1.968	.121
		Lower-bound	11.789	1.000	11.789	1.968	.163

Table 7.4 displays the univariate tests for the within-subjects factors of Time and time interaction with school. The sums of squares are computed by taking the trace of the appropriate hypothesis or error SSCP matrix, assuming a polynomial transformation. In cases where the test associated with Sphericity Assumed is met ($p \leq 0.01$), the assumption about the covariance matrix is met. The F statistic is evaluated using the original degrees of freedom. However, the Greenhouse-Geisser, Huynh-Feldt, or Lower-bound test are used when the covariance matrix assumption is not met ($p > 0.01$), There were significant differences on the knowledge of information for all the items except for item 11, item 19 and item 23. With respect to the different testing times whereas when time and school interaction was considered significant differences were only observed on items 11 and 17.

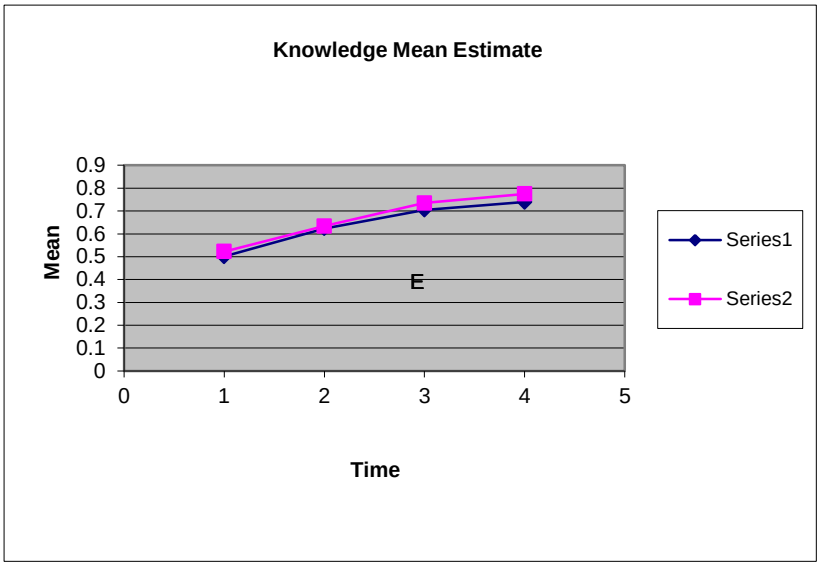
7.4.4 Paired *t*-tests of Mean Estimates: HIV/AIDS Information

The "mean" is the sum of the scores divided by the number of scores (Howell, 1999). This part of the chapter analyses the mean estimates of the scores of learners at the two participating schools on different variables during the four testing times. In this study, *t-tests* were used to assess whether the means of the two groups (School 1 and School 2) were statistically significant, or whether the differences were only due to chance.

For both schools, *t-values* reported compare means before and after the intervention, such as time points 1 and 2, 1 and 3, 1 and 4, as well adjacent mean values, like time points 2 and 3, and 3 and 4. In addition, *p-values* (probability values) whose alpha levels were from zero to 0.05 and less were also used to show the statistical significance or non-significance of given results. The effectiveness of the intervention was identified through establishing *t-values* (differences between the means) and *p-values*.

Before analysing mean estimates of individual items falling under HIV/AIDS information, motivation and behavioural skills in this study, overall mean estimates of each of these variables will be examined.

Figure 7.2 Overall mean estimates for *HIV/AIDS Information* for Schools ES and CS



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.2** shows the overall mean estimates of the scores on HIV/AIDS information at both participating schools in the four testing times. Although the trend of patterns on the graph is not quite consistent with those hypothesized, the patterns demonstrate a persistent rise in the scores after the intervention. This rise is further evidenced in the t-test results shown on **Table 7.5** and **Table 7.6.**

Table 7.5 School 1 (ES): T-test results for overall mean estimates on *HIV/AIDS Information*

Times	Means	t-value	p-value
Time 1 *Time 2*	0.501 0.620	-13.78	<.0001*
Time 2 *Time 3*	0.620 0.700	-9.28	<.0001*
Time 3 *Time 4*	0.700 0.740	-3.9	<.0001*
Time 1 *Time 3*	0.501 0.700	-22.91	<.0001*
Time 1 *Time 4*	0.501 0.740	-26.75	<.0001*
Time 2 *Time 4*	0.620 0.740	-13.19	<.0001*

*Significant at the 0.0001 probability level

Table 7.5 shows t-test results for overall mean estimates on HIV/AIDS information at School 1 (ES). According to this table, differences between mean scores at all time points were statistically significant, with a *p*-value of <.0001. The scores rose at Time 2, as a result of the intervention between Times 1 and 2, and remained at high levels at Times 3 and 4. This pattern is consistent with the stated hypothesis.

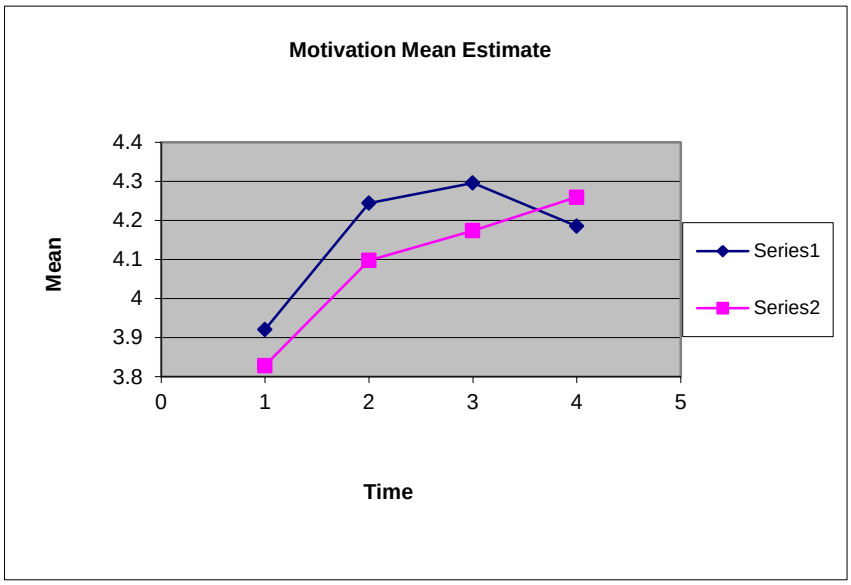
Table 7.6 School 2 (CS): T-test results for overall mean estimates on *HIV/AIDS Information*

Times	Means	t-value	p-value
Time 1 *Time 2*	0.523 0.634	-12.84	<.0001*
Time 2 *Time 3*	0.634 0.735	-12.17	<.0001*
Time 3 *Time 4*	0.735 0.780	-4.81	<.0001*
Time 1 *Time 3*	0.523 0.735	-24.74	<.0001*
Time 1 *Time 4*	0.523 0.780	-29.32	<.0001*
Time 2 *Time 4*	0.634 0.780	-16.91	<.0001*

*Significant at the 0.0001 probability level

Table 7.6 shows t-test results for overall mean estimates on HIV/AIDS information at School 2 (CS). A rise in the mean score at Time 2, inconsistent with the hypothesis, may not be attributed to any intervention at that school. However, a persistent increase in the scores was noticed after the intervention between Times 2 and 3 at this school. This pattern was maintained at Time 4, consistent with what was hypothesized. More importantly, the increases were statistically significant, all with a p-value of <.0001.

Figure 7.3 Overall mean estimates for *Motivation* for Schools ES and CS



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.3** illustrates the overall mean estimates for motivation for both participating schools at different time points. Although the pattern emerging from the graph is that of a steady increase in the scores after the interventions at both schools, it is not reflective of the hypothesized pattern. **Table 7.4** and **Table 7.5** show, more specifically, statistical details of these increases.

Table 7.7 School 1 (ES): T-test results for overall mean estimates on *Motivation*

Times	Means	t-value	p-value
Time 1 *Time 2*	3.921 4.245	-3.62	0.0003**
Time 1 *Time 3*	3.921 4.296	-4.18	<.0001*
Time 1 *Time 4*	3.921 4.185	-2.96	0.003**
Time 2 *Time 3*	4.245 4.296	-0.58	0.564
Time 2 *Time 4*	4.245 4.185	-0.67	0.503
Time 3 *Time 4*	4.296 4.185	1.25	0.213

*Significant at the 0.0001 probability level

**Significant at the 0.05 probability level

Table 7.7 illustrates t-test results for overall mean estimates on motivation at School 1 (ES).

While not all mean scores were statistically significant, statistically significant differences were noticed in three instances. For example, the difference between the mean score at Time 1 (*mean* = 3.921) and Time 2 (*mean* = 4.245) was a *t-value* of -3.62, and a *p-value* of 0.0003. Also, the difference between the mean score at Time 1 (*mean* = 3.921) and Time 4 (*mean* = 4.185), was a *t-value* of -2.96, and a *p-value* of 0.003.

Most noticeably, the difference between the mean score at Time 1 (*mean* = 3.921) and Time 3 (*mean* = 4.296) was a *t-value* of -4.18, with a *p-value* of <.0001.

Table 7.8 School 2 (CS): T-test results for overall mean estimates on *Motivation*

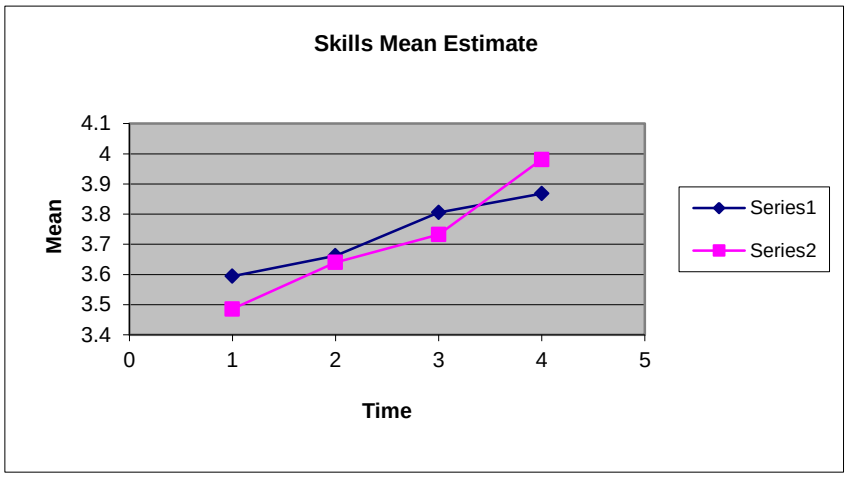
Times	Means	t-value	p-value
Time 1 *Time 2*	3.828 4.098	-3.14	0.0017**
Time 1 *Time 3*	3.828 4.174	-4.03	<.0001*
Time 1 *Time 4*	3.828 4.260	-5.03	<.0001*
Time 2 *Time 3*	4.098 4.174	-0.89	0.371
Time 2 *Time 4*	4.098 4.260	-1.9	0.058
Time 3 *Time 4*	4.174 4.260	-1	0.316

*Significant at the 0.0001 probability level

**Significant at the 0.05 probability level

Table 7.8 illustrates *t-test* results for overall mean estimates on motivation at School 2 (CS). As in Table 7.7, **Table 7.8** shows that statistically significant differences were noticed in only three instances. For example, the difference between the mean score at Time 1 (*mean* = 3.828) and Time 2 (*mean* = 4.098) was a *t-value* of -3.14, and a *p-value* of 0.0017. In addition, the table shows differences between mean scores at Time 1 (*mean* = 3.828) and Time 3 (*mean* = 4.174; *t-value* = -4.03), and Time 1 (*mean* = 3.828) and Time 4 (*mean* = 4.260; *t-value* = -5.03), both with a *p-value* of <.0001.

. **Figure 7.4** Overall Mean Estimates for *Behavioural Skills* for Schools ES and CS



KEY:

Blue –School 1 (ES)

Pink –School 2 (CS)

The graph on **Figure 7.4** shows the overall mean estimates of the scores on the behavioural skills of learners at both participating schools in the four testing times. Although the trend of patterns on the graph indicates a rise in the scores after the interventions, the pattern is not consistent with what was hypothesized. T-test results shown on **Table 7.6** and **7.7** further illustrate this trend.

Table 7.9 School 1 (ES): T-test results for overall mean estimates on *Behavioural Skills*

Times	Means	t-value	p-value
Time 1 *Time 2*	3.595 3.663	-0.69	0.490
Time 2 *Time 3*	3.663 3.806	-1.44	0.150
Time 3 *Time 4*	3.806 3.868	-0.63	0.527
Time 1 *Time 3*	3.595 3.806	-2.13	0.033*
Time 1 *Time 4*	3.595 3.868	-2.76	0.006*
Time 2 *Time 4*	3.663 3.868	-2.07	0.039*

*Significant at the 0.05probability level

Table 7.9 illustrates *t-test* results for overall mean estimates on learners' behavioural skills at School 1 (ES). The table shows three instances where statistically significant differences were noticeable. For example, the difference between the mean score at Time 1 (*mean* = 3.595) and Time 3 (*mean* = 3.806) was a *t-value* of -2.13, and a *p-value* of 0.033. Again, the difference between Time 1 (*mean* = 3.595) and Time 4 (*mean* = 3.868) was a *t-value* of -2.76, with a *p-value* of 0.006. Finally, the difference between the mean score at Time 2 (*mean* = 3.663) and at Time 4 (*mean* = 3.868) was a *t-value* of -2.07, and a *p-value* of 0.039.

Table 7.10 School 2 (CS): T-test results for overall mean estimates on *Behavioural Skills*

Times	Means	t-value	p-value
Time 1 *Time 2*	3.486 3.640	-1.63	0.103
Time 2 *Time 3*	3.640 3.733	-0.98	0.327
Time 3 *Time 4*	3.733 3.981	-2.63	0.009**
Time 1 *Time 3*	3.486 3.733	-2.62	0.009**
Time 1 *Time 4*	3.486 3.981	-5.22	<.0001*
Time 2 *Time 4*	3.640 3.981	-3.6	0.0003**

*Significant at the 0.0001 probability level

** Significant at the 0.05 probability level

Table 7.10 illustrates *t-test* results for overall mean estimates on learners' behavioural skills at School 1 (CS). The table shows only two instances where differences between mean scores were not statistically significant. Firstly, the difference between the mean score at Time 1 (*mean* = 3.486) and Time 2 (*mean* = 3.640) was a *t-value* of -1.63, and a *p-value* of 0.103. Secondly, the difference between the mean score at Time 2 (*mean* = 3.640) and Time 3 (*mean* = 3.733) was a *t-value* of -0.98, with a *p-value* of 0.327.

Differences between mean scores at Times 3 and 4, and Times 1 and 3, both show *p-values* of 0.009, which were statistically significant. The difference between the mean scores at Time 2 (*mean* = 3.640) and Time 4 (*mean* = 3.981) was a *t-value* of -3.6, and a *p-value* of 0.0003. Most importantly, the difference between the mean scores at Time 1 (*mean* = 3.486) and Time 4 (*mean* = 3.981) was a *t-value* of -5.22, and a *p-value* of <.0001.

7.5 Findings on HIV/AIDS Information

7.5.1 Introduction

As was indicated earlier in the study, after the baseline (pre-test) assessment, Grade 11 learners at both participating schools underwent a one-week long session on HIV/AIDS information. Among other issues, HIV transmission, signs and symptoms of HIV, testing for HIV, and prevention of HIV, were all discussed during the week-long intervention. After the intervention, learners at School 1 (ES) were tested on their knowledge about HIV/AIDS (Time 2).

Participating learners at School 2 (CS) had a similar intervention between Times 2 and 3 and had their HIV/AIDS knowledge tested after the intervention at Time 3. The results of the intervention at both schools are presented in **Table 7.8**.

Table 7.11 Pre- and Post-intervention Percentage Results on HIV/AIDS Information

		School 1 (ES) *(n = 136)*		School 2 (CS) *(n = 123)*		CHANGE	
	HIV/AIDS INFORMATION ITEMS	**Time 1** *(Before Intervention)*	**Time 2** *(After Intervention)*	**Time 2** *(Before Intervention)*	**Time 3** *(After Intervention)*	**Sch. 1 (ES)**	**Sch. 2 (CS)**
1.	You may be HIV infected by someone you love or trust	64.8%	79.7%	82.8%	88.2%	14.9%	5.4%
2.	One's looks do not tell whether they are infected or not	60.7%	82.0%	79.3%	89.7%	21.3%	10.4%
3.	HIV infection is not for homosexuals and drug addicts only	40.2%	65.9%	66.7%	79.4%	25.7%	12.7%
4.	Use a condom even if you know someone very well	82.8%	87.8%	83.7%	90.4%	5.0%	6.7%
5.	Use condoms even in single relationships	84.4%	92.7%	88.2%	94.9%	8.3%	6.7%
6.	Even non-drug-using lovers may infect you with HIV	79.5%	86.2%	88.1%	93.3%	6.7%	5.2%
7.	One's actions cannot tell if you will be infected by them	51.2%	63.4%	61.2%	80.0%	12.2%	18.8%
8.	Condomise in one night stands and in real relationships	18.8%	23.0%	33.3%	41.0%	4.2%	7.7%
9.	Latex condoms (rubbers) can protect you from getting HIV	39.8%	55.4%	54.9%	66.4%	15.5%	11.5%
10.	Vaseline/baby oil should never be used with condoms	40.5%	56.1%	66.7%	79.4%	15.6%	12.7%
11.	Avoid storing condoms in your wallet for long periods	25.9%	33.3%	53.3%	57.9%	7.5%	4.6%
12.	Avoiding sexual intercourse can help protect from HIV	35.0%	36.9%	39.8%	44.4%	1.8%	4.6%
13.	HIV can be transmitted through breastfeeding	59.3%	68.9%	71.9%	83.1%	9.5%	11.2%
14.	HIV can be transmitted by sharing a needle	77.1%	79.5%	77.0%	84.3%	2.4%	7.3%
15.	Pulling out before ejaculating cannot prevent HIV infection	25.6%	45.8%	44.0%	64.7%	20.1%	20.7%
16.	Mothers can protect their babies from HIV infection	54.3%	75.6%	65.5%	83.1%	21.3%	17.6%
17.	HIV testing a day after sex cannot prove your HIV status	29.1%	42.3%	54.5%	67.6%	13.2%	13.2%
18.	One cannot be infected by HIV through knives, forks or glasses	67.5%	84.6%	85.1%	93.4%	17.0%	8.3%
19.	One cannot be infected by HIV through kissing an infected person	56.1%	60.2%	56.3%	71.1%	4.0%	14.8%
20.	There is no medicine that can completely cure AIDS	59.5%	72.1%	79.1%	81.6%	12.6%	2.5%
21.	Use condoms always, not just for first time sex	24.1%	29.3%	37.8%	44.9%	5.2%	7.1%
22.	Fewer sex partners will protect you from HIV infection	68.1%	74.4%	63.0%	71.3%	6.3%	8.4%

Table 7.11 shows the results of the intervention at both schools in percentage form, comparing the pre- and post-intervention results. Specifically, the table shows a list of 22 items on HIV/AIDS information. These items represent the facts on which the knowledge of the learners was tested before and after the intervention at each school.

For School 1 (ES), the percentage numbers of learners found to be knowledgeable about each item before the intervention are recorded in the *Time 1* column. Percentage numbers of learners knowledgeable after the intervention are recorded in the *Time 2* column. Similarly, for School 2 (CS), percentage numbers of learners found to be knowledgeable before the intervention are recorded in the *Time 2* column, while those knowledgeable after the intervention are in the *Time 3* column. The last two columns of the table show the percentage increases of the number of learners knowledgeable about individual items at each school after the intervention.

In this section, percentage scores shown on **Table 7.11** on HIV/AIDS information levels before the interventions at each of the participating schools were analysed. Pre- and post-intervention percentage scores at each school were then compared to determine the effect of the intervention on the learners' HIV/AIDS information levels.

7.5.2 Pre-intervention levels of HIV/AIDS Information: School 1 (ES)

High levels of HIV/AIDS Information

According to **Table 7.11,** learners at School 1 (ES) already had high levels of certain aspects of HIV/AIDS information before the intervention. The table shows four leading items of information well-known by learners.

For instance, for *Item 5* of the questionnaire, learners were asked to state whether it was true or false that one should not use a condom for HIV protection if one was in a relationship with just one person, even if that person had unprotected sex with other people before. In their response before the intervention (Time 1), 84.4% of the learners knew the fact that condoms must be used even in single relationships.

Item 4 of the questionnaire tested learners on whether it was true or false that, if one knew a person very well, one did not need to use a condom for HIV protection. Before the intervention (Time 1), 82.8% of the respondents knew the fact that condoms must be used even if one knew someone very well.

For *Item 6* of the questionnaire, respondents were expected to say whether it was true or false that one should not worry about HIV infection from a lover who is not a drug user. In their response before the intervention, 79.5% of the learners agreed with the fact that even non-drug-using lovers might infect them with HIV.

Item 14 of the questionnaire asked learners to say whether it was true or false that one can get HIV by sharing a needle with someone who has it. Before the intervention (Time 1), 77.1% of the respondents knew that HIV can be transmitted by sharing a needle.

Low levels of HIV/AIDS Information

Table 7.11 also reveals some important knowledge/information gaps existing among learners at School 1 (ES) before the intervention. According to the table, when asked if it was more important to use condoms in one night stands and flings than in real relationships (*Item 8* of the questionnaire), only 18.8% of the learners knew that condoms must be used in both one night stands and in real relationships (between unmarried people).

The table shows other items where learners demonstrated little information about HIV/AIDS before the intervention. The table also shows increases in the learners' information after the intervention. For instance, before the intervention, for *item 21*, only 24.1% knew that condoms must be used always, not just for first time sex.

For *item 15*, before the intervention, only 25.6% knew the fact that "pulling out" before the male ejaculates cannot prevent the spread of HIV. However, after the intervention, this percentage increased to 45.8%, showing a change of 20.2%. For *item 11*, 25.9%

knew that condoms should not be stored in one's wallet for lengthy periods of time before the intervention.

Before the intervention, for *item 17,* 29.1% knew that having an HIV test a day after sex cannot accurately prove one's HIV status. After the intervention, the percentage went up to 42.3%, with a 13.2% change. For *item 12,* before the intervention, 35.0% knew that not having sexual intercourse can help protect one from getting HIV. This percentage increased slightly to 36.9% after the intervention, reflecting a 1.8% change. Before the intervention, for *item 9,* only 39.8% knew that latex condoms (rubbers) can protect one from getting HIV.

The table shows another big increase in the percentage score where, before the intervention, for *item 10,* only 40.5% of the learners knew that Vaseline/baby oil should never be used with condoms.

7.5.3 Pre-intervention levels of HIV/AIDS Information: School 2 (CS)

High levels of HIV/AIDS Information

As in School 1 (ES), learners at School 2 (CS) possessed significant amounts of HIV/AIDS information before the intervention (Time 1).

On *item 5* of the questionnaire, where learners were expected to say whether it was true or false that one did not have to use a condom for HIV protection if one had a relationship with just one person, even if that person had unprotected sex with other people, as many as 88.2% of the respondents accepted, before the intervention, that condoms must be used even in single relationships.

For *item 6* of the questionnaire, respondents were asked to say whether it was true or false that one should not worry about HIV infection from a lover who was not a drug user. In their responses before the intervention, 88.1% of the learners agreed with that even non-drug-using lovers might infect them with HIV.

Item 18 of the questionnaire required respondents to state whether it was true or false that some people had acquired HIV by sharing forks, knives or glasses with people who had AIDS. Of the respondents, 85.1% knew, before the intervention, that one cannot be infected with HIV through sharing cutlery with one who has HIV.

For *item 4* of the questionnaire, learners had to say whether it was true or false that, if one knew a person very well, one did not need to use a condom for HIV protection. As many as 83.7% of the learners already knew, before the intervention, that condoms should be used even if one knew someone very well.

The first item (*item 1*) of the questionnaire required learners to say if it was true or false that, if one loved and trusted someone, one did not have to worry about getting HIV from them. The table shows that before the intervention 82.8% of the respondents believed that one may be infected by someone they loved or trusted.

For *item 2* of the questionnaire, the question was whether it was true or false that one could tell whether someone had HIV or AIDS by the way they looked. In their responses before the intervention, 79.3% of the learners agreed that one's looks did not tell whether or not they had HIV or AIDS.

Item 20 of the questionnaire questioned whether it was true or false that there is a medicine that can completely cure AIDS. Among the respondents, 79.1% believed, before the intervention, that at the moment there is no medicine that can completely cure AIDS.

Learners were expected to say, for *item 14* of the questionnaire, whether it was true or false that HIV could be transmitted by sharing a needle. For this item, 77.0% believed (before the intervention) that HIV could6+ be transmitted by sharing a needle.

For *item 13* of the questionnaire, learners were to state if it was true or false that women with HIV could give it to their babies through breast milk. The table shows that, before

the intervention, as many as 71.9% of the respondents accepted the fact that HIV could be transmitted through breast feeding.

Low levels of HIV/AIDS Information

Table 7.8 also shows items where learners at School 2 (CS) had low levels of HIV/AIDS information before the intervention. For instance, learners had the lowest level of knowledge about *item 8.* For this item, learners were expected to state whether it was true or false that it was more important to use condoms in one night stands and flings than in real relationships (between unmarried partners). Results show that, before the intervention, only 33.3% of the learners (the lowest percentage) at this school accepted that condoms must be used in one night stands and flings as well as in real relationships.

Other items where the knowledge/information levels at School 2 (CS) were rather low before the intervention are reflected on the table. For instance, for *item 21,* before the intervention only 37.8% of the respondents believed that condoms must always be used during sex, and not just for first time sex. Before the intervention, for *item 12*, 39.8% knew that avoiding sexual intercourse can help protect from HIV infection. For *item 15*, before the intervention 44% knew that "pulling out" before the male ejaculates could not prevent the spread of HIV.

7.5.4 Post-intervention increases in HIV/AIDS Information: School 1 (ES)

Table 7.8 shows increases in the levels of HIV/AIDS knowledge/information after the intervention at School 1 (ES). In this study, percentage increases ranging from 20.0% to 25.99% are regarded as high post-intervention increases. Low increases are those ranging from 1.0% to 9.99%.

High increases

When comparing 40.2% of learners who knew, before the intervention, that HIV infection was not for homosexuals and drug addicts only *(item 3),* with 65.9% of learners who knew this fact after the intervention, the number of learners with this knowledge rose by 25.7%, the highest increase at this school. When comparing 60.7% (the percentage of learners who knew before the intervention that one's looks did not determine whether they were HIV infected or not) with 82.0% after the intervention, a 21.3% increase is noted.

A similar increase is observed on *item 16,* where 54.3% of the learners before the intervention were aware that mothers could protect their babies from HIV infection, and this percentage rose to 75.6% after the intervention, resulting in a 21.3% increase. Another increase in the percentage of learners is reflected on *item 15*, where, before the intervention, 25.6% of the learners knew that "pulling out" before ejaculating could not prevent the spread of HIV, but rose to 45.8% after the intervention, increasing the percentage of learners by 20.1%.

Low increases

The table also shows the little impact made by the intervention on some aspects of the learners' knowledge about HIV/AIDS. For instance, while the percentage of learners who knew that avoiding sexual intercourse could help protect from HIV infection was 35.0% before the intervention *(item 12*), this percentage rose to 36.9% after the intervention, reflecting the lowest increase of 1.8%. Other low increases are shown as follows:

- for *item 14*, 77.1% knew that HIV can be transmitted by sharing a needle with an infected person - this percentage rose by only 2.4% after the intervention, to 79.5%;

- for *item 19,* 56.1% knew that one cannot be infected by HIV through kissing an HIV infected person – this percentage rose to 60.2% - only a 4.0% increase after the intervention;
- for *item 8,* 18.8% knew that condoms must be used in one night stands and flings – this percentage increased by 4.1% to a percentage of 23.0% after the intervention;
- for *item 4,* 82.8% knew that condoms must be used even if one knew someone very well – this increased to 87.8% after the intervention – a 5.0% increase;
- for *item 21,* 24.1% knew that condoms must be used always, and not just for first time sex – this percentage rose to 29.3% - a 5.1% increase after the intervention;
- for *item 22,* 68.1% knew that having fewer sex partners will protect one from HIV infection – this percentage increased by 6.3% to 74.4% after the intervention;
- for *item 6,* 79.5% knew that even non-drug-using partners may infect them with HIV - this percentage rose to 86.2% - increasing by 6.7% after the intervention;
- for *item 11,* 25.9% knew that condoms must not be stored in a wallet for long periods of time – this percentage increased by 7.5% to a new percentage of 33.3% after the intervention;
- for *item 5,* 84.4% knew that condoms must be used even in single relationships – this percentage increased to 92.7% after the intervention – an 8.3% increase; and
- for *item 13,* 59.3% knew that HIV can be transmitted through breast-feeding – this percentage increased to 68.9%, by 9.5%.

7.5.5 Post-intervention increases in HIV/AIDS information: School 2 (CS)

As in School 1 (ES), high percentage increases are those ranging from 20.0% to 25.99%, while low percentage increases range from 1.0 to 9.99%.

High increases

Table 7.8 shows the highest increase of 20.7% for *item 15* in which, before the intervention, only 44.0% of the learners knew that "pulling out" before ejaculating cannot prevent HIV infection, but rose to 64.7% after the intervention. Although other reasonably high increases were below the 20.0% bracket, they are worth mentioning here. For instance, for *item 7*, where 61.2% of the learners knew, before the intervention, that one's actions cannot tell if you will be infected by them, an 18.8% increase to 80.0% was noted after the intervention. Another notable increase was seen on *item 16*, where the percentage of learners who knew that mothers can protect their babies from HIV infection were 65.5% before the intervention, but rose by 17.6% to 83.1% after the intervention.

Low increases

Table 7.8 also shows that the learners' knowledge levels were not significantly improved by the intervention at School 2 (CS). For instance, for *item 20*, where 79.1% of the learners knew that there was no medicine that could completely cure AIDS before the intervention, only 2.5% more learners ended up knowing this fact after the intervention. For *items 12* and *13*, the percentage of learners knowing that avoiding sexual intercourse can prevent HIV infection, and that HIV can be transmitted through breast-feeding, before the intervention, rose by 4.6% in each case after the intervention.

Other low increases in the percentage number of learners after the intervention were noted on *items 6, 1, 5, 4, 21, 14, 8, 18* and *22.*

7.5.6 Information: Mean Estimates and T-test Results

Table 7.12 School 1 (ES): T-test Results for HIV/AIDS Information

Times	Means	t-value	p-value
Time 1 *Time 2*	0.501 0.620	-13.78	<.0001*
Time 2 *Time 3*	0.620 0.700	-9.28	<.0001*
Time 3 *Time 4*	0.700 0.740	-3.9	<.0001*
Time 1 *Time 3*	0.501 0.700	-22.91	<.0001*
Time 1 *Time 4*	0.501 0.740	-26.75	<.0001*
Time 2 *Time 4*	0.62 0.74	-13.19	<.0001*

*Significant at the 0.0001 probability level

Table 7.12 presents an overall estimate of the mean scores on the levels of HIV/AIDS information at the four testing times among learners at School 1 (ES). In addition, the table provides some statistical detail, such as mean scores, *t*-values and *p*-values in relation to HIV/AIDS information tested. According to **Table 7.12,** Time 1 reflects the mean *before* the intervention, while Times 2, 3 and 4 show means *after* the intervention.

While the means column reflects a general increase in the scores (above 0.501), it is the t-values and p-values that indicate whether the increase was significant or not.

The difference between the means at Time 1 (0.501) and Time 2 (0.62) was a *t-value* of -13.78. The *p-value* was <.0001, showing that the increase at Time 2 was statistically significant. The table also reflects a trend similar to Times 1 and 2 in Times 1 (*mean* = 0.501) and 3 *(mean* = 0.7), and Times 1 (*mean* = 0.501) and 4 (*mean* = 0.74), where scores after the intervention remained higher than scores before the intervention.

The differences between these means is shown as statistically significant, with each pair having a *p*-value of <.0001. **Table 7.12** also shows that the differences between the two pairs of adjacent mean scores for Times 2 (*mean* = 0.62) and 3 (*mean* = 0.7), and Times 3 (*mean* = 0.7) and 4 (*mean* = 0.74) were also statistically significant, with a *p-value* of <.0001.

Table 7.13 School 2 (CS): T-test Results for HIV/AIDS Information

Times	Means	t-value	p-value
Time 1 *Time 2*	0.523 0.634	-12.84	<.0001*
Time 2 *Time 3*	0.634 0.735	-12.17	<.0001*
Time 3 *Time 4*	0.735 0.780	-4.81	<.0001*
Time 1 *Time 3*	0.523 0.735	-24.74	<.0001*
Time 1 *Time 4*	0.523 0.780	-29.32	<.0001*
Time 2 *Time 4*	0.634 0.780	-16.91	<.0001*

*Significant at the 0.0001 probability level

Table 7.13 presents an overall estimate of the mean scores on the levels of HIV/AIDS information at the four testing times among learners at School 2 (CS). As in School 1 (ES), the table provides some statistical detail, such as mean scores, *t-values* and *p-values* in relation to HIV/AIDS information tested.

Unlike School 1 (ES), **Table 7.10** compares mean scores for School 2 (CS) at time points 1 and 2, both of which were obtained *before* the intervention, At time points 1 and 3, 1 and 4, 2 and 3, and 2 and 4, comparisons were between mean scores *before* and *after* the intervention. It was only at Times 3 and 4 where comparisons were between mean scores both obtained after the intervention.

The difference between the means at Time 2 (0.634) and Time 3 (0.735) was a *t-value* of -12.17. The *p-value* was <.0001, showing that the increase at Time 3 was statistically significant. The trend in the increase of scores after the intervention is also observed in Times 2 (*mean* = 0.634) and 4 *(mean* = 0.78), both of which had a *p-value* of <.0001, showing that the intervention was statistically significant. Mean scores at time points 3 (mean = 0.735) and 4 (mean = 0.78) were both obtained after the intervention. The *p-values* of these mean scores was <.0001, also statistically significant.

7.5.7 Summary

Pre- and Post-intervention levels of HIV/AIDS Information among learners

Before the intervention, learners at both participating schools had a high level of HIV/AIDS information. At both schools, learners were very knowledgeable about the use of a condom for HIV protection even if one was in a relationship with just one person *(Item 5).* For most learners at both schools, it was common knowledge that condoms should be used even if one knew someone very well *(Item 4).* Learners at both schools also knew that HIV could be transmitted by sharing a needle *(Item 14).*

There were, however, low levels of HIV/AIDS information among learner participants at the two schools. For instance, at both schools, very few learners knew that:

- condoms must be used in both one night stands and in real relationships (between unmarried people) *(Item 8*);
- condoms must always be used, and not just for first time sex *(Item 21*);

- "pulling out" before the male ejaculates cannot prevent the spread of HIV (*Item 15)*; and
- abstaining from sexual intercourse was a sure way of protecting one from HIV infection *(Item 12*).

Findings in this study show that levels of HIV/AIDS information among learner participants rose significantly after the intervention. For both schools, this increase was particularly noticeable in the learners' knowledge about the fact that "pulling out" before the male ejaculates cannot prevent the spread of HIV. After the intervention, most learners also knew that mothers can protect their babies from HIV infection *(Item 16*). It is interesting to note, however, that the intervention did not result in major increases in various areas of HIV/AIDS knowledge among participating learners. For instance, learners at both schools showed a low percentage increase in their knowledge about:

- the transmission of HIV by sharing a needle with an infected person *(Item 14*);
- the use of condoms in one night stands and flings (*Item 8*);
- the use of condoms even if one knew someone very well (*Item 4*);
- the use of condoms always, and not just for first time sex *(Item 21*);
- protecting oneself from HIV infection by having fewer sex partners (*Item 22*);
- the possibility of being infected by non-drug-using partners *(Item 6)*;
- the use of condoms even in single relationships *(Item 5*); and
- the transmission of HIV through breast-feeding *(Item 13*).

These results indicate that, while adolescent learners in South African township schools have vast amounts of knowledge about HIV/AIDS, important gaps still exist in their knowledge about the epidemic. Before the intervention, learners at both schools were most informed about the use of condoms even in single relationships. On the other hand, learners at both schools were least informed about using condoms in one night stands as well as in real relationships.

Based on the noted increases in the percentages after the intervention, these results reveal positive changes made by the intervention in the learners' knowledge/information about HIV/AIDS. At the same time, these results also show that, where the percentage levels among learners were already high before the intervention, the percentage increase after the intervention was, generally, lower (as seen in School 2). This could be interpreted to mean that learners were actually being taught what they already knew. The inconsistency at School 2 (CS), where an increase in the mean score was noted between Times 1 and 2, in the absence of an intervention, needs to be discussed later.

Finally, these results indicate that, while learners at both schools seem to have much knowledge about particular aspects of HIV/AIDS, they do not seem to put their knowledge into practice. For example, while most of them knew that condoms must be used even if you knew someone very well (*item 4*), very few were aware that condoms were to be used always, and not for first time sex only *(item 21).*

T-test Results on HIV/AIDS Information

While percentage results on levels of HIV/AIDS information merely showed increases in the learners' knowledge about HIV/AIDS, *t-test* results went further to indicate whether the increases were statistically significant or not.

Findings in this section show that, for most mean scores at School 1 (ES), the difference between the means at different time points showed a *p-value* of <.0001. This value meant that the increase in the levels of HIV/AIDS information at this school was statistically significant. A similar trend was observed at School 2 (CS), where the p-*value* at all time points stood at <.0001.

These results indicate that the intervention was effective in raising the levels of HIV/AIDS knowledge among learner participants at both schools.

7.6 Repeated Measures ANOVA, Mean Estimates and *t*-test Results: Motivation

7.6.1 Multivariate Tests: Motivation (Attitudes) to Perform HIV Preventive Behaviours

Multivariate tests were performed at 5% level of significance to evaluate the sources of variations or significant differences in the learners' perception with respect to time of test (within subject effect) and the differences between the two schools (between subject effect). Repeated measures ANOVA were used to test the hypothesis described in **Section 7.4** for significant differences between the schools and the different time periods with respect to motivation to perform HIV/AIDS preventive behaviours. As was in the HIV/AIDS Information section, multivariate tests between the schools and the different time periods were performed at 5% level of significance.

Table 7.14 Motivation to Perform HIV Preventive Behaviours: Multivariate tests of significant differences for Between and Within Subjects effects

Effect			Value	F	Hypothesis df	Error df	Sig.
Between Subjects	School	Pillai's Trace	.023	.910[a]	6.000	229.000	.488
		Wilks' Lambda	.977	.910[a]	6.000	229.000	.488
		Hotelling's Trace	.024	.910[a]	6.000	229.000	.488
		Roy's Largest Root	.024	.910[a]	6.000	229.000	.488
Within Subjects	Time	Pillai's Trace	.209	3.178[a]	18.000	217.000	.000
		Wilks' Lambda	.791	3.178[a]	18.000	217.000	.000
		Hotelling's Trace	.264	3.178[a]	18.000	217.000	.000
		Roy's Largest Root	.264	3.178[a]	18.000	217.000	.000
	Time * School	Pillai's Trace	.102	1.371[a]	18.000	217.000	.148
		Wilks' Lambda	.898	1.371[a]	18.000	217.000	.148
		Hotelling's Trace	.114	1.371[a]	18.000	217.000	.148
		Roy's Largest Root	.114	1.371[a]	18.000	217.000	.148

Table 7.14 shows results for the multivariate tests motivation to perform HIV/AIDS preventive behaviours. Significant differences were observed only on time, with respect to *within subject effect* whereas between subject effect (School) and the *within subject effect* of school interaction with time were not significant.

7.6.2 Test of Assumptions: Motivation (Attitudes) to Perform HIV Preventive Behaviours

Data on motivation to perform HIV/AIDS preventive behaviours were evaluated for validity and whether it satisfied required assumptions before it was analysed. The assumptions included Sphericity, level of measurement, random sampling, independency and homogeneity of variance.

Table 7.15 Mauchly's Test of Sphericity for Within Subjects effect on Motivation

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	Item 1	.919	19.593	5	.001	.953	.970	.333
	Item 2	.955	10.711	5	.057	.972	.990	.333
	Item 3	.942	13.833	5	.017	.963	.980	.333
	Item 4	.967	7.862	5	.164	.978	.996	.333
	Item 5	.810	48.923	5	.000	.889	.904	.333
	Item 6	.843	39.808	5	.000	.891	.906	.333

Table 7.15 shows Mauchly's Test of Sphericity of within subjects effect of time which tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix. If the test is significant ($p \leq 0.01$) the epsilon (Greenhouse-Geisser, Huynh-Feldt and Lower-bound) is used to adjust the degrees of freedom for the averaged tests of significance. The values for the skewness (-0.19) and kurtosis (-0.15) of the sum scale are both close to zero. Therefore, it can be concluded that the values for the sum scale are more or less normally distributed in the sample.

The Cronbach's alpha (0.58) can be interpreted that 58% of the variability in the sum score is true score variability, that is, true variability between respondents concerning their levels of motivation to engage in HIV-risk reduction behaviour

7.6.3 Univariate tests: Motivation (Attitudes) to Perform HIV Preventive Behaviours

Univariate tests were used to test for differences in the views of learners during the four testing periods on motivation to perform HIV/AIDS preventive behaviours.

Table 7.16 Univariate tests for Motivation Within Subject Effect of Time and Time interaction with School

Source	Measure		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Item 1	Sphericity Assumed	43.541	3	14.514	7.896	.000
		Greenhouse-Geisser	43.541	2.860	15.225	7.896	.000
		Huynh-Feldt	43.541	2.911	14.956	7.896	.000
		Lower-bound	43.541	1.000	43.541	7.896	.005
	Item 2	Sphericity Assumed	25.071	3	8.357	4.213	.006
		Greenhouse-Geisser	25.071	2.916	8.597	4.213	.006
		Huynh-Feldt	25.071	2.969	8.443	4.213	.006
		Lower-bound	25.071	1.000	25.071	4.213	.041
	Item 3	Sphericity Assumed	21.871	3	7.290	3.752	.011
		Greenhouse-Geisser	21.871	2.888	7.572	3.752	.012
		Huynh-Feldt	21.871	2.941	7.437	3.752	.011
		Lower-bound	21.871	1.000	21.871	3.752	.054
	Item 4	Sphericity Assumed	6.679	3	2.226	1.138	.333
		Greenhouse-Geisser	6.679	2.933	2.277	1.138	.332
		Huynh-Feldt	6.679	2.987	2.236	1.138	.333
		Lower-bound	6.679	1.000	6.679	1.138	.287
	Item 5	Sphericity Assumed	17.632	3	5.877	7.316	.000
		Greenhouse-Geisser	17.632	2.668	6.608	7.316	.000
		Huynh-Feldt	17.632	2.713	6.498	7.316	.000
		Lower-bound	17.632	1.000	17.632	7.316	.007
	Item 6	Sphericity Assumed	17.923	3	5.974	6.998	.000
		Greenhouse-Geisser	17.923	2.674	6.703	6.998	.000
		Huynh-Feldt	17.923	2.719	6.591	6.998	.000
		Lower-bound	17.923	1.000	17.923	6.998	.009

Table 7.16 continued: Univariate tests for Motivation Within Subject Effect of Time and Time interaction with School

Source	Measure		Type III Sum of Squares	df	Mean Square	F	Sig.
Time * School	Item 1	Sphericity Assumed	4.609	3	1.536	.836	.474
		Greenhouse-Geisser	4.609	2.860	1.612	.836	.470
		Huynh-Feldt	4.609	2.911	1.583	.836	.472
		Lower-bound	4.609	1.000	4.609	.836	.362
	Item 2	Sphericity Assumed	4.410	3	1.470	.741	.528
		Greenhouse-Geisser	4.410	2.916	1.512	.741	.524
		Huynh-Feldt	4.410	2.969	1.485	.741	.526
		Lower-bound	4.410	1.000	4.410	.741	.390
	Item 3	Sphericity Assumed	9.616	3	3.205	1.650	.177
		Greenhouse-Geisser	9.616	2.888	3.329	1.650	.179
		Huynh-Feldt	9.616	2.941	3.270	1.650	.178
		Lower-bound	9.616	1.000	9.616	1.650	.200
	Item 4	Sphericity Assumed	18.111	3	6.037	3.086	.027
		Greenhouse-Geisser	18.111	2.933	6.176	3.086	.028
		Huynh-Feldt	18.111	2.987	6.064	3.086	.027
		Lower-bound	18.111	1.000	18.111	3.086	.080
	Item 5	Sphericity Assumed	4.251	3	1.417	1.764	.153
		Greenhouse-Geisser	4.251	2.668	1.593	1.764	.159
		Huynh-Feldt	4.251	2.713	1.567	1.764	.158
		Lower-bound	4.251	1.000	4.251	1.764	.185
	Item 6	Sphericity Assumed	6.558	3	2.186	2.561	.054
		Greenhouse-Geisser	6.558	2.674	2.453	2.561	.061
		Huynh-Feldt	6.558	2.719	2.412	2.561	.060
		Lower-bound	6.558	1.000	6.558	2.561	.111

Table 7.16 displays the univariate tests for the within-subjects factors (Time). The between subject factor (School) and within subject factor of interaction between the school and time were not considered further since they were found to have no significant differences at 99% confidence limit (Table 7.4). The sums of squares are computed by taking the trace of the appropriate hypothesis or error SSCP matrix, assuming a polynomial transformation.

In cases where the test associated with Sphericity Assumed is met ($p \leq 0.01$), the assumption about the covariance matrix is met. The F statistic is evaluated using the original degrees of freedom. However The Greenhouse-Geisser, Huynh-Feldt, or Lower-bound test are used when the covariance matrix assumption is not met ($p > 0.01$), There were significant differences on the knowledge of facts for all the items except for item 4 with respect to time whereas no significant differences were observed with respect to time interaction with school for all items.

7.6.4 Paired *t-tests* of Mean estimates: Motivation (Attitudes) to Perform HIV Preventive Behaviours

Motivation in this study was examined in terms of:

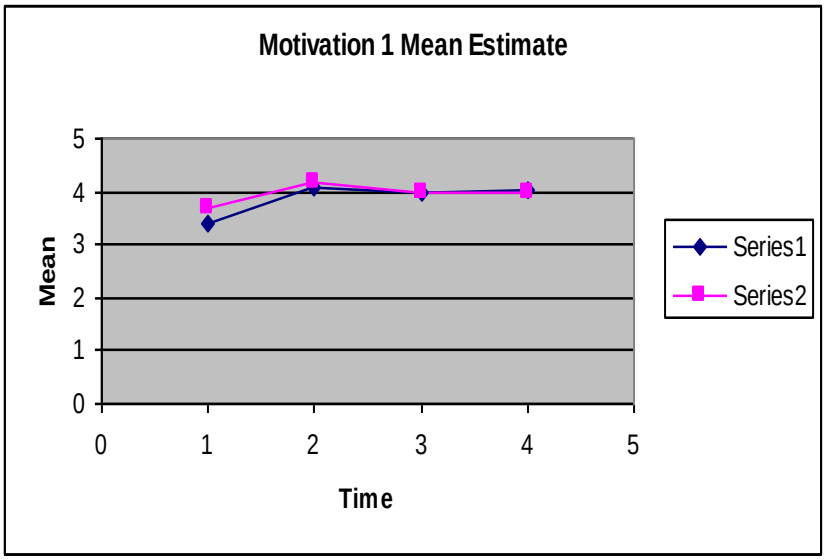
- attitudes of participants in both schools towards AIDS preventive behaviours;
- subjective norms regarding HIV preventive behaviours,
- behavioural intentions to engage in AIDS preventive acts, and
- perceived vulnerability – learners' perceptions of their own and their peers' likelihood of being infected with HIV, and their personal fear associated with being infected with HIV.

An individual's positive or negative evaluation of self-performance of a particular behaviour indicates one's attitude towards that behaviour. This section of the study focused on results of attitudes of participants in School 1 (ES) and School 2 (CS) towards AIDS preventive behaviours. Specifically, mean estimates at the four testing times at each school were examined in terms of the following items: learners' attitudes towards delaying sex; discussing sex with partners; acquiring condoms; carrying condoms; using condoms; and discussing the use of condoms with partners.

Attitudes Towards Delaying Sexual Intercourse

On Item 1 (*Motivation 1)*, respondents at both schools were to state how they felt about not having sex until they were older.

Figure 7.5 Participants' attitude towards delaying sexual intercourse



KEY

Blue - School 1 (ES)

Pink - School 2 (CS)

The graph on **Figure 7.5** illustrates the mean scores at the four testing times at the two participating schools. The graph reflects a rise in the mean scores at School 1 (ES) consistent with the hypothesized trend. In other words, the mean score rose at Time 2, as a result of the intervention at that school between Times 1 and 2. As hypothesized, the scores remained constantly at high levels over time. However, while the mean scores at School 2 (CS) remained reasonably high at Times 3 and 4, the rise of the score at Time 2, when there had been no intervention, does not reflect the hypothesized pattern. According to the hypothesis, the score was expected to rise only at Time 3, after the intervention between Times 2 and 3.

In order to establish the effectiveness of the intervention in motivating learners to delay sexual intercourse until they were older, each school's mean estimates at different time points were compared.

Table 7.17 School 1 (ES): T-test Results for Attitudes towards Delaying Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.407 4.073	-3.86	<.0001*
Time 2 *Time 3*	4.073 3.960	-0.65	0.514
Time 3 *Time 4*	3.960 4.033	-0.42	0.676
Time 1 *Time 3*	3.407 3.960	-3.2	<.0001*
Time 1 *Time 4*	3.407 4.033	-3.62	0.0003**
Time 2 *Time 4*	4.073 4.033	0.24	0.814

*Significant at the 0.0001 probability level

**Significant at the 0.05 probability level

Table 7.17 presents differences between mean scores on the levels of motivation to delay sexual intercourse until when older at the four testing times amongst learners at School 1 (ES). The table also shows *t-values* (differences between the means) and *p-values* (to indicate whether differences in the means are statistically significant or not). **Table 7.17** shows that the difference between the means at Time 1 (*mean* = 3.407), and Time 2 (*mean* = 4.073) is a *t-value* of -3.86, with a *p-value* of <.0001. This result is statistically significant.

Significant increases were also found in the scores at Times 1 (*mean* = 3.407) and 3 (*mean* = 3.96), where the *p-value* was also <.0001. Another significant increase in the scores was at Times 1 (mean = 3.407) and 4 (mean = 4.033), with a *p-value* of 0.0003, which was statistically significant. Although no significant differences were noted in the means between Times 2 and 3, as well as 3 and 4, the intervention generally increased the motivation of learners at School 1 (ES) to delay sexual intercourse until they were older.

Table 7.18 School 2 (CS): T-test Results for Attitudes towards Delaying Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.712 4.177	-2.82	0.005*
Time 2 *Time 3*	4.177 3.963	1.3	0.194
Time 3 *Time 4*	3.963 3.987	-0.14	0.887
Time 1 *Time 3*	3.712 3.963	-1.53	0.127
Time 1 *Time 4*	3.712 3.987	-1.66	0.097
Time 2 *Time 4*	4.177 3.987	1.15	0.249

*Significant at the 0.05 probability level

Table 7.18 presents differences between the mean scores on the levels of motivation to delay sexual intercourse until they were older at the four testing times amongst learners

at School 2 (CS). As in Table 4.5, the table also shows *t-values* (differences between the means) and *p-values* (to indicate whether differences in the means are statistically significant or not).

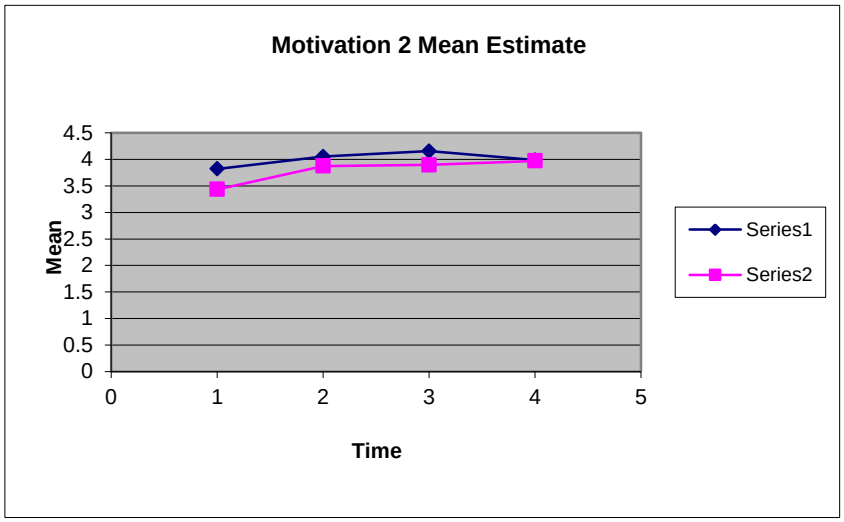
According to **Table 7.18**, a comparison is made between the means at Times 1 (*mean* = 3.712) and Time 2 (*mean* = 4.177), both obtained *before* the intervention between Times 2 and 3. The difference between these means is a *t-value* of -2.82, and a *p-value* of 0.005 which makes this difference statistically significant. However, for the purposes of this study, this statistical significance is of no value as it does not reflect the impact of the intervention.

The table then shows comparisons between time points 1 and 3, 1 and 4, 2 and 3, and 2 and 4, all of which were comparisons of mean scores *before* and *after* the intervention. Times 3 and 4 were the only comparisons with adjacent scores that were both obtained after the intervention. The differences between these means were not statistically significant, all having *p-values* above the alpha level of 0.05. These results indicate that, while there was a change in motivation of learners after the intervention at School 1 (ES), no such change was reported for School 2 (CS).

Attitudes towards discussing sexual intercourse

For Item 2 *(Motivation 2)* of the motivation section of the questionnaire, respondents were required to state their attitudes towards discussing with their partners whether or not to have sex.

Figure 7.6 Participants' attitude towards discussing sexual intercourse with partners



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

Figure 7.6 shows mean scores of the learners' attitude towards discussing sex with partners was established by comparing each school's mean estimates at different time points. The trend of scores reflected on the graph on **Figure 7.6** is similar to that on **Figure 7.5.** As hypothesized, the score at School 1 (ES) increased at Time 2, after the intervention at that school between Times 1 and 2.

However, at Time 4, the score dropped slightly, instead of maintaining a high level. While scores remained relatively high at Times 3 and 4 at School 2 (CS), it remains unclear why the score at that school rose at Time 2, despite the absence of an intervention between Times 1 and 2.

Table 7.19 School 1 (ES): T-test Results for Attitudes towards Discussing Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.821 4.054	-1.29	0.198
Time 2 *Time 3*	4.054 4.155	-0.56	0.578
Time 3 *Time 4*	4.155 3.986	0.94	0.349
Time 1 *Time 3*	3.821 4.155	-1.85	0.064
Time 1 *Time 4*	3.821 3.986	-0.91	0.362
Time 2 *Time 4*	4.054 3.986	0.38	0.705

Table 7.19 shows differences of the mean scores on the attitudes of participants at School 1 (ES) towards discussing sex with partners at the four testing times. While there was a general increase in the mean score estimates after the intervention, none of the increases at different time points were statistically significant.

Table 7.20 School 2 (CS): T-test Results for Attitudes towards Discussing Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.435 3.875	-2.56	0.011*
Time 2 *Time 3*	3.875 3.897	-0.13	0.895
Time 3 *Time 4*	3.897 3.970	-0.43	0.669
Time 1 *Time 3*	3.435 3.897	-2.7	0.007*
Time 1 *Time 4*	3.435 3.970	-3.12	0.002*
Time 2 *Time 4*	3.875 3.970	0.56	0.577

*Significant at the 0.05 probability level

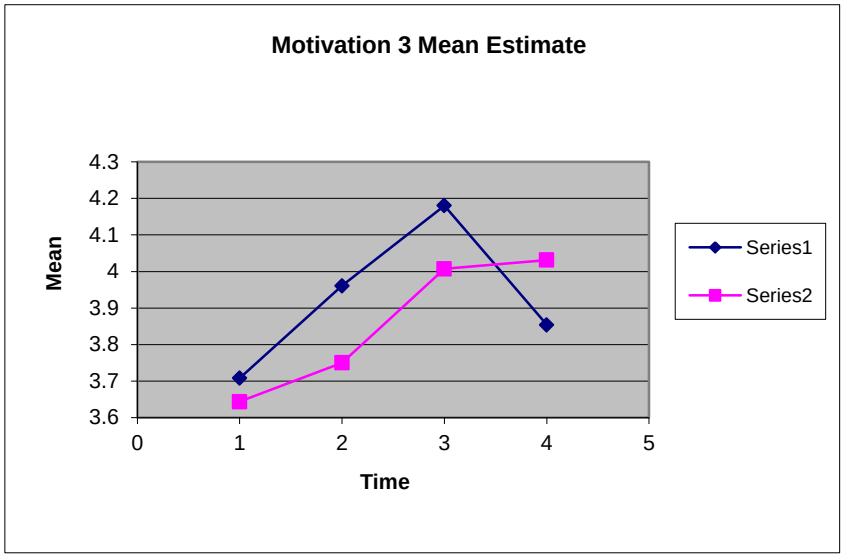
Table 7.20 shows differences between the mean scores on attitudes of participants at School 2 (CS) towards discussing sex with partners at the four testing times. Unlike School 1 (ES), results at School 2 (CS) show a *t*-value of -2.7 at Time 3 and -3.12 at Time 4, with *p*-values of 0.007 and 0.002, respectively, being statistically significant.

Another statistically significant result is shown between Times 1 and 2, where the difference between the means is a *t-value* of -2.56, and a *p-value* of 0.011. According to these results, the intervention was only able to change the attitudes of learners at School 2 (CS) towards discussing sex whether or not they should have sex with their partners, and not at School 1 (ES).

Attitudes towards acquiring condoms

For Item 3 *(Motivation3*) respondents in the two participating schools were expected to state their own attitudes towards acquiring condoms (buying them or getting them for free).

Figure 7.7 Participants' attitudes towards acquiring condoms



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.7** shows the estimated mean scores of the results in the four testing times. The trend of patterns on the above graph is not consistent with those hypothesized. For instance, after the intervention between Times 1 and 2 at School 1 (ES), the score rose sharply at Times 2 and 3, and then suddenly took a dive at Time 4. This was contrary to what was expected, that is, that the score would remain constantly high over time, after rising at Time 2. A similar inconsistency was observed for School 2 (CS), where the score at Time 2 increased in the absence of an intervention at that

school. However, the continued rise at Time 3, followed by stable high scores at Times 3 and 4, came near the pattern originally hypothesized for that school.

Table 7.21 School 1 (ES): T-test Results for Attitudes towards Acquiring Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.708 3.961	-1.42	0.157
Time 2 *Time 3*	3.961 4.181	-1.24	0.217
Time 3 *Time 4*	4.181 3.854	1.84	0.066
Time 1 *Time 3*	3.708 4.181	-2.65	0.008*
Time 1 *Time 4*	3.708 3.854	-0.82	0.413
Time 2 *Time 4*	3.961 3.854	0.6	0.546

*Significant at the 0.05 probability level

Table 7.21 shows that, with the exception of the mean score of School 1 (ES) at Time 4 (3.854), there was a steady increase in the scores from Time 1 up to Time 4 at this school. While the effect of the intervention at School 1 (ES) was not statistically significant at most testing times, it was noticeable at Times 1 and 3, where the *t-value* was -2.65 and the *p-value* was 0.008, being statistically significant.

Table 7.22 School 2 (CS): T-test Results for Attitudes towards Acquiring Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.644 3.750	-0.63	0.531
Time 2 *Time 3*	3.75 4.007	-1.53	0.127
Time 3 *Time 4*	4.007 4.031	-0.14	0.887
Time 1 *Time 3*	3.644 4.007	-2.15	0.032*
Time 1 *Time 4*	3.644 4.031	-2.29	0.022*
Time 2 *Time 4*	3.75 4.031	-1.67	0.096

*Significant at the 0.05 probability level

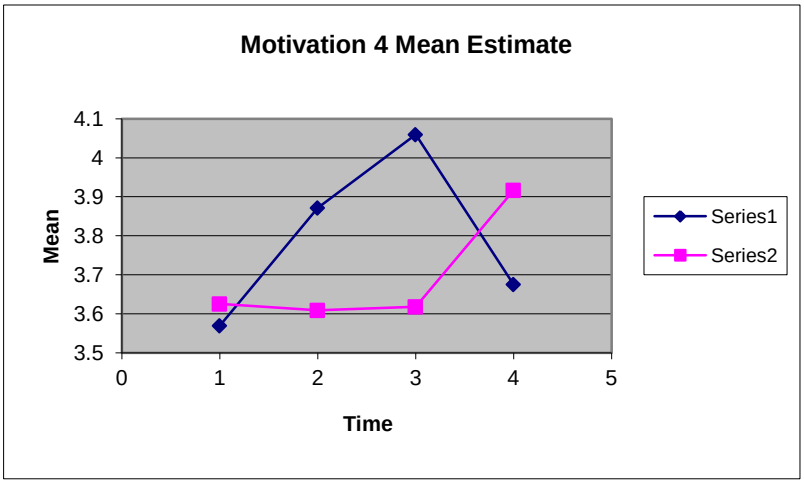
According to **Table 7.22**, a statistically significant effect of the intervention was noted at School 2 (CS) after the intervention at Times 1 and 3, as well as Times 1 and 4, where *t-values* were -2.15 and -2.29, and *p-values* of 0.032 and 0.022, respectively. Although the mean scores at other time points also rose to noticeable levels after the intervention, none of the differences between these time points were statistically significant.

Given the statistical significance in the differences between mean scores before and after the intervention at both schools at some time points, it may be concluded that the intervention was effective in encouraging learners to acquire condoms (buying them or getting them for free).

Attitude towards carrying condoms

For item 4 *(Motivation 4)* of the questionnaire, respondents at both schools were expected to say what their attitudes were towards carrying condoms.

Figure 7.8 Participants' Attitudes Towards Carrying Condoms



KEY:

Blue - School 1 (ES)

Pink - School 2 (CS)

The graph on **Figure 7.8** illustrates the mean scores of both schools at different time points. The graph does not reflect the hypothesized pattern. While the intervention at School 1 (ES) between Times 1 and 2 significantly raised the mean score at Time 2, it is puzzling to note a sudden drop in the score at Time 4. According to what was hypothesized, the scores at Times 3 and 4 were expected to remain constantly high. On the other hand, at School 2 (CS), the score remained unchanged at Time 2, as there had been no intervention between Times 1 and 2 at that school. With the intervention taking place between Times 2 and 3, an increase in the score was expected at Time 3. Instead, the increase only occurred at Time 4. This does not reflect the hypothesized pattern.

Table 7.23 School 1 (ES): T-test Results for Attitudes towards Carrying Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.569 3.871	-1.67	0.096
Time 2 *Time 3*	3.871 4.059	-1.03	0.302
Time 3 *Time 4*	4.059 3.675	2.12	0.035*
Time 1 *Time 3*	3.569 4.059	-2.7	0.007*
Time 1 *Time 4*	3.569 3.675	-0.58	0.559
Time 2 *Time 4*	3.871 3.675	1.08	0.279

*Significant at the 0.05 probability level

Table 7.23 shows *t-test* results for attitudes of participants at School 1 (ES) towards carrying condoms in order to safeguard themselves against risky sexual behaviour. The table indicates mean scores of different time points, as well as *t-values* and *p-values.* While differences between most of the mean scores are not statistically significant, it is noted that the difference between the mean score at Time 1 (*mean* = 3.569) and Time 3 (*mean* = 4.059) was a *t-value* of -2.7, and the *p-value* was 0.007, which was statistically significant. Another statistically significant result was noted between Times 3 and 4,

where the differences between the means were a *t-value* of 2.12, and a *p-value* of 0.035. These results show that, while the intervention managed to motivate participants at both schools to carry condoms, the level of motivation was, generally, not significant.

Table 7.24 School 2 (CS): T-test Results for Attitudes towards Carrying Condoms

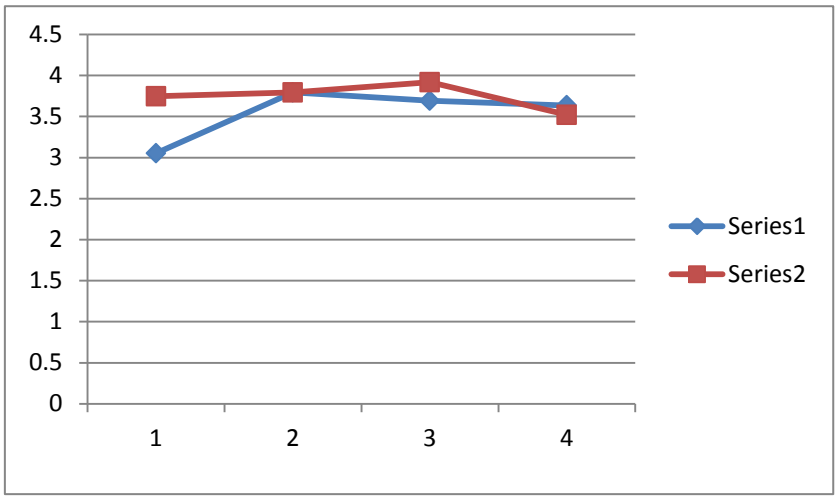
Times	Means	t-value	p-value
Time 1 *Time 2*	3.625 3.609	0.09	0.925
Time 2 *Time 3*	3.609 3.618	-0.05	0.959
Time 3 *Time 4*	3.618 3.917	-1.73	0.084
Time 1 *Time 3*	3.625 3.618	0.04	0.966
Time 1 *Time 4*	3.625 3.917	-1.68	0.093
Time 2 *Time 4*	3.609 3.917	-1.77	0.077

Table 7.24 reflects *t-test* results on the attitudes of participants at School 2 (CS) towards carrying condoms. Although mean scores consistently increased at most time points, none of the increases show any statistical significance. In other words, the intervention did not make a difference in terms of encouraging participants to carry condoms for safe sex.

Attitude Towards Using Condoms

Item 5 *(Motivation 5)* of the questionnaire required respondents at both schools to indicate their attitudes towards using condoms.

Figure 7.9 Participants' Attitudes Towards Using Condoms



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.9** shows mean scores of both schools at different time points. The graph more-or-less reflects the hypothesized pattern or relationships. As hypothesized, the mean score at School 1 (ES) rose at Time 2, after the intervention between Times 1 and 2.

The scores at Times 3 and 4 maintained a reasonably high level. Although the trend of scores at School 2 (CS) was close to the hypothesized one, it is noted that both the increase of the score at Time 3 (after the intervention) which was minimal, as well as the decrease of the score at Time 4, are not reflective of the hypothesized pattern.

Table 7.25 School 1 (ES): T-test Results for Attitudes towards Using Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	4.587 4.713	-1.09	0.277
Time 2 *Time 3*	4.713 4.715	0.985	0.229
Time 3 *Time 4*	4.715 4.772	-0.49	0.622
Time 1 *Time 3*	4.587 4.715	-1.11	0.268
Time 1 *Time 4*	4.587 4.772	-1.6	0.110
Time 2 *Time 4*	4.713 4.772	-0.51	0.609

Table 7.25 shows that although results at School 1(ES) indicated increases in the scores after the intervention, these increases were not statistically significant. In other words, the intervention did not make a big difference in the participants' attitude towards the use of condoms during sexual intercourse.

Table 7.26 School 2 (CS): T-test Results for Attitudes towards Using Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	4.302 4.589	-2.61	0.009*
Time 2 *Time 3*	4.589 4.706	-1.05	0.292
Time 3 *Time 4*	4.706 4.807	-0.92	0.358
Time 1 *Time 3*	4.302 4.706	-3.68	0.0002*
Time 1 *Time 4*	4.302 4.807	-4.59	<.0001**
Time 2 *Time 4*	4.589 4.807	-1.97	0.049*

*Significant at the 0.05 probability level

**Significant at the 0.0001 probability level

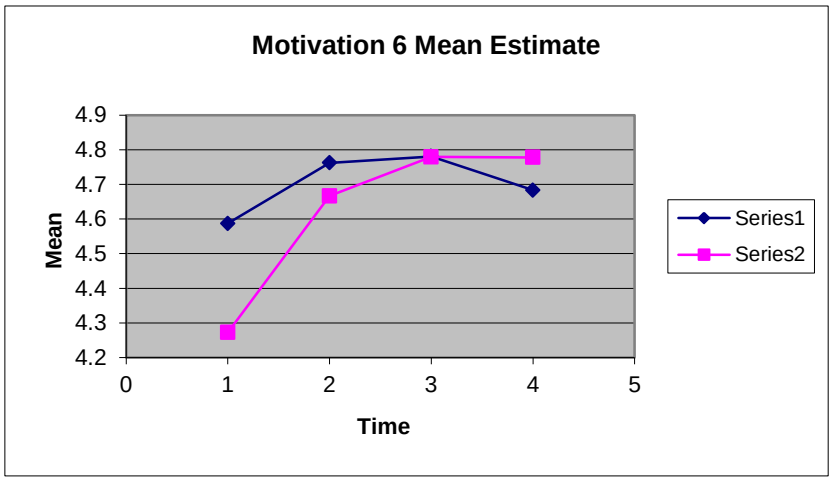
However, **Table 7.26** reflects that, while there was a general increase in the mean scores at different time points at School 2 (CS), there was a statistically significant rise in the scores at Time 1 (*mean* = 4.302) and Time 2 (*mean* = 4.589), with a *t-value* of -2.61 and a *p-value* of 0.009. Another statistically significant increase was between Time 1 (*mean* = 4.302) and Time 3 (*mean* = 4.706) whose *t-value* was -3.68 and *p-value* was 0.0002.

The table above also shows a highly significant increase of the mean scores between Time 1 (*mean* = 4.302) and Time 4 (*mean* = 4.807), with a *t-value* of -4.59 and a *p-value* of <.0001. Finally, the table shows another significant increase between mean scores at Time 2 (*mean* = 4.589) and Time 4 (*mean* = 4.807), whose *t-value* was -1.97, and *p-value* was 0.049, which was also statistically significant. Clearly, these results show that the intervention was effective in strengthening the participants' attitudes towards the use of condoms at School 2 (CS), but not at School 1 (ES).

Attitude towards discussing condoms

For item 6 *(Motivation 6)* of the questionnaire, respondents were expected to state their attitudes towards discussing the use of condoms with their partners.

Figure 7.10 Participants' Attitudes Towards Discussing Condoms with Partners



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.7** illustrates mean scores of the responses from the two participating schools at the four time points. The graph reflects a pattern similar to most graphs examined in this chapter, with the mean score at School 1 (ES) rising after the intervention at that school between Times 1 and 2, and the score at School 2 (CS) also rising at Time 2, in the absence of an intervention. Both trends do not reflect the hypothesized pattern or relationships. While scores at School 2 (CS) were kept sustained at high levels at Times 3 and 4, the drop of the score at School 1 (ES) at Time 4, contrary to what was hypothesized, is also noted.

Table 7.27 School 1 (ES): T-test Results for Attitudes towards Discussing Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	4.587 4.762	-1.48	0.139
Time 2 *Time 3*	4.762 4.781	-0.15	0.878
Time 3 *Time 4*	4.781 4.683	0.83	0.409
Time 1 *Time 3*	4.587 4.781	-1.63	0.103
Time 1 *Time 4*	4.587 4.683	-0.81	0.418
Time 2 *Time 4*	4.762 4.683	-0.67	0.503

Table 7.27 shows *t-test* results for the attitudes of participants at School 1 (ES) towards discussing condoms with partners at different time points. While the table reveals an increase in the mean scores after the intervention (for example, between Time 1 and Time 2, as well as between Time 1 and Time 3, and Time 1 and Time 4), such increases were not statistically significant. In other words, the intervention failed to make a noticeable difference in the attitudes of participants towards discussing the use of condoms with partners.

Table 7.28 School 2 (CS): T-test Results for Attitudes towards Discussing Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	4.272 4.667	-3.51	0.0005**
Time 2 *Time 3*	4.667 4.779	-1	0.317
Time 3 *Time 4*	4.779 4.778	0.01	0.988
Time 1 *Time 3*	4.272 4.779	-4.52	<.0001*
Time 1 *Time 4*	4.272 4.778	-4.5	<.0001*
Time 2 *Time 4*	4.667 4.778	-0.99	0.324

*Significant at the 0.0001 probability level

**Significant at the 0.05 probability level

According to **Table 7.28,** the effect of the intervention at School 2 (CS) is quite different from that at School 1 (ES). For instance, after the intervention the mean score at Time 1 *(mean* = 4.272) rose to *mean* = 4.667 at Time 2, showing a *t-value* of -3.51 and a *p-value* of 0.0005, which is statistically significant. The difference between the mean score at Time 1 (*mean* = 4.272) and Time 3 (*mean* = 4.779) was a *t-value* of -4.52. The *p-value* was <.0001, indicating a high statistical significance. Similarly, the mean score at Time 1 (*mean* = 4.272) rose to 4.778 at Time 4, with a *t-value* of -4.5, and a *p-value* of <.0001. These results indicate that the intervention was quite effective in strengthening the attitudes of participants at School 2 (CS) towards discussing the use of condoms with their partners.

7.7 Repeated Measures ANOVA and Mean Estimates: Motivation (Subjective Norms) Regarding HIV Preventive Acts

Repeated measures ANOVA were used to test the hypothesis described in **Section 7.4** for significant differences between the schools and the different time periods with respect to subjective norms regarding preventive acts.

7.7.1 Multivariate tests: Motivation (Subjective Norms) Regarding HIV Preventive Acts

Multivariate tests were performed at 5% level of significance. **Table 7.29** shows results for the multivariate tests for subjective norms regarding preventive acts. Significant differences were not observed, with respect to both *within subject effects* and *between subject effects*. That is, the views of the leaner were not significantly different from a multivariate analysis point of view.

Table 7.29 Multivariate tests for Subjective Norms Regarding HIV Preventive Acts

Effect			Value	F	Hypothesis df	Error df	Sig.
Between Subjects	School	Pillai's Trace	.095	1.530[a]	12.000	175.000	.117
		Wilks' Lambda	.905	1.530[a]	12.000	175.000	.117
		Hotelling's Trace	.105	1.530[a]	12.000	175.000	.117
		Roy's Largest Root	.105	1.530[a]	12.000	175.000	.117
Within Subjects	Time	Pillai's Trace	.224	1.211[a]	36.000	151.000	.214
		Wilks' Lambda	.776	1.211[a]	36.000	151.000	.214
		Hotelling's Trace	.289	1.211[a]	36.000	151.000	.214
		Roy's Largest Root	.289	1.211[a]	36.000	151.000	.214
	Time * School	Pillai's Trace	.167	.839[a]	36.000	151.000	.726
		Wilks' Lambda	.833	.839[a]	36.000	151.000	.726
		Hotelling's Trace	.200	.839[a]	36.000	151.000	.726
		Roy's Largest Root	.200	.839[a]	36.000	151.000	.726

7.7.2 Test of assumptions: Motivation (Subjective Norms) Regarding HIV Preventive Acts

Data on subjective norms regarding preventive acts were evaluated for validity and whether it satisfied required assumptions before it was analysed. The assumptions included Sphericity, level of measurement, random sampling, independency and homogeneity of variance.

Table 7.30 Mauchly's Test of Sphericity for Subjective Norms Regarding HIV Preventive Acts

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	Item 1	.941	11.269	5	.046	.959	.981	.333
	Item 2	.948	9.901	5	.078	.968	.990	.333
	Item 3	.921	15.124	5	.010	.953	.974	.333
	Item 4	.991	1.654	5	.895	.994	1.000	.333
	Item 5	.940	11.353	5	.045	.962	.984	.333
	Item 6	.962	7.101	5	.213	.974	.997	.333
	Item 7	.926	14.120	5	.015	.949	.971	.333
	Item 8	.952	9.117	5	.104	.966	.988	.333
	Item 9	.948	9.846	5	.080	.965	.988	.333
	Item 10	.895	20.553	5	.001	.927	.948	.333
	Item 11	.969	5.860	5	.320	.979	1.000	.333
	Item 12	.946	10.323	5	.067	.964	.986	.333

Table 7.30 shows Mauchly's Test of Sphericity. If the test is significant ($p \leq 0.01$) the epsilon (Greenhouse-Geisser, Huynh-Feldt and Lower-bound) is used to adjust the degrees of freedom for the averaged tests of significance. The values for the skewness (-0.37) and kurtosis -0.42 of the sum scale are both close to zero; therefore, it can be concluded that the values for the sum scale are more or less normally distributed in the sample.

The Cronbach's alpha (0.621) can be interpreted that 62% of the variability in the sum score is true score variability, that is, true variability between respondents concerning their levels of HIV-risk reduction.

7.7.3 Univariate tests: Motivation (Subjective Norms) Regarding HIV Preventive Acts

Univariate tests were used to test for differences in the views of learners during the four testing periods on subjective norms regarding preventive acts. The fours testing periods are here referred to as Time and represent the single independent categorical variable.

Table 7.31 Univariate tests for Subjective Norms Regarding HIV Preventive Acts within Subject Effect of Time and Time interaction with School

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time	Item 1	Sphericity Assumed	16.308	3	5.436	2.423	.065
		Greenhouse-Geisser	16.308	2.877	5.668	2.423	.068
		Huynh-Feldt	16.308	2.943	5.541	2.423	.066
		Lower-bound	16.308	1.000	16.308	2.423	.121
	Item 2	Sphericity Assumed	19.232	3	6.411	2.555	.055
		Greenhouse-Geisser	19.232	2.903	6.625	2.555	.057
		Huynh-Feldt	19.232	2.970	6.475	2.555	.055
		Lower-bound	19.232	1.000	19.232	2.555	.112
	Item 3	Sphericity Assumed	4.700	3	1.567	.612	.607
		Greenhouse-Geisser	4.700	2.858	1.645	.612	.600
		Huynh-Feldt	4.700	2.923	1.608	.612	.603
		Lower-bound	4.700	1.000	4.700	.612	.435
	Item 4	Sphericity Assumed	6.490	3	2.163	.996	.394
		Greenhouse-Geisser	6.490	2.983	2.176	.996	.394
		Huynh-Feldt	6.490	3.000	2.163	.996	.394
		Lower-bound	6.490	1.000	6.490	.996	.320
	Item 5	Sphericity Assumed	7.907	3	2.636	1.270	.284
		Greenhouse-Geisser	7.907	2.887	2.739	1.270	.284
		Huynh-Feldt	7.907	2.953	2.678	1.270	.284
		Lower-bound	7.907	1.000	7.907	1.270	.261
	Item 6	Sphericity Assumed	34.361	3	11.454	5.377	.001
		Greenhouse-Geisser	34.361	2.922	11.759	5.377	.001
		Huynh-Feldt	34.361	2.990	11.493	5.377	.001
		Lower-bound	34.361	1.000	34.361	5.377	.021
	Item 7	Sphericity Assumed	7.229	3	2.410	1.131	.336
		Greenhouse-Geisser	7.229	2.848	2.538	1.131	.335
		Huynh-Feldt	7.229	2.912	2.482	1.131	.335
		Lower-bound	7.229	1.000	7.229	1.131	.289
	Item 8	Sphericity Assumed	21.748	3	7.249	3.108	.026
		Greenhouse-Geisser	21.748	2.898	7.504	3.108	.028
		Huynh-Feldt	21.748	2.965	7.335	3.108	.027
		Lower-bound	21.748	1.000	21.748	3.108	.080
	Item 9	Sphericity Assumed	3.275	3	1.092	.843	.471
		Greenhouse-Geisser	3.275	2.896	1.131	.843	.467
		Huynh-Feldt	3.275	2.963	1.106	.843	.469
		Lower-bound	3.275	1.000	3.275	.843	.360
	Item 10	Sphericity Assumed	7.112	3	2.371	2.040	.107
		Greenhouse-Geisser	7.112	2.782	2.557	2.040	.112
		Huynh-Feldt	7.112	2.844	2.501	2.040	.111
		Lower-bound	7.112	1.000	7.112	2.040	.155
	Item 11	Sphericity Assumed	3.228	3	1.076	.821	.483
		Greenhouse-Geisser	3.228	2.937	1.099	.821	.481
		Huynh-Feldt	3.228	3.000	1.076	.821	.483
		Lower-bound	3.228	1.000	3.228	.821	.366
	Item 12	Sphericity Assumed	2.961	3	.987	.714	.544
		Greenhouse-Geisser	2.961	2.893	1.024	.714	.539
		Huynh-Feldt	2.961	2.959	1.001	.714	.542
		Lower-bound	2.961	1.000	2.961	.714	.399

Table 7.31 continued: Univariate tests for Subjective Norms Regarding HIV Preventive Acts items within Subject Effect of Time and Time interaction with School

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time * School	Item 1	Sphericity Assumed	2.866	3	.955	.426	.735
		Greenhouse-Geisser	2.866	2.877	.996	.426	.726
		Huynh-Feldt	2.866	2.943	.974	.426	.731
		Lower-bound	2.866	1.000	2.866	.426	.515
	Item 2	Sphericity Assumed	7.807	3	2.602	1.037	.376
		Greenhouse-Geisser	7.807	2.903	2.689	1.037	.374
		Huynh-Feldt	7.807	2.970	2.628	1.037	.375
		Lower-bound	7.807	1.000	7.807	1.037	.310
	Item 3	Sphericity Assumed	12.887	3	4.296	1.678	.171
		Greenhouse-Geisser	12.887	2.858	4.509	1.678	.173
		Huynh-Feldt	12.887	2.923	4.409	1.678	.172
		Lower-bound	12.887	1.000	12.887	1.678	.197
	Item 4	Sphericity Assumed	5.750	3	1.917	.882	.450
		Greenhouse-Geisser	5.750	2.983	1.928	.882	.450
		Huynh-Feldt	5.750	3.000	1.917	.882	.450
		Lower-bound	5.750	1.000	5.750	.882	.349
	Item 5	Sphericity Assumed	2.620	3	.873	.421	.738
		Greenhouse-Geisser	2.620	2.887	.908	.421	.730
		Huynh-Feldt	2.620	2.953	.887	.421	.735
		Lower-bound	2.620	1.000	2.620	.421	.517
	Item 6	Sphericity Assumed	2.605	3	.868	.408	.748
		Greenhouse-Geisser	2.605	2.922	.892	.408	.742
		Huynh-Feldt	2.605	2.990	.871	.408	.747
		Lower-bound	2.605	1.000	2.605	.408	.524
	Item 7	Sphericity Assumed	17.909	3	5.970	2.802	.039
		Greenhouse-Geisser	17.909	2.848	6.288	2.802	.042
		Huynh-Feldt	17.909	2.912	6.149	2.802	.041
		Lower-bound	17.909	1.000	17.909	2.802	.096
	Item 8	Sphericity Assumed	8.918	3	2.973	1.275	.282
		Greenhouse-Geisser	8.918	2.898	3.077	1.275	.282
		Huynh-Feldt	8.918	2.965	3.008	1.275	.282
		Lower-bound	8.918	1.000	8.918	1.275	.260
	Item 9	Sphericity Assumed	.371	3	.124	.095	.963
		Greenhouse-Geisser	.371	2.896	.128	.095	.959
		Huynh-Feldt	.371	2.963	.125	.095	.961
		Lower-bound	.371	1.000	.371	.095	.758
	Item 10	Sphericity Assumed	.649	3	.216	.186	.906
		Greenhouse-Geisser	.649	2.782	.233	.186	.893
		Huynh-Feldt	.649	2.844	.228	.186	.897
		Lower-bound	.649	1.000	.649	.186	.667
	Item 11	Sphericity Assumed	.260	3	.087	.066	.978
		Greenhouse-Geisser	.260	2.937	.089	.066	.976
		Huynh-Feldt	.260	3.000	.087	.066	.978
		Lower-bound	.260	1.000	.260	.066	.797
	Item 12	Sphericity Assumed	1.030	3	.343	.248	.862
		Greenhouse-Geisser	1.030	2.893	.356	.248	.856
		Huynh-Feldt	1.030	2.959	.348	.248	.860
		Lower-bound	1.030	1.000	1.030	.248	.619

Table 7.31 displays the univariate tests for the within-subjects factors of Time. The sums of squares are computed by taking the trace of the appropriate hypothesis or error SSCP matrix, assuming a polynomial transformation. In cases where the test associated with Sphericity Assumed is met ($p \leq 0.01$), the assumption about the covariance matrix is met. The F statistic is evaluated using the original degrees of freedom. However, the Greenhouse-Geisser, Huynh-Feldt, or Lower-bound test are used when the covariance matrix assumption is not met ($p > 0.01$). There were no significant differences on all the Subjective Norms items regarding HIV Preventive Acts except for items 6 and 8 with respect to time, and only item 7 with respect to time interaction with school.

7.7.4 Paired *t-tests* of Mean estimates: Motivation (Subjective Norms) Regarding HIV Preventive Acts

Subjective norms are what we expect other people will think of us if we carry out a certain action, in other words, social pressure (Ajzen and Fishbein, 1980). They are an individual's perception of social normative pressures, or relevant others' beliefs that he or she should or should not perform such behaviour (Wikipedia, 2008). According to the Theory of Reasoned Action, if people evaluate the suggested behaviour as positive, and if they think their significant others want them to perform the behaviour (subjective norm), this results in a higher intention (motivation) and they are more likely to do so (Sheppard, Hartwick & Warshaw, 1988).

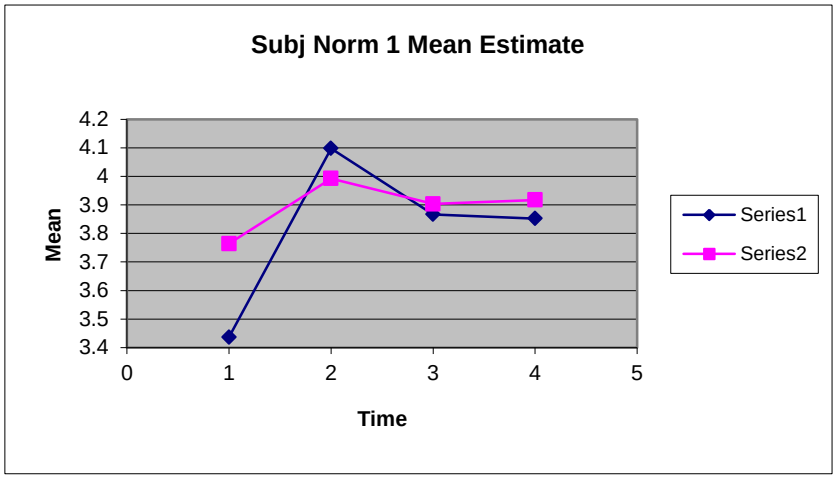
For instance, where people around the participants in this study were supportive of engaging in HIV preventive acts, participants' motivation would increase. On the other hand, if little social support was given for participants to engage in safe sex behaviours, motivation to perform such behaviours would be minimal. In this section, results on social support given to respondents in this study are examined in terms of the following:

- social support from participants' friends on delaying sex until they are older;
- social support from respondents' partners on the use of condoms for sexual intercourse; and
- social support from respondents' friends on the use of condoms for sexual intercourse.

Support from friends for delaying sex

For item 1 (*Subjective Norm 1*) of the questionnaire, learners were expected to state whether their friends supported them in delaying sexual intercourse until they were older.

Figure 7.11 Social Support from Participants' Friends on Delaying Sexual Intercourse



KEY:

Blue - School 1 (ES)

Pink - School 2 (CS)

The graph on **Figure 7.11** shows the mean scores on the social support for participants at School 1 (ES) and School 2 (CS) for delaying sex until they were older at different time points. The graph on **Figure 7.11** shows a sharp rise in the mean score for School 1 (ES) at Time 2, owing to the intervention between Time 1 and Time 2 at that school. Although the scores at Time 3 and Time 4 remained reasonably high, the sudden drop of the score at Time 3 does not reflect what was hypothesized. A trend outside the hypothesized pattern is also noted at School 2 (CS), where, despite the absence of an intervention between Times 1 and 2, the mean score rose at Time 2. However, like School 1 (ES), the scores at this school stabilised at Times 3 and 4.

Table 7.32 School 1 (ES): T-test Results for Social Support from Friends on Delaying Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.437 4.098	-3.44	0.0006*
Time 2 *Time 3*	4.098 3.867	1.2	0.229
Time 3 *Time 4*	3.867 3.852	0.08	0.939
Time 1 *Time 3*	3.437 3.867	-2.24	0.025*
Time 1 *Time 4*	3.437 3.852	-2.17	0.031*
Time 2 *Time 4*	4.098 3.852	1.28	0.201

*Significant at the 0.05 probability level

Table 7.32 reflects *t-test* results for the social support for participants at School 1 (ES) from friends on delaying sex until they were older. The increases in the scores follow an upward trend, with most time points positing significant rises. For instance, the score at Time 1 (*mean* = 3.437) rose to *mean* = 4.098 after the intervention at Time 2. The *t-value* was -3.44, and the *p-value* was 0.0006, which meant the increase was statistically significant. Between Time 1 and Time 3, the mean score rose from 3.437 to 3.852, with a *t-value* of -2.24, and a *p-value* of 0.025, which also reflected a statistically significant difference. Another statistically significant difference was noted at Time 1 (*mean* = 3.437) and Time 4 (*mean* = 3.852), where the *t-value* was -2.17, and

the *p-value* stood at 0.031. However, the decrease in the mean score between Time 3 and Time 4 as well as between Time 2 and Time 4 raises questions as to the effectiveness of the intervention. On the whole, these results show that the intervention was effective in winning more support from the friends of participants at School 1 (ES) for delaying sex until they were older.

Table 7.33 School 2 (CS): T-test Results for Social Support from Friends on Delaying Sexual Intercourse

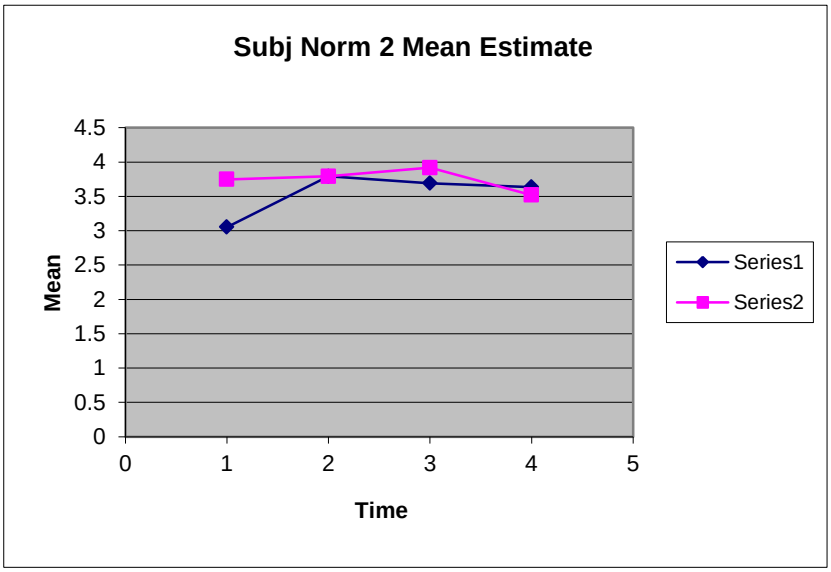
Times	Means	t-value	p-value
Time 1 *Time 2*	3.764 3.992	-1.25	0.212
Time 2 *Time 3*	3.992 3.903	0.49	0.627
Time 3 *Time 4*	3.903 3.917	-0.08	0.939
Time 1 *Time 3*	3.764 3.903	-0.77	0.444
Time 1 *Time 4*	3.764 3.917	-0.84	0.402
Time 2 *Time 4*	3.992 3.917	0.41	0.683

Table 7.33 shows *t-test* results for the social support for participants at School 2 (CS) from friends on delaying sex until they were older. According to the table, none of the *p-values* were statistically significant. Hence the intervention did not have an effect in increasing social support from participants' friends to delay sex until they were older.

Support from Partners to Delay Sexual Intercourse

For item 2 (*Subjective Norm 2*) of the questionnaire, learners were expected to state whether their boyfriends or girlfriends supported them in delaying sex until they were older.

Figure 7.12 Social Support from Participants' Partners to Delay Sexual Intercourse



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.12** shows the mean scores on the social support for participants at School 1 (ES) and School 2 (CS) for delaying sex until they were older at different time points. The trend of scores between schools on the graph reflects the hypothesized pattern or relationship. For instance, at School 1 (ES) the mean score at Time 2 rose after the intervention between Times 1 and 2. The scores at Times 3 and 4 remained relatively high, in line with the hypothesized pattern.

Similarly, the graph shows no change in the score at Time 2 for School 2 (CS), where an intervention had not taken place. A slight increase in the score is seen at Time 3, after an intervention between Times 2 and 3. However, a departure from the hypothesized pattern is noticed at Time 4, where the score dropped slightly. **Table 7.25** further illustrates patterns noted on the graph.

Table 7.34 School 1 (ES): T-test Results for Social Support from Partners on Delaying Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.052 3.793	-3.64	0.0003*
Time 2 *Time 3*	3.793 3.691	0.5	0.616
Time 3 *Time 4*	3.691 3.636	0.28	0.783
Time 1 *Time 3*	3.052 3.691	-3.17	0.002*
Time 1 *Time 4*	3.052 3.636	-2.89	0.004*
Time 2 *Time 4*	3.793 3.636	0.78	0.438

*Significant at the 0.05 probability level

Table 7.34 reflects *t-test* results for the social support for participants at School 1 (ES) from partners on delaying sex until they were older. At Time 1, the mean score stood at 3.052. After the intervention at Time 2 the mean score rose to 3.793, with a *t-value* of -3.64 and a *p-value* of 0.0003, a difference that was statistically significant.

Similarly, the mean score increased from 3.052 before the intervention at Time 1 to 3.691 after the intervention at Time 3. In this case, the *t-value* was -3.17, and the *p-value* stood at 0.002, reflecting a statistically significant difference. The table also shows a statistically significant difference between the mean score of 3.052 at Time 1 and 3.636 at Time 4, where the *t-value* was -2.89, and the *p-value* was 0.004.

Other time points shown on the table did not report any increase in the mean scores. Instead, they all showed a drop in the scores after the intervention – a result that raises concern about the efficacy of the intervention. However, despite this irregular occurrence, results show that the intervention did make a difference in terms of the support given by partners of the participants in delaying sex until they were older. On the other hand, *t-test* results for social support from partners of participants at School 2 (CS) for delaying sex until they were older did not show any statistically significant increases in the scores at other time-points.

For that reason, the table for that school is not presented in this section. We may only conclude that, while the intervention appears to have had an impact on the learners at School 1 (ES), it failed to make a noticeable difference at School 2 (CS).

7.8 Repeated Measures ANOVA and Mean Estimates: Motivation (Behavioural Intentions)

7.8.1 Multivariate Tests: Motivation (Behavioural Intentions) to Perform HIV Preventive Behaviours

Repeated measures ANOVA were used to test the hypothesis described in **Section 7.4** for significant differences between the schools and the different time periods with respect to behavioural intentions. Multivariate tests are used to tests differences between multiple categorical variables (school, time, and time*school). The tests are based on multiple dependent variables. In this case, multivariate tests between the schools and the different time periods were performed at 5% level of significance.

Table 7.35 Multivariate tests For Significant Differences for Between and Within Subjects on Behavioural Intentions

Effect			Value	F	Hypothesis df	Error df	Sig.
Between Subjects	School	Pillai's Trace	.085	3.458[a]	6.000	223.000	.003
		Wilks' Lambda	.915	3.458[a]	6.000	223.000	.003
		Hotelling's Trace	.093	3.458[a]	6.000	223.000	.003
		Roy's Largest Root	.093	3.458[a]	6.000	223.000	.003
Within Subjects	Time	Pillai's Trace	.190	2.758[a]	18.000	211.000	.000
		Wilks' Lambda	.810	2.758[a]	18.000	211.000	.000
		Hotelling's Trace	.235	2.758[a]	18.000	211.000	.000
		Roy's Largest Root	.235	2.758[a]	18.000	211.000	.000
	Time * School	Pillai's Trace	.113	1.486[a]	18.000	211.000	.097
		Wilks' Lambda	.887	1.486[a]	18.000	211.000	.097
		Hotelling's Trace	.127	1.486[a]	18.000	211.000	.097
		Roy's Largest Root	.127	1.486[a]	18.000	211.000	.097

Table 7.35 shows results for the multivariate tests. Significant differences were observed only on time, with respect to within subject effect and between subject effect (School), whereas the within subject effect of school interaction with time were not significant.

7.8.2 Test of assumptions: Motivation (Behavioural Intentions) to Perform HIV Preventive Behaviours

Data on behavioural intentions were evaluated for validity and whether it satisfied required assumptions before it was analysed. The assumptions included Sphericity, level of measurement, random sampling, independency and homogeneity of variance.

Table 7.36 Mauchly's Test of Sphericity: Behavioural Intentions

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	Item 1	.962	8.752	5	.119	.974	.993	.333
	Item 2	.951	11.447	5	.043	.965	.984	.333
	Item 3	.971	6.604	5	.252	.982	1.000	.333
	Item 4	.984	3.749	5	.586	.989	1.000	.333
	Item 5	.873	30.681	5	.000	.929	.946	.333
	Item 6	.931	16.204	5	.006	.957	.975	.333

Table 7.36 shows Mauchly's Test of Sphericity If the test is significant ($p \leq 0.01$) the epsilon (Greenhouse-Geisser, Huynh-Feldt and Lower-bound) is used to adjust the degrees of freedom for the averaged tests of significance. The values for the skewness (-0.25) and kurtosis -0.21 of the sum scale are both close to zero; therefore, it can be concluded that the values for the sum scale are more or less normally distributed in the sample. The Cronbach's alpha (0.60) can be interpreted that 60% of the variability in the sum score is true score variability, that is, true variability between respondents concerning their behavioural intentions.

7.8.3 Univariate tests: Motivation (Behavioural Intentions) to Perform HIV Preventive Behaviours

Univariate tests were used to test for differences in the views of learners during the four testing periods on each item on behavioural intentions.

Table 7.37 Univariate tests for Behavioural Intentions Within Subject Effect of Time and Time interaction with School

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time	Item 1	Sphericity Assumed	21.075	3	7.025	3.044	.028
		Greenhouse-Geisser	21.075	2.923	7.209	3.044	.029
		Huynh-Feldt	21.075	2.978	7.076	3.044	.029
		Lower-bound	21.075	1.000	21.075	3.044	.082
	Item 2	Sphericity Assumed	9.800	3	3.267	1.418	.236
		Greenhouse-Geisser	9.800	2.896	3.384	1.418	.237
		Huynh-Feldt	9.800	2.951	3.321	1.418	.237
		Lower-bound	9.800	1.000	9.800	1.418	.235
	Item 3	Sphericity Assumed	34.502	3	11.501	5.472	.001
		Greenhouse-Geisser	34.502	2.945	11.715	5.472	.001
		Huynh-Feldt	34.502	3.000	11.501	5.472	.001
		Lower-bound	34.502	1.000	34.502	5.472	.020
	Item 4	Sphericity Assumed	6.683	3	2.228	.976	.404
		Greenhouse-Geisser	6.683	2.967	2.253	.976	.403
		Huynh-Feldt	6.683	3.000	2.228	.976	.404
		Lower-bound	6.683	1.000	6.683	.976	.324
	Item 5	Sphericity Assumed	10.040	3	3.347	3.578	.014
		Greenhouse-Geisser	10.040	2.787	3.602	3.578	.016
		Huynh-Feldt	10.040	2.837	3.539	3.578	.015
		Lower-bound	10.040	1.000	10.040	3.578	.060
	Item 6	Sphericity Assumed	8.418	3	2.806	2.964	.031
		Greenhouse-Geisser	8.418	2.872	2.932	2.964	.034
		Huynh-Feldt	8.418	2.925	2.878	2.964	.033
		Lower-bound	8.418	1.000	8.418	2.964	.087
Time * School	Item 1	Sphericity Assumed	18.101	3	6.034	2.614	.050
		Greenhouse-Geisser	18.101	2.923	6.192	2.614	.052
		Huynh-Feldt	18.101	2.978	6.078	2.614	.051
		Lower-bound	18.101	1.000	18.101	2.614	.107
	Item 2	Sphericity Assumed	9.057	3	3.019	1.310	.270
		Greenhouse-Geisser	9.057	2.896	3.127	1.310	.270
		Huynh-Feldt	9.057	2.951	3.069	1.310	.270
		Lower-bound	9.057	1.000	9.057	1.310	.254
	Item 3	Sphericity Assumed	1.498	3	.499	.238	.870
		Greenhouse-Geisser	1.498	2.945	.509	.238	.867
		Huynh-Feldt	1.498	3.000	.499	.238	.870
		Lower-bound	1.498	1.000	1.498	.238	.626
	Item 4	Sphericity Assumed	13.622	3	4.541	1.989	.114
		Greenhouse-Geisser	13.622	2.967	4.591	1.989	.115
		Huynh-Feldt	13.622	3.000	4.541	1.989	.114
		Lower-bound	13.622	1.000	13.622	1.989	.160
	Item 5	Sphericity Assumed	.840	3	.280	.299	.826
		Greenhouse-Geisser	.840	2.787	.302	.299	.811
		Huynh-Feldt	.840	2.837	.296	.299	.815
		Lower-bound	.840	1.000	.840	.299	.585
	Item 6	Sphericity Assumed	4.027	3	1.342	1.418	.236
		Greenhouse-Geisser	4.027	2.872	1.402	1.418	.238
		Huynh-Feldt	4.027	2.925	1.377	1.418	.237
		Lower-bound	4.027	1.000	4.027	1.418	.235

Table 7.37 displays the univariate tests for the within-subjects factors of Time for behavioural intentions items. The within subject factor of interaction between the school was not considered further since it was found to have no significant differences at 5% level of significance (**Table 7.36**). The sums of squares are computed by taking the trace of the appropriate hypothesis or error SSCP matrix, assuming a polynomial transformation. In cases where the test associated with Sphericity Assumed is met ($p \leq 0.01$), the assumption about the covariance matrix is met. The F statistic is evaluated using the original degrees of freedom. However, the Greenhouse-Geisser, Huynh-Feldt, or Lower-bound test are used when the covariance matrix assumption is not met ($p > 0.01$). There were significant differences on the behavioural intention items 1, 3, 5 and 6 with respect to time, whereas no significant differences were observed an all items with respect to time interaction with school.

7.8.4 Paired t-tests of Mean estimates: Motivation (Behavioural Intentions) to Perform HIV Preventive Behaviours

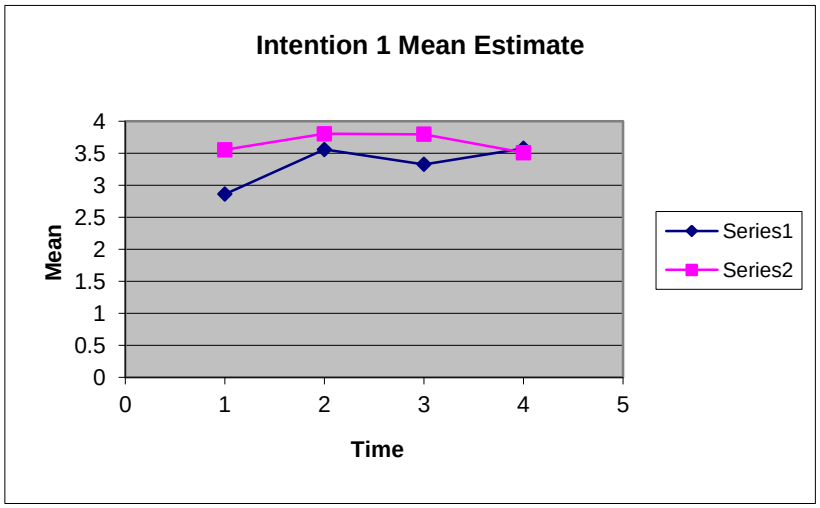
A behavioural intention is an indication of an individual's readiness (or motivation) to perform a given behaviour, based on the attitude towards the behaviour and the subjective norm (Ajzen, 2002; Sheppard, Hartwick & Warshaw, 1988). This part of the study examined results of the participants' behavioural intentions to engage in HIV preventive acts. The following behavioural intentions were analysed:

- participants' intention to delay sex till they are older;
- respondents' intention to discuss with their boyfriends or girlfriends whether they should have sexual intercourse or not;
- participants' intention to acquire condoms (buying or getting them for free);
- respondents' intention to carry condoms around and make them handy;
- respondents' intention to use condoms every time they had sexual intercourse; and
- respondents' intention to tell their boyfriends or girlfriends to use condoms.

Participants' intention to delay sexual intercourse

For item 1 (*Intention 1*) of the questionnaire, learners at both participating schools were to say if they were planning not to have sexual intercourse until they were older.

Figure 7.13 Participants' Intention to Delay Sexual Intercourse



KEY:

Blue - School 1 (ES)

Pink - School 2 (CS)

The graph on **Figure 7.13** shows the mean scores on the learners' intention to delay sexual intercourse at different time points. According to the graph, the rise of the mean score at School 1 (ES) at Time 2 is consistent with what was expected in the hypothesis. Despite the slight drop in the score at Time 3, the consistency was still noticeable as the score at Time 4 remained high. The trend in the scores at School 2 (CS) does not appear to be in line with the hypothesis in that, at Time 2, the score rose without an intervention. Besides, no noticeable increase is observed at Time 3, after the intervention at that school, between Times 2 and 3. Furthermore, the score at Time 4 decreases, contrary to the stated hypothesis.

Table 7.38 School 1 (ES): T-test Results for Learners' Intention to Delay Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	2.863 3.562	-3.55	0.0004*
Time 2 *Time 3*	3.562 3.328	1.19	0.235
Time 3 *Time 4*	3.328 3.579	-1.28	0.202
Time 1 *Time 3*	2.863 3.328	-2.37	0.018*
Time 1 *Time 4*	2.863 3.579	-3.64	0.0003*
Time 2 *Time 4*	3.562 3.579	-0.09	0.929

*Significant at the 0.05 probability level

Table 7.38 reflects *t-test* results on intentions of participants at School 1 (ES) to delay sex until they were older. The table shows time points where the increase in the mean scores was statistically significant. For instance, at Time 1 (before the intervention) the mean score was 2.863. After the intervention at Time 2, the score peaked to 3.562 with a *t-value* of -3.55, and a *p-value* of 0,004, which was statistically significant. Similarly, the score rose from 2.963 at Time 1 to 3.328 at Time 3, with a *t-value* of -2.37, and a *p-value* of 0.018, which was also statistically significant. Another statistically significant increase was reflected in the difference between the Time 1 score (*mean* = 2.863) and

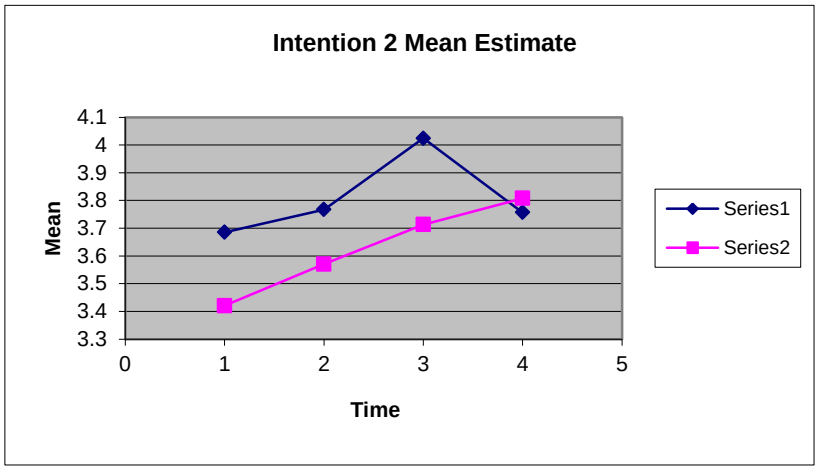
the Time 4 score (*mean* = 3.579). In this case, the *t-value* was -3.64 and the *p-value* stood at 0.0003.

These results demonstrate the efficacy of the intervention in motivating participants at School 1 (ES) to plan to delay sexual intercourse until they were older. However, *t-test* results at School 2 (CS) did not show any statistical significance in the differences between the mean scores at different time points. Hence, results at that school are not fully discussed.

Participants' intention to negotiate sexual intercourse

For item 2 *(Intention 2)* of the questionnaire, learners were requested to state if they planned to negotiate sex with their boyfriends or girlfriends. In other words, they were to say if they planned to talk to them about whether or not they should have sexual intercourse

Figure 7.14 Participants' Intention to Negotiate Sexual Intercourse with Partners



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.14** reflects the mean scores of learners' intentions at both schools at different time points. The graph demonstrates that, while the increase in the score at Time 2 for School 1 (ES) was in line with the hypothesis, the sharp drop of the score at Time 4 does not reflect the hypothesized pattern. Similarly, the trend in the

scores at School 2 (CS) does not reflect any relationship between the intervention and the mean scores, as such, no hypothesized pattern is shown.

Table 7.39 School 2 (CS): T-test Results for Learners' Intention to Delay Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.42 3.57	-0.81	0.420
Time 2 *Time 3*	3.57 3.713	-0.76	0.447
Time 3 *Time 4*	3.713 3.808	-0.51	0.613
Time 1 *Time 3*	3.42 3.713	-1.56	0.119
Time 1 *Time 4*	3.42 3.808	-2.08	0.038*
Time 2 *Time 4*	3.57 3.808	-1.28	0.203

*Significant at the 0.05 probability level

The table showing *t-test* results on the intention of learners at School 1 (ES) to negotiate sex with boyfriends or girlfriends is not reflected in this section. This is because data at this school did not show any statistical significance and was, therefore, not worth analyzing. On the other hand, *t-test* results on the intention of learners at School 2 (CS) to negotiate sex with boyfriends or girlfriends are shown on **Table 7.39**. Although there were noticeable gains in scores at the different time points at School 2 (CS), only one case of statistical significance at School 2 (CS) is worth noting. The mean score at

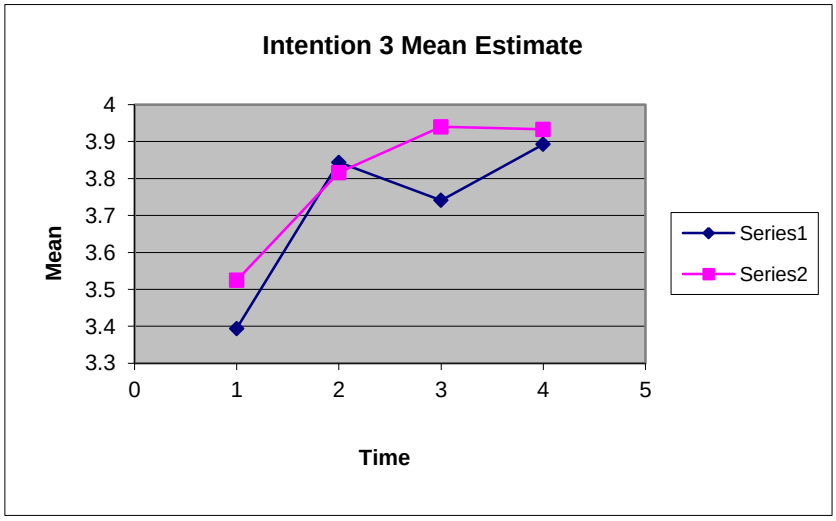
Time 1 (before the intervention) was 3.420. After the intervention at Time 4, the score rose to 3.808, positing a *t-value* of -2.08, and a *p-value* of 0.038, which was statistically significant.

These results indicate that, while there is an upward trend in the motivation of learners to negotiate sex at School 2 (CS), the fact that the significant difference is noticed only at one time point, and at no other time point at the same school, suggests the failure of the intervention to bring about change in the learners' motivation. More importantly, the total absence of a significant difference in all the time points at School 1 (ES) further confirms the inefficacy of the intervention in motivating learners to negotiate sexual intercourse.

Participants' intention to acquire condoms

For item 3 *(Intention 3)* of the questionnaire, learners were required to say if they were planning to acquire condoms by buying them or getting them for free.

Figure 7.15 Participants' Intention to Acquire Condoms



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.15** demonstrates the mean scores of the learners' responses at different time points. Consistent with the stated hypothesis, the graph shows a rise in the mean score at Time 2 for School 1 (ES). However, the score suddenly drops at

Time 3, only to bounce back at Time 4. This trend in the scores is not consistent with the hypothesized patterns. For School 2 (CS), the score was not expected to rise at Time 2, as there was no intervention yet. The higher score at Time 3 after the intervention between Times 2 and 3, and the score at Time 4 are both consistent with the hypothesized pattern.

Table 7.40 School 1 (ES): T-test Results for Learners' Intention to Acquire Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.394 3.844	-2.42	0.016*
Time 2 *Time 3*	3.844 3.741	0.55	0.580
Time 3 *Time 4*	3.741 3.893	-0.82	0.415
Time 1 *Time 3*	3.394 3.741	-1.87	0.062
Time 1 *Time 4*	3.394 3.893	-2.68	0.008*
Time 2 *Time 4*	3.844 3.893	-0.26	0.793

*Significant at the 0.05 probability level

Table 7.40 lays out *t-test* results of the intention of learners at School 1 (ES) to acquire condoms by buying them or getting them for free. According to this table, there were noticeable gains in the mean scores after the intervention. For example, before the

intervention (at Time 1) the mean score stood at 3.394; after the intervention (at Time 2) the score peaked at 3.844. The *t-value* was -2.42, while the *p-value* was 0.016, reflecting a statistically significant difference. Another statistically significant increase in the score was noted where the mean at Time 1 (*mean* = 3.394) sharply increased to 3.893 at Time 4, with a *t-value* of -2.68, and a *p-value* of 0.008. However, although not all gains were statistically significant, there was a general trend of increases in the scores at most testing times after the intervention at School 1 (ES).

Table 7.41 School 2 (CS): T-test Results for Learners' Intention to Acquire Condoms

Times	**Means**	**t-value**	**p-value**
Time 1 *Time 2*	3.525 3.816	-1.65	0.099
Time 2 *Time 3*	3.816 3.939	-0.7	0.485
Time 3 *Time 4*	3.939 3.933	0.04	0.969
Time 1 *Time 3*	3.525 3.939	-2.35	0.019*
Time 1 *Time 4*	3.525 3.933	-2.31	0.021*
Time 2 *Time 4*	3.816 3.933	-0.66	0.509

*Significant at the 0.05 probability level

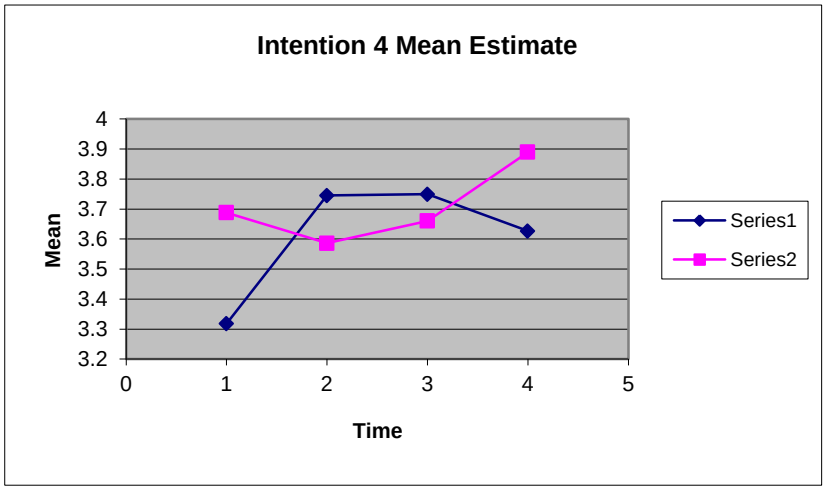
Table 7.41 shows *t*-test results of the intentions of learners at School 2 (CS) to acquire condoms by buying them or getting them for free. As in Table 7.28, this table shows a

general pattern of increases in the mean scores after the intervention, with some increases being statistically significant. For instance, the difference between the mean scores at Time 1 (*mean* = 3.525) and Time 3 (*mean* = 3.939) was a *t-value* of -2.35, with a *p-value* of 0.019. Similarly, another difference was noted between Time 1 (*mean* = 3.525) and Time 4 (*mean* = 3.933), with a *t-value* of -2.31, and a *p-value* of 0.021.
As in School 1 (ES), these results suggest that, while the intervention did not reflect significant differences at some time points at School 2 (CS), the general trend emerging was that some differences were evident, with some being statistically significant.

Participants' intention to carry condoms

For Item 4 *(Intention 4)* of the questionnaire, respondents were expected to say whether or not they were planning to carry condoms with them during the next two months.

Figure 7.16 Participants' intention to carry condoms



KEY:
Blue – School 1 (ES)
Pink – School 2 (CS)

The graph on **Figure 7.16** shows mean scores of the responses of learners at the two participating schools at different time points. While the graph indicates an increase in the mean score at Time 2, this increase was not maintained up to Time 4, as the score decreased, contrary to what was expected of the hypothesized pattern. The trend in the scores at School 2 (CS) was also not consistent with the hypothesized pattern. For example, while the slight increase of the score at Time 3 could be attributed to the

intervention between Times 2 and 3, the decrease of the score at Time 2 would be difficult to explain. The sudden rise of the score at Time 4 may also raise further questions as this trend is inconsistent with what was hypothesized.

Table 7.42 School 1 (ES): T-test Results for Learners' Intention to Carry Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.318 3.745	-2.21	0.027*
Time 2 *Time 3*	3.745 3.749	-0.02	0.982
Time 3 *Time 4*	3.749 3.627	0.64	0.524
Time 1 *Time 3*	3.318 3.749	-2.23	0.026*
Time 1 *Time 4*	3.318 3.627	-1.6	0.110
Time 2 *Time 4*	3.745 3.627	0.62	0.539

*Significant at the 0.05 probability level

Table 7.42 reflects a consistent increase of mean scores at School 1 (ES) at most time points. Of these increases, two were noted as statistically significant. For instance, the mean score at Time 1 (before the intervention) was 3.318. The score rose to 3.745 at Time 2 (after the intervention). The difference between the two scores was indicated by a *t-value* of -2.21 and a *p-value* of 0.027, which was statistically significant. Similarly, another statistically significant increase was noted when the mean score at Time 1 was

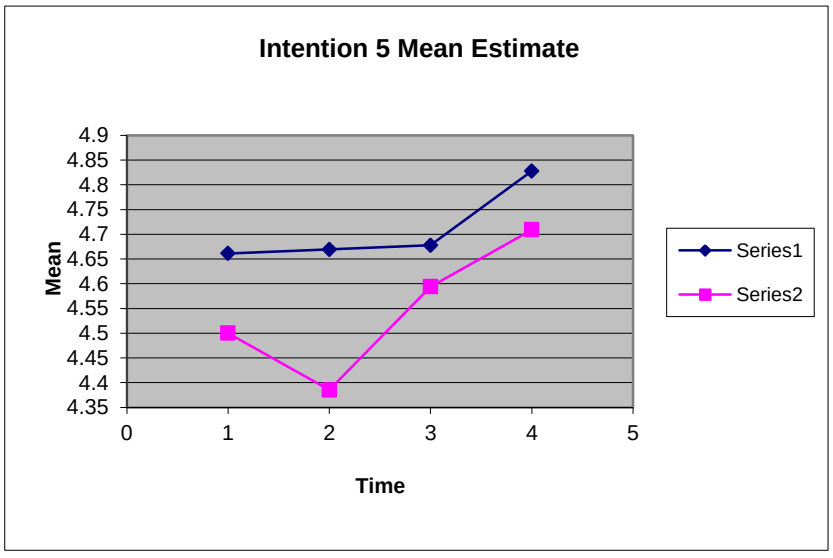
3.318, and rose to 3.749 at Time 3, with a *t-value* of -2.23 and a *p-value* of 0.026, which was statistically significant.

These results show that the intervention at School 1 (ES) was effective in motivating learners to carry condoms to prevent them from engaging in risky sexual behaviours. However, an analysis of the *t-test* results at School 2 (CS) will reveal that, while there were increases in the scores at different time points, these increases were not statistically significant, hence the exclusion of the table for further analysis. In other words, while the intervention proved effective at School 1 (ES), it could not increase the motivation of learners at School 2 (CS) to carry condoms.

Participants' intention to use condoms

For Item 5 *(Intention 5)* of the questionnaire, learner participants were to state if they planned to use condoms every time they had sexual intercourse during the next two months.

Figure 7.17 Participants' intention to use condoms



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.17** shows mean scores of the responses of learners at the two participating schools at different time points. At both participating schools, the pattern

of mean scores shown on the graph on **Figure 7.17** does not reflect the hypothesized relationships. For instance, despite the intervention between Times 1 and 2 at School 1 (ES), the mean score at Time 2 remained unchanged. For School 2 (CS), it is unclear why the score dropped at Time 2. The random fluctuations observed on this graph appear to be independent of the intervention.

T-test results at School 1 (ES) indicate that, while there were differences between scores before and after the intervention, none of these differences were statistically significant. This suggests that the intervention at this school was not effective in increasing the learners' motivation to use condoms. Accordingly, the table showing results at School 1 (ES) was not included in this section.

Table 7.43 School 2 (CS): T-test Results for Learners' Intention to Carry Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	4.500 4.385	0.97	0.335
Time 2 *Time 3*	4.385 4.594	-1.75	0.08
Time 3 *Time 4*	4.594 4.709	-0.96	0.336
Time 1 *Time 3*	4.500 4.594	-0.79	0.431
Time 1 *Time 4*	4.500 4.709	-1.75	0.079
Time 2 *Time 4*	4.385 4.709	-2.72	0.007*

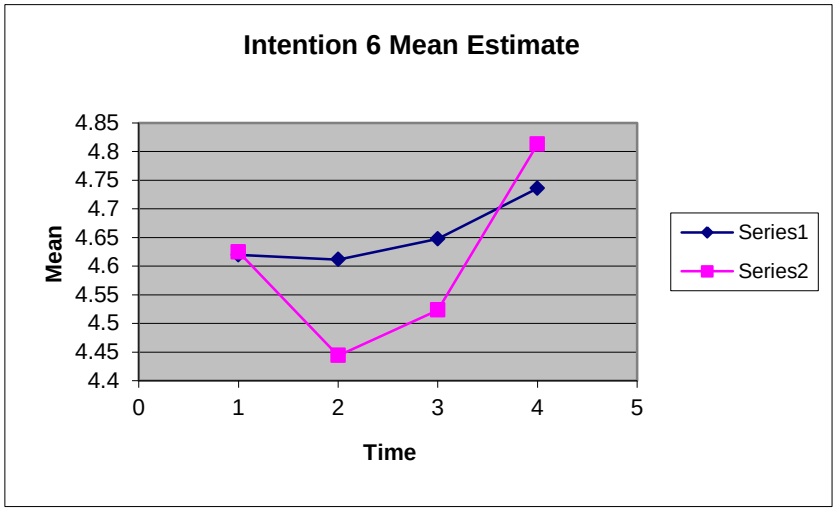
*Significant at the 0.05 probability level

Like School 1 (ES), mean scores at School 2 (CS) consistently increased after the intervention. However, **Table 7.43** indicates that the most outstanding increase was at Time 4, after the intervention. For instance, the table shows that, before the intervention at Time 2, the mean score was 4.385 and the score rose to 4.709 at Time 4, after the intervention. The difference between the two scores was statistically significant *(t-value* = -2.72; *p-value* = 0.007). Therefore, the intervention was effective in increasing the learners' intention to use condoms at School 2 (CS).

Participants' intention to tell partners to use condoms

For Item 6 (*Intention 6)* of the questionnaire, respondents were expected to say if they would tell their boyfriends or girlfriends to use condoms during the next two months.

Figure 7.18 Participants' intention to tell partners to use condoms



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.18** shows mean scores of the learners' responses at different time points. The graph also shows a trend in scores that is not reflective of the hypothesized patterns. As in the previous graph (Figure 7.17), there appears to be no change in the mean score at Time 2 at School 1 (ES) after the intervention. The steady rise in scores at that school may not be related to the intervention. It is also unclear why the score at Time 2 (School 2) dropped without any influence from the intervention.

T-test results for the intention of learners at School 1 (ES) show that, while there was a difference between the scores before and after the intervention, none of the differences between the scores were statistically significant. Therefore, the table is not displayed for further examination.

Table 7.44 School 2 (CS): T-test Results for Participants' Intention to Negotiate Condom Use with Partners

Times	Means	t-value	p-value
Time 1 *Time 2*	4.625 4.444	1.54	0.124
Time 2 *Time 3*	4.444 4.523	-0.67	0.501
Time 3 *Time 4*	4.523 4.813	-2.46	0.014*
Time 1 *Time 3*	4.625 4.523	0.86	0.389
Time 1 *Time 4*	4.625 4.813	-1.6	0.109
Time 2 *Time 4*	4.444 4.813	-3.14	0.002*

*Significant at the 0.05 probability level

According to **Table 7.44,** *t-test* results of learners at School 2 (CS) indicate consistent increases in the scores after the intervention. In addition, there were increases that were statistically significant. For instance, at Time 3 the mean score was 4.523; it rose to 4.813 at Time 4, with a *t-value* of -2.46, and a *p-value* of 0.014, which was statistically significant. Similarly, at Time 2, the mean score was 4.444; the score then increased to 4.813 at Time 4, with a *t-value* of -3.14, and a *p-value* of 0.002, which was statistically significant.

These results indicate that, although learners at School 2 (CS) were motivated to negotiate the use of condoms with their boyfriends or girlfriends as a result of the intervention, this was not the case with learners at School 1 (ES).

7.9 Repeated Measures ANOVA and Mean Estimates: Motivation (Vulnerability to HIV Infection)

This section of the chapter looks at Repeated Measures ANOVA pertaining to how participants at both schools perceived vulnerability to HIV infection at all testing times. It is these perceptions that influenced them to engage or not to engage in AIDS preventive acts. Specifically, the study analysed statistics regarding the learners' perceptions of their own and their peers' likelihood of being infected with HIV, as well as their personal fear associated with being infected with HIV.

7.9.1 Multivariate tests: Motivation (Vulnerability to HIV Infection)

To test the data for significant differences between the schools and the different time periods with respect to the HIV-risk reduction intervention lessons on vulnerability to HIV infection, multivariate tests between the schools and the different time periods were performed at 5% level of significance.

Table 7.45 Multivariate tests for Significant Differences for Between and Within Subjects on Vulnerability to HIV Infection

Effect			Value	F	Hypothesis df	Error df	Sig.
Between Subjects	School	Pillai's Trace	.017	1.348[a]	3.000	235.000	.260
		Wilks' Lambda	.983	1.348[a]	3.000	235.000	.260
		Hotelling's Trace	.017	1.348[a]	3.000	235.000	.260
		Roy's Largest Root	.017	1.348[a]	3.000	235.000	.260
Within Subjects	Time	Pillai's Trace	.041	1.087[a]	9.000	229.000	.373
		Wilks' Lambda	.959	1.087[a]	9.000	229.000	.373
		Hotelling's Trace	.043	1.087[a]	9.000	229.000	.373
		Roy's Largest Root	.043	1.087[a]	9.000	229.000	.373
	Time * School	Pillai's Trace	.025	.663[a]	9.000	229.000	.742
		Wilks' Lambda	.975	.663[a]	9.000	229.000	.742
		Hotelling's Trace	.026	.663[a]	9.000	229.000	.742
		Roy's Largest Root	.026	.663[a]	9.000	229.000	.742

Table 7.45 shows results for the multivariate tests. Significant differences were not observed on both *within subject effect* respect to time and school interaction with time and *between subject effect* (School).

7.9.2 Test of assumptions: Motivation (Vulnerability to HIV Infection)

Data on vulnerability to HIV infection were evaluated for validity and whether it satisfied required assumptions before it was analysed. The assumptions included Sphericity, level of measurement, random sampling, independency and homogeneity of variance.

Table 7.46 Mauchly's Test of Sphericity for Within Subjects Effect of Time on Vulnerability to HIV Infection

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	Item 1	.979	5.011	5	.415	.986	1.000	.333
	Item 2	.970	7.207	5	.206	.981	.998	.333
	Item 3	.957	10.381	5	.065	.972	.989	.333

Table 7.46 displays the univariate tests for the within-subjects factors of Time for behavioural intensions items. The within subject factor of interaction between the school was not considered further since it was found to have no significant differences at 99% confidence limit (**Table 7.4**). The sums of squares are computed by taking the trace of the appropriate hypothesis or error SSCP matrix, assuming a polynomial transformation. In cases where the test associated with Sphericity Assumed is met ($p \leq 0.01$), the assumption about the covariance matrix is met.

The F statistic is evaluated using the original degrees of freedom. However, the Greenhouse-Geisser, Huynh-Feldt, or Lower-bound test are used when the covariance matrix assumption is not met ($p > 0.01$). There were no significant differences on the items tested between the different test times and no interaction was observed between the schools and testing rimes for all the items.

7.9.3 Univariate tests: Motivation (Vulnerability to HIV Infection)

Univariate tests were used to test for differences in the views of learners during the four testing periods on vulnerability to HIV infection. The fours testing periods are here refered to as Time and represent the single independent categorical variable.

Table 7.47 Univariate tests for Within Subject factors of Vulnerability to HIV Infection

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time	Item 1	Sphericity Assumed	2.192	3	.731	.425	.735
		Greenhouse-Geisser	2.192	2.958	.741	.425	.732
		Huynh-Feldt	2.192	3.000	.731	.425	.735
		Lower-bound	2.192	1.000	2.192	.425	.515
	Item 2	Sphericity Assumed	4.126	3	1.375	.946	.418
		Greenhouse-Geisser	4.126	2.942	1.403	.946	.416
		Huynh-Feldt	4.126	2.995	1.377	.946	.418
		Lower-bound	4.126	1.000	4.126	.946	.332
	Item 3	Sphericity Assumed	7.122	3	2.374	1.091	.352
		Greenhouse-Geisser	7.122	2.915	2.443	1.091	.351
		Huynh-Feldt	7.122	2.968	2.400	1.091	.352
		Lower-bound	7.122	1.000	7.122	1.091	.297
Time * School	Item 1	Sphericity Assumed	3.548	3	1.183	.688	.560
		Greenhouse-Geisser	3.548	2.958	1.200	.688	.558
		Huynh-Feldt	3.548	3.000	1.183	.688	.560
		Lower-bound	3.548	1.000	3.548	.688	.408
	Item 2	Sphericity Assumed	3.088	3	1.029	.708	.547
		Greenhouse-Geisser	3.088	2.942	1.050	.708	.545
		Huynh-Feldt	3.088	2.995	1.031	.708	.547
		Lower-bound	3.088	1.000	3.088	.708	.401
	Item 3	Sphericity Assumed	4.151	3	1.384	.636	.592
		Greenhouse-Geisser	4.151	2.915	1.424	.636	.588
		Huynh-Feldt	4.151	2.968	1.399	.636	.590
		Lower-bound	4.151	1.000	4.151	.636	.426

Table 7.47 shows the univariate tests for within subject factors of vulnerability to HIV infection items. There were no significant differences on all the behavioural intention items with respect to time and time interaction with school.

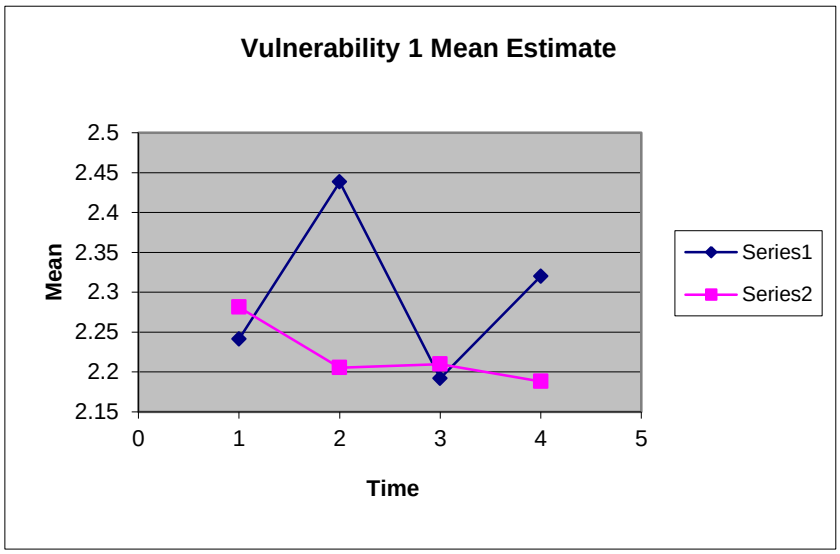
7.9.4 Paired *t-tests* of Mean estimates: Motivation (Vulnerability to HIV Infection)

According to the Health Belief Model (Janz & Becker, 1984; Rosenstock, Strecher & Becker, 1988), and Protection Motivation Theory (Rogers, 1983), if people do not perceive themselves as susceptible to a health threat, they are not likely to take preventive action and may thus be exposed to risk.

Vulnerability of the Participants' Friends

For Item 1 *(Vulnerability 1)* of the questionnaire, respondents were asked to indicate their friends' chances of being vulnerable to HIV/AIDS.

Figure 7.19: Participants' Perceptions of Their Friends' Vulnerability to HIV Infection



KEY:

Blue - School 1 (ES)

Pink - School 2 (CS)

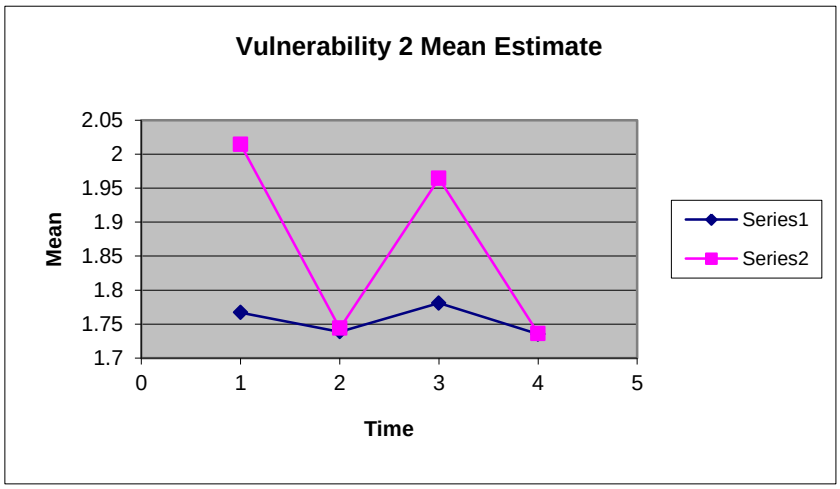
The graph on **Figure 7.19** shows mean scores of learners' responses at both schools at different time points. The trend of scores shown between schools over time is not reflective of the hypothesized pattern.

T-test results of the perceptions of learners at the participating schools show noticeable inconsistencies in the mean scores in relation to the intervention. Further analysis of the differences between the scores at different time points shows that none of the differences were significant at either school. It may be concluded, therefore, that the intervention did not have any effect on the learners' perceptions about their friends' vulnerability to HIV/AIDS.

Learners' perceptions of their own vulnerability

For Item 2 *(Vulnerability 2)* of the questionnaire, learners at both schools were to state their own chances of getting HIV/AIDS.

Figure 7.20 Participants' Perceptions of their Own Vulnerability to HIV infection



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.20** shows mean scores of the learners at different time points. The trend of scores between schools shown on the graph does not reflect the hypothesized pattern.

T-test results for learners at both schools on their chances of getting HIV/AIDS do not show a consistent pattern as a result of the intervention. As in Item 1, the intervention did not make any difference to the mean scores, and was, therefore, ineffective in increasing the learners' perceptions of their own vulnerability.

Participants' Fear of HIV/AIDS

For Item 3 *(Vulnerability 3)* of the questionnaire, learners at both schools were to indicate to what extent they were afraid of HIV/AIDS.

Figure 7.21 Participants' Own Fear of HIV/AIDS



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

Mean scores of the learners' responses at different time points are shown on **Figure 7.21.** The graph on **Figure 7.21** shows a trend of scores between schools over time. This trend does not reflect the hypothesized pattern.

T-test results of the fear expressed by learners at both schools show that, although there were consistent increases in the scores after the intervention, these increases were not significant. As such, the intervention was not effective in increasing the learners' fear of HIV/AIDS. Accordingly, relevant tables have been left out of this section.

7.5.6 Summary on Motivation

This section sums *t-test* results on the motivation of participants to carry out HIV preventive behaviours. The effectiveness of the intervention to motivate participants was determined by whether the differences in mean scores at different time points were statistically significant or not. Findings on the motivation of participants towards engaging in HIV-preventive behaviours following the intervention varied between the two schools.

Findings suggest that the intervention generated reports of support from learners' friends for delaying sexual intercourse at School 1 (ES). Similarly, the intervention increased the support for delaying sexual intercourse from learners' sexual partners at

the same school. On the other hand, at School 2 (CS), the intervention failed to increase social support for learners in engaging in HIV-preventive behaviours.

Findings also suggest that the intervention was able to encourage learners to plan engaging in safer sex practices in future at both schools. For instance, at School 1 (ES), learners' intentions to delay sexual intercourse, acquire and carry condoms were strengthened. However, the intervention was not effective in motivating learners to plan to negotiate sex and the use of condoms with their partners in future.

At School 2 (CS), findings show that the intervention encouraged learners to intend negotiating sex and using condoms with their partners. On the other hand, learners did not plan to delay sexual intercourse or acquire and carry condoms as a result of the intervention.

Despite the learners' recognition of their vulnerability to HIV infection as an important factor in their motivation to engage in HIV-preventive acts, *t-test* results show that, at both schools, the intervention did not increase learners':

- awareness of their friends' vulnerability to HIV infection;
- perceptions about their own vulnerability to HIV infection; and
- fear of HIV/AIDS.

If, as the findings suggest, the intervention was able to motivate learners to perform certain HIV-preventive behaviours, and not others, there may be possible methodological discrepancies in the intervention itself, or, it may be that learners were already motivated and did not need an intervention like this one to increase their motivation.

7.10 Repeated Measures ANOVA and Mean Estimates: Behavioural Skills

7.10.1 Multivariate Tests: Behavioural Skills

Repeated measures ANOVA were used to test the data for significant differences between the schools and the different time periods with respect to the HIV-risk reduction intervention lessons on behavioural skills. Multivariate tests were performed at 5% level of significance.

Table 7.48 Multivariate tests: Behavioural Skills

Effect			Value	F	Hypothesis df	Error df	Sig.
Between Subjects	School	Pillai's Trace	.020	.648[a]	7.000	219.000	.716
		Wilks' Lambda	.980	.648[a]	7.000	219.000	.716
		Hotelling's Trace	.021	.648[a]	7.000	219.000	.716
		Roy's Largest Root	.021	.648[a]	7.000	219.000	.716
Within Subjects	Time	Pillai's Trace	.215	2.667[a]	21.000	205.000	.000
		Wilks' Lambda	.785	2.667[a]	21.000	205.000	.000
		Hotelling's Trace	.273	2.667[a]	21.000	205.000	.000
		Roy's Largest Root	.273	2.667[a]	21.000	205.000	.000
	Time * School	Pillai's Trace	.191	2.302[a]	21.000	205.000	.002
		Wilks' Lambda	.809	2.302[a]	21.000	205.000	.002
		Hotelling's Trace	.236	2.302[a]	21.000	205.000	.002
		Roy's Largest Root	.236	2.302[a]	21.000	205.000	.002

Table 7.48 shows results for the multivariate tests on behavioural skills. Significant differences were observed on both *within subject effect of time* and *time interaction with school.* However, there were no significant differences on the *between subject effect* (School).

7.10.2 Test of assumptions: Behavioural Skills

Data on behavioural skills were evaluated for validity and whether it satisfied required assumptions before it was analysed. The assumptions included Sphericity, level of measurement, random sampling, independency and homogeneity of variance.

Table 7.49 Mauchly's Test of Sphericity for Within Subjects Effect of Time on Behavioural Skills

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[a]		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	Item 1	.976	5.418	5	.367	.983	1.000	.333
	Item 2	.966	7.720	5	.172	.977	.996	.333
	Item 3	.980	4.613	5	.465	.986	1.000	.333
	Item 4	.990	2.295	5	.807	.993	1.000	.333
	Item 5	.958	9.548	5	.089	.972	.991	.333
	Item 6	.977	5.215	5	.390	.985	1.000	.333
	Item 7	.991	1.993	5	.850	.994	1.000	.333

Table 7.49 shows Mauchly's Test of Sphericity. If the test is significant ($p \leq 0.01$), the epsilon (Greenhouse-Geisser, Huynh-Feldt and Lower-bound) is used to adjust the degrees of freedom for the averaged tests of significance. The values for the skewness (-0.47) and kurtosis -0.24 of the sum scale are both close to zero. Therefore, it can be concluded that the values for the sum scale are more or less normally distributed in the sample. The Cronbach's alpha (0.64) can be interpreted that 64% of the variability in the sum score is true score variability, that is, true variability between respondents concerning their behavioural skills.

7.10.3 Univariate tests: Behavioural Skills

Univariate tests were used to test for differences in the views of learners during the four testing periods on behavioural skills. The four testing periods are here referred to as Time and represent the single independent categorical variable.

Table 7.50 Univariate tests: Behavioural Skills

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time	Item 1	Sphericity Assumed	7.994	3	2.665	1.090	.353
		Greenhouse-Geisser	7.994	2.950	2.710	1.090	.352
		Huynh-Feldt	7.994	3.000	2.665	1.090	.353
		Lower-bound	7.994	1.000	7.994	1.090	.298
	Item 2	Sphericity Assumed	25.598	3	8.533	3.463	.016
		Greenhouse-Geisser	25.598	2.931	8.735	3.463	.017
		Huynh-Feldt	25.598	2.987	8.571	3.463	.016
		Lower-bound	25.598	1.000	25.598	3.463	.064
	Item 3	Sphericity Assumed	21.668	3	7.223	3.484	.016
		Greenhouse-Geisser	21.668	2.958	7.326	3.484	.016
		Huynh-Feldt	21.668	3.000	7.223	3.484	.016
		Lower-bound	21.668	1.000	21.668	3.484	.063
	Item 4	Sphericity Assumed	51.178	3	17.059	9.305	.000
		Greenhouse-Geisser	51.178	2.980	17.173	9.305	.000
		Huynh-Feldt	51.178	3.000	17.059	9.305	.000
		Lower-bound	51.178	1.000	51.178	9.305	.003
	Item 5	Sphericity Assumed	19.769	3	6.590	5.295	.001
		Greenhouse-Geisser	19.769	2.917	6.777	5.295	.001
		Huynh-Feldt	19.769	2.973	6.650	5.295	.001
		Lower-bound	19.769	1.000	19.769	5.295	.022
	Item 6	Sphericity Assumed	30.045	3	10.015	4.734	.003
		Greenhouse-Geisser	30.045	2.955	10.169	4.734	.003
		Huynh-Feldt	30.045	3.000	10.015	4.734	.003
		Lower-bound	30.045	1.000	30.045	4.734	.031
	Item 7	Sphericity Assumed	15.110	3	5.037	3.550	.014
		Greenhouse-Geisser	15.110	2.982	5.067	3.550	.014
		Huynh-Feldt	15.110	3.000	5.037	3.550	.014
		Lower-bound	15.110	1.000	15.110	3.550	.061

Table 7.50 continued: Univariate tests: Behavioural Skills

Source	Measure		Type IV Sum of Squares	df	Mean Square	F	Sig.
Time * School	Item 1	Sphericity Assumed	29.404	3	9.801	4.008	.008
		Greenhouse-Geisser	29.404	2.950	9.967	4.008	.008
		Huynh-Feldt	29.404	3.000	9.801	4.008	.008
		Lower-bound	29.404	1.000	29.404	4.008	.046
	Item 2	Sphericity Assumed	26.431	3	8.810	3.576	.014
		Greenhouse-Geisser	26.431	2.931	9.019	3.576	.014
		Huynh-Feldt	26.431	2.987	8.849	3.576	.014
		Lower-bound	26.431	1.000	26.431	3.576	.060
	Item 3	Sphericity Assumed	1.853	3	.618	.298	.827
		Greenhouse-Geisser	1.853	2.958	.626	.298	.824
		Huynh-Feldt	1.853	3.000	.618	.298	.827
		Lower-bound	1.853	1.000	1.853	.298	.586
	Item 4	Sphericity Assumed	17.486	3	5.829	3.179	.024
		Greenhouse-Geisser	17.486	2.980	5.868	3.179	.024
		Huynh-Feldt	17.486	3.000	5.829	3.179	.024
		Lower-bound	17.486	1.000	17.486	3.179	.076
	Item 5	Sphericity Assumed	3.945	3	1.315	1.057	.367
		Greenhouse-Geisser	3.945	2.917	1.352	1.057	.366
		Huynh-Feldt	3.945	2.973	1.327	1.057	.367
		Lower-bound	3.945	1.000	3.945	1.057	.305
	Item 6	Sphericity Assumed	2.873	3	.958	.453	.716
		Greenhouse-Geisser	2.873	2.955	.972	.453	.713
		Huynh-Feldt	2.873	3.000	.958	.453	.716
		Lower-bound	2.873	1.000	2.873	.453	.502
	Item 7	Sphericity Assumed	3.444	3	1.148	.809	.489
		Greenhouse-Geisser	3.444	2.982	1.155	.809	.488
		Huynh-Feldt	3.444	3.000	1.148	.809	.489
		Lower-bound	3.444	1.000	3.444	.809	.369

Table 7.50 displays the univariate tests for the within-subjects factors of Time and time interaction with school for behavioural skills items. The between subject factor of school was not considered further since it was found to have no significant differences at 5% level of significance (**Table 7.48**). The sums of squares are computed by taking the trace of the appropriate hypothesis or error SSCP matrix, assuming a polynomial transformation. In cases where the test associated with Sphericity Assumed is met ($p \leq 0.01$), the assumption about the covariance matrix is met. The F statistic is evaluated using the original degrees of freedom.

However, the Greenhouse-Geisser, Huynh-Feldt, or Lower-bound test are used when the covariance matrix assumption is not met ($p > 0.01$). Significant differences were observed on all items except item 1 for the within subject factor of time, whereas, for the within subject factor of time interaction with school, significant differences were

observed on items 1, 2 and 4. No significant differences were observed for items 3, 5, 6 and 7 with respect to time. When the within subject effect of school interaction with time was considered, significant differences were observed on items 1, 2 and 4.

7.10.4 Paired t-tests of Mean estimates: Behavioural Skills

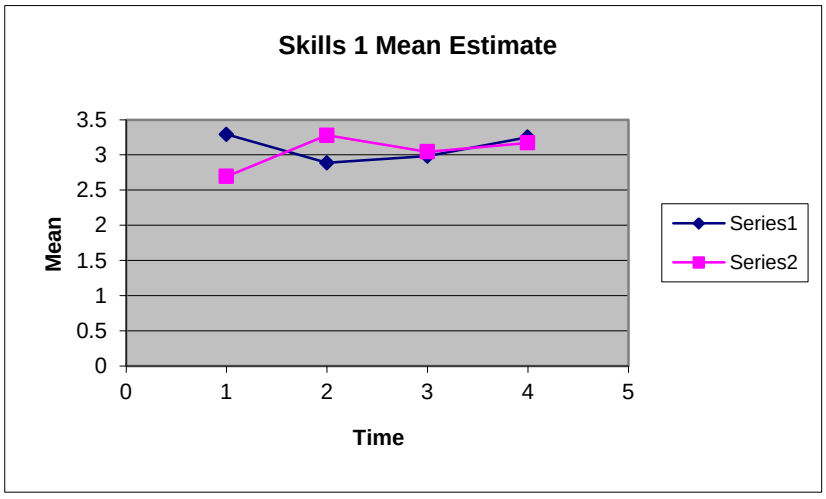
This part of the study examines the impact of the intervention in developing HIV risk preventing skills of learners at the two participating schools. Specifically, paired *t*-tests of mean estimates are examined in terms of the learners' ability to:

- delay sexual intercourse until they are older;
- refuse sex with a boyfriend or girlfriend;
- acquire condoms by buying them or getting them for free;
- carry condoms around and have them handy for sex; and
- use condoms with partner every time during sexual intercourse.

Ability to delay sexual intercourse

For Item 1 *(Skills 1)* of the questionnaire, respondents were to state how easy or difficult it was for them to delay sexual intercourse until they were older.

Figure 7.22 Participants' Ability to Delay Sexual Intercourse



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

Figure 7.22 graphically presents mean scores of learners at the two participating schools at different time points. The graph on **Figure 7.22** shows a trend of scores between schools over time. This trend does not reflect the hypothesized pattern.

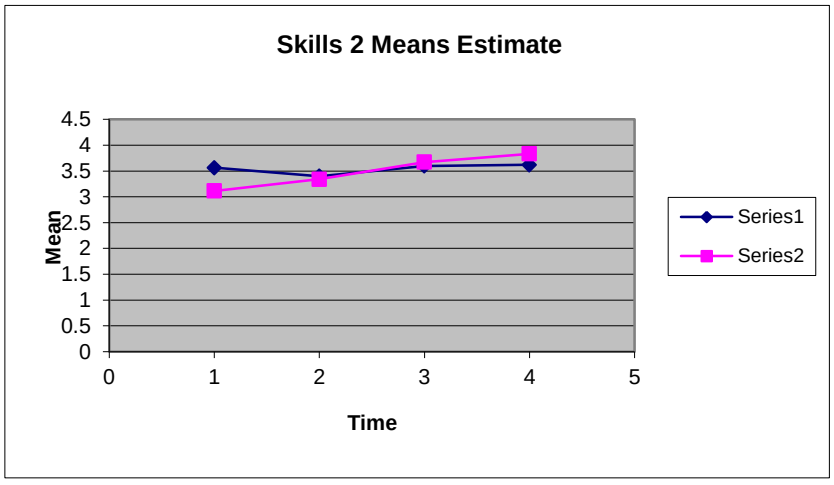
Results on this item show some inconsistencies regarding the increases and decreases in the scores at different time points. For instance, *t-test* results on the learners' ability to delay sexual intercourse at School 1 (ES) reveal a decrease in the score at Time 2 (after the intervention). Yet, at School 2 (CS), the increase in the score was noted at Time 2, despite the absence of an intervention.

In other words, the scores at the two schools appear to have reversed. This irregularity will need further discussion later in the study. Furthermore, differences in the mean scores at different points in time at both schools were not statistically significant. It may be concluded, therefore, that the intervention did not influence the results at the two schools. Perhaps the rise and fall of the scores could have been a result of other factors besides the intervention.

Ability to refuse sexual intercourse

For Item 2 *(Skills 2)* of the questionnaire, learners at both schools were to say how easy or difficult it would be for them to refuse sexual intercourse with their boyfriends or girlfriends.

Figure 7.23 Participants' Ability to Refuse Sexual Intercourse



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

Figure 7.23 graphically illustrates mean scores of the learners' responses at different time points. The graph on **Figure 7.23** shows a trend of scores between schools over time. This trend does not reflect the hypothesized pattern. Although *t-test* results on the ability of learners at School 1 (ES) to refuse sexual intercourse show a steady increase in the scores after the intervention, none of the increases revealed any statistically significant differences. In other words, the intervention did not make any meaningful difference in the learners' ability to refuse sex. Accordingly, the table showing results at School 1 (ES) is not presented in this section for further analysis.

Table 7.51 School 2 (CS): T-test Results for Learners' Ability to Refuse Sexual Intercourse

Times	Means	t-value	p-value
Time 1 *Time 2*	3.113 3.341	-1.17	0.242
Time 2 *Time 3*	3.341 3.674	-1.72	0.086
Time 3 *Time 4*	3.674 3.834	-0.82	0.412
Time 1 *Time 3*	3.113 3.674	-2.9	0.004*
Time 1 *Time 4*	3.113 3.834	-3.7	0.0002*
Time 2 *Time 4*	3.341 3.834	-2.53	0.012*

*Significant at the 0.05 probability level

Table 7.51 presents *t-test* results on the ability of learners at School 2 (CS) to refuse sexual intercourse. Unlike School 1 (ES), there was a general pattern of increases in the scores at different time points, most of the increases being significant. For instance, the mean score at Time 1 (before the intervention) was 3.113; at Time 3 (after the intervention), the score rose sharply to 3.674, with a *t-value* of -2.9 and a *p-value* of 0.004, which was statistically significant.

Again, while the mean score at Time 1 was 3.113, it increased to 3.834 at Time 4, with a *t-value* of -3.7 and a *p-value* of 0.0002, also statistically significant. Another statistically significant difference between scores was noted when the score jumped from 3.341 at Time 2 to 3.834 at Time 4. On the basis of these results, it may be concluded that, while the intervention did not have an effect at School 1 (ES), it did positively influence the ability of learners at School 2 (CS) to refuse sexual intercourse.

Ability to acquire condoms

For Item 3 *(Skills 3)* of the questionnaire, learners at the two participating schools were expected to say if it would be easy or difficult for them to acquire condoms by buying them or getting them for free.

Figure 7.24 Learners' ability to acquire condoms (buy them or get them for free)



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

The graph on **Figure 7.24** shows a trend of scores between schools over time. Although mean scores at both schools maintained a steady increase over time, the trend on the graph does not reflect the hypothesized pattern.

Table 7.52 School 1 (ES): T-test Results for Learners' Ability to Acquire Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.615 3.837	-1.24	0.215
Time 2 *Time 3*	3.837 3.882	-0.25	0.801
Time 3 *Time 4*	3.882 4.004	0.68	0.495
Time 1 *Time 3*	3.615 3.882	-1.5	0.135
Time 1 *Time 4*	3.615 4.004	-2.17	0.031*
Time 2 *Time 4*	3.837 4.004	-0.93	0.352

*Significant at the 0.05 probability level

According to **Table 7.52**, there were noticeable gains in the scores at School 1 (ES) at different time points. Most of these gains were not statistically significant, except for one. For example, at Time 1 (before the intervention) the mean score was 3.615; after the intervention at Time 4, it went up to 4.004. The difference between the two mean scores was a *t-value* of -2.17, and the *p-value* was 0.031, which was statistically significant.

Table 7.53 School 2 (CS): T-test Results for Learners' Ability to Acquire Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.561 3.715	-0.83	0.409
Time 2 *Time 3*	3.715 3.833	-0.63	0.529
Time 3 *Time 4*	3.833 3.960	-0.67	0.501
Time 1 *Time 3*	3.561 3.833	-1.45	0.147
Time 1 *Time 4*	3.561 3.960	-2.12	0.034*
Time 2 *Time 4*	3.715 3.960	-1.3	0.194

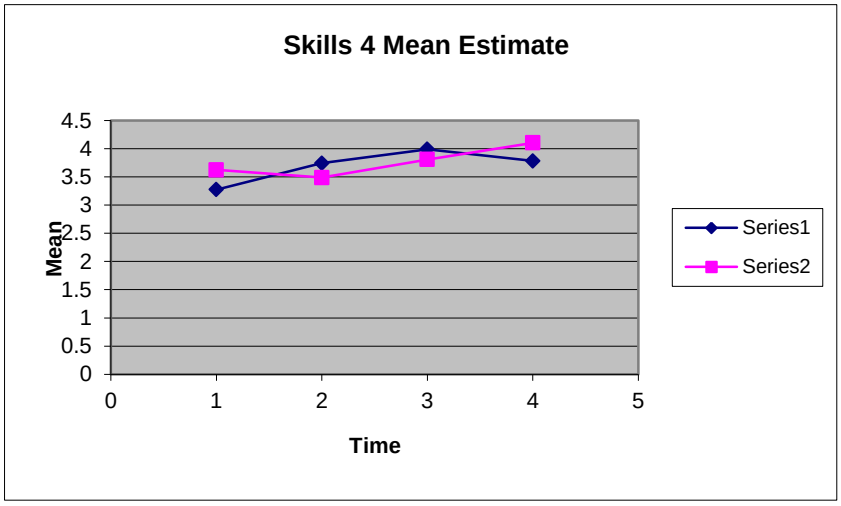
*Significant at the 0.05 probability level

Table 7.53 reflects a pattern similar to that of Table 7.34, where mean scores consistently increased at different time points after the intervention. However, most increases were not significant. According to the table, the mean score which, at Time 1, was 3.561, rose to 3.960 at Time 4. The *t-value* was -2.12, and the *p-value*, 0.034. As in School 1 (ES), the intervention did have some effect on the ability of learners at School 2 (CS) to acquire condoms.

Ability to carry condoms

For Item 4 *(Skills 4)* of the questionnaire, learners at both participating schools were asked to state if they would find it easy or difficult to carry condoms with them so that condoms would be handy if they had sex.

Figure 7.25 Learners' ability to carry condoms with them



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

Figure 7.25 presents the mean scores of the learners' responses at different time-points in a graph. The trend of scores between schools on the graph on **Figure 7.25** somewhat reflects the hypothesized pattern or relationship. For instance, at School 1 (ES) the mean score at Time 2 rose after the intervention between Times 1 and 2. However, a departure from the hypothesized pattern is noticed at Time 4, where the score dropped slightly.

For School 2 (CS), the graph shows a slight increase in the score as seen at Time 3, after an intervention between Times 2 and 3. The level of increase was maintained at Time 4, in keeping with the hypothesized pattern.

Table 7.54 School 1 (ES): T-test Results for Learners' Ability to Carry Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.276 3.744	-2.64	0.009*
Time 2 *Time 3*	3.744 3.992	-1.39	0.165
Time 3 *Time 4*	3.992 3.784	1.17	0.243
Time 1 *Time 3*	3.276 3.992	-4.03	<.0001**
Time 1 *Time 4*	3.276 3.784	-2.85	0.005*
Time 2 *Time 4*	3.744 3.784	-0.22	0.826

*Significant at the 0.05 probability level

**Significant at the 0.0001 probability level

Table 7.54 shows *t-test* results on the ability of learners at School 1 (ES) to carry condoms around. According to this table, mean scores at different time points consistently increased after the intervention. Of particular note are those increases which were statistically significant. For instance, the mean score before the intervention at Time 1 was 3,276; the score rose to 3.744, with a *t-value* of -2.64, and a *p-value* of 0.009, which was statistically significant.

It was also noted that, while at Time 1 (before the intervention), the score was 3.276, it shot up to 3.992 at Time 3, after the intervention. The *t-value* was -4.03, and the *p-*

value was <.0001, positing a highly significant statistical difference. A further rise in the score was observed when the score at Time 1 (*mean* = 3.276) rose to 3.784 at Time 4; the *t-value* was -2.85, and the *p-value* was 0.005, also statistically significant.

From these results it is evident that the intervention was quite effective in increasing the ability of learners at School 1 (ES) to carry condoms around so that they would be handy if they had sex.

Table 7.55 School 2 (CS): T-test Results for Learners' Ability to Carry Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	3.624 3.489	0.79	0.428
Time 2 *Time 3*	3.489 3.809	-1.89	0.059
Time 3 *Time 4*	3.809 4.105	-1.75	0.081
Time 1 *Time 3*	3.624 3.809	-1.1	0.274
Time 1 *Time 4*	3.624 4.105	-2.83	0.005*
Time 2 *Time 4*	3.489 4.105	-3.63	0.0003*

*Significant at the 0.05 probability level

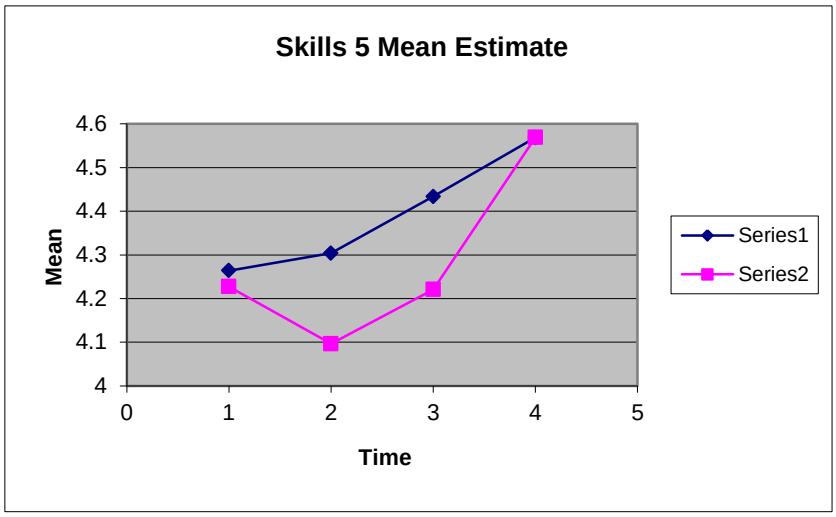
Table 7.55 shows *t-test* results on the ability of learners at School 2 (CS) to carry condoms around. Following the pattern on School 1 (ES), results at this school reflect an upward rise in the scores after the intervention. In particular, the rise from 3.624 at

Time 1 to 4.105 at Time 4, had a *t-value* of -2.83 and a *p-value* of 0.005, which was statistically significant. An even higher difference in the means was noted when the score at Time 2 (*mean* = 3.489) jumped to 4.105 at Time 4, positing a *t-value* of -3.63, and a *p-value* of 0.0003, which was a high statistical significance.

Ability to Use Condoms

For Item 5 *(Skills 5)* of the questionnaire, learners at the participating schools were expected to say if they found it easy or difficult to use condoms every time they had sexual intercourse with their partners.

Figure 7.26 Learners' ability to use condoms every time they had sex



KEY:

Blue – School 1 (ES)

Pink – School 2 (CS)

Figure 7.26 shows mean scores of learners' positive responses at different time points. The graph on **Figure 7.26** shows a trend of scores between schools over time. Although mean scores at both schools maintained a steady increase over time, the trend on the graph does not reflect the hypothesized pattern.

Table 7.56 School 1 (ES): T-test Results for Learners' Ability to Use Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	4.237 4.238	-0.28	0.779
Time 2 *Time 3*	4.238 4.361	-0.91	0.361
Time 3 *Time 4*	4.361 4.458	-0.95	0.344
Time 1 *Time 3*	4.237 4.361	-1.19	0.233
Time 1 *Time 4*	4.237 4.458	-2.14	0.033*
Time 2 *Time 4*	4.238 4.458	-1.86	0.063

*Significant at the 0.05 probability level

Table 7.56 reflects *t-test* results on the ability of learners at School 1 (ES) to use condoms every time they had sexual intercourse with their partners. According to the table, mean scores continued to rise after the intervention, suggesting that the intervention was making a difference in the learners' ability to use condoms. A most noticeable difference was when the score at Time 1 which was 4.237 peaked at 4.458 at Time 4. The *t-value* was -2.14, and a *p-value* of 0.033, which was statistically significant.

Table 7.57 School 2 (CS): T-test Results for Learners' Ability to Use Condoms

Times	Means	t-value	p-value
Time 1 *Time 2*	4.06 4.000	0.97	0.333
Time 2 *Time 3*	4.000 4.222	-0.93	0.354
Time 3 *Time 4*	4.222 4.486	-2.59	0.009*
Time 1 *Time 3*	4.06 4.222	0.05	0.961
Time 1 *Time 4*	4.06 4.486	-2.52	0.012*
Time 2 *Time 4*	4.000 4.486	-3.5	0.0005*

*Significant at the 0.05 probability level

The efficacy of the intervention is also reflected in the mean scores of the *t-test* results at School 2 (CS), shown on **Table 7.57.** According to the table, mean scores at different time points continued to increase after the intervention, with some making statistically significant gains. For instance, the mean score which, at Time 3 was 4.222, rose to 4.486 at Time 4. The *t-value* was -2.59, while the *p-value* was 0.009, reflecting a statistically significant difference. Similarly, from a mean score of 4.000 at Time 2, the score climbed to 4.486 at Time 4, with a *t-value* of -3.5 and a *p-value* of 0.0005, also being statistically significant. As in School 1 (ES), results at School 2 (CS) indicate that the intervention was effective in helping learners at that school to use condoms every time they had sexual intercourse with their partners.

7.7 Conclusion

According to *t-test* results on behavioural skills, the intervention was effective in developing the participating learners' ability to carry out certain HIV-preventive behaviours. In some instances, this was not the case. Findings suggest that learners at School 1 (ES) were able to acquire, carry and use condoms. They were, however, not helped to delay or refuse sexual intercourse, through the intervention. However, at School 2 (CS), learners were able to acquire, carry and use condoms, as well as refuse sexual intercourse. The intervention did not, however, encourage learners at this school to delay sexual intercourse.

As argued earlier in the study, the inconsistencies in the learners' ability to perform certain HIV-preventive acts may be attributed to the way the intervention was carried out, or the fact that learners already had the ability to carry out these behaviours. These issues will be explored further in the discussion section. The results in this chapter have suggested the effectiveness of the intervention in improving the levels of HIV/AIDS information among learners at the two participating schools. According to *t-test* results, the effect was statistically significant, though not for all variables at all times.

However, quite a few inconsistencies were noted in relation to the effect of the intervention on motivation and behavioural skills. For example, while there were cases where graphs showed patterns that were consistent with the hypothesis, quite a few graphs also reflected trends that were not in line with the formulated hypothesis. Quite often these inconsistencies could have led to the conclusion that other factors outside the intervention were responsible for the rise and fall of mean scores, thus discrediting the intervention's efficacy.

The next chapter discusses some important issues emerging from findings in this study. An attempt is also made to explain some irregularities that have been observed in the findings.

CHAPTER EIGHT
DISCUSSION AND CONCLUSION

8.1 Overview of the Chapter

Some discussion has been done on the results in chapters Six and Seven of this study. This chapter continues the discussion by first presenting a general discussion on the findings of the study, including how the study addressed the stated hypothesis. Important limitations identified in the study are then discussed, followed by conclusions and recommendations. The chapter ends with a brief discussion on the study's implications for further research.

8.2 General Discussion

This study examined the effectiveness of an intervention based on the Information, Motivation and Behavioural skills model (IMB) in improving the HIV/AIDS information of adolescent learners at two high schools in Alexandra township, Johannesburg. It also aimed at establishing the effectiveness of the IMB model in improving the adolescent learners' motivation to act upon HIV/AIDS information and maintain consistent, healthy practices. Finally, the study examined how effective an IMB based intervention was in improving behavioural skills that are needed to help adolescent learners to adopt and perform behaviours that support sexual health.

The findings in this study show that, prior to the IMB-based intervention, learners at both schools already possessed a significant amount of knowledge about HIV/AIDS. This is consistent with studies by Shisana et al. (2005), Pettifor et al. (2004) and Simbayi (1999) in which South African youth were found to be quite knowledgeable about HIV/AIDS. For example, learners in this study were well informed about the need to use condoms even if they knew someone very well or loved them. They were aware that one may also be infected by a non-drug using sexual partner. Learners were

also knowledgeable about one's inability to tell if someone has HIV by the way he/she looks. The fact that learners were already well informed about HIV/AIDS before the intervention could be attributed to their exposure to HIV/AIDS information through extraneous variables prior to the IMB intervention. For instance, learners may have been, to some extent, exposed to HIV/AIDS information through the media (outdoor, broadcast, printed, internet, and so on), Life Orientation lessons at school, religious and moral instruction, as well as sexuality education, at home and in churches. More importantly, LoveLife programmes may have motivated and inspired learners to take control of their lives, set goals and make healthy choices (Pettifor, MacPhail, Bertozzi & Rees, 2007).

At the same time, this study also found important HIV/AIDS knowledge gaps that existed amongst learners at both schools. For instance, very few learners at both schools were knowledgeable about matters of HIV and oral sex, when to use condoms, HIV infection in babies, heterosexuals and homosexuals, HIV testing, safety of latex condoms, and use of Vaseline/baby oil with condoms. This knowledge gap amongst learners is consistent with other studies, i.e., Shisana et al. (2005); Eaton and Flisher (2000); Barden-O'Fallon et al. (2004); Slonim-Nevo and Mukuka (2005); Smith (2004); Terry, Mhloyi, Masvaure and Adlis (2006), which confirm that HIV/AIDS knowledge gaps remain among youths in South Africa and other African countries.

After the intervention in the study reported here, levels of knowledge in areas where gaps existed increased significantly at both schools. The increase was, however, not that significant on the item dealing with the use of condoms during one night stands and flings. It is likely that learners did not respond well to this item because they did not understand the question well. An increase was also noticed in other areas where learners' knowledge was already high before the intervention.

The effectiveness of the IMB-based intervention in raising levels of HIV/AIDS knowledge in the two schools is further evidenced by the Repeated measures ANOVA and paired *t-test* results which indicated statistically significant differences between mean scores before and after the interventions at the schools. Increases of the levels of

HIV/AIDS awareness after an IMB-based intervention have been reported in similar research studies using the IMB-based intervention including female university students (Singh, 2003), and heterosexual university students (Fisher, Fisher, Misovich, Kimble & Malloy, 1996). Other studies reporting an increase in the levels of HIV/AIDS knowledge as a result of an IMB-based intervention include a prevention programme for gay men (Kelly & Lawrence, 1990; Kelly, Lawrence, Betts, Brasfield & Hood, 1990), and another for adolescents (Jemmott, Jemmott & Fong, 1992; Rotheram-Borus, Koopman, Haignere & Davies, 1991).

The findings in this study also show an increase in the levels of motivation amongst learners at both schools. Consistent with the view that HIV/AIDS knowledge is an important factor in influencing HIV/AIDS risk perceptions and behaviours (Anderson & Beutel, 2007), high levels of HIV/AIDS information possessed by learners in this study could have contributed to the increase of motivation amongst these learners.

For instance, in addition to the motivation that learners already had before the intervention, after gaining more information about HIV/AIDS, their attitudes towards performing HIV/AIDS preventive behaviours, as well as behavioural intentions to engage in HIV/AIDS preventive acts were further strengthened. They had greater motivation to engage in safe and healthy sexual behaviours. Similar findings on motivation to engage in HIV/AIDS preventive behaviours after the IMB intervention have been reported in female university students (Singh, 2003); heterosexual university students and gay men (Fisher et al., 1996); as well as school learners (Klepp et al., 1994; Stanton et al., 1998).

After the IMB intervention, personal attitudes of the participants towards AIDS preventive behaviour improved significantly (Abramson, Sekler, Berk & Cloud, 1989; Valdiserri et al., 1990). This finding is further confirmed by the Repeated measures ANOVA and paired *t-test* results on the aspect of motivation dealing with attitudes of learners towards AIDS preventive behaviours, where there was a significant difference between the mean score at Time 1 (*mean* = 3.921) before the intervention and Time 3

(*mean* = 4.296) after the intervention was a *t-value* of -4.18, and a *p-value* of <.0001. Similar findings were noted regarding the aspect of the learners behavioural intentions. However, while mean scores on the learners' perceived vulnerability to HIV infection, as well as the learners' subjective norms regarding HIV preventive acts, increased after the interventions at both schools, Repeated measures ANOVA and paired *t-test* results showed that increases at different time points were not statistically significant. In other words, the intervention effect was not strong enough to positively influence the learners' motivation in these aspects. The inability of the IMB model-based intervention to increase the participants' risk perception is cause for concern, considering that when participants increase their perception they also reduce their risk behaviour (Carey & Lewis, 1999). In this study, the participants' reduced perception could imply increased risk behaviour in future.

The IMB model posits that individuals need to possess skills in addition to being informed and motivated. In fact, social skills are central determinants of HIV-related sexual risk-acts (Rotheram-Borus, Gwadz, Fernandez & Srinivasan, 1998). Findings in this study reveal that, at pre-test level, few learner participants at both schools found it easy to engage in HIV preventive behaviours such as the ability to delay sexual intercourse until they were older, the ability to refuse sexual intercourse with a boyfriend or girlfriend, the ability to always use condoms, and so on.

However, after the intervention at both schools, Repeated measures ANOVA and paired *t-test* results showed that the differences between mean scores before the intervention and then after the intervention were statistically significant at all testing times. This implies that, as a result of the intervention, learners were more likely to engage in safe sex practices and behaviours. This finding is consistent with the IMB model-based study on changing HIV/AIDS risk behaviour in female university students (Singh, 2003), as well as studies which have emphasized the acquisition of requisite behaviour skills to initiate and maintain safer sexual practices in adolescents (Jemmott et al., 1992) and women (Gómez, Hernández & Faigeles, 1999).

Another important finding in this study was a close link existing between HIV risky behaviour and parental absence from the adolescent's home. Many adolescent learners do not live with their parents or other adult figures for guidance and support. As a result, they engage in undesirable conduct, including risky sexual behaviours. Even some of those learners staying with their parents tend to loiter in the streets after school, spending much of their time away from their parents or guardians.

Last but not least, the success of any school-based intervention aimed at reducing HIV risk behaviour among learners relies much on teacher support. The findings in this study show teacher ambivalence towards teaching HIV/AIDS education, especially sexuality, in schools. More importantly, teachers lack the necessary knowledge, confidence and skills to teach the subject.

8.3 Limitations

Addressing the Hypothesis

This study hypothesized that levels of HIV/AIDS information, motivation and behavioural skills among the Grade 11 learners in the two participating schools were likely to increase as a result of an HIV-risk reduction intervention based on the Information, Motivation and Behavioural skills (IMB) model. In other words, the mean scores at School 1 (ES) were expected to rise at Time 2 as a result of the intervention at that school between Times 1 and 2. The mean scores at School 2 (CS) were expected to remain unchanged at Time 2, until the intervention at that school, between Times 2 and 3, which would raise the score at Time 3.

However, overall estimates in all three variables indicate that the mean scores at School 2 (CS) rose at Time 2, despite the absence of the intervention between Times 1 and 2 at that school (**see Tables 7.3, 7.5 and 7.7**). This inconsistency was contrary to what was hypothesized. The fluctuating pattern of mean scores shown on the graphs in Chapter 7 further attests to the deviation of the mean scores from the hypothesized pattern (**see Figure 7.1**). In some of these fluctuations, the results showed the same trend for both

groups, irrespective of the difference in the timing of the intervention. Accordingly, the stated hypothesis was not confirmed. While there was clear change, it was not directly linked to the intervention. Possible explanations for this could be the following:

The Testing Effect: The testing effect refers to enhanced memory resulting from the act of retrieving information, as compared to simply reading or hearing the information (Roediger & Karpicke, 2006; Carpenter, Pashler, Wixted & Vul, 2008; McDaniel, Roediger & McDermott, 2007). As learners responded to questionnaire items over and over again in this study, they tended to do better and better. As a result, their improved scores could be a result of the testing effect, and not necessarily of the intervention.

Proximity of Schools to Each Other: The two participating schools were approximately a kilometre apart, in terms of their location, near enough for learners to exchange intervention-related information. In addition, the fact that the intervention at each school was conducted at different times increased chances of a diffusion of treatment, thus influencing the results of the study.

Mean scores after the interventions at both schools did not remain high at different time points as was hypothesized. This could be attributed to the intervention's inability to maintain the scores at a consistently high level. As a behavioural intervention model, the IMB model has been criticized for its failure to sustain behavioural change over a long time (Global HIV Prevention Working Group, 2008). In fact, little is known about the long-term impact of HIV/AIDS education (Michielsen, Bosmans & Temmerman, 2008). Many studies limit themselves to post-measures directly after the intervention (Fitzgerald et al., 1999; Stanton et al., 1998). Other studies report post-measures one to six months after the intervention (Karnell, Cupp, Zimmerman, Feist-Price & Bennie, 2006; Magnani, Macintyre, Karim, Brown & Hutchinson, 2005).

A study by Klepp et al. (1994) shows a post-measure one year after the intervention. The longest known post-measure studies were up to eighteen months after the intervention (Brieger, Delano, Lane, Oladepo & Oyediran, 2001; Maticka-Tyndale, Wildish & Gichuru, 2007).

Since the post-measures in this study were conducted directly after the intervention, its long-term impact may be unknown. Besides, consistency in the learners' behaviour may not endure as learners may face challenging social contexts that might not reinforce newly exhibited behavioural changes in them. For instance, the Global HIV Prevention Working Group (2008) reports that HIV prevention successes in Uganda, Thailand and many high income countries, were followed years later by marked increases in risk behaviour.

Self-reporting

The way in which data in this study were collected poses a limitation. Data were collected using the questionnaire as a self-report behavioural instrument. Some researchers have been critical of this approach. For example, self-reporting measures used on risky sexual behaviour (which is a private behaviour) are, to some degree, unintentionally or intentionally inaccurate (Jemmott, Jemmott, Fong & MacCaffree, 1999); self-reporting may lead to concealment of behaviours and therefore under-reporting (Kalichman et al., 2002). More recently, McAuliffe, Difranceisco & Reed (2007) argued that, in self-reporting, respondents tend to give socially desirable answers. For instance, in this study, respondents may have under-reported on unsafe sexual behaviour and over-reported on abstinence and condom use.

Lack of Sustained Behaviour

As a behavioural intervention model, the IMB model has been criticized for its failure to sustain behavioural change over a long time (Global HIV Prevention Working Group, 2008). Besides, consistency in the learners' behaviour may not endure as learners may face challenging social contexts that might not reinforce newly exhibited behavioural changes in them. For instance, the Global HIV Prevention Working Group (2008) reports that HIV prevention successes in Uganda, Thailand and many high income countries, were followed years later by marked increases in risk behaviour. In fact, little is known about the long-term impact of HIV/AIDS education (Michielsen, Bosmans & Temmerman, 2008). The longest known post-measure studies were up to eighteen

months after the intervention (Brieger, Delano, Lane, Oladepo & Oyediran, 2001; Maticka-Tyndale, Wildish & Gichuru, 2007). Therefore, given the socio-cultural challenges faced by adolescents in Alexandra township, changes exhibited by learners in this study may not be expected to last much longer after the intervention.

Limited time for practice

The IMB model-based intervention did not give learners time to practice what they had learned. For instance, the study was conducted over a 3-week period, with one week devoted to each session, namely, information, motivation and behavioural skills. About a month later, learners were tested on the three variables. Shorter sessions spread over time are significantly more desirable than longer sessions over a briefer span of time (Rotheram-Borus et al., 1998). There is a need to increase the spacing between the intervention and testing time.

Generalization of results

The fact that this study was conducted in one township in South Africa makes it difficult to generalize its results to other geographical regions with different demographic and cultural groups in South Africa. This limitation was also noted by Simbayi et al. (2005) in their study of the risk factors for HIV/AIDS among youth in Cape Town. Accordingly, the socio-economic dynamics around HIV/AIDS and risky behaviours among adolescent learners at Alexandra township, Johannesburg, may be unique to that township alone, and not necessarily applicable to other South African townships elsewhere.

8.4 Summary

While adolescents in South African township schools have been exposed to much information about HIV and AIDS, they continue to be vulnerable to risky sexual behaviours. HIV/AIDS education programmes that focus mainly on imparting

HIV/AIDS information have been inadequate in reducing HIV-risk behaviour among adolescents.

The purpose of this study was to apply an Information, Motivation and Behavioural Skills (IMB) model in a school-based programme for the reduction of HIV-risk behaviour among adolescents in South African schools. Specifically, the study sought to answer the following question: Can an intervention based on the Information, Motivation and Behavioural Skills (IMB) model be used to effect appropriate sexual behaviour and practices and thereby reduce the likelihood of HIV-risk behaviour amongst adolescent learners in township public high schools in South Africa?

To address the above question, the study first identified existing and prior intervention initiatives targeting HIV-risk behaviour within the schools in Alexandra township, Johannesburg, with the view to establishing to what extent these initiatives incorporated the IMB approach. An IMB model-based approach was then implemented to improve the levels of information, motivation and behavioural skills amongst adolescent learners at two high schools in Alexandra township. The implemented programme was then evaluated to determine the effectiveness of the IMB model in improving levels of information, motivation and behavioural skills among the learners. The study hypothesized that levels of HIV/AIDS information, motivation and behavioural skills would improve as a result of implementing the IMB model.

A research sample consisting of 259 Grade 11 learners in two high schools in Alexandra township, Johannesburg, South Africa, was used in this study. School 1 (ES) was the Experimental Group, while School 2 (CS) was the Control group. In order to establish existing and prior intervention initiatives at the two high schools, a preliminary survey on the activities of LoveLife was conducted. The survey established the extent to which LoveLife HIV/AIDS education campaigns increased the adolescent learners' information, motivation and behavioural skills before intervention in this study.

After a baseline study (Time 1) at both schools, a three-week HIV/AIDS intervention programme was conducted in School 1, on the following themes: Week 1: HIV/AIDS

information; Week 2: Motivation; Week 3: Behavioural Skills. A post-test (Time 2) was then conducted at both schools. The intervention was repeated at School 2, followed by another post-test (Time 3) at both schools. A final test (Time 4) was conducted at both schools.

8.5 Conclusions

The findings in the preliminary study suggest that, as a result of pre-intervention initiatives, such as Lovelife, the levels of HIV/AIDS information, motivation and behavioural skills among learners at the participating schools remained generally low before the interventions. For instance, the findings indicate that important gaps existed in the delivery of HIV and AIDS information through HIV and AIDS education before the intervention.

In addition, the findings also indicate that pre-intervention initiatives on HIV and AIDS among learners at the two schools did not adequately address issues of motivation to engage in HIV-preventive acts. They also suggest that the majority of learners at the two schools did not possess adequate behavioural skills to engage in HIV/AIDS-preventive behaviours prior to this study. The final limitation to this study was that the IMB model-based intervention did not give learners time to practice what they had learned.

For instance, the study was conducted over a 3-week period, with one-week devoted to each session, namely, information, motivation and behavioural skills. About a month later, learners were tested on the three variables. Shorter sessions spread over time are significantly more desirable than longer sessions over a briefer span of time (Rotheram-Borus et al., 1998). The failure of the intervention to effect change in some behaviours of participating learners could also be attributed to lack of spacing between the intervention and testing time.

Accordingly, the ineffectiveness of the prior and existing initiatives on HIV and AIDS education in township high schools justified the implementation of an Information,

Motivation and Behavioural skills-based programme that would address gaps left unfilled by pre-intervention initiatives. However, while the findings in this study suggest that the IMB intervention generally increased the levels of HIV/AIDS information, motivation and behavioural skills among learners, these changes were not according to the trend anticipated. In other words, mean scores at the participating schools were not raised and sustained at high levels after the interventions.

8.6 Recommendations

This section presents recommendations regarding HIV/AIDS information, motivation and behavioural skills, as well as other general recommendations.

HIV/AIDS Information

According to the findings of this study, adolescent learners possess an enormous amount of HIV/AIDS knowledge. However, the study also shows that important knowledge gaps do exist among learners in certain aspects of HIV and AIDS. Given the effectiveness of an IMB model-based intervention in raising levels of HIV/AIDS information among learners, it is recommended that the model be used to bridge the HIV/AIDS knowledge gaps existing among learners. For instance, adolescents need to know more about what constitutes risky behaviour and how the HIV virus is transmitted or not transmitted.

Findings in this study also attribute the adolescents' vulnerability to HIV infection to their limited knowledge and experience of sexuality. It is recommended that HIV/AIDS education programmes should aim at developing knowledge, skills and confidence in adolescents in engaging issues of sexuality. Efforts should be made to rid adolescents of some of the myths they have about safe sex, for instance, HIV/AIDS information should continue to be an important aspect of HIV/AIDS education in schools.

However, this study cautions against the type of HIV/AIDS knowledge that should be transmitted to learners. In view of the learners' criticism of excessive factual information on HIV/AIDS highlighted earlier in this study, it is recommended that less theoretical knowledge about HIV/AIDS be emphasized in HIV/AIDS education. Instead of HIV/AIDS information being centred around the virus, focus should be more on practical matters, such as the learners' ability to cope should they become infected or affected by HIV/AIDS. More information should be given on where learners may go for help, care and support.

Motivation

It is recommended that greater emphasis should be put on changing the adolescents' perceptions about HIV/AIDS by helping them to become aware of their own vulnerability to HIV infection and to perceive themselves to be at risk.

This study has acknowledged adolescent learners as positive, active and sexual subjects. In order to generate more interest and motivation in HIV/AIDS education among learners, it is recommended that learners should actively participate in their HIV/AIDS education lessons. To achieve this, HIV/AIDS classes should be reduced to manageable numbers to promote more effective teacher-pupil and pupil-pupil interaction during lessons.

Some researchers have argued for HIV/AIDS education approaches that do not just focus on biological aspects and negative issues such as teenage pregnancies, sexually transmitted infections (STIs), sexual violence, and so on (Giami et al., 2006). Instead, HIV/AIDS education should engage the whole person, and go beyond academic and intellectual knowledge, while including suggestions for real-life action and behaviour (Kelly, 2002).

Accordingly, it is recommended that learners should be motivated by the use of more visual materials like videos and pictures during HIV/AIDS education lessons. Learners should be exposed to real, practical situations of HIV/AIDS experiences; for example,

they should visit hospices, hospitals and other institutions where HIV/AIDS sufferers are found. Through personal contact with suffering, learners are likely to realize the magnitude and seriousness of the HIV/AIDS problem and resolve to avoid HIV risky behaviours.

Research in this study has noted that mixed gender groups tend to be restricted in their self-expression and are not usually ready to open up in the presence of learners of the opposite sex. It is also recommended that gender should not be allowed to hamper free discussion and participation in HIV/AIDS education lessons. From time to time, boys and girls should be taught HIV/AIDS education lessons separately. Freedom for learners to express themselves would be a strong motivator for lively, effective HIV/AIDS lessons.

Behavioural Skills

The findings in this study also confirm the effectiveness of the IMB model in equipping learners with behavioural skills. In view of the fact that most illicit sexual behaviours among female adolescent learners are with older males from outside the school system, this study recommends that teaching of assertiveness to enhance the ability of female learners to refuse sexual advances, be given priority in HIV/AIDS education. Female learners must be made aware that their lives and futures could be ruined by engaging in risky sexual behaviours with 'sugar daddies', and should be taught negotiation skills to say "no" when pressured to have sex, especially unprotected sex.

The study also found that peer pressure plays a prominent role in most of the risky sexual behaviours among adolescent learners. For that reason, it is recommended that, in addition to refusal skills, adolescents should be taught assertiveness and negotiation skills to deal with peer pressure. Furthermore, sound interventions to promote protective peer influences for adolescents must be developed at interpersonal and community levels.

Other Recommendations

- The unreliable nature posed by 'self-reporting' approaches in this study that results in this study should be taken with caution, as they may not be a true and accurate reflection of the behaviours of the respondents. For that reason, it is recommended that alternative ways of collecting data must be explored in behavioural research. More accurate results are likely to inform more effective strategies in HIV-preventive measures in future.

- In view of the findings in this study showing the unpreparedness of teachers to teach HIV/AIDS education lessons, it is recommended that pre-service and in-service teacher training programmes for Life Orientation teachers be intensified. Focus should not just be on numbers to be trained, but on the quality of the products of such training. Teacher training needs to equip teachers with appropriate HIV/AIDS information, as well as motivate them to teach HIV/AIDS education confidently and effectively. In addition, the teacher training programme should address concerns, challenges and attitudes that seem to impede the teachers' effectiveness in teaching HIV/AIDS education.

- This study has also observed parental absence from the adolescent's home as a major factor in adolescent risky behaviour. It is recommended that the family unit, especially child-parent relationships, should be strengthened, for more effective parental control of their children. The urban family in particular should assume its rightful place in parenting and raising responsible adolescent learners. Working in partnership with the school, the family should ensure their children are at home after school, and kept away from situations that will promote risky sexual behaviours. As more and more children become neglected, orphaned and abandoned, there is a need to develop programmes that strengthen parental monitoring skills and empower them to exercise their rights and responsibilities. Parenting workshops should be conducted in schools and communities to revive the traditional role of the family in bringing up children. School Governing Bodies (SGBs) should make better parenting a priority in

their interactions with parents. Parenting skills should be taught and encouraged through print, audio and visual media. Community groups should not only be ready to condemn child abuse, but to design and implement programmes on better parenting.

- This study also found a strong relationship between socio-economic factors and HIV risk behavioural patterns. It is recommended that IMB model-based interventions should not be implemented without addressing structural challenges faced by adolescent learners. In dealing with structural issues such as poverty and the like, it is recommended that parents, schools and communities be involved, together with strong political leadership and determination. In other words, there must be an HIV/AIDS prevention strategy that combines all levels and sectors in the country. The increase in poverty levels, compounded by the large numbers of adolescents leaving South African schools each year, further exacerbates the challenge of risky sexual behaviours. There is a need for combined effort in addressing the needs of the school-leaving adolescents through training programmes that provide skills to prevent them from engaging in risky sexual behaviours. An IMB model-based school intervention, on its own, may not adequately reduce HIV risk behaviour among adolescent learners.

- Among other things, the study also identified socially excluded adolescents as potentially vulnerable to HIV risky behaviour. It is recommended that steps be taken to integrate adolescents and youths who might be feeling socially excluded from the mainstream society in South Africa because of their nationality, ethnicity, and the like. Such integration would help them earn a living like others and not engage in activities that promote unsafe sexual behaviours.

- The IMB model assumes that individuals will change their behaviour if they are fully informed and sufficiently motivated, that is, they can exercise personal agency in the context of HIV-associated risk. However, according to the Global HIV Prevention Working Group (2008), individual behaviour is heavily influenced by broader socio-economic, cultural and environmental factors. This

view is consistent with social cognition theories discussed earlier in Chapter Three of this study (Elkind, 1967; Bronfenbrenner, 1977; Super and Harkness, 1986). For that reason, this study recommends that successful IMB–based HIV/AIDS prevention interventions should adopt structural approaches (Gupta, Parkhurst, Ogden, Aggleton & Mahal, 2008) which emphasize the need to change the context that contributes to vulnerability and risk, when implementing intervention programmes. Such approaches which address the adolescents in their totality are likely to result in sustained behavioural changes.

8.7 Implications for further research

- Participating learners in this study may have improved their scores as a result of the 'testing effect', and not necessarily as a result of the intervention. To reduce this influence, it is recommended that future research on IMB model-based interventions should vary questionnaire items at different points.

- The 'proximity of schools to each other' has cast doubts on the efficacy of the intervention in this study. The fact that the intervention at each school was conducted at different times increased chances of a diffusion of treatment, thus influencing the results. To minimize such diffusion, it is recommended that future studies should be conducted among many more schools, spread over a wider area and distant from each other.

- Since this study was conducted in only one township in South Africa, it is recommended that future studies be carried out in more diverse geographical locations with different demographic and cultural groups. This may provide a broader and more representative picture of HIV risk behaviour among adolescent learners in various townships in South Africa.

- One of the ways noted to delay initiation of sexual intercourse among adolescents in this study is the frequency of religious attendance. Given that most South Africans are religious people, it is recommended that further

research should investigate the role of religion in reducing HIV risk behaviour among the youth. It is proposed that, with responsible sexual conduct incorporated into the adolescents' way of life, HIV risk behaviour may be reduced.

- Because of the association made in this study between alcohol and other substance abuse and HIV risk behaviour, it is recommended that further research be conducted on the impact of alcohol use or abuse on HIV risk behaviour among adolescents in our schools. The results of such an investigation would inform measures to control alcohol and other substance abuse among adolescent learners in schools.

- Finally, considering that the IMB model-based intervention in this study did not give learners time to practice what they had learned, it is recommended that further research should investigate interventions that will provide shorter sessions spread over time, rather than longer sessions over a briefer span of time. This approach would increase spacing between the intervention and testing time, making it possible for the intervention to effect change.

APPENDIX A: SCHOOL 1

Subject Information Sheet for the School Principal

Dear Sir/Madam

My name is Misheck Ndebele. I am a Ph.D student in Psychology at the University of the Witwatersrand. As part of my degree I am conducting a research study on HIV/AIDS education for adolescent learners at high schools in Alexandra township.

The main aim of the study is to apply the Information, Motivation, Behavioural Skills model (IMB) in reducing HIV risk behaviour among adolescent learners in township public high schools in South Africa. I wish to invite Grade 11 learners at your school to participate in my study during the 2008 academic year as follows:

20-31 May: Preliminary studies on Life Skills educators and Grade 11 learners 1-7 June: Baseline assessment
14 July – 4 August: Intervention (3 weeks; 2 hours per week)
5-12 September: Post test
28 November – 4 December: Post test

To avoid interfering with their daily school curriculum, I kindly request your learners to participate after school hours, at a time and venue acceptable to you. Learners will be asked to answer questions relating to their current knowledge and attitudes about HIV and AIDS. Learners will be then requested to attend HIV/AIDS sessions, two hours a week, for three consecutive week, on HIV/AIDS information, motivation to apply the information, as well as behavioural skills to adopt safe sexual behaviours. A month after the sessions, learners will be tested on HIV/AIDS information, motivation and behavioural skills learned. This will be followed by two other tests to establish the effectiveness of the intervention conducted. I wish to also seek your permission to do a final assessment of your Grade 11 learners at the end of February, 2009 (when they will be in Grade 12).

Learners' participation will be voluntary and non-participation will have no negative consequences. Please note that learners can withdraw from the study at any time, should they feel that they do not want to continue. If they feel that some of the questions are too personal or if they are uncomfortable answering them, they have the right to refuse to answer, should they wish to do so.

Although I cannot guarantee confidentiality, I advise all participants in this study to maintain confidentiality. Under no circumstances will any of the learners' responses be shown to anyone other than my research supervisor and myself. No identifying information will be included in the final report. I hope this study will equip high school educators with the necessary information, motivation and skills to deal the HIV/AIDS crisis in our country.

I would appreciate your written response to my request as soon as possible.

Yours sincerely

Misheck Ndebele (Researcher) **Dr Mambwe Kasese-Hara** (Research Supervisor)

APPENDIX B: SCHOOL 2

Subject Information Sheet for the School Principal:

Dear Sir/Madam

My name is Misheck Ndebele. I am a Ph.D student in Psychology at the University of the Witwatersrand. As part of my degree I am conducting a research study on HIV/AIDS education for adolescent learners at high schools in Alexandra township.

The main aim of the study is to apply the Information, Motivation, Behavioural Skills model (IMB) in reducing HIV risk behaviour among adolescent learners in township public high schools in South Africa. I wish to invite Grade 11 learners at your school to participate in my study during the 2008 academic year as follows:

20-31 May: Preliminary studies on Life Skills educators and Grade 11 learners 1-7 June: Baseline assessment
14 July – 4 August: Intervention (3 weeks; 2 hours per week)
5-12 September: Post test
28 November – 4 December: Post test

To avoid interfering with their daily school curriculum, I kindly request your learners to participate after school hours, at a time and venue acceptable to you. Learners will be first asked to answer questions relating to their current knowledge and attitudes about HIV and AIDS. Learners will be then requested to attend HIV/AIDS sessions, two hours a week, for three consecutive weeks, on HIV/AIDS information, motivation to apply the information, as well as behavioural skills to adopt safe sexual behaviours. A month after the sessions, learners will be tested on HIV/AIDS information, motivation and behavioural skills learned. This will be followed by two other tests to establish the effectiveness of the intervention conducted. I wish to also seek your permission to do a final assessment of your Grade 11 learners at the end of February, 2009 (when they will be in Grade 12).

Learners' participation will be voluntary and non-participation will have no negative consequences. Please note that learners can withdraw from the study at any time, should they feel that they do not want to continue. If they feel that some of the questions are too personal or if they are uncomfortable answering them, they have the right to refuse to answer, should they wish to do so.

Although I cannot guarantee confidentiality, I advise all participants in this study to maintain confidentiality. Under no circumstances will any of the learners' responses be shown to anyone other than my research supervisor and myself. No identifying information will be included in the final report. I hope this study will equip high school educators with the necessary information, motivation and skills to deal the HIV/AIDS crisis in our country.

I would appreciate your written response to my request as soon as possible.

Yours sincerely

Misheck Ndebele (Researcher) **Dr Mambwe Kasese-Hara** (Research Supervisor)

APPENDIX C

Subject Information Sheet for Parents/Guardians

Dear Parent/Guardian

My name is Misheck Ndebele. I am a Ph.D student in Psychology at the University of the Witwatersrand. As part of my degree I am conducting a research study on HIV/AIDS education for adolescent learners at high schools in Alexandra township.

The main aim of the study is to apply the Information, Motivation, Behavioural Skills model (IMB) in reducing HIV risk behaviour among adolescent learners in township public high schools in South Africa.

I wish to invite your child to participate in my study. Please note that your child's participation is voluntary and that non-participation will have no negative consequences. Should your child decide to participate in this study, he/she will be requested to attend HIV/AIDS sessions, two hours a week, for three weeks. Apart from attending the sessions, your child will participate in completing some questionnaires as well as respond to some interview questions. I wish to also request your child to participate in a final assessment of the project at the end of February, 2009 (when they will be in Grade 12).

Please note that your child can withdraw from the study at any time, should he/she feel that he/she does not want to continue. If he/she feels that some of the questions are too personal or if he/she is uncomfortable answering them, your child has the right to refuse to answer, should he/she wish to do so. I hope this study will equip high school educators with the necessary information, motivation and skills to deal the HIV/AIDS crisis in our country.

After reading this letter, please indicate your willingness or unwillingness for your child to participate in my study by writing the name of your child, ticking the appropriate box, signing your name and writing the date below:

☐ **I am willing to have my child participate in the study**

☐ **I am not willing to have my child participate in the study**

Name of the child _____

Parent's/Guardian's signature _____

Date _____

Yours sincerely,

Misheck Ndebele

APPENDIX D

Subject Information Sheet for Grade 11 Learners

Hello,

My name is Misheck Ndebele. I am a Ph.D student in Psychology at the University of the Witwatersrand. As part of my degree I am conducting a research study on HIV/AIDS education for adolescent learners at high schools in Alexandra township.

The main aim of the study is to apply the Information, Motivation, Behavioural Skills model (IMB) in reducing HIV risk behaviour among adolescent learners in township public high schools in South Africa.

I wish to invite you to participate in my study. Please note that your participation is voluntary and that non-participation will have no negative consequences. Should you decide to participate in this study, you will be first asked to answer questions relating to your current knowledge and attitudes about HIV and AIDS. Then you will be then requested to attend HIV/AIDS sessions, two hours a week, for three consecutive weeks, on HIV/AIDS information, motivation to apply the information, as well as behavioural skills to adopt safe sexual behaviours. A month after the sessions, you will be tested on HIV/AIDS information, motivation and behavioural skills learned. This will be followed by two other tests to establish the effectiveness of the intervention conducted. I wish to also kindly request you to participate in the final assessment of the project at the end of February, 2009, when you are in Grade 12.

Please note that you can withdraw from the study at any time, should you feel that you do not want to continue. If you feel that some of the questions are too personal or if you are uncomfortable answering them, you have the right to refuse to answer, should you wish to do so.

Although I cannot guarantee confidentiality, I advise all participants in this study to maintain confidentiality. Under no circumstances will any of your responses be shown to anyone other than my research supervisor and myself. No identifying information will be included in the final report.

I hope this study will equip high school educators with the necessary information, motivation and skills to deal the HIV/AIDS crisis in our country.

Yours sincerely

Misheck Ndebele
(Researcher)

Dr Mambwe Kasese-Hara
(Research Supervisor)

APPENDIX E

Informed Consent Form for Learner Participants

Participant

I have read the information about the study described in the information sheet. I understand that my participation is voluntary and that I can withdraw from the study at any time.

I agree to take part in the study, by participating in the interview, responding to the questionnaire and attending relevant sessions.

Signature _____ Date _____

Researcher

I have explained the aims and procedures of the study. I have assured the participant that participation is voluntary and I have explained the research to the best of my ability.

Name: Misheck Ndebele

Signature _____ Date _____

Research Supervisor

Name: Dr Mambwe Kasese-Hara

Signature _____ Date _____

APPENDIX F: QUESTIONNAIRE ON BACKGROUND INFORMATION

A. Biographical Information

1. Are you male or female? Circle One: Male Female

2. How old are you? Circle One: 12 13 14 15 16 17 18 19+

3. What is your home language?

Tick that which applies to you:

_____ Pedi
_____ Sotho
_____ Swati
_____ Tsonga
_____ Tswana
_____ Venda
_____ Xhosa
_____ Zulu
_____ Other (Please describe below)
_____

4. I live with my:

Tick that which applies to you:

_____ mother and father
_____ mother
_____ father
_____ guardian
_____ Other (please describe below
_____

5. What is the highest level of education of any of the adults who live in your home?

Level of education _____ or Circle: Don't know

6. What do you think your household income is per month? (Tick that which applies to your family:

_____ Under R2 000

_____ R2 000 to R4 000

_____ R4 100 to R6 000

_____ R6 100 to R8 000

_____ R8 100 to R10 000

_____ Over R10 000

_____ Don't know

B. HIV/AIDS education information prior to the intervention

7. Is HIV/AIDS education ever taught at your school? (Yes/No) _____

   If HIV/AIDS education is taught at your school, say whether it is taught by:

   (a) one of the educators at your school, or (b) by someone from outside your school

   _____

   _____

8. What *topics* are generally taught in HIV/AIDS education at your school?

_____

_____

_____

_____

9. What *methods* are generally used to teach HIV/AIDS education topics at your school?

_____

_____

_____

_____

10. As a teenager, do you think HIV/AIDS education at your school provides you with enough *information* to perform healthy and safe sexual behaviours? Please explain your answer below:

_____

_____

_____

_____

11. As a teenager, do you think HIV/AIDS education at your school *motivates* you to act upon the HIV/AIDS information you have? Please explain your answer below:

_____

_____

_____

_____

12. As a teenager, do you think HIV/AIDS education at your school equips you with appropriate *behavioural skills* to enable you to adopt healthy sexual practices? Please explain your answer below:

_____

_____

_____

_____

APPENDIX G: INTERVIEW SCHEDULE WITH LOVELIFE TRAINER

1. Please provide a brief **background** of the loveLife organisation

_____
_____
_____
_____

2. Specifically, what are the **aims/goals** of loveLife programmes in South African township high schools?

_____
_____
_____
_____

3. What **communication strategies** are used by loveLife to reach out to adolescent learners in South African township high schools?

_____
_____
_____
_____

4. What specific **methods** are used by loveLife to teach HIV/AIDS education lessons in high schools?

_____
_____
_____
_____

5. What specific **topics** are used by loveLife to teach HIV/AIDS education lessons in high schools?

_____
_____
_____
_____

6. What **materials** are used by loveLife to teach HIV/AIDS education lessons in high schools?

_____
_____
_____
_____

7. How would you assess loveLife programmes in terms of their ability to raise levels of HIV/AIDS **information**, **motivation** and **behavioural skills** among high school learners?

_____
_____
_____
_____

APPENDIX H: QUESTIONNAIRE ON HIV/AIDS INFORMATION

Please tell us if think each of the following statements is definitely true, probably true, probably false, definitely false, or if you don't know.

1. If you love and trust someone, you don't have to worry about getting HIV from them.

   Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

2. You can tell whether someone has HIV or AIDS by the way they look.

   Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

3. Only people who are homosexual or who use drugs really have to worry about getting HIV.

   Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

4. If you know a person very well, you don't have to use a condom to protect against HIV from them.

   Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

5. You don't have to use a condom for HIV protection if you are in a relationship with just one person, even if that person had unprotected sex with other people before.

   Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

6. If your boyfriend or girlfriend is not a drug user, you don't need to worry about getting HIV from them.

   Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

7. You can tell by the way a person acts if you can get HIV or AIDS from them.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

8. It's more important to use condoms in one night stands and flings than in real relationships.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

9. Using latex condoms (rubbers) during sex can protect you from getting HIV.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

10. Vaseline or baby oil should never be used with condoms.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

11. You can safely store condoms in your wallet for at least two months.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

12. Not having sexual intercourse (sex in which a penis is put into a vagina or rectum) can help protect you from getting HIV.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

13. Women with HIV can give it to their babies through breast milk.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

14. You can get HIV by sharing a needle with someone who has it.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

15. "Pulling out" before the male ejaculates prevents the spread of HIV.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

16. There is nothing a mother who has HIV or AIDS can do to protect her baby from getting it.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

17. If you have sex and have an HIV test the next day, it can definitely tell you if you got HIV.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

18. Some people have gotten HIV by sharing forks, knives or glasses with a person who has AIDS.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

19. You are less likely to get HIV from oral sex than from anal sex (oral sex means putting your mouth on a penis or vagina, anal sex means putting the penis in the anus or rectum).
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

20. You are just as likely to get HIV from kissing an infected person as from having sex with them.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

21. There is a medicine that completely cures AIDS.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

22. The most important time to use condoms with someone is when you have sex with <u>for</u> the first time.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

23. Making sure you don't have a lot of sex partners will protect you from HIV.
Circle One:

Definitely True	Probably True	Don't Know	Probably False	Definitely False

APPENDIX I: QUESTIONNAIRE ON MOTIVATION

Measures on Attitudes towards HIV Preventive Behaviours

1. For me, not having sex until I am older would be: Circle One

   Very bad Somewhat bad Neither good nor bad Somewhat good Very good

2. Talking to my boyfriend or girlfriend about whether or not we should have sex would be: Circle One

   Very bad Somewhat bad Neither good nor bad Somewhat good Very good

3. For me, buying condoms or getting them for free during next two months would be: Circle One

   Very bad Somewhat bad Neither good nor bad Somewhat good Very good

4. During the next two months, carrying condoms with me would be: Circle One

   Very bad Somewhat bad Neither good nor bad Somewhat good Very good

5. If I have sex during the next two months, using condoms every time would be: Circle One

   Very bad Somewhat bad Neither good nor bad Somewhat good Very good

6. If we have sex during the next two months, telling my boyfriend or girlfriend we have to use condoms would be: Circle One

   Very bad Somewhat bad Neither good nor bad Somewhat good Very good

Measures on Subjective Norms Regarding HIV Preventive Acts

7. Friends that I respect think I should not have sex until I am older: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

8. My boyfriend or girlfriend thinks we should not have sex until we are older:

Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

9. Friends my age that I respect think I should talk to my boyfriend or girlfriend about whether or not we should have sex: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

10. My boyfriend or girlfriend thinks we should talk about whether or not we should have sex: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

11. Friends that I respect think I should buy condoms or get them for free, during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

12. My boyfriend or girlfriend thinks I should buy condoms or get them for free, during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

13. Friends that I respect think I should carry condoms with me during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

14. My boyfriend or girlfriend thinks I should carry condoms with me during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

15. Friends that I respect think I should use condoms every time, if I have sex , during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

16. My boyfriend or girlfriend thinks I should use condoms every time, if I have sex during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

17. Friends that I respect think I should tell my boyfriend or girlfriend we have to use condoms, if we have sex, during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

18. My boyfriend or girlfriend thinks that I should tell them we have to use condoms, if we have sex during the next two months: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

Measures on Behavioural Intentions to Engage in AIDS Preventive Acts

19. I am planning not to have sex until I am older: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

20. I am planning to talk to my boyfriend or girlfriend about whether or not we should have sex: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

21. During the next two months, I am planning to buy condoms or get them for free: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

22. During the next two months, I am planning to carry condoms with me: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

23. If I have sex during the next two months, I am planning to use condoms every time: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

24. If I have sex during the next two months, I am planning to tell my boyfriend or girlfriend we have to use condoms: Circle One

Very true Somewhat true Neither true nor untrue Somewhat untrue Very untrue

<u>Measures on Perceived Vulnerability to HIV Infection</u>

25. What do you think are your friends' chances of getting HIV/AIDS"? Circle One

No chance Some chance About Average chance Strong chance Very strong chance

26. What do you think are your own chances of getting HIV/AIDS? Circle One

No chance Some chance About average chance Strong chance Very strong chance

27. How afraid are you of getting HIV/AIDS? Circle One

Not at all afraid A little afraid Slightly afraid Somewhat afraid Very afraid

APPENDIX J: QUESTIONNAIRE ON BEHAVIOURAL SKILLS

1. How hard or easy would it be for you to make sure do not have sexual intercourse until you are older? Circle One

Very Hard To Do	Fairly Hard To Do	Neither Hard Nor Easy To Do	Fairly Easy To Do	Very Easy To Do

2. How hard or easy would it be for you to tell your boyfriend or girlfriend you are not going to have sex with them? (If you do not have a boyfriend or girlfriend, please answer as if you had one). Circle One

Very Hard To Do	Fairly Hard To Do	Neither Hard Nor Easy To Do	Fairly Easy To Do	Very Easy To Do

3. How hard or easy would it be for you to get condoms (buy them or get free) at a place close to your home or school? Circle One

Very Hard To Do	Fairly Hard To Do	Neither Hard Nor Easy To Do	Fairly Easy To Do	Very Easy To Do

4. How hard or easy would it be for you to carry condoms with you so they would be handy if you had sex? Circle One

Very Hard To Do	Fairly Hard To Do	Neither Hard Nor Easy To Do	Fairly Easy To Do	Very Easy To Do

5. If you have sex, how hard or easy would it be for you to make sure you and your partner use a condom every time? Circle One

Very Hard To Do	Fairly Hard To Do	Neither Hard Nor Easy To Do	Fairly Easy To Do	Very Easy To Do

6. If you had sex, how hard or easy would it be for you to make sure you and your partner use a condom every time, if you were under the influence of alcohol or drugs? Circle One

Very Hard To Do	Fairly Hard To Do	Neither Hard Nor Easy To Do	Fairly Easy To Do	Very Easy To Do

7. How hard or easy would it be for you to talk about using condoms with your boyfriend or girlfriend? (If you do not have a boyfriend or girlfriend, please answer as if you had one). Circle One

Very Hard To Do	Fairly Hard To Do	Neither Hard Nor Easy To Do	Fairly Easy To Do	Very Easy To Do

Appendix K1

UNIT 1 STUDENT ACTIVITY 4

How a person gets HIV*

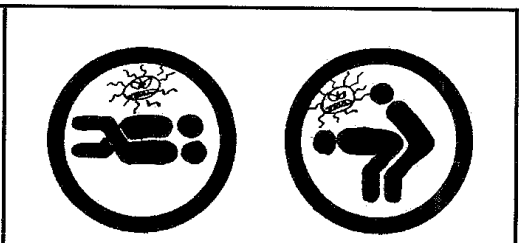
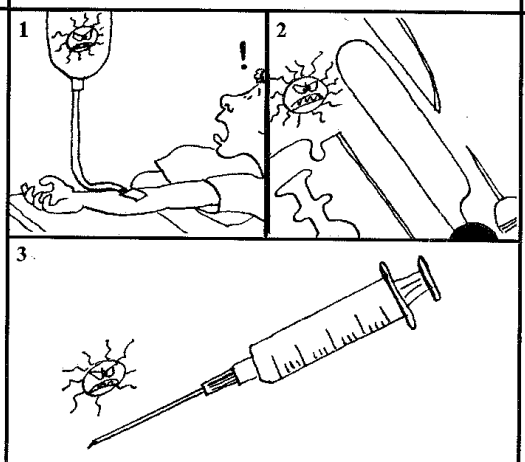
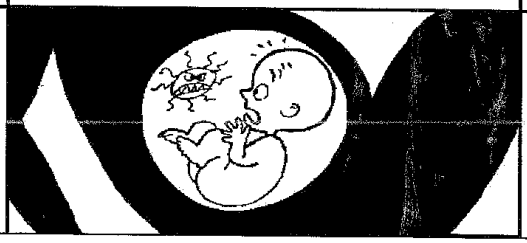
*(the virus that causes AIDS)

Why?

It is most important to know how HIV is spread. This information can help you protect yourself.

How?

1. **With your teacher read the three methods of transmission of HIV.**
2. **Ask any questions you might have about how HIV is spread.**

Sexual intercourse		• Most people get HIV by having unprotected sexual intercourse with an infected person. • Unprotected sexual intercourse means having vaginal or anal sex without a condom. • HIV may also be transmitted through oral sex.
Infected blood		**1.** One can get HIV through a blood transfusion with infected blood. **2.** One can get HIV by using instruments used on someone with HIV for ear-piercing, tattoos or circumcision, which have not been properly cleaned. **3.** One can get HIV by using needles or syringes used by someone else for injections, which have not been properly cleaned.
Infected mother to her unborn or newborn child		• Babies born to mothers with HIV may become infected in the womb before birth, during birth, and sometimes through breast milk.

It is not easy to get AIDS. Unlike many common diseases, HIV cannot get to us through air, food or water. The virus cannot live outside our body for long. We can only catch HIV if the body fluids of an infected person enter our body. The body fluids with a high concentration of HIV are: blood, semen and vaginal secretions.

You can't get AIDS by...

UNIT 1 STUDENT ACTIVITY 5

Why?

By knowing how HIV is *not* spread you can reduce your fear of AIDS. You will also be better able to provide care and comfort, without fear, to someone living with AIDS.

How?

For each picture, write down what the people are doing. You will learn that HIV is not spread through any of these activities.



HIV does not spread through everyday contact with people who are infected with HIV. So we don't need to worry about things we do daily!

6

UNIT 1 STUDENT ACTIVITY 15

Testing for HIV

Why?

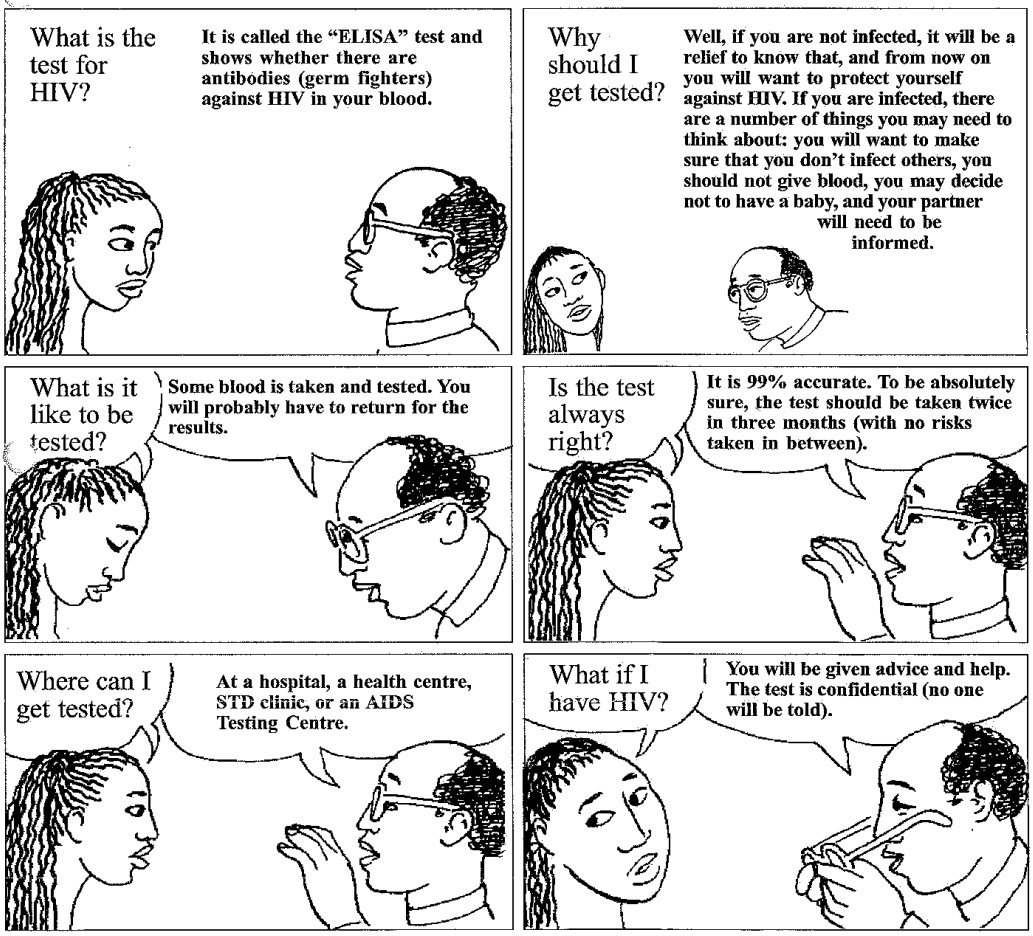
Some young people may need to know about testing for HIV/AIDS.

How?

Your teacher will help you understand the information below and answer any questions you may wish to ask.

Marie is anxious that she may have HIV from having sex with three partners. She thinks one of her partners might have HIV. She finally got up enough nerve to go to the health centre in her community. She tells the doctor about her situation and asks these questions.

Dr. Matago has worked with people living with AIDS for 7 years. He helps with testing and talks to people who have been tested. He answers Marie's questions in a kind, understanding way.



Test: What you know
...about testing

UNIT 1 STUDENT ACTIVITY 16

Why?
It's important to remember information about HIV/ AIDS and STD. This activity will help you review the information on testing for HIV.

How?
Read the statements in column "A" and try to find the words from column "B" to match the statement.

Column A	
The number of times you need to be tested in three months is... ☐	The test is accurate to... ☐
It is important to take the test so that you can... ☐	It is also important to take the test so that you will... ☐
The test for HIV is called... ☐	When no one else is told about the test, that means that it is... ☐
If you have HIV, you will be given... ☐	You can get tested at... ☐
The test for HIV looks for... ☐	To get the results you probably have to... ☐

Column B	
A **Advice and help**	B **Come back later**
C **Health centre or hospital**	D **ELISA**
E **Antibodies**	F **Take precautions to not infect others if you test positive**
G **Twice**	H **Confidential**
I **99%**	J **Tell your partner(s) if you test positive**

UNIT 1 STUDENT ACTIVITY 8

What is your risk?

Why?

Since there is no vaccine or cure for HIV/AIDS, it is important for you to know how you can get HIV. This will help you to know which things are risky and should be avoided, and which things are not.

How?

1. Read the section called "Risk levels"

2. In each of the boxes beside the activities put: NR = No Risk or LR = Low Risk or HR = High Risk

Risk Levels

NR No risk of getting HIV/AIDS – there is no exchange of blood, male semen or female vaginal secretions

LR Low risk of getting HIV/AIDS – there is a slight possibility of exchange of blood, semen or vaginal secretions

HR High risk of getting HIV/AIDS – there is a strong possibility of exchange of blood, male semen or female vaginal secretions

1 ☐ Using toilets in a public washroom.	**5** ☐ Kissing (dry kissing)	**11** ☐ Going to school with an HIV-infected person
2 ☐ Touching or comforting someone living with AIDS	**6** ☐ Having sex using the same condom more than once	**12** ☐ Cutting the skin with a knife used by others
3 ☐ Having sex without a condom	**7** ☐ Sharing needles for injection drug use	**13** ☐ Being bitten by a mosquito
4 ☐ Having oral sex (without semen in the mouth)	**8** ☐ Swimming with an HIV-infected person	**14** ☐ Giving blood
	9 ☐ Sharing needles for ear-piercing or tattooing	**15** ☐ Having sex using a condom properly
	10 ☐ Abstaining from sexual intercourse	**16** ☐ Eating food prepared by an HIV-infected person

What is your risk?

To avoid HIV/STD it is very important for you to find out your own personal risk. To do this, look at the risky activities above and consider if you have done any of them in the past. Think about where you would put an "X" on the line below to show what risk you have of getting HIV/AIDS/STD.

0 **10**

no risk **low risk** **high risk**

Do you think your risk of getting HIV will change as you get older? If yes, why and how?

UNIT 1 STUDENT ACTIVITY 9

Are you at risk? (part 1)

Group 1

- ☐ 1. Body to body rubbing with clothes on.
- ☐ 2. Sharing a razor to shave legs or face.
- ☐ 3. Having sex with a condom - condom breaks.
- ☐ 4. Back rub - massage.
- ☐ 5. Riding on a bus with an HIV-infected person.
- ☐ 6. Cutting the skin with a knife used by others.

Group 2

- ☐ 1. Using toilets in a public washroom.
- ☐ 2. Sharing needles for injection drug use.
- ☐ 3. Being bitten by a mosquito.
- ☐ 4. Dry kissing.
- ☐ 5. Having vaginal sex without a condom.
- ☐ 6. Cleaning up spilled HIV-infected blood without wearing gloves.

Group 3

- ☐ 1. Having anal sex without a condom.
- ☐ 2. Abstaining from sexual intercourse.
- ☐ 3. Sharing needles for ear-piercing.
- ☐ 4. Shaking hands with an HIV-infected person.
- ☐ 5. Having oral sex (without semen in the mouth).
- ☐ 6. Swimming with an HIV-infected person.

Are you at risk? (part 1)

UNIT 1 STUDENT ACTIVITY 9

Group 4

- ☐ 1. Sharing needles for tattooing.
- ☐ 2. Sharing clothes with someone who has HIV.
- ☐ 3. Donating blood.
- ☐ 4. Eating food prepared by an HIV-infected person.
- ☐ 5. Having sex with a number of partners - no condom.
- ☐ 6. Going to school with an HIV-infected person.

Group 5

- ☐ 1. Using public drinking fountains.
- ☐ 2. Giving mouth-to-mouth resuscitation if there are no sores in the mouth.
- ☐ 3. Having unprotected sex with an STD-infected person.
- ☐ 4. Playing sports with an HIV-infected person.
- ☐ 5. Sharing a needle cleaned with water.
- ☐ 6. Being close to an HIV-infected person who coughs or sneezes.

Group 6

- ☐ 1. Being bitten by an HIV-infected person.
- ☐ 2. Wet (deep) kissing.
- ☐ 3. Having sex using a condom properly.
- ☐ 4. Sharing a towel with an HIV-infected person.
- ☐ 5. Touching or comforting someone living with AIDS.
- ☐ 6. Having sex using the same condom more than once.



Teacher asks

Some young people become very afraid of HIV/AIDS.
a) Why do you think they are so afraid?
b) What could be done to prevent this fear of HIV/AIDS?

The Partner Pyramid 10

Appendix K7

Joe is a very cool and popular guy. He likes girls and girls like him. He has three different girlfriends with whom he has sex. Joe doesn't like condoms. He says that having sex with a condom is like eating sweets with the wrapper still on.

His girlfriends, Carol, Jane and Diana don't know each other. They all think that Joe is the one they have been waiting for. When Joe tells them he doesn't want to use condoms they all agree because they don't want to lose him to someone else.

One of Joe's girlfriends, Jane, is HIV positive but she doesn't know it. She got the virus in another relationship three years ago. She looks and feels great. Jane gives the virus to Joe and Joe passes it on to Diana.

Joe finds out that Diana is pregnant and he dumps her. He likes her but doesn't want the responsibility of a child. After Diana delivers, her baby soon becomes very sick and dies.

The doctors tell her the baby died because of AIDS and that she is carrying the virus as well. Diana does not tell Joe about this. After all, they broke up and he treated her bad.

Joe's other girlfriend, Carol, finds out about Diana and dumps Joe. She is so depressed that she jumps right into a new sexual relationship with Mike, who she hardly knows.

Mike is also involved with Rose. Rose never has sex without a condom, especially after she finds out that her ex boyfriend John is dying and has all the typical symptoms of AIDS.

Rose has herself tested and is HIV negative. She decides to keep it that way.

After Diana and Carol are gone and Jane moves to another town, Joe meets Anne. Anne is a nice, quiet and steady girl. She likes boys but never has more than one boyfriend.

Anne really loves Joe and since he assures her that he has no other girlfriends she agrees to have unprotected sex with him. After all, she is 'on the pill' and she is so crazy about Joe that she doesn't think any further. Anne gets the virus from Joe.

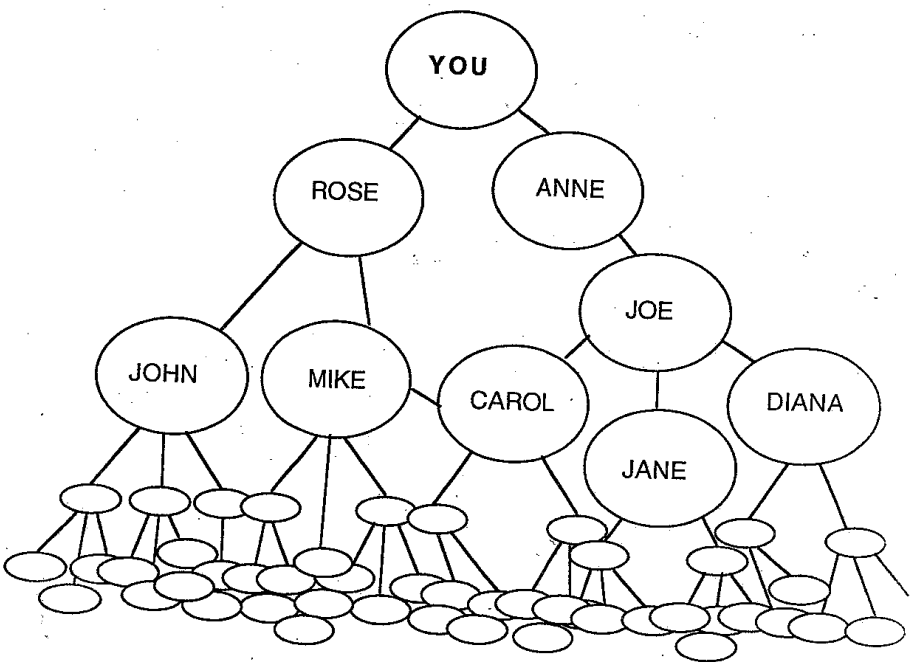
Anne and Joe actually develop a good relationship. They are together for a full three years and neither of them has another partner during this period. Anne is devastated when Joe gets a scholarship and moves abroad. They write letters for some time but the relationship cools down.

After having been without a partner for two years Anne meets **you** and you fall hopelessly in love with her. A year before, you had a short love affair with Rose but it didn't work out.

- If you were to have unprotected sex with Anne, you would be at the top of a 'partner pyramid'. Without knowing anything about the previous partners of Anne, Joe, Diana, Carol, Jane, Mike, Rose and John, how many people would you actually be 'sleeping with' while you only knew Anne?

- You would actually be sleeping with everyone apart from John (because Rose always used a condom). Not only would you be sleeping with Anne, Joe, Diana, Jane, Carol and Mike, but also with their previous partners and their partners before them. You would actually be sleeping with dozens of people. It only takes **one** of all these previous partners to be HIV infected to get the virus to **you.**

The PARTNER PYRAMID



F. Berkhof - the Stay Alive Programme - a Teachers' Guide

UNIT 2 STUDENT ACTIVITY 1

Reasons to say NO

Delaying sexual intercourse until: more responsible • older • in a sure relationship with one person • married

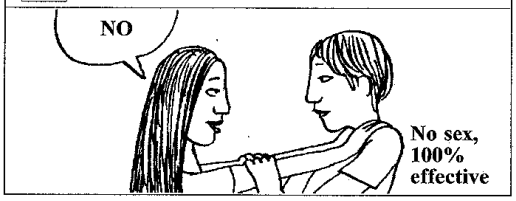
Why?

There are many good reasons for delaying sex until you are older. These are listed in the pictures below.

How?

Pick 4 reasons young people usually have for abstaining from or delaying sexual intercourse, and place a (✓) in these boxes.

☐ 1. Fear of pregnancy



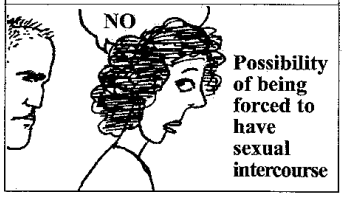
☐ 2. Fear of STD



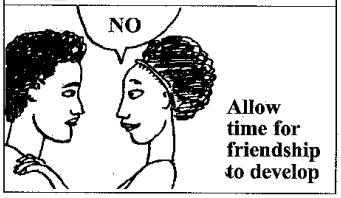
☐ 3. Family expectations



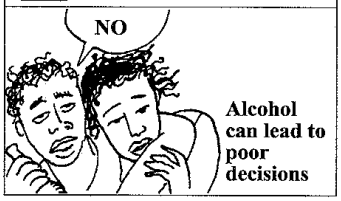
☐ 4. Fear of violence



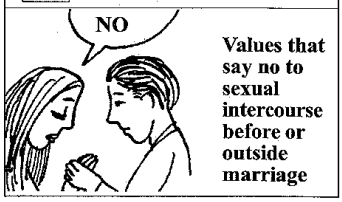
☐ 5. Friendship



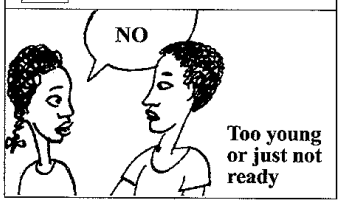
☐ 6. You/partner are drunk



☐ 7. Religious values

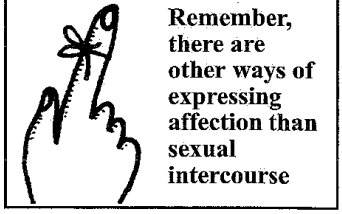


☐ 8. Not ready

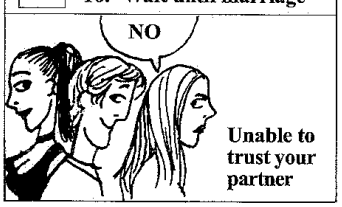


☐ 9. Not with right person





☐ 10. Wait until marriage



UNIT 2 STUDENT ACTIVITY 2

To delay or not to delay (a)

Why?

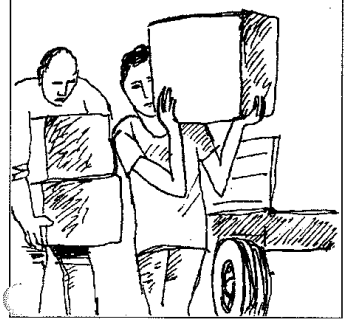
Decisions about sex are often made in a hurry and sometimes under the influence of alcohol. Decisions about sex should be well thought out. A decision made when calm and not pressured is more likely to result in behaviours that avoid pregnancy and/or HIV/ STD.

How?

1. **Read the story of Stoli and Yarmella. From the list of reasons in part 1 (next page) for saying "yes" to sex, check those that might be used by Stoli and Yarmella and then evaluate each reason as poor (0) or good (1). Discuss your choice with the rest of the class.**
2. **From the list of reasons for saying "no" in part 2 (next page), choose three that might be important for Stoli and three for Yarmella. Mark (Y) for Yarmela's reasons to say "no" and (S) for Stoli's.**
3. **Answer the questions at the end of the activity.**

A story of Stoli and Yarmella

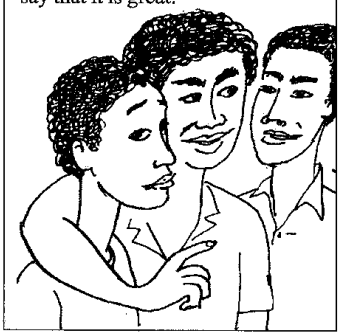
Stoli is 17 years old and helps his uncle in his shop.



His parents are hard-working and hold traditional values. They believe that young people should not have sex before marriage.



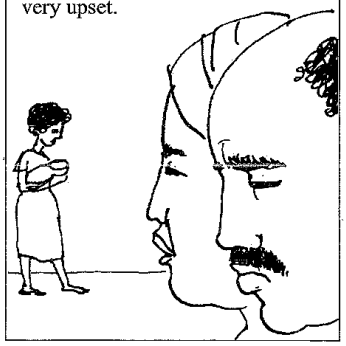
He is quite shy but would like to have sex because most of his friends say that it is great.



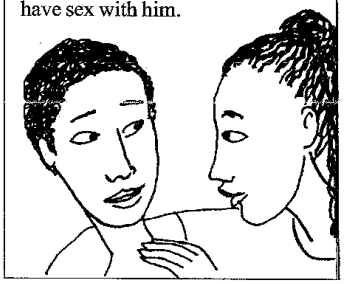
Yarmella is 14 but appears and acts older.



Her sister became pregnant when she was 15 and her parents were very upset.



She hasn't known Stoli very long. She has just finished three classes on AIDS and really doesn't want to get HIV. She is afraid, however, that she might lose Stoli if she doesn't have sex with him.



Yes or no? See next page

To delay or not to delay (b)

UNIT 2 STUDENT ACTIVITY 2

1. Reasons for saying YES

(**0** = poor reason; **1** = good reason)

- ☐ 1. To prove their love to each other
- ☐ 2. Fear that the relationship will break up
- ☐ 3. Curiosity about sex
- ☐ 4. Belief that everyone is having sex
- ☐ 5. Because it "feels right"
- ☐ 6. To be more popular
- ☐ 7. Because they are not afraid of becoming pregnant or getting an STD
- ☐ 8. Because both are comfortable with the decision
- ☐ 9. Money or presents
- ☐ 10. Fear of being "beaten up"
- ☐ 11. Because the partner convinces them that there will be no problems

2. Reasons for saying NO

(Mark **Y** for Yarmela's reasons and **S** for Stoli's).

- ☐ 1. Fear of pregnancy
- ☐ 2. Fear of an STD (like HIV)
- ☐ 3. Family expectations (not to have sex)
- ☐ 4. Fear of cancer (of the cervix)
- ☐ 5. Friendship (to allow to grow)
- ☐ 6. There are other forms of affection
- ☐ 7. Religious values (don't approve of sex)
- ☐ 8. Not ready (perhaps too young)
- ☐ 9. Not with the right person
- ☐ 10. Wait until marriage



Teacher asks

1. How many of your reasons in part 1 were good (1)? How many were poor (0)? How did the rest of the class feel about the reasons for saying "yes"?
2. Did the reasons for Stoli and Yarmella differ in part 2? If yes, why?
3. In part 2 what do you think the one most important reason to delay sex would be for Stoli and for Yarmella?
4. What would be two reasons for returning to abstinence if you were already having sex?

UNIT 2 STUDENT ACTIVITY 3

"Lines" and more "lines"

Why?

For every reason to say "no", someone has found a way to persuade you to say "yes". In this activity you learn various ways of replying to these "lines".

How?

1. **Read each of the lines to persuade you to say "yes".**
2. **Using the "Possible responses to Lines and more lines", select the best reply and write the letter in the answer "bubble".**



Possible responses to "Lines and more lines"

A. Once is all it takes.
B. This isn't a joke. I don't want to get pregnant or get an STD.
C. Maybe we're not ready for sex.
D. I really don't want sex just now.
E. Look, I'm not having sex until I'm older.
F. Maybe we could just hug and kiss.
G. I know that everyone is not having sex.
H. I have no idea, but I'm not taking the risk.
I. I don't feel good when pressured, so I'm leaving.
J. No, but *I'll* know about it.
K. I feel OK about myself without sex.
L. I do too, but I'd like to wait.
M. I don't need a drink, I just don't want sex.
N. I trust *me*, and *me* doesn't want sex.

Who's assertive?

UNIT 2 STUDENT ACTIVITY 9

Why?

Since you now know the differences between being passive, aggressive and assertive, it is important to see if you can identify these differences in real-life stories.

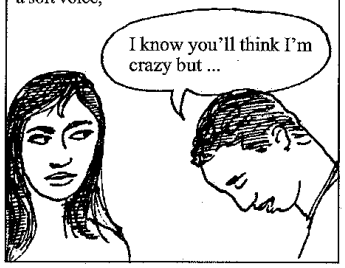
How?

1. **Read the two stories below.**
2. **Identify the type of behaviour (passive, aggressive or assertive) of each person in the story.**
3. **Explain how you identified the type of behaviour by describing: the content of what they said; the way they spoke; their body position**

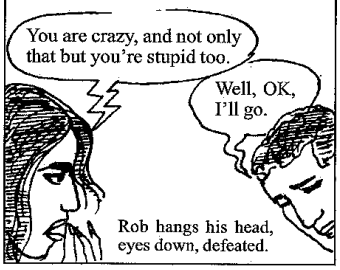
1 Sulana has been seeing Rob for about one month now. She wants him to come to her house since her parents aren't home.



He tries to speak about his feelings a few times but Sulana keeps interrupting him. Rob, his head down, finally says to Sulana, in a soft voice,



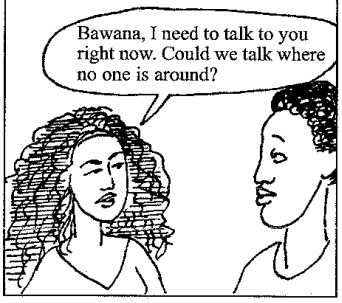
Sulana interrupts again, approaches Rob, nose to nose, and says loudly with her hands on her hips...



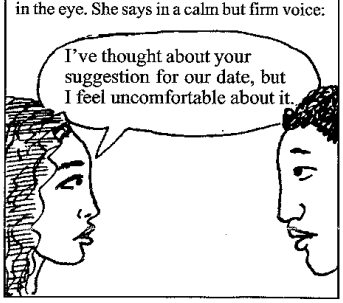
Rob's behaviour is _____
Why?
What said? _____
How said? _____
Body position? _____

Sulana's behaviour is _____
Why?
What said? _____
How said? _____
Body position? _____

2 Tana had been upset with Bawana and when she saw him, she said:



Moving to another room, Tana sits straight with her hands on the table and looks Bawana in the eye. She says in a calm but firm voice:





Tana's behaviour is _____
Why?
What said? _____
How said? _____
Body position? _____

UNIT 2 STUDENT ACTIVITY 10

Assertive messages

Why?

To be assertive you must first learn the skills. The first time you do this, it will be difficult. As you practise, it will be easier and feel more natural. Here are the four steps in making an assertive message.

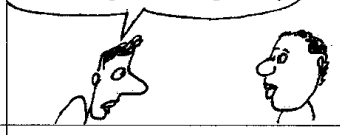
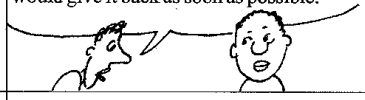
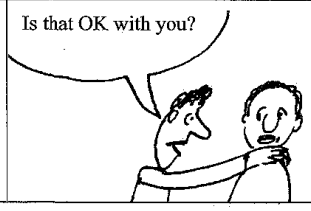
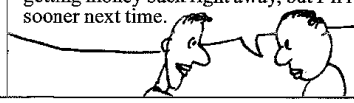
How?

Your teacher will explain the various steps in making an assertive message.

Money problems

Joccai and Mannu are good friends. Joccai has a part-time job after school and he has lent money to Mannu on previous occasions. Lately Joccai has noticed that Mannu is becoming slower to pay the money back. Joccai decides to discuss this matter with Mannu after school and to ask that Mannu pay the money back sooner.

Steps to deliver an assertive message

Steps	Description	Words you might say	Messages
1. Explain your feelings and the problem	State how you feel about the behaviour/problem. Describe the behaviour/ problem that violates your rights or disturbs you.	• I feel frustrated when... • I feel unhappy when... • I feel... when .... • It hurts me when... • I don't like it when	I feel as if I'm being used when I lend you money and don't get it back right away. 
2. Make your request	State clearly what you would like to have happen.	• I would like it better if... • I would like you to ... • Could you please ... • Please don't ..... • I wish you would	I would like it better if when you borrow money you would give it back as soon as possible. 
3. Ask how the other person feels about your request	Invite the other person to express his/her feelings or thoughts about your request.	• How do you feel about that? • Is that OK with you? • What do you think? • What are your thoughts on that? • Is that alright with you?	Is that OK with you? 
Answer	The other person indicates his/her feelings or thoughts about the request.	The other person responds.	Ya, I guess you're right. I'm not too good at getting money back right away, but I'll return it sooner next time. 
4. Accept with thanks	If the other person agrees with your request, saying "thanks" is a good way to end the discussion.	• Thanks • Great, I appreciate that • I'm happy that's OK with you • Great	Thanks for understanding. Let's go and listen to the music. 

Your assertive message

UNIT 2 STUDENT ACTIVITY 11

Why?

Developing an assertive message as a class will help you understand the steps and prepare you to make your own message in the next activity.

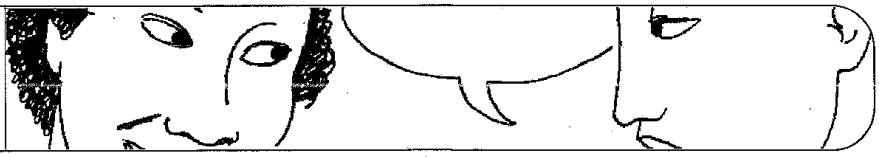
How?

As a class, you will, in this activity, develop an assertive message for the situation described below. Your teacher will give instructions.

Dealing with gifts

You are 14 and this is your second date with Adula. He has given you a small gift and he wants to take you dancing. You do not want to have sex with Adula but you think he will want to because of the gift. You decide to tell him that you don't want the gift and you don't want to go to the dance.

Steps to deliver your assertive message

Steps	Your messages
1. Explain your feelings and the problem	
2. Make your request	
3. Ask how the other person feels about your request	
Answer	
4. Accept with thanks	

19(a)

UNIT 2 STUDENT ACTIVITY 12

Your assertive message

Why?

It is now time to try your own assertive message. Remember it may seem awkward at first but it will get better.

How?

1. You and your partner will pick one of the situations from the next page.
2. Using the message script below, write out the assertive message for your situation. One person reads it to the other.
3. Make any changes that you think are needed. Have the other person read the message once more.
4. Your teacher may then ask you to read your message to the class.

Steps to deliver an assertive message

Steps	Situation 1	Situation 2	Situation 3	Situation 4
1. Explain your feelings and the problem				
2. Make your request				
3. Ask how the other person feels about your request				
Answer				
4. Accept with thanks				

UNIT 2 STUDENT ACTIVITY 12

Your assertive message

Sample situations

Situation 1 You are talking to a number of your friends. Most of them have had sex and are teasing you about the fact that you have not. One of the group hurts you by what they have said. You decide to make an assertive reply.	
Situation 2 A person of the other sex has asked you to go to a party with him/her. You don't know anyone who is going, which makes you feel a little uncomfortable. As well, you have heard that this person uses drugs and does not have a very good reputation at school. You decide to be assertive and say no to him/her.	
Situation 3 You have decided to get a tattoo or your ears pierced. Your friend has told you that you can get it done at a place out of town. You arrive but it doesn't look very clean. You have heard about HIV/AIDS and unclean needles. You decide to ask the person if the needles are clean and to see the equipment they use for cleaning. When the person can't show you, you decide to say no assertively.	
Situation 4 A friend of your family asks if you want a ride home after school. You don't feel very good about this person and you feel uncomfortable about the situation. You decide to be assertive and refuse the ride.	

UNIT 2 STUDENT ACTIVITY 13

Responding to persuasion

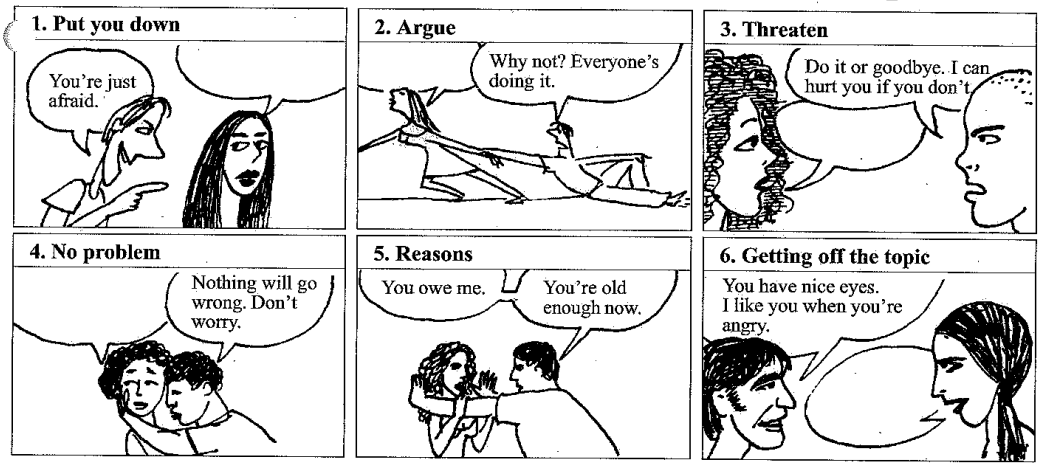
Why?

Other people will not always agree with you when you are assertive. In fact they may interrupt you, get you off the topic or try to persuade you to do something you don't want to do. Therefore, it is important for you to learn how to respond to these situations.

How?

Your teacher will help you to understand how to respond to people who try to get you off the topic or try to persuade you to do something you don't want to do.

Ways people get you off your message or do not accept it



What you say when they...

... try to get you off the topic

In all cases when a person is trying to get you off your assertive message, get back on topic.

Some ways to do that:

- Please let me finish what I was saying
- Please don't stop me until I'm finished
- That's fine, but please listen to what I have to say
- I know you think ... but let me finish what I was saying

... try to persuade you

If the other person tries to persuade you to do something you do not want to do:

Refuse

Say no clearly, and if necessary, leave.

- No, no, I really mean no
- No thank you
- No, no and I'm leaving

Delay

Put off a decision until you can think about it.

- I'm not ready yet
- Maybe we can talk later
- I'd like to talk to a friend first

Bargain

Try to make a decision that both people like.

- Let's do ... instead
- I won't do that, but maybe we could do ...
- What would make us both happy?

UNIT 2 STUDENT ACTIVITY 13

Responding to persuasion

Why?

Learning how to respond to a person who tries to distract you or persuade you to do something that you do not want to do, is an important skill.

How?

Your teacher will explain the steps to take when a person distracts or persuades you.

Situation

Your older brother is supposed to give you a ride home after work. You meet him but he is staggering and slurring his words. You feel he has had too much to drink and it would not be wise to drive with him. He tries to persuade you to go with him. So you refuse, delay or bargain.



20(d)

UNIT 2 STUDENT ACTIVITY 15

Responding to persuasion

Why?

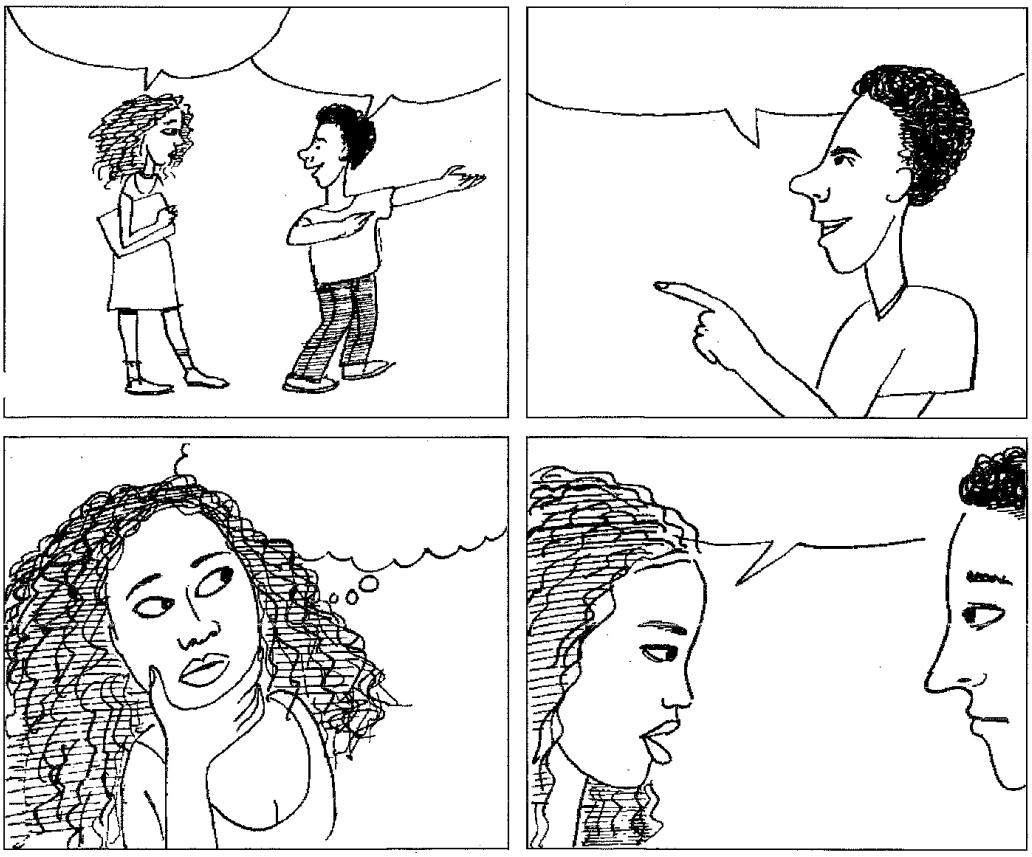
In this activity, you'll try to write an assertive message to someone who interrupts you and tries to get you to do something you don't want to do.

How?

1. **With a partner, use the blank spaces to write an assertive message.**
2. **Select a statement that tries to get you to do something that you don't want to do.**
3. **Finally, write a "refuse", "delay" or "bargain" statement.**

Situation 1

Your friend wants you to skip school and go to the river to drink beer. He tells you a whole group is going. He says, "You are afraid, aren't you". You got caught skipping school last month and don't want to get caught again. You decide to tell him you don't want to go.

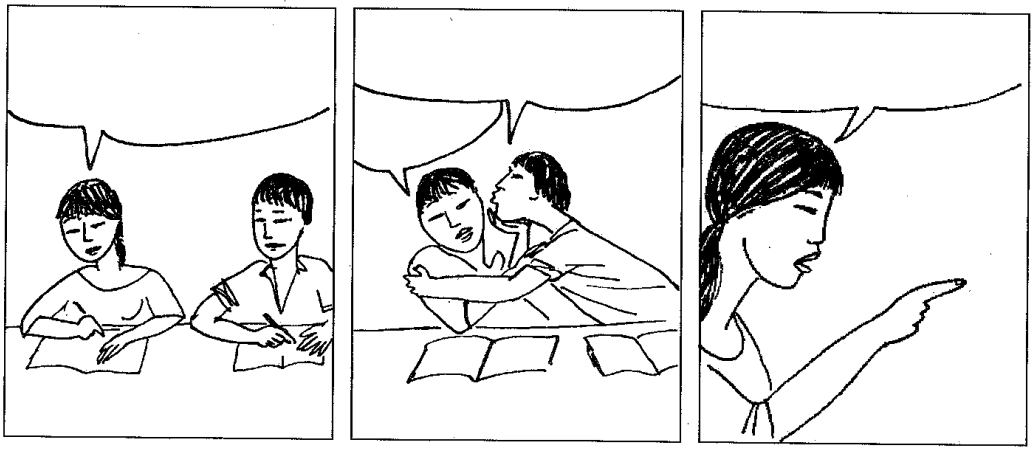


Responding to persuasion

UNIT 2 STUDENT ACTIVITY 15

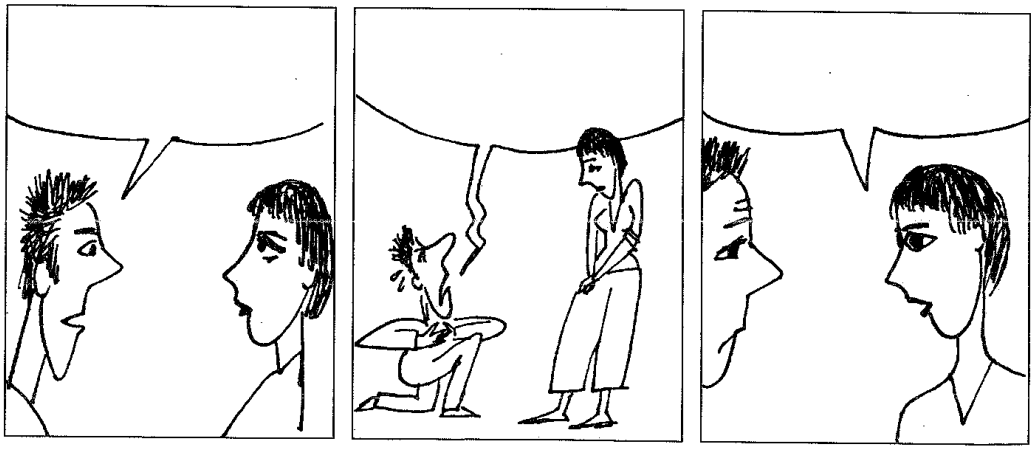
Situation 2

Your parents are at work and you invite a friend of the opposite sex over to study. After doing the homework he/she grabs you and tries to kiss you. You push him/her away but they say, "Come on, you didn't invite me over just to do homework." You take a firm stand so it won't happen again.



Situation 3

Your boyfriend/girlfriend thinks it is time to have sex. You love him/her but you feel that sex before you are ready is wrong. Your friend says, "You're just scared. If you really loved me, you'd show it." Although you are afraid it will end the relationship, you decide to tell him/her that you are just not ready.



Appendix L1 HIV/AIDS Information Lesson Plan: DAY 1 (Week 1), adapted from UNAIDS, WHO, UNESCO (1994

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: HIV Transmission **Specific Aim:** To provide adolescents with HIV/AIDS information on how the HIV virus is transmitted or not transmitted from one person to another, or how one gets infected by the virus	HIV can transmitted through breast-feeding; sharing a needle with someone who is HIV infected. You may be infected by someone you love, trust or know very well. You cannot be infected by HIV through knives, forks or glasses used by HIV infected persons; You cannot be infected through kissing an infected person One's looks do not tell whether they are infected or not; HIV infection is not for homosexuals and drug addicts only; pulling out before ejaculation cannot prevent HIV infection; there is no medicine that can completely cure AIDS	**Introduction:** Teacher establishes learners' prior knowledge by asking learners to identify methods of HIV transmission. **Lesson Development:** ***Step 1:*** Teacher puts up a chart titled, "How a Person Gets HIV" (see **Appendix K1**). The chart shows the three methods of HIV transmission (sexual intercourse, infected blood, infected mother to her unborn or newborn child) ***Step 2:*** A class discussion is conducted on different ideas people have on how HIV is transmitted or not transmitted ***Step 3:*** Teacher hands out a work sheet titled, "You can't get AIDS by ... " (**Appendix K2**). **Conclusion:** Teacher summarises the lesson	Learners are expected to respond by giving methods like, sharing a needle with an infected person, having sexual intercourse without using a condom, etc. Learners listen as teacher explains the three methods of HIV transmission. Learners participate in the discussion In groups of 4, learners write down what the people in each picture are doing Learners give feedback on their group discussions	**Appendix K1:** Chart titled, " How a Person Gets HIV". **Appendix K2:** Activity Sheet titled, " You can't get AIDS by ... "

Appendix L2 HIV/AIDS Information Lesson Plan: DAY 2 (Week 1), adapted from UNAIDS, WHO, UNESCO (1994)

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: The Use of Condoms **Specific Aim:** To provide adolescents with information on condoms which will help them reduce HIV risk behaviour. For instance, adolescents must consistently use condoms during sexual intercourse, negotiate their use with partners, as well as keep them handy all the time. Learners should also be enabled to use condoms correctly	The use of condoms greatly reduces the possibility of contracting STIs In order to easily negotiate the use of a condom, always carry one with you and have it handy; if someone insists that you have sex without a condom, request them to leave and firmly tell them that you will never have sex without a condom. When using a condom, check the expiry date, use a new condom for each sexual intercourse; use only water-based lubricants – not oil-based, such as Vaseline; use latex condoms. Use condoms even you know someone very well; use condoms even in a single relationship; use condoms in one night stands and in real relationships; use condoms always, not just for first time sex	**Introduction:** Teacher asks learners to identify various ways of preventing HIV infection. **Lesson Development:** ***Step 1:*** Teacher shows learners a latex condom and a piece of wood resembling a 'penis'. Teacher emphasises that many people are infected because of failing to use a condom. Teacher explains how to use a condom properly. Teacher demonstrates how to use a condom. ***Step 2:*** Groups of 4 to do the following tasks: 1.Why should condoms be used during sexual intercourse? 2. How would you deal with a partner who refuses to use a condom during sex? **Conclusion:** Teacher summarises the lesson after feedback from learners	Among the various ways given by learners, it is expected that the use of condoms will feature most. Learners watch and listen as teacher explains important facts about condoms and their use. In groups of 4, learners discuss the two tasks given by the teacher. Learners give feedback on their group discussions	A wooden 'penis'; a condom

Appendix L3 HIV/AIDS Information Lesson Plan: DAY 3 (Week 1), adapted from UNAIDS, WHO, UNESCO (1994)

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: HIV Testing **Specific Aim:** To provide adolescents with information which will encourage HIV testing as a way of reducing HIV risk behaviour.	The test for HIV is called "ELISA"; HIV testing gives an individual relief that from now on they will want to protect themselves against HIV. If an individual is infected, he/she will want to ensure other people are not infected by him/her; HIV testing involves taking of blood and testing it and giving results to the individual tested. The test is 99% accurate. People can be tested at a hospital, health centre, STI clinic, AIDS testing centre. If an individual has HIV, he/she will be given advice and help. The test is confidential, as nobody will be told.	**Introduction:** Teacher asks learners to say what they think should be done to prevent HIV infection in South Africa. **Lesson Development:** *Step 1:* Teacher hands out Activity Sheet 6 (**Appendix K3)**, titled, "Testing for HIV" to pairs of learners. Teacher instructs learners to read Marie's interview with Dr Matago. Teacher moves around monitoring the pair work. *Step 2:* Teacher hands out a work sheet with a test to each learner (Activity Sheet 7, **Appendix K4**. **Conclusion:** Teacher discusses answers to the test questions with the class.	It is expected that learners will identify HIV testing as one of the ways to prevent HIV infection. In pairs, learners role-play Marie and Dr Matago in the interview and take turns to read questions and answers about HIV testing. Individually, learners do Activity 7 test. After writing the test, learners hand it their worksheets to the teacher.	**Appendix K3** Activity titled, "Testing for HIV; **Appendix K4,** Activity titled, "Test: What you know... about testing"

Appendix M1 Motivation Lesson Plan: DAY 1 (Week 2), adapted from UNAIDS, WHO, UNESCO (1994); Berkhof (2001).

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: Risky Activities **Specific Aim:** To help adolescents realise how vulnerable they are to HIV infection , as well as identify HIV risky behaviours , so that they are motivated to avoid such behaviours .	There are three risk levels in HIV risk behaviour: ***No Risk (NR):*** There is no risk of getting HIV infected; there is no exchange of blood, male semen or female vaginal secretions ***Low Risk (LR):*** There is a low risk of getting HIV infected; there is a slight possibility of exchange of blood, male semen or vaginal secretions ***High Risk (HR):*** There is a high risk of getting HIV infected; there is a strong possibility of exchange of blood, male semen or vaginal secretion The 'Partner Pyramid' demonstrates that it takes one of all the previous partners who were infected with HIV to get the virus to the last person. If you fear HIV/AIDS, you will see yourself vulnerable of HIV infection and avoid risky activities.	**Introduction:** Teacher writes 'No Risk', 'Low Risk', 'High Risk' on the chalkboard and asks the class to explain what they think these terms mean in relation to HIV infection. **Lesson Development:** *Step 1:* After clarifying the three terms, teacher hands out to each learner Activity Sheet 8 (**Appendix K5**), titled, "What is your risk?" As learners work, teacher moves around assisting. *Step 2:* Teacher hands out Activity Sheet 10, titled, "The Partner Pyramid". Teacher carefully reads how the virus moves from one person to another. Teacher then asks learners if they are afraid of HIV/AIDS, and what can be done to reduce that fear? **Conclusion(Homework):** Teacher hands out Activity Sheet 9 (**Appendix K6**), titled, "Are you at risk?"	Learners are expected to explain these terms mainly by identifying examples of activities that may be of different risks. Individually, learners classify given activities in under No Risk (NR), Low Risk (LR), High Risk (HR). Learners are expected to state that unprotected sex is the main reason for fear, and that avoiding risky practices will minimize that fear. Learners answer questions on Activity Sheet 9 individually and return the Sheet to the teacher the following day.	**Appendix K5,** Activity Sheet 8, titled, 'What is your risk'? **Appendix K6,** Activity Sheet 9, titled, 'Are you at risk'? **Appendix K7,** Activity Sheet 10, titled, 'The Partner Pyramid'.

Appendix M2 Motivation Lesson Plan: DAY 2 (Week 2), adapted from UNAIDS, WHO, UNESCO (1994)

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: Saying NO to sexual intercourse (Part One) **Specific Aim:** To motivate adolescents to refuse to engage in HIV risk behaviours .	Guidelines for delaying sexual intercourse: -Go to parties and other events with friends; -Decide how far you want to 'go' before being in a pressure situation (set your limits); -Decide your alcohol limits before you are in a pressure situation; Avoid falling for romantic words or arguments; -Be clear about your limits – do not give mixed messages, for example, acting sexy when you do not want sex; -Pay attention to your feelings; when a situation becomes uncomfortable, leave; -Get involved in activities (sports, clubs, hobbies); -Avoid 'hanging out' with people who might pressure you to have sex	**Introduction:** Teacher asks learners if they have refused sexual intercourse with their partners, and why. **Lesson Development:** *Step 1:* Teacher puts up a chart titled, 'Reasons to say NO' **(Appendix K8**). Teacher gives learners a group task. *Step 2:* Teacher leads a class discussion on refusing sexual intercourse – how to do it and why. *Step 3:* Teacher hands out Activity Sheet 12(a) and 12(b) titled, 'To delay or not to delay' (**Appendix K9**). Teacher instructs learners to read the story on Activity Sheet 12(a) and answer questions on Activity Sheet 12(b). **Conclusion:** Teacher summarises guidelines to help learners delay sex	Learners are expected to indicate that they would like to get older first, or get married, and so on. In groups of 4, learners identify which of the 10 reasons to say NO on the chart (**Appendix K8**) are usually given by individuals. Groups give feedback on their discussions. Learners participate in the discussion. Individually, learners read the given Activity Sheet 12(a) and answer questions on Activity Sheet 12(b). After completing, learners hand in their work to the teacher.	**Appendix K8,** chart, titled, 'Reasons to say NO'. **Appendix K9,** Activity Sheets **12(a) and 12(b)**, titled, 'To delay or not to delay'

Appendix M3 Motivation Lesson Plan: DAY 3 (Week 2), adapted from UNAIDS, WHO, UNESCO (1994)

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: Saying NO to sexual Intercourse (Part Two) **Specific Aim:** To motivate adolescents to refuse to engage in HIV risk behaviours.	Guidelines for delaying sexual intercourse: -Be honest from the beginning, by saying you do not want to have sex; -Avoid going out with people you cannot trust; -Avoid secluded places where you could not get help; -Do not accept rides from those you do not know or cannot trust; -Do not accept presents or money from people whom you do not know very well; -Avoid going to someone's room when there is no-one else there; and -Explore other ways of showing affection than sexual intercourse	**Introduction:** Teacher asks learners if someone has ever tried to get them to do something they did not want to do. Teacher explainsthe concept 'Persuade' **Lesson Development:** ***Step 1:*** In pairs learners act how they would try to **persuade** someone to have sexual intercourse with them. They should also act out how the partner would **refuse** sex. ***Step 2:*** Teacher selects pairs to dramatize persuading someone to have sex and someone refusing to have sex. ***Step 3:*** Teacher hands out Activity Sheet 13, titled, "Lines and more lines" (**Appendix K10).** **Conclusion:** Teacher summarises more guidelines to help learners delay sexual intercourse.	Learners are expected to give instances when someone had tried to 'persuade' them to do something they did not want to do. In pairs, learners act out how they would try to persuade someone to have sex, as well as how to refuse when someone is try to persuade them to have sex Selected learners dramatise what they were doing in pairs. Learners do an exercise on Activity Sheet 13 individually. They hand the completed Sheet to the teacher when they have finished writing.	**Appendix K10,** Activity Sheet titled, "Lines and more lines"

Appendix N1 Behavioural Skills Lesson Plan: DAY 1 (Week 3), adapted from UNAIDS, WHO, UNESCO (1994)

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: Assertiveness and making an assertive message (Part One) **Specific Aim:** To develop assertive behaviour in adolescents, which will be a strong foundation for behavioural skills that support sexual health and reduction of HIV risk behaviour	Assertive behaviour is standing up for one's rights no matter what the circumstances; it is rational thinking and the self-affirmation of personal worth and respect. Four steps in delivering an assertive message: 1.Explain your feelings and the problem. 2. Make your request 3. Ask how the other person feels about your request 4. Accept with thanks	**Introduction:** Teacher asks to explain the term **'assertiveness'**. After hearing different responses from learners, teacher explains what 'assertive' and '**making an assertive message'** mean. **Lesson Development:** ***Step 1:*** Teacher further explains characteristics of passive, assertive and aggressive behaviours. ***Step 2:*** Using Activity Sheet 17 (**Appendix K12**), teacher explains the 4 steps in making an assertive message. **Conclusion:** Teacher summarises: emphasizes assertive behaviour in order to avoid risky sexual behaviours.	Learners attempt various explanations of 'assertiveness'. Learners listen as teacher explains. In pairs, learners read the two stories in Activity Sheet 16 (**Appendix K11,** titled, 'Who's assertive?' and identify the behaviours of the 3 people in the stories. Pairs give feedback to the class. Learners listen as teacher explains the importance of assertive behaviour.	**Appendix K11** (Activity Sheet 16), titled, 'Who's assertive?' **Appendix K12** (Activity 17), titled, 'Assertive messages'

Appendix N2 Behavioural Skills Lesson Plan: DAY 2 (Week 3), adapted from UNAIDS, WHO, UNESCO (1994)

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: Assertiveness and making an assertive message (Part Two) **Specific Aim:** To develop assertive behaviour in adolescents, which will be a strong foundation for behavioural skills that support sexual health and reduction of HIV risk behaviour	The same as previous lesson: Assertive behaviour is standing up for one's rights no matter what the circumstances; it is rational thinking and the self-affirmation of personal worth and respect. Four steps in delivering an assertive message: 1.Explain your feelings and the problem. 2. Make your request 3. Ask how the other person feels about your request 4. Accept with thanks	**Introduction:** Teacher announces that the lesson will be a continuation of the previous lesson on assertive messages. **Lesson Development:** *Step 1:* Teacher hands out Activity Sheet 18 (**Appendix K13**), titled, 'Your assertive message'. Teacher leads a class discussion on delivering an assertive message based on the situation on the Activity Sheet. *Step 2:* Teacher hands out Activity Sheet 19(a). Teacher also hands out Activity Sheet 19(b). *Step 3:* Teacher guides a feedback discussion on the group activity. **Conclusion:** Teacher summarises the lesson.	Learners listen as teacher introduces the lesson. Learners participate in a class discussion on delivering an assertive message based on Activity Sheet 18. In groups of 4, learners pick one of the situations on Activity Sheet 19(b) and write out the assertive message on Activity Sheet 19(a). Learners give feedback on their group activity.	**Appendix K13** (Activity Sheets 18, 19(a), 19(b), titled, 'Your assertive message'.

Appendix N3 Behavioural Skills Lesson Plan: DAY 3 (Week 3), adapted from UNAIDS, WHO, UNESCO (1994)

TOPIC & AIM	NEW KNOWLEDGE	TEACHER STRATEGY	LEARNER STRATEGY	AIDS/MATERIALS
Topic: Responding to Persuasion **Specific Aim:** To equip adolescents with skills to respond to persuasion to do what they do not want to do.	If the other person tries to persuade you to do something you do not want to do: **REFUSE:** Say 'no' clearly and if necessary, leave (No, no, I really mean no; no thank you; no, no, and I am leaving). **DELAY:** Put off a decision until you can think about it (I am not ready yet; maybe we can talk later; I would like to talk to a friend first) **BARGAIN:** Try to make a decision that both people like (Let us do ... instead; I will not do that, but maybe we could do ... ; What would make us both happy?)	**Introduction:** Teacher points out that: other people may not agree with you when you are assertive. They interrupt you, get you off topic or try to persuade you to do something you do not want to do. **Lesson Development:** ***Step 1:*** Teacher hands out Activity Sheet 20 (a) **(Appendix K14)** to each learner and explains, using questions and answers, how to respond to persuasion, with special emphasis on **refusing**, **delaying** and **bargaining.** ***Step 2:*** Teacher hands out Activity Sheet 20 (b) (Appendix M – Beh. 20), titled, 'Responding to persuasion'. ***Step 3:*** Feedback discussion on the pair activity. Teacher then hands out homework task sheets : Activity Sheets 20(d) and 20(e) **Conclusion:** Teacher summarises the lesson.	Learners listen as teacher introduces the lesson. Learners respond to the teacher's questions as he/she explains how to respond to persuasion. In pairs, learners discuss Activity Sheet 20(b) to familiarise themselves with refusing, delaying or bargaining, when responding to persuasion. Pairs give feedback on their activity. Homework: Learners choose any ONE of the three situations on Activity Sheets 20(d) and 20(e) and write an assertive message individually.	**Appendix K14,** Activity Sheets 20(a), 20(b), 20(d), 20(e), titled, 'Responding to persuasion'.

Appendix P

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49/1 Ndebele

CLEARANCE CERTIFICATE	PROTOCOL NUMBER 10080502
PROJECT	The Information, Motivation and Behavioural Skills Model (IMB) for the reduction of HIV risk behaviour among adolescent learners in South Africa
INVESTIGATORS	Mr M Ndebele
DEPARTMENT	Wits School of Education
DATE CONSIDERED	16.05.2008
DECISION OF THE COMMITTEE	Approved Unconditionally

NOTE:

This ethical clearance is valid for 2 years and may be renewed upon application

DATE 26.05.2008 CHAIRPERSON (Professor R Thornton)

cc: Supervisor: Dr M Kasese-Hara

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10004, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the above mentioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of an yearly progress report.

Signature

This ethical clearance is valid for two years from date of approval.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

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