

https://dspace.org/

Evaluation of a theatre performance for adolescents promoting safer sex behaviour using AIDS risk reduction theories.

Scott, Michelle Monique

2009-06-19T06:58:14Z
http://hdl.handle.net/10539/7029

Downloaded from a DSpace repository. https://dspace.org/

Evaluation of a theatre performance for adolescents promoting safer sex behaviour using AIDS risk reduction theories

WRITTEN BY: Michelle Monique Scott
Student number: 9803558F
SUPERVISOR: Prof Charles Potter

Research report submitted as partial fulfilment for the course
MA (Community based counselling psychology)

ABSTRACT

There are repeated calls in the literature for the implementation and evaluation of evidence based HIV prevention programmes. This study aimed to evaluate a life-skills theatre performance for adolescents promoting safer sex behaviour against aspects of an established AIDS risk reduction theory.

The study used a quasi-experimental research design, and was operationalised through the use of a questionnaire measuring knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. Bandura's (1990) Social Cognitive Theory (SCT) provided a conceptual framework for the development of the instrument. A further aim of the study was to establish whether the instrument would yield a factor structure that could be linked to Social Cognitive Theory using a principal components factor analysis.

A sample of 392 adolescent high school learners in Grades 10 and 11 at two high schools in Naledi, Soweto completed the evaluation instrument. A sample of 165 learners were exposed to the play prior to completion of the evaluation instrument. A sample of 227 learners completed the questionnaire before the play was scheduled to be performed and were thus considered a control group. The effects of exposure to the play, gender, age, grade and whether the learners reported that they were sexually active formed the independent variables in the analysis, which were examined for their influences on the theoretical constructs measured by the instrument through analysis of variance (ANOVA).

The results indicated that learners at both schools had a reasonably high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. However, learners at the control school scored significantly higher on the factors tapped by the questionnaire than learners attending the school exposed to the play. Possible reasons for these differences are discussed in the report. The results also highlighted significant differences between Grade 11 and Grade 10 learners in knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. The physical age of the learner did not appear to be as important as educational level and/or possible social peer group norms on responses to the instrument.

KEYWORDS

HIV/AIDS (Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome), HIV/AIDS prevention programmes, Social Cognitive Theory, adolescents, programme evaluation, AIDS risk reduction theories

DECLARATION

I hereby declare that this Psychology Masters research report is my own independent effort and has not been presented for any other degree at an alternative academic institution. It is submitted in partial fulfilment for the degree of MA (Community based counselling psychology) at the University of the Witwatersrand, Johannesburg.

MICHELLE MONIQUE SCOTT

22 August 2008

AKNOWLEDGEMENTS

I would like to acknowledge the following people for their help and support in completing this research report.

Many thanks go to arepp: Theatre for Life, the actors and directors, for allowing me to conduct this study through your organisation. Thank you to Brigid Schutz and Gordon Bilbrough for your support and assistance.

Thank you to the Life Orientation teachers, principals and learners who participated in this study. Without you this study would not have been possible.

Thank you to my supervisor, Charles Potter for your help and support as well as for introducing me to the valuable field of programme evaluation in psychology.

I would also like to express my gratitude to Mike Greyling for empowering me with the knowledge on how to conduct and analyse ANOVA. Furthermore, thank you for your assistance in programming the imputation procedure.

Thank you to Peter Frijhon for helping me with my questions on factor analysis.

Last, but certainly not least, thank you to my mom for all your support and help throughout my masters programme, this would not have been possible without your loving support.

TABLE OF CONTENTS

ABSTRACT **1**

KEYWORDS 2

DECLARATION **3**

AKNOWLEDGEMENTS **4**

TABLE OF CONTENTS **5**

LIST OF TABLES **7**

LIST OF FIGURES **9**

LIST OF APPENDICES **9**

CHAPTER 1: INTRODUCTION **10**

1.1 HIV/AIDS PREVENTION PROGRAMMES 10
1.2 A LIFE-SKILLS THEATRE PROGRAMME PROMOTING SAFER SEX 11
1.3 RATIONALE OF THE STUDY 12
1.4 AIMS AND RESEARCH QUESTIONS 17
1.5 STRUCTURE OF THE RESEARCH REPORT 18

GLOSSARY OF TERMS **19**

CHAPTER 2: LITERATURE REVIEW **24**

2.1 FACTORS RELATED TO HIV/AIDS RISK BEHAVIOUR 24
2.2 LIFE-SKILLS AND HIV EDUCATION - AREPP: THEATRE FOR LIFE 34
2.3 THEORETICAL MODELS OF HIV PREVENTION 36
2.3.1 THE AIDS RISK REDUCTION MODEL (ARRM) 37
2.3.2 SOCIAL COGNITIVE THEORY (SCT) 38
SOCIAL COGNITIVE THEORY IN THE CONTROL OF HIV INFECTION 39
2.4 SUMMARY OF CHAPTER 2 45

CHAPTER 3: METHODOLOGY **46**

3.1 PROGRAMME EVALUATION AS A METHODOLOGY 46
3.2 RESEARCH DESIGN AND RESEARCH QUESTIONS 49
3.3 PROCEDURE 50
3.4. EVALUATION INSTRUMENT 56
3.5. DATA CLEANING 61
3.6 IMPUTATION PROCEDURE 64
3.7 FACTOR ANALYSIS 65
3.8 ANALYSIS OF VARIANCE: PROCEDURE FOR ANALYSIS 69
3.9 DECISIONS ON PARAMETRIC AND NON-PARAMETRIC STATISTICS 71
3.10 SUMMARY OF CHAPTER 3 71

CHAPTER 4: RESULTS **72**

4.1 DESCRIPTIVE DATA AND FREQUENCIES 72
4.2 DIFFERENCES IN SEXUAL ACTIVITY BETWEEN SCHOOLS 74
4.3 RESULTS FOR THE FACTOR ANALYSIS 75
4.4 FACTOR ANALYSIS: SUBSCALES 77
SUBSCALE 1A 78
SUBSCALE 1B 80
SUBSCALE 1C 81
SUBSCALE 2 82
INDICATOR VARIABLE 6 (FACTOR 6) 84
INDICATOR VARIABLE 3 85
INDICATOR VARIABLE 5 86
INDICATOR VARIABLE 7 87
FULL INSTRUMENT AS A SCALE 87

4.5 Distribution Analysis 88
4.6 Results for the Analysis of Variance (ANOVA) 90
4.6.1 Dependent Variable: Subscale 1a 91
4.6.2 Dependent Variable: Subscale 1b 97
4.6.3 Dependent Variable: Subscale 1c 103
4.6.4 Dependent Variable: Subscale 2 109
4.6.5 Dependent Variable: Indicator variable 6 115
4.6.6 Dependent Variable: Indicator variable 3 118
4.6.7 Dependent Variable: Indicator variable 5 121
4.6.8 Dependent Variable: Full instrument 127
4.7 Summary of the effects of the independent variables on the scales 132

CHAPTER 5: DISCUSSION 136

5.1 Social Cognitive Theory as the theoretical basis for the evaluation 136
5.2 Perceived vulnerability and knowledge of HIV transmission 137
5.3 Factual knowledge / misconceptions of HIV/AIDS 144
5.4 Intentions to practice safer sex using condoms 147
5.5 Enactment of safer sex behaviour with regards to exposure to or use of condoms 152
5.6 Exploratory factor 5: Negotiating safer sex 154
5.7 Knowledge, Attitudes, perceptions and Intentions conducive to AIDS risk reduction 156

CHAPTER 6: LIMITATIONS AND RECOMMENDATIONS 162

6.1 Research Design 162
6.2 Theoretical limitations 163
6.3 The instrument 164
6.4 self-report data 165
6.5 Imputation 166
6.6 Factor Analysis 166
6.7 ANOVA 167
6.8 arepp: theatre for life - theatre and Peer education 167

CHAPTER 7: CONCLUSION 170

REFERENCES 173

LIST OF TABLES

Table 1: Number of learners in sample by School, Grade and Gender 55
Table 2: Table of dependent variables and scale names 69
Table 3: Descriptive statistics for age and grade of the learners in the sample 72
Table 4: Descriptive statistics of age by each independent variable 73
Table 5: Pearson Chi-square tests of association for the variable 'Sexually Active' by school 74
Table 6: Eigenvalues yielded by the principal components factor analysis 76
Table 7: Questions forming Subscale 1a derived from Factor 1 79
Table 8: Questions forming Subscale 1b derived from Factor 4 81
Table 9: Questions for Subscale 1c: derived from Factor 1 ten years ago 82
Table 10: Questions forming Subscale 2 derived from Factor 2 83
Table 11: Questions forming indicator variable 6 derived from Factor 6 84
Table 12: Questions forming indicator variable 3 derived from Factor 3 85
Table 13: Questions forming indicator variable 5 derived from Factor 5 86
Table 14: Questions forming indicator variable 7 derived from Factor 7 87
Table 15: Distribution analysis and brief descriptive statistics for each subscale 89
Table 16.1: Overall ANOVA for combinations of the independent variables on Subscale 1a 91
Table 16.2: Effect of the exposure to the play (School) on perception of personal vulnerability to HIV/AIDS with basic knowledge of HIV transmission 91
Table 16.3: Effect of Grade on perception of personal vulnerability to HIV/AIDS with basic knowledge of HIV transmission 92
Table 16.4: Effect of Age on perception of personal vulnerability to HIV/AIDS with basic knowledge of HIV transmission 93
Table 16.5: Effect of Gender on perception of personal vulnerability to HIV/AIDS with basic knowledge of HIV transmission 94
Table 16.6 Effect of indication of reported sexual activity on perception of personal vulnerability to HIV/AIDS with basic knowledge of HIV transmission 95
Table 17.1: Overall ANOVA for combinations of the independent variables on Subscale 1b 97
Table 17.2: Effect of exposure to the play (school) on personal vulnerability to HIV/AIDS related to othering of the disease 97
Table 17.3: Effect of Grade on personal vulnerability to HIV/AIDS related to othering of the disease. 98
Table 17.4: Effect of Age on personal vulnerability to HIV/AIDS related to othering of the disease 99
Table 17.5: Effect of Gender on personal vulnerability to HIV/AIDS related to othering of the disease 100
Table 17.6: Effect of reported sexual activity on personal vulnerability to HIV/AIDS related to 'othering' of the disease 101
Table 18.1: Overall ANOVA for combinations of the independent variables 103
Table 18.2: Effect of exposure to the play (school) on factual knowledge / misconceptions of HIV/AIDS 103
Table 18.3: Effect of Grade on factual knowledge / misconceptions of HIV/AIDS 104
Table 18.4: Effect of Age on factual knowledge / misconceptions of HIV/AIDS 105
Table 18.5: Effect of Gender on factual knowledge / misconceptions of HIV/AIDS 106
Table 18.6: Effect of reported sexual activity on factual knowledge / misconceptions of HIV/AIDS . 107
Table 19.1: Overall ANOVA for combinations of the independent variables 109
Table 19.2: Effect of Exposure to the play (school) on intention to use and negotiate use of condoms 110
Table 19.3 Effect of Grade on intention to use / negotiate use of condoms 111
Table 19.4: Effect of Age on intention to use / negotiate use of condoms 111
Table 19.5: Effect of Gender on intention to use and/or negotiate use of condoms 112
Table 19.6 Effect of reported sexual activity on intention to use and negotiate use of condoms 113
Table 20.1: Effect of Exposure to the play (school) on peer group comparison with regard to condom use 115
Table 20.2 Effect of Grade on perception of peer group norms with regard to condom use 115
Table 20.3: Effect of Gender on perception of peer group norms with regard to condom use 116
Table 20.4: Effect of Age on perception of peer group norms with regard to condom use 116
Table 20.5 Effect of reported sexual activity on perception of peer group norms with regard to condom use 117

Table 21.1: Effect of exposure to the play (school) on exposure to or use of condoms 118
Table 21.2 Effect of Grade on exposure to or use of condoms 118
Table 21.3 Effect of Age on exposure to or use of condoms 119
Table 21.4: Effect of Gender on exposure to or use of condoms 119
Table 21.5: Effect of reported sexual activity on exposure to or use of condoms 120
Table 22.1: Overall ANOVA for combinations of the independent variables 121
Table 22.2 Effect of Exposure to the play (school) on negotiation of safer sex practices. 121
Table 22.3: Effect of Grade on negotiation of safer sex practices 122
Table 22.4: Effect of Age on negotiation of safer sex practices 123
Table 22.5: Effect of Gender on negotiation of safer sex behaviour 124
Table 22.6: Effect of reported sexual activity on negotiation of safer sex practices 125
Table 23.1: Overall ANOVA for combinations of the independent variables 127
Table 23.2: Effect of Exposure to the play (school) on the full instrument 127
Table 23.3: Effect of Grade on the full instrument 128
Table 23.4: Effect of Age on the full instrument 129
Table 23.5: Effect of Gender on the full instrument 130
Table 23.6: Effect of reported sexual activity on the full instrument 131

LIST OF FIGURES

Figure 1: Schematization of triadic reciprocal causation 38
Figure 2: Diagrammatic representation of Social Cognitive Theory for the control of HIV infection ..40
Figure 3: Process flow of evaluation....56
Figure 4: Diagrammatic representation of the analysis process 68
Figure 5: Scree Plot of eigenvalues for principal components (factors) 77
Figure 6: Plot of means for the effects of School on Subscale 1a 92
Figure 7: Plot of means for the effects of Grade on Subscale 1a 93
Figure 8: Plot of means for the effect of Age on Subscale 1a 94
Figure 9: Plot of means for the effect of Gender on subscale 1a....95
Figure 10: Plot of means for the effect of 'Sexually active' on Subscale 1a 96
Figure 11: Plot of means for the effect of exposure to the play (school) on Subscale 1b....98
Figure 12: Plot of means for the effect of Grade on Subscale 1b....99
Figure 13: Plot of means for the effect of Age on Subscale 1b....100
Figure 14: Plot of means for the effect of Gender on Subscale 1b....101
Figure 15: Plot of means for the effect of the variable 'Sexually Active' on Subscale 1b....102
Figure 16: Plot of means for the effects of School on Subscale 1c....104
Figure 17: Plot of means for the effect of Grade on Subscale 1c....105
Figure 18: Plot of means for the effect of Age on subscale 1c....106
Figure 19: Plot of means for the effect of Gender on Subscale 1c....107
Figure 20: Plot of means for the effect of 'Sexually Active' on Subscale 1c....108
Figure 21: Plot of means for the effect of exposure to the play (school) on Subscale 2....110
Figure 22: Plot of means for the effect of Grade on Subscale 2....111
Figure 23: Plot of means for the effect of Age on Subscale 2....112
Figure 24: Plot of means for the effect of Gender on Subscale 2....113
Figure 25: Plot of means for the effect of 'Sexually Active' on Subscale 2....114
Figure 26: Plot of means for the effect of exposure to the play (school) on indicator variable 5 122
Figure 27: Plot of means for the effect of Grade on indicator variable 5....123
Figure 28: Plot of means for the effect of Age on indicator variable 5....124
Figure 29: Plot of means for the effect of Gender on indicator variable 5....125
Figure 30: Plot of means for the effect of 'Sexually Active' on indicator variable 5....126
Figure 31: Plot of means of the effect of exposure to the play (school) on the responses to the full instrument 128
Figure 32: Plot of means for the effect of Grade on the full instrument 129
Figure 33: Plot of means for the effect of Age on the full instrument 130
Figure 34: Plot of means for the effect of 'Sexually Active' on the full instrument 131

LIST OF APPENDICES

Appendix 1a-1b: Ethical approval and Gauteng Department of education approval
Appendix 2a-2e: Information sheets and informed consent forms
Appendix 3a-3d: The instrument. Source and scoring rules for the instrument
Appendix 4: Items with high frequency of missing data
Appendix 5: Factor analysis for the first seven factors
Appendix 6: ANOVA tables

CHAPTER 1: INTRODUCTION

According to the Joint United Nations Programme on HIV/AIDS (UNAIDS/WHO, 2007) an estimated 33.2 million people worldwide were living with the human immunodeficiency virus (HIV) in 2007. There were an estimated 1.7 million people in Sub-Saharan Africa who became newly infected with HIV in 2007. South Africa continues to have the largest number of HIV infections in the world and there has been no evidence of a decrease in HIV infection levels among young people in the country (UNAIDS/WHO, 2007).

As yet, there is no known cure for HIV/AIDS and the methods that have thus far been used to stop the proliferation of the disease mostly involve AIDS prevention programmes, which have been implemented worldwide (DiClemente et al., 2008; Fisher & Fisher, 2000; Oakley, Fullerton & Holland, 1995; UNAIDS/WHO, 2007; van Wyk, Strebel, Peltzer & Skinner, 2006).

This chapter provides the background, rationale and aims of the evaluation of a life-skills and HIV prevention play described in this report.

1.1 HIV/AIDS PREVENTION PROGRAMMES

Community-based interventions for HIV prevention often aim to facilitate changes in social norms towards protective and safer sex behaviours (van Wyk et al., 2006). According to a review by Gallant and Maticka-Tyndale (2004) most youth in Sub-Saharan Africa initiate sexual activity while they are still of school age, and therefore school-based HIV prevention programming has been focused on as a necessary step to protect the general population from further infection.

The goals of HIV prevention interventions have been to stop people from contracting HIV. However, the impact of a given intervention on HIV infections can rarely be observed because it is difficult to measure actual rates of HIV infection and behaviour change in a sexual encounter (Ostrow & Kalichman, 2000). Therefore HIV prevention interventions often aim to make an impact on theoretically derived psychological correlates of HIV risk, including risk-related knowledge, perceived vulnerability,

intentions to change behaviour and intentions to use condoms. They also aim to increase risk reduction behavioural skills and increase self-efficacy in implementing safer sex behaviour (Ostrow & Kalichman, 2000).

1.2 A LIFE-SKILLS THEATRE PROGRAMME PROMOTING SAFER SEX

The African Research and Educational Puppetry Programme (now called arepp: Theatre for Life) is a community based programme that uses dramatic theatre performances to provide life-skills and AIDS awareness education to school-going youth. The organisation has been operating nationally in South Africa since 1987. The performances support the Department of Education's Life-skills/Life-orientation Curriculum (arepp: Theatre for Life, 2006a).

The specific goal of arepp: Theatre for Life is to provide the audience with the necessary life skills to deal with and improve their situation by becoming active directors of their own lives. They aim to empower audience members and instil in them a sense of self-efficacy to make informed choices (arepp: Theatre for Life, 2006a).

Perceived self-efficacy is concerned with people's beliefs that they can exert control over their own motivation, thought processes, emotional states, and patterns of behaviour (Bandura, 1990; 1994). Translating health knowledge into effective self-protection action against HIV infection requires social and self-regulative skills as well as a sense of personal power to exercise control over sexual activities (Bandura, 1994).

Bandura's (1990) model of Social Cognitive Theory (SCT) for the control over HIV infection has been conceptualised as a path model by Fisher and Fisher (2000), Wulfert and Wan (1993). The model postulates that self-efficacy is influenced by HIV/AIDS knowledge, perceived vulnerability, development of social and self-regulatory skills (such as the use of condoms), enhancement of social and self-regulatory skills, and peer group norms / support.

arepp: Theatre for Life aims to help learners develop a greater sense of self-efficacy in negotiating high risk situations through educational theatre performances. This is achieved through exposure to role models who deal with difficult situations related to sexual behaviour. The role models are actors portraying characters who are similar to adolescent school-going youth in terms racial/ethnic status, age and the type of HIV risk behaviour adolescents are often exposed to.

Previous research indicates that educational theatre performances can be used as an effective form of information transfer, education and communication with regards to HIV/AIDS (Blair, Valadez, Falkland, 1999; Harvey, Stuart & Swan, 2000). Theatre can also be used as effective form of group norm and skill development (Kirby, 1993). It can help to transcend existing literacy barriers, provide information in the in an appropriate language and can provoke emotional and analytical responses (Blair et al., 1999).

1.3 RATIONALE OF THE STUDY

There were a few factors that lead to the rationale for conducting the study which will be discussed below.

1.3.1 The need for theory based programmes and evaluations

Evaluators of HIV/AIDS prevention initiatives in South Africa and abroad have argued for the implementation of evidence based programmes as well as rigorous evaluations of these programmes (e.g. DiClemente et al. 2008; van Wyk et al., 2006).

Gallant and Maticka-Tyndale (2004) reviewed school-based HIV/AIDS risk reduction programme evaluations for youth in Africa. They found that more research was needed to identify the factors that drove successful school-based HIV/AIDS risk reduction programmes as most studies used a quasi-experimental research design.

There have been repeated calls in the literature for workers in the field of psychology to use HIV research findings to implement mass community-based intervention programmes (DiClemente et al., 2008; DiClemente, 1992; Kelly, Murphy, Sikkema & Kalichman, 1993). There have also been repeated calls in the literature to rigorously

evaluate the effects of AIDS prevention programmes (DiClemente et al. 2008; Jemmott III & Jemmott, 2000; Padayachee, 1991; van Wyk et al., 2006). Additionally, there are calls for researchers to collaborate with organisations working in the field of HIV/AIDS prevention in order to improve programmes (Kelly et al., 1993; van Wyk et al., 2006).

Thus the literature highlights the need for evidence based programme evaluations in the field of HIV prevention. In fact DiClemente et al. (2008) state that in order to optimise HIV prevention efforts, workers in the field of HIV prevention need to prioritise the development and evaluation of theory-based, empirically driven, and rigorously designed research. They also suggested that this research be tailored to the cultural, gender, and socio-demographic characteristics of the target population.

1.3.2 HIV/AIDS and the Socio-demographic characteristics of Soweto

The current study was conducted in Naledi, Soweto. Soweto is a collection of 38 townships, lying south west of Johannesburg. Residents of freehold townships were forcibly moved to Soweto in the 1920s and 1930s due to the forced removal of Africans from white designated residential areas in terms of the Native (Urban Areas) Act. Living conditions were dire and further declined in the 1950s (Chabedi, 2003).

Naledi, was township that developed in 1956 as part of the state's strategy to segregate black Africans into groupings. Naledi was, and still is home to predominantly Sotho speaking residents (www.soweto.gov.za).

Residents of Soweto have access to water, electricity, paved streets and public transport, and in this regard may be considered better off than the residents of average rural or informal settlements in South Africa. Yet, most households survive off less than R1500 per month, and only between 40% and 50% of residents are employed in full-time work (Stadler, Delany & Mntambo, 2008).

As in many disadvantaged communities, there continue to be high levels of people infected with HIV/AIDS in Soweto (Chabedi, 2003; Meyers, Pettifor, Gray, Crewe-Brown & Galpin, 2000; Stadler et al., 2008). Although there was poor trust in early

educational campaigns about AIDS in Soweto in the aftermath of apartheid (Chabedi, 2003), by the late 1990s, most people in Soweto were well aware of the reality of the epidemic. Stadler et al. (2008) stated recently that many residents in Soweto had reported burying friends, family members or colleagues because of AIDS.

Chabedi (2003) reports that HIV/AIDS is still heavily stigmatised in Soweto as it is talked about and referred to in codes. The language of AIDS is that of silence. No one dies of HIV/AIDS, rather they die of Z3, Adidas (for the adidas mark has three lines), and all seem to know what those codes refer to.

It would appear then that attitudes to HIV/AIDS amongst the youth in Soweto would be important to investigate in order to modify or enhance HIV prevention interventions in this community.

1.3.3 Previous positive evaluations for arepp: Theatre for Life performances

In 1996, a theory driven programme evaluation for arepp: Theatre for life was conducted for the HIV/AIDS educational play called "Look before you leap". The evaluation was undertaken by Reekie (1997) who found that the play influenced knowledge, attitudes, self-efficacy and intentions conducive to HIV/AIDS risk reduction in South African high-school youth residing in Soweto. The non-governmental organisation (arepp: Theatre for Life) used the results to improve the play. The evaluation also allowed for a much greater understanding of the target audience and their responses to the play's message. In 1997 the playwright adapted the original play into a series of three plays with different themes aimed at different Grade levels of adolescent learners. A new version of the original play called "Look before you leap: Big time" is now performed for Grade 10 to 12 learners.

Nell and Shapiro (2005) evaluated the arepp: Theatre for Life programme in 2005 and found that the new plays had a positive impact on the learners. They used a multimethod approach to the evaluation, however, their quantitative results were not based on standardised instruments. They suggested that one method to improve the validity and reliability of their research was to provide multiple forms of evidence that could be used together to provide evidence to support the efficacy of the programme.

In 1996, when Reekie evaluated the AIDS and life-skills educational play it appeared that many HIV/AIDS survey research instruments available were developed using readily available white, middle class populations of students (Ostrow, Kessler, Stover & Pequegnat, 1993). Few, if any, included the broad range of social and sexual behaviours recognised as important to the transmission of HIV. There were also no research instruments available in a form that were adequately field-tested for valid use in populations other than in well-educated men and women living outside of the environments of poverty and social deprivation (Ostrow et al., 1993). In South Africa socio-economically disadvantaged communities have experienced high levels of HIV infection rates (Campbell, 2004). Social factors such as poverty, gender and stigma have also made it difficult for so many people to protect their sexual health (Campbell, 2004).

1.3.4 Evaluation instrument linked to Social Cognitive Theory

A valuable method of collecting data for evaluation of HIV/AIDS prevention interventions is through survey research (Catania et al., 1993). However, the quality of survey research on HIV risk and sexual behaviours depends on there being reliable and valid methods to measure attitudes, perceptions and self-reported sexual behaviour (Catania et al., 1993).

Gallant and Maticka-Tyndale (2004) reviewed programme evaluations in Southern Africa and found that the programme evaluators used modified standardised questionnaires developed abroad or developed their own questionnaires, which had questionable validity. The general limitation of most of these evaluations was the lack of complete, or any, information on the psychometric properties of the evaluation instruments. Many social scientists use an internal reliability coefficient as an assessment of a valid scale. However, Gorsuch (1997) cautions against this because this does not guarantee construct validity. Bandura (2006) recommends that items in scales be correlated with each other and with the total score. He also recommends conducting a factor analysis to verify the homogeneity of the items.

In 1994 Paniagua, O'Boyle, Wagner and Ramirez established a set of questions for adolescents in order to help establish an instrument that could be used to assess HIV

prevention knowledge, attitudes and perceptions. The items were subjected to content analyses. These researchers emphasised that the items were intended for researchers to develop an AIDS prevention questionnaire with psychometric properties.

In order to evaluate the "Look before you leap" play Reekie (1997) constructed an instrument based on items from Paniagua et al. (1994), Mathews, Kuhn, Metcalf, Joubert, and Cameron (1990) as well as a few items relating to specific content of the play. However, the subscales yielded poor internal reliability coefficients and thus a principal components factor analysis was conducted. The factor analysis yielded factors that were related to the stages of the AIDS Risk Reduction model (Catania, Kegeles & Coates, 1990). The instrument was found to have a satisfactory internal consistency and factorial validity.

Based on analysis of the research conducted ten years ago, however, the current researcher proceeded from the assumption that the items grouped together in the factor analysis related more strongly to Bandura's (1990; 1994) SCT and exercise of control over HIV infection (Discussed in Chapter 2, Section 2.3) rather than the AIDS Risk Reduction Model (ARRM). The mode of information and skill transfer used by the dramatic performance was also better conceptualised using SCT. Therefore the theory of programme operation and evaluation could be located in the same theoretical framework. This provided a basis an evaluation driven by theory. A theory driven evaluation allows a researcher to specify constructs against which the intervention can be evaluated (Chen, 1990).

Therefore, in light of the positive results of the previous evaluations of the arepp: Theatre for Life performances as well as the difficulty in establishing causality in programme evaluative research (Mouton, 2001), *and* the fact that the original play was modified, the researcher of this study decided to conduct a further evaluation of the new version of the play "Look before you leap: Big time". This was done in order to provide additional evidence in support of previous findings.

The main rationale for the use of the items in an instrument put together by Reekie (1997) was that this instrument appeared to have factorial validity and could be related to an established AIDS prevention theory.

According to Neuman (2000) validity is part of a dynamic process that grows by accumulating evidence over time and without it all measurement becomes meaningless. The study aimed to achieve this through conducting the research using a sample of learners of the same socio-economic status, geographical location, community, race and similar educational level and age that was used ten years ago.

1.4 AIMS AND RESEARCH QUESTIONS

The study aimed to evaluate a new version of the "Look before you leap" life-skills play promoting safer sex behaviour against aspects of an established AIDS risk reduction theory.

The second aim of the study was to establish whether a modified version of the original questionnaire that was used to evaluate the play ten years ago would yield a factor structure that could be linked to an established AIDS risk reduction theory. The rationale was that further evidence would assist in the development of an instrument that could be used for to evaluate other HIV prevention interventions of a similar nature in South Africa. This would then allow for comparison of the influence of these interventions. Furthermore, an instrument based in theory would allow for better understanding of how an HIV prevention intervention operates.

The study also aimed to compare the results of the measures of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high school adolescents in 2006 to the results found in 1996 in a sample of learners of the same age group, educational level and in the same geographical area / community.

The following research questions arose from the aims of this research:-

1) Would there be significant differences between the knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high-school adolescents in an experimental school in 2006 who had seen the arepp: Theatre for Life

play, and high school adolescents in a control school who had not seen the play?

2) What is the factorial structure and internal reliability of the instrument constructed to measure the knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high school adolescents in these two schools?

3) Would there be similar factorial structure of this instrument with a similar instrument used to measure the knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high school adolescents ten years ago?

4) What are the attitudes, knowledge levels and perceptions of high school adolescents in 2006 as compared to the results found in 1996 in a sample of learners in the same age group, educational level and in the same geographical area / community?

1.5 STRUCTURE OF THE RESEARCH REPORT

This research report addresses these aims and research questions in the following way. Firstly, a glossary of terms is provided in order to provide a definition of terms used in the research. Then Chapter 2 provides an overview of the literature describing factors related to HIV/AIDS risk; the HIV prevention programme and the theoretical basis for the programme and the evaluation. Chapter 3 addresses the caveats and merits of programme evaluation as a methodology as well as the research design and analysis. The results of the research are discussed in Chapter 4 leading to a discussion of these results in Chapter 5. Recommendations and limitations are mentioned in Chapter 6 and the study concludes in Chapter 7.

GLOSSARY OF TERMS

Acquired immunodeficiency syndrome (AIDS) - A set of symptoms and infections resulting from the damage to the human immune system caused by the human immunodeficiency virus (HIV) [Weiss, 1993]. Sexual transmission of this disease occurs through transmission of HIV through the contact between sexual secretions of one person with the rectal, genital or oral mucous membranes of another (Klimas, Koneru & Fletcher, 2008).

AIDS Risk Reduction Model (ARRM) - The AIDS Risk Reduction Model is a stage model of behaviour change towards safer sex behaviour. It assumes that change is a process that individuals must go through and that different factors affect the progress through different stages of the process to translate knowledge about AIDS transmission and prevention into low risk or safe behaviour (Catania, Kegeles & Coates, 1990).

Analysis of variance (**ANOVA) -** A statistical technique in which observed variance of a variable is partitioned into components due to different explanatory variables (Rosenthal & Rosnow, 1991).

arepp: Theatre for Life (AREPP) - The African Research and Educational Puppetry Programme, now called arepp: Theatre for Life.

Attitudes – Lasting evaluations of various aspects of the social world (Baron & Byrne, 1997).

Causal comparative research - A nonexperimental research method. It involves starting with an effect and seeking possible causes after the event has occurred. Previously referred to as ex-post facto research (Johnson, 2001).

Construct – An abstract variable, constructed from ideas or images, which serves as an explanatory term (Rosenthal & Rosnow, 1991).

Covary - When variations (in one variable) are correlated with variations in another variable (Rosenthal & Rosnow, 1991).

Dependent variable (DV) - A variable, the changes in which are viewed as dependent on changes in one or more other (independent) variables. The variable that is measured in an experiment or quasi-experiment (Rosenthal & Rosnow, 1991).

Eigenvalue - In the factor analysis procedure it is the sum of the squared factor loadings (Rosenthal & Rosnow, 1991).

Ex-post facto research - Research where both the effect and the alleged cause have already occurred and must be studied in retrospect 'after the fact'. It is also known as causal-comparative research (Johnson, 2001).

Factor analysis - The rewriting of a set of variables into a new set of orthogonal factors (Rosenthal & Rosnow, 1991). A 'common factor' is an unobservable, hypothetical variable that contributes to the variance of at least two of the observed variables. A 'unique factor' is an unobservable, hypothetical variable that contributes to the variance of only one of the observed variables. The model for common factor analysis posits one unique factor for each observed variable. The methods for factor extraction include principal component analysis and principal factor analysis (SAS Institute Inc, 2003a).

Factor loadings - Correlations between variables and factors serving as their redescriptors (Rosenthal & Rosnow, 1991).

High-risk behaviours - In this report high risk behaviours refer to behaviours that increase the risk of HIV infection by sexual transmission. These include having unprotected sexual intercourse (vaginal, anal, oral sex without the use of a male or female condom) and having multiple sexual partners. Generally high-risk behaviours also refer to the use of drugs and alcohol as these can impair judgement.

Human immunodeficiency virus (HIV) - A retrovirus that can lead to AIDS, a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections (Klimas, Koneru & Fletcher, 2008).

Imputation - The statistical technique for replacing missing values in a dataset with a statistically calculated estimate based on other data available in the survey dataset (van Buuren, 2005). According to Rubin (1987) multiple imputation is the technique that replaces each missing or deficient value with two or more acceptable values representing a distribution of possibilities.

Independent variable (IV) - A variable manipulated by the experimenter to determine whether there are effects on another variable, the dependent variable (Rosenthal & Rosnow, 1991).

Interactions (between variables) - Instances in which the effects of one variable are influenced by the effects of one or more other variables (Baron & Byrne, 1997).

Internal consistency - Reliability based on the intercorrelations among all the single test items or subtests (Rosenthal & Rosnow, 1991).

Kruskal-Wallis Test - A non-parametric one-way analysis of variance. An alternative to the independent group ANOVA, when the assumption of normality or equality of variance is not met. It uses the ranks of the data rather than their raw values to calculate the statistic (http://www.texasoft.com/winkkrus.html).

Modelling - Basic form of learning in which individuals acquire new forms of behaviour through observing others (Bandura, 1994; Baron & Byrne, 1997).

Moderator variable - A variable that affects the direction and/or strength of the relation between an independent and a dependent variable. A basic moderator effect can be represented as an interaction between an independent variable and a factor that specifies the appropriate conditions for its operation (Baron & Kenny, 1986).

Norms - Rules within a group indicating how its members should or should not behave (Baron & Byrne, 1997).

Outgroup - Any group other than the one to which individuals perceive themselves as belonging (Baron & Byrne, 1997).

Othering - A method of making oneself feel invulnerable through stigmatising an 'other' who is usually part of the outgroup (Joffe as cited in Campbell, 2004 p.12.11; Baron & Byrne, 1997).

Perceived self-efficacy - Perceived self-efficacy is concerned with people's beliefs that they can exert control over their own motivation, thought processes, emotional states, and patterns of behaviour (Bandura, 1994).

Perceived vulnerability - Also called perceived susceptibility, reflects an individual's belief about the likelihood of occurrence of a health threat or the likelihood of developing a health problem (Gerrard, Gibbons & Bushman, 1996). Perceived susceptibility is a major component of threat perception in the Health Belief Model (Rosenstock, Strecher, & Becker, 1994). This model suggests that the greater the perceived susceptibility, the greater the perceived threat, and the more likely a person will be to perform precautionary behaviors to prevent the health threat (Gerrard et al., 1996).

Priming - Effect that occurs when stimuli or events increase the availability of the specific types of information in memory or consciousness (Baron, & Byrne, 1997).

Quasi experiment - A research design that resembles an experimental design in that there are treatments, outcome measures, and experimental units, but in which there is no random assignment of participants (Rosenthal & Rosnow, 1991).

Reliability - The degree to which observations or measures are consistent or stable (Rosenthal & Rosnow, 1991).

Safer sex behaviour - Behaviour that reduces the risk of HIV infection through sexual transmission such as being able to communicate frankly about sexual matters with one's partner, implementing safer sex behaviour such as using condoms and being able to say no to unwanted sexual intercourse.

Sexually active - In this report refers to learners who indicated on the questionnaire that they had previously had sexual intercourse with another person. This was based exclusively on self report data and was not specific to a type of sexual intercourse.

Social Cognitive Theory (SCT) - A theory that explains human functioning in terms of triadic reciprocal causation (Bandura, 1989). In this model cognitive, affective, biological factors; behaviour and environmental influences all operate as interacting determinants of each other.

Social Cognitive Theory in the control of HIV infection - Bandura's (1990) application of Social Cognitive Theory to HIV prevention. According to this theory in order to translate health knowledge into effective self-protection action against HIV infection, an individual requires social and self-regulative skills and a sense of personal power to exercise control over sexual activities (Bandura, 1990; 1994). Knowledge, perceived vulnerability, development and enhancement of self-regulatory skills to negotiate safer sex behaviour as well as engagement of social supports, are believed to influence self-efficacy to put safer sex behaviours into practice (Bandura, 1994; Fisher & Fisher, 2000; Wulfert & Wan, 1993).

Social norms - Rules indicating how individuals are expected to behave in specific situations (Baron & Byrne, 1997).

Validity - The degree to which what is observed or measured is the same as what was purported to be observed or measured (Rosenthal & Rosnow, 1991).

CHAPTER 2: LITERATURE REVIEW

A review of the literature shows that there are several common factors that appear to emerge in relation to HIV/AIDS risk behaviour. These common factors will be briefly discussed in this chapter. The theoretical model through which the arepp: Theatre for Life programme and the evaluation operate will also be addressed in this chapter.

2.1 FACTORS RELATED TO HIV/AIDS RISK BEHAVIOUR

This section covers a literature review of factors that have been found to have an impact on HIV risk behaviour. They have often been used as the key indicators in the change of HIV risk behaviour. These factors have been addressed by various HIV prevention programmes and have also been taken into account by various models of HIV prevention. The factors are discussed below and include factual knowledge, education, youth, gender, individual characteristics, socio-economic factors, peer group norms, perception of personal susceptibility, 'othering' and perception of cost.

2.1.1 Factual knowledge

It appears that the overriding aim of many HIV prevention initiatives is to reduce high HIV/AIDS risk behaviours by increasing knowledge and facts about the transmission of the virus (Fisher & Fisher, 2000; Bandura, 1994). However, although knowledge is a prerequisite for change in behaviour to occur, it does not necessarily mean that behaviour change will occur (Bandura, 1994; Elliot, Crump, McGuire, Bagshaw, Chambers, 1999; Kelly et al., 1993).

Studies in South Africa have found that secondary school learners have an adequate level of knowledge and awareness of HIV/AIDS (James, Reddy, Taylor & Jinabhai, 2004; Peltzer, Cherian & Cherian, 2000). Yet, despite this there appears to be continuous engagement in risky behaviour (James et al., 2004; Kuhn, Steinberg, & Matthews, 1994) as well as uncertainty about the proper use of condoms (Eaton, Flisher & Aarø, 2003). These findings are concerning especially in light of the fact that South Africa continues to have extremely high levels of HIV infection (UNAIDS/WHO, 2007).

Several programmes in South Africa (such as Lovelife and Soul City) have demonstrated that using the mass media to educate communities can be effective as a first step towards behaviour change (Parker, as cited in van Wyk et al., 2006, p.27). However, in order to promote and enable desired protective behaviours, programmes not only need to raise awareness by giving information to reduce HIV risk, they also need to include methods to promote and enable desired protective behaviours (van Wyk et al., 2006).

2.1.2 Education and schooling

Inadequate levels of education have been associated with high risks for HIV infection (Kalichman et al., 2006). Education refers to a wide spectrum of school learning because it is affected by many factors in the schooling system.

School is one of the most central contexts in children's lives (Wicks-Nelson & Israel, 2000). The primary function of the school is to teach intellectual skills and knowledge accumulated by society, but formal education also plays a role in socialising children to society's social and political values. Furthermore schools operate as social systems in and of themselves (Wicks-Nelson & Israel, 2000).

Adolescent HIV/AIDS risks are influenced to a great extent by education and the school in different ways. Firstly, the school functions as the primary setting for the development and social validation of cognitive competencies (Bandura, 1989). Therefore learners at school gain knowledge and thinking skills, which are continually tested, evaluated, and socially compared. This also means that although the national school curriculum incorporates HIV/AIDS education, learners will be affected in different ways by this knowledge depending on how the knowledge is cultivated as well as how social validation by peers and teachers affect the learner.

As learners attain higher levels of education, they are expected to develop a sense of self-competence to be able to rely on their own initiative (Bandura, 1989). Consequently learners taught about sexual health in a lower grade might not think as independently about the subject matter as learners in a higher grade. Similarly,

learners in a higher grade might have had more time to master a skill in safer sex behaviour through practice.

Gregson, Waddell and Chandiwana (2001) found that more educated populations were better equipped to mount effective responses in the face of HIV risk. These authors state that expanding provision of, and access to, secondary education could facilitate HIV control.

2.1.3 Youth

Many studies across the world have shown that youth represents a risk factor for HIV infection (DiClemente et al., 2008; DiClemente, 1992; UNAIDS/WHO, 2007). HIV/AIDS has caused a devastating pandemic among the youth of South Africa (Hartell, 2005).

According to Bandura (1989) learning how to deal with sexual relationships and partnerships becomes a matter of considerable importance during adolescence. With the gaining of independence, some experimentation with risky behaviour is not uncommon in adolescence. Youth often go through a series of relationships resulting in exposure to multiple partners usually of unknown serostatus (Bandura, 1994).

According to a review by Hartell (2005) adolescents in South Africa have not been practicing safe sex. Hartell (2005) indicated that more than a third of adolescents in South Africa were sexually active and commenced sexual activity at an early age. The average age of onset for sexual activity with several partners was 15 years in this review. Similarly, a review of studies by Eaton et al. (2003) reported that at least 50% of young people in South Africa were sexually active by the age of 16 years, with between 50% and 60% of sexually active youth never using condoms. Those school learners who had experienced sexual intercourse reported at the most one partner in the previous year with between 1% - 5% of females and 10% - 25% of males having more than four partners per year.

The reasons for these findings have been related to pressure to engage in early and unprotected intercourse, coercion, lack of access to user-friendly reproductive health

services, negative perceptions about condoms, low perceptions about personal risk, and low perceived self-efficacy in preventive behaviour (Hartell, 2005).

2.1.4 Gender

According to UNAIDS/WHO (2007) almost 61% of adults living with HIV in sub-Saharan Africa in 2007 were women. Current strategies to change HIV risk behaviour continue to fail women and girls in Africa (Kim & Watts, 2005).

Women are more susceptible to HIV-1 infection (the virus more common in South Africa) due to hormonal changes, vaginal microbial ecology and physiology, and a higher prevalence of sexually transmitted diseases (Sagar, et al., 2004). However, Pauw and Brener (1997) state that although women are more physiologically vulnerable than men to HIV infection through sexual intercourse, women's vulnerability to HIV infection is also affected by many social factors which both increase women's infection and make this burden of infection difficult to bear.

According to Campbell (2004) a man may choose not to act on information about the risks of HIV/AIDS due to the social construction of masculinity, which dictates that a 'real man' should have sex with many women and should not be afraid to take risks. A woman's confidence to assert her rights to sexual health may be undermined in contexts where she depends on gifts or income from her male sexual partners to support herself and her children.

The major burden for self-protection against HIV often falls on women (Bandura, 1994). Unlike protection against pregnancy, where women can exercise independent control through oral or implant contraceptives, use of condoms requires them to exercise control over the behaviour of men (Bandura, 1994). Men who possess coercive power over their partners may resist the use of condoms if, in their view, it reduces sexual pleasure, threatens their sense of manliness and authority, casts aspirations on their faithfulness or carries the frightening implication that they may be carriers of the disease (Bandura, 1994).

Power differences that may exist within sexual relationships can limit a woman's capacity for autonomous action and self-protection against unwanted sexual intercourse, pregnancy and HIV (Wood, Maforah & Jewkes, 1998).

Moore and Rosenthal (1991) suggest that attitudes to HIV/AIDS precautions are multidimensional in nature and are often are related to gender and sexual risk taking behaviour in diverse ways. They state that the analysis of these patterns is useful in designing educational interventions to increase the likelihood of HIV/AIDS preventive behaviour among sexually active adolescents.

2.1.5 Individual characteristics

Individual characteristics such as self-esteem (Sterk, Klein & Elifson, 2004) and self-efficacy (Bandura, 1990) have been found to have an effect on HIV/AIDS risk behaviour. Improving perceived self-efficacy can help reduce HIV transmission behaviours in target populations (Bandura, 1994; Kang, Deren, Andia, Colón & Robles, 2004).

Exercise of personal control over sexual behaviours that carry risk of infection calls on skills and self-efficacy in communicating frankly about sexual matters and protective sexual methods, and then ensuring their use (Bandura, 1994).

When people lack a sense of self efficacy, they do not manage situations effectively even though they know what to do and possess the skills (Bandura, 1994). Self-doubts override knowledge and self-protective action, which in the context of HIV/AIDS risk behaviours would mean that an adolescent, for example, might not request the use of a condom in a sexual encounter (Bandura, 1994).

2.1.6 Socio-economic factors

One of the most striking observations about the HIV/AIDS epidemic is its association with marginalized communities (Pauw & Brener, 1997). Economically disadvantaged people have been found to be at increased risk for HIV infection due to the physical and social circumstances in which their poverty places them (Kim & Watts, 2005; Krueger, Wood, Diehr, Maxwell, 1990). People in poorer communities have limited

access to adequate education (Pauw & Brener, 1997) and healthcare facilities in these areas are often understaffed and inadequately funded resulting in poor overall levels of healthcare (Petersen & Swartz, 2002).

Gonzalez (2000) states that most of the cases of HIV worldwide occur in the poor countries, where socio-economically disadvantaged communities often face numerous other difficulties increasing risk for infection such as chronic violence, infectious diseases, sexual discrimination and lack of access to healthcare. Kalichman et al., (2006) found that those communities in South Africa with the highest levels of poverty also demonstrated the greatest degree of HIV risk.

Meyers et al. (2000) found that 29.2% of young children admitted to a major hospital in Soweto were HIV positive. Considering that these children most likely contracted HIV through mother to child transmission and according to UNAIDS/WHO (2007) the rate of mother to child transmission is 30% (up to 15% with antiretroviral prophylaxis), the actual incidence of the disease in this community would probably be much higher.

2.1.7 Group or social norms

An individual's membership in a social group or positioning within networks of power relationships are shaped by factors such as gender, ethnicity or socioeconomic position (Campbell, 2004). Different identities or positionings are associated with different behavioural options and all of these behaviours, which are linked to identity, have a range of implications for a person's vulnerability to HIV/AIDS (Campbell, 2004; Latkin & Knowlton, 2005).

Campbell (2004) states that mainstream psychological approaches explain health related behaviours (such as sexual behaviour) in terms of individual choices or decisions. However, researchers in the social identity tradition emphasise that a person's sexual choices or decisions are often deeply influenced by the socially constructed norms or values of liked and trusted peers who share a common identity.

According to Bandura (1990; 1994) social norms influence behaviour by the social consequences they provide. Behaviour that violates prevailing social norms brings social criticism or other punishing consequences, whereas behaviour that fulfils socially valued norms is approved and rewarded. People adopt certain standards of behaviour and then regulate their actions through self-evaluative consequences.

Social factors exert major influences on HIV-related behaviours. Gibbons, Gerrard, and McCoy (cited in Baron and Byrne, 1997, p.81) found that many teenagers constructed prototypes for teenage girls who fell pregnant and the males who were responsible for such pregnancies. The extent to which these prototypes were favourable and the extent to which the teenagers in the sample perceived themselves as similar to the prototypes, was found to influence their engagement in unprotected sexual intercourse. This carries significant implications for learners seeing role models in television programmes engaging in risky sexual practices (Baron & Byrne, 1997).

Campbell (2004) states that social identities are not necessarily static or permanent and therefore in certain circumstances they can be changed. However, there are variations in the degrees of freedom that people have to change their identities and associated high risk behaviours.

Unless people believe they have sufficient power to resist those who influence their behaviour, they won't change it even if they believe they need to (Bandura, 1994). For example, Wood, Maforah and Jewkes (1998) found that South African Xhosa speaking adolescent women became sexually active as a strategy to avoid peer ostracism.

The social context has also been found to shape the effectiveness of HIV-prevention programmes (Campbell, Foulis, Maimane & Sibiya, 2005). To be effective and sustainable, HIV-prevention interventions need to be powerful enough to counteract prevailing social norms and diffuse through the targeted community, so that social reinforcement for behaviour change occurs (Latkin & Knowlton, 2005).

Given the close relationship between a person's social identity and the power relations characteristic of the society in which they live, attempts to change identities are most likely to be successful if they take place hand in hand with attempts to challenge the social relations that limit people's degree of freedom to act in ways that meet their needs and interests (Campbell, 2004).

2.1.8 Perception of personal vulnerability

Perceived vulnerability (also referred to as perceived susceptibility) reflects an individual's belief about the likelihood of occurrence of a health threat or the likelihood of developing a health problem (Gerrard, Gibbons & Bushman, 1996). The relation between perceived vulnerability and precautionary behaviour is a central component of virtually all current models of health-protective behaviour. In fact, in most theories, perceived vulnerability is hypothesised to be the primary motivation for the avoidance of risky behaviour and the initiation of precautionary behaviour (Gerrard, Gibbons & Bushman, 1996).

Perceived susceptibility is a major component of threat perception in the Health Belief Model (Rosenstock, Strecher, & Becker, 1994). The Health Belief Model asserts that the perception of a threat of a particular illness or disease is seen as a critical initial cognitive step in the process of taking a recommended action to prevent the threat.

According to the review of research by Eaton et al. (2003) many South African youth have underestimated their risk for contracting HIV. Although the level of knowledge of HIV/AIDS amongst South African youth was quite high, few perceived themselves to be at risk (Hartell, 2005). Hartell pointed out that many South African adolescents did not see AIDS as a personal threat. Even though they acknowledged the severity of AIDS, they did not take the need for safer sex seriously.

These findings are concerning in light of HIV prevention because if a person perceives their personal vulnerability to HIV/AIDS as being low, it reduces the person's the motivation to take the necessary precautions to prevent infection (Eaton et al., 2003).

According to Bandura (1994), misappraisals of riskiness of one's behaviour tend to be associated with underestimation of personal susceptibility to infection. However, he also noticed that even people who were well informed on safer sex guidelines could make errors in their appraisal of the extent to which they put themselves at risk of HIV infection.

Gerrard, Gibbons and Bushman (1996) found that people who engaged in more risk behaviours tended to have higher estimates of their likelihood of contracting HIV than do people who engaged in fewer risk behaviours. However, they mentioned that this was truer for some groups than others. They suggested that participant characteristics such as age, gender, experience with risk behaviours and risk status moderated the relation between HIV-preventive behaviour and perceptions of vulnerability to AIDS.

In the mid 1990s the greatest behavioural changes for safer sex behaviour in the US occurred in those individuals most at risk for HIV at that time which included homosexual individuals and prostitutes. However, other groups of individuals did not appear to change their behaviour because they did not perceive HIV as relevant to themselves (Baron & Byrne, 1997). This was possibly related to the next factor for HIV risk behaviour called 'othering'.

2.1.9 'Othering'

According to Baron and Byrne (1997) people generally divide the social world into two distinct categories – us and them. In short, they view other persons as belonging either to their own group (usually termed the ingroup) or to another group (the outgroup). Such distinctions are based on many dimensions, including race, religion, gender, age, ethnic background, occupation and income. Sharply contrasting feelings and beliefs are usually attached to members of ones ingroup and members of various outgroups. Persons in the former (us) category are often viewed in favourable terms, while those in the latter (them) category are often perceived more negatively. Outgroup members are assumed to possess more undesirable traits, are perceived as being more alike than members of the ingroup and are often disliked. This has important implications in relation to individual perceptions of personal risk to HIV/AIDS.

This ingroup-outgroup phenomenon was possibly activated in the early 1990s as theorists such as Bandura noted at this time that the public perceived the HIV/AIDS threat as belonging to high risk groups such as homosexual men and prostitutes. Members of these groups became targets of growing public hostility (Bandura, 1994).

Joffe, 1999 (in Campbell, 2004, p.12-11) stated that a combination of fear and ignorance has now led to a situation in which many HIV/AIDS sufferers have been and continue to be treated with high levels of disrespect and rejection. Joffe defines stigma in terms of the human fear of the random and uncertain nature of life and death. This is dramatically exaggerated in the context of the HIV/AIDS epidemic. People cope with this situation by projecting their worst fears onto clearly identifiable out-groups, who are then subjected to prejudice and discrimination. This process of stigmatisation or 'othering' is said to result in feelings of comfort and security. It serves to distance people (who hope that they are HIV/AIDS-free) from a sense of danger giving them a sense of personal invulnerability to the threat of HIV/AIDS, a threat that might otherwise appear too terrifying to contemplate.

2.1.10 Perception of cost

People interpret information regarding risky activities in terms of potential gains and potential losses (Bandura, 1994). An individual needs to perceive that there are definite benefits and few 'costs' or barriers if they are to change from high HIV/AIDS risk behaviours to lower risk behaviours, for example by using condoms (Catania et al., 1990). Eaton et al. (2003) highlighted that many adolescents believed that penetrative, unprotected sex was the most pleasurable form of sexual experience and that the use of condoms results in a loss of pleasure. In other words, for young people who prefer sex without a condom, the immediate, salient costs of HIV-preventive behaviour are perceived to be high in relation to a weakly felt personal risk.

2.1.11 Summary of factors related to HIV risk and prevention programmes

The ten factors mentioned above are addressed to varying extents by different HIV/AIDS prevention programmes and theories (Fisher & Fisher, 2000). According to Hartell (2005) much research still needs to be done on the influences of educational

programmes on adolescents' sexual behaviour and the factors involved in HIV risk for this group.

Hartell (2005) maintains that HIV/AIDS education programmes should emphasise social norms and skills needed for healthy human relationships, effective communication, and responsible decision making that offer protection from HIV infection. Programs should incorporate responsible decision-making strategies, communication, and problem-solving skills, particularly in combating the social pressures for having sex. The arepp: Theatre for Life programme incorporates these aspects of HIV prevention in their dramatic performances and this will be discussed next.

2.2 LIFE-SKILLS AND HIV EDUCATION - AREPP: THEATRE FOR LIFE

The theatre productions offered by arepp: Theatre for Life, deal with HIV/AIDS, abuse, pregnancy, relationships, sex and sexuality awareness. The plays aim to enhance social life-skills and self-efficacy. They focus on choices, peer pressure and self-image, and explore how the concepts of gender and sexuality affect learner's ideas about themselves and society (arepp: Theatre for Life, 2006a; 2006b; 2006c).

The specific aims according to arepp: Theatre for Life, 2006d include:

- To (further/better) inform learners about HIV/AIDS, sexually transmitted diseases, sexuality, relationships, gender relations, abuse and their options in relation to them.
- To demonstrate and teach (more of) the life-skills necessary for the learners to make informed choices about their activities with regard to relationships, society, sex and sexuality, and their right to make those choices.
- To increase understanding and decrease misunderstandings, myths and taboos about HIV/AIDS.
- To diminish myths and taboos regarding the use of condoms, and demystify the condom itself (where appropriate).
- To increase understanding of the possible situations, choices and options available to the learners, and where and how to exercise their rights and options with regard to these issues.

- Increase self-efficacy to negotiate safer sex behaviour.

In 1996, the play "Look before you leap" was performed at high schools to help stimulate awareness about the transmission and health/life implications of AIDS (Reekie, 1997). After 1997 the original playwright (Gordon Bilbrough) adapted the original play by developing the play into a series of three plays aimed at Grade's 8-9 and Grades 10-12 with less emphasis on factual knowledge sharing on the specifics of HIV/AIDS, and more facilitation/discussion with the audience at the end of each performance (B. Schutz, personal communication, 18/04/2006).

The play targeting Grade 10 to Grade 12 is now called "Look before you leap: Big Time" and is most like the original play evaluated by Reekie (1997).

Themes of "Look before you leap: Big time"

This play deals with the theme of sexuality in a realistic and entertaining way. It centres around four high school learners who are negotiating their own sexuality. The characters engage the audience in a personal way through monologues of inner thoughts such as whether to engage in or abstain from sexual intercourse, how they want to impress potential romantic partners, use of condoms and masturbation.

Themes of dating and negotiation of romantic relationships are role modelled, with some scenes being humorous and others more serious. It deals with peer pressure and how it can be used as a way of manipulation to engage in unwanted sex. There are both male and female protagonists who have not had sex before and who experience different forms of pressure to have sex. There are also both male and female protagonists who have had sexual intercourse.

The play also shows how sex can be used manipulatively by those in power. An example was when one character uses sex with her teacher to gain academic marks for her maths test. This is not an uncommon situation as many females or youth engage in sex as a means to gain resources (Campbell, 2004)

All the characters are easy to identify with and negotiation of safer sex applies to all of them. The characters make some errors in judgement and some are able to successfully negotiate the situation. There are characters that don't manage to negotiate the situations they find themselves in and despite their knowledge about teenage pregnancy, HIV and safe sex; they make choices that lead to HIV infection.

The actors in the play facilitate an open debate about the themes mentioned in the play after the performance. They are trained to facilitate accurate knowledge sharing and allow for debate by actively engaging with the audience.

The present study aimed to evaluate this play using Bandura's (1990; 1994) Social Cognitive Theory as related to HIV infection. Other themes in the play identified by Nell and Shapiro (2005) were not considered in the current evaluation. This is important to note as the play carries many other themes in addition to negotiation of safer sex such teenage pregnancy, acceptance of one's own sexuality and tolerance of alternative choices in sexuality such as homosexuality. Therefore the evaluation should **not** be considered as a full scale evaluation of the play. However, Social Cognitive Theory provides a useful framework to explain how the play operates and the medium of information and skill transfer. It also provides a framework for measures for the influence of the play. Theoretical models for HIV prevention will now be elaborated upon.

2.3 THEORETICAL MODELS OF HIV PREVENTION

The AIDS Risk Reduction Model (Catania et al., 1990) was used as a theoretical basis for the evaluation in 1997. The subscales of the constructed instrument were related to the stages for the ARRM. However, the current researcher was of the opinion that the items in the subscales developed by Reekie (1997) appeared to be strongly related to aspects Bandura's (1990; 1994) Social Cognitive Theory. The mechanism of programme operation could also be located in this theory.

Due to the fact that the ARRM was originally used in relation to the instrument a brief description of the model follows. However, the Social Cognitive Theory for control of

HIV/AIDS infection is the main focus of this study and shall be elaborated on in more detail.

2.3.1 THE AIDS RISK REDUCTION MODEL (ARRM)

The ARRM is a stage model of behaviour change. It assumes that change is a process that individuals must go through and that different factors affect the progress through different stages of the process to translate knowledge about AIDS transmission and prevention into low risk or safe behaviour (Catania, Kegeles & Coates, 1990).

Individuals in the first stage of the ARRM label high-risk behaviours as being problematic and understand the risk that these behaviours involve. In stage two, individuals make a commitment to change their sexual behaviour. In stage three individuals put their commitment into action and proposed actual behaviour change from high risk behaviours to low risk behaviours occurs (Catania, Kegeles & Coates, 1990).

The ARRM appears to relate more to people who are already sexually active and has many processes involved at each stage. No instrument had been developed relating to the ARRM at the time of the research (S. Kegeles, personal communication, 06/09/2006). However, it is of the researcher's opinion that an instrument that taps into the processes of the ARRM would need to be substantially more complex than the instrument used in the current evaluation.

The researcher noticed that the ARRM did not provide an adequate theoretical framework in which to locate the mechanism of information transfer and skill transfer of the actual programme/play. Bandura's (1990; 1994) SCT for control of HIV infection was a theoretical framework that could explain the information and skill transfer of the play and thus also represented a more adequate framework to locate the evaluation in.

2.3.2 SOCIAL COGNITIVE THEORY (SCT)

According to Bandura (1994) people's beliefs that they can motivate themselves and regulate their own behaviour plays a crucial role in whether they would even consider altering habits detrimental to their health. They see little point in even trying if they believe they cannot exercise control over their own behaviour and that of others.

From a cognitive behavioural perspective, behaviours are learned and maintained by interacting systems of external events and cognitions. Cognitive factors influence whether environmental events are attended to, how events are perceived and whether these events affect future behaviour (Wicks-Nelson & Israel, 2000).

SCT explains human functioning in terms of triadic model of reciprocal causation (Bandura 1994, p.30). In this causal model personal determinants in the form of cognition, affect, biological factors, environmental influences and behaviour all operate as interacting determinants of each other (see Figure 1).

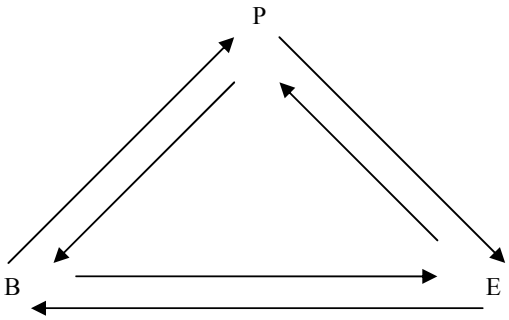


Figure 1: Schematization of triadic reciprocal causation. B signifies behaviour, P the cognitive, biological and other internal events that affect perceptions and action and E the external environment (Bandura, 1994, p. 32)

Perceived self-efficacy is concerned with people's beliefs that they can exert control over their own motivation, thought processes, emotional states, and patterns of behaviour (Bandura, 1994). People' beliefs about their capabilities affect what they choose to do, how much effort they mobilize and how long they will persevere in the face of difficulties (Bandura, 1994).

The lower the individual's perceived self-efficacy, the higher the likelihood of engagement in sexual practices that carry a high risk of HIV infection (Bandura,

1990). The research by Wulfert and Wan (1993) illustrates this. They found that if individuals held negative beliefs about using condoms they were also likely to experience a decreased self-efficacy with less consistent condom use, whereas if individuals believed that condoms effectively prevented pregnancy and disease they tended to experience a greater sense of self-efficacy and more consistent condom use.

SOCIAL COGNITIVE THEORY IN THE CONTROL OF HIV INFECTION

According to SCT in the control of HIV infection an effective behaviour change intervention must have four components (Bandura, 1990; 1994). These four components are listed below and are elaborated on in this section.

i) An informational component to increase awareness and knowledge of health risks.
ii) A component to develop the self-regulatory and risk reduction skills needed to translate risk knowledge into preventative behaviour.
iii) A component to increase the level of the skills in the second component and to increase the individual's level of self-efficacy with respect to these skills.
iv) A component to develop or engage social supports for the individual who is making the change, in order to facilitate the change process and promote maintenance of the behaviour.

Fisher and Fisher (2000) describe Bandura's SCT for control of HIV infection as per Figure 2 below. It is based on Bandura's (1990) theory and the work of Wulfert and Wan (1993).

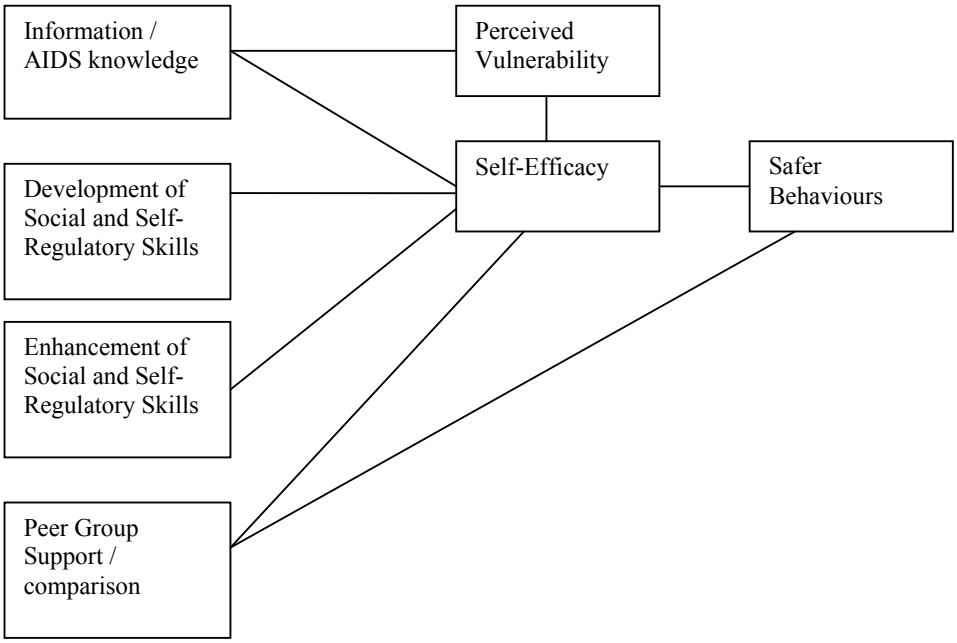


Figure 2: Diagrammatic representation of Social Cognitive Theory for the control of HIV infection as understood by Fisher & Fisher (2000, p.25) and Wulfert & Wan (1993, p.347).

Bandura (1990; 1994) maintains that a high sense of self-efficacy and peer group support are linked to safer sex behaviours, which can be seen in the above model. However, the model suggests that knowledge, development/enhancement of social and self-regulatory skills, peer group support and a perception of personal vulnerability have an impact on a person's self-efficacy. In other words these factors will have an impact on whether a person will be motivated to change their behaviours toward safer sex practices as well as their judgements of their ability be able to change their behaviour towards safer sex practices.

According to Bandura (2006), the efficacy belief system is not a global trait but a differentiated set of self-beliefs linked to distinct areas of functioning. Behavior is better predicted by people's beliefs in their capabilities to do whatever is needed to

succeed than by their beliefs in only one aspect of self-efficacy relevant to the domain.

Each component of Bandura's model of SCT for the control of HIV prevention will now be discussed.

i) Informational component

According to Bandura (1990; 1994) the first component of the model is informational. Thus in order to be able to put safer sex behaviours into practice, an individual would need to acquire information about HIV/AIDS and ways to prevent infection with HIV. Accordingly, interventions would need to impart accurate information on how HIV is transmitted, guidance on how to regulate behaviour, and instil a sense of self efficacy in implementing safer sex behaviour. Health communications also need to emphasize that success requires perseverance, so that people's sense of efficacy is not undermined by a few setbacks to the point where they get discouraged and give up. It is also important that interventions do not use scare tactics to mobilise people into action as this could prevent them from assimilating information (Bandura, 1994).

Educational theatre performances can be an effective form of information, education, and communication (Blair et al., 1999). The arepp: Theatre for Life performances aligns with the informational component of the Social Cognitive Theory in control of HIV infection.

<u>Information and perceived vulnerability</u>

People need to experience the knowledge of HIV/AIDS as being relevant to them if they are to put safer sex behaviours into place. It would seem then that individuals would need to realistically acknowledge the reality of HIV/AIDS and that no one is invulnerable to the disease. They would therefore need to have a realistic sense of perceived vulnerability which is neither too high nor too low. This means that they would also not need to feel so vulnerable to the disease causing need to use a defence such as denial of vulnerability or othering of the disease.

Although Bandura (1990, 1994) does not discuss perceived vulnerability in detail in his HIV prevention model, Wulfert, Wan (1993) and Fisher and Fisher (2000) have included this construct as part of the SCT model in the control of HIV infection. They discuss perceived vulnerability as a construct that is linked to knowledge and self-efficacy. However, Bandura (1990, 1994) emphasizes that it is the sense of self-efficacy itself that empowers people to change their health habits and not only perceived vulnerability.

Many health behaviour theories assert that if perceived vulnerability is too low, there is no motivation to change high risk behaviour which could lead to HIV infection (Gerrard et al., 1996; Rosenstock et al, 1994). However, there is also some research suggesting that if education programmes overstate the danger of behaviours considered undesirable and if they underestimate an adolescents ability to make realistic judgement about risk, this can lead to the learner rejecting the total content of the message instead of engaging in a rational decision making process (Moore and Rosenthal, 1991).

ii) Development of the social and self-regulatory skills

The second component of Social Cognitive Theory in the control of HIV infection is concerned with development of the social and self-regulatory skills needed to translate information and concerns into effective preventive action. Self-regulatory skills include knowing one's risk triggers, being able to remind oneself how important safer behaviour is, and reinforcing oneself for practicing it.

SCT also asserts that in addition to self-regulation skills, individuals would need to develop risk reduction skills. Risk reduction skills can be technical such as knowing how to use a condom and they can be social, such as knowing how to negotiate condom use or how to remove oneself from unsafe situations (Fisher & Fisher, 2000).

<u>Social modelling as a form of social and self regulatory skill transfer</u>

Social modelling provides a highly effective method for increasing social and self-regulatory skills to prevent HIV infection. Modelling is a form of learning in which individuals acquire new forms of behaviour through observing others (Bandura, 1994;

Baron & Byrne, 1997). It can transmit knowledge and valuable skills to large numbers of people at the same time (Bandura, 1994). The influence of modelling on beliefs about one's capabilities relies on comparison with others. People judge their own capabilities, in part, from how well those whom they regard as similar to themselves exercise control over situations (Bandura, 1994; Baron and Byrne, 1997).

The idea that behaviour and skills can be acquired indirectly through the observation of the relevant behaviour gives a theoretical framework to which the type of HIV prevention intervention evaluated in this research can be related. Modelling describes how the play mediates knowledge acquisition and skills.

An educational play used for modelling can focus on how to manage interpersonal situations and one's own behaviour in ways that afford protection against infection with HIV. Bandura (1994) recommends modelling of both self-regulative and risk reduction strategies for dealing with a variety of situations that promote risky behaviour. The arepp: Theatre for Life play models self-regulative skills through use of characters in the play who face difficult decisions and pressures in negotiation of safer sex.

iii) Enhancement of social and self-regulatory skills

The third component of an effective HIV prevention intervention as specified by Bandura (1990; 1994) is an element to build on individuals' sense of self-efficacy. Individuals need to practice the behaviour of focus and in each practice; they should receive constructive feedback on how they could improve their enactment of the necessary skills. The stronger sense of self-efficacy that results, the more likely individuals are to use their new skills and to maintain their use in the face risky situations (Fisher & Fisher, 2000).

According to Campbell (2004) the renegotiation of social identities and associated norms and values needs to go hand in hand with the development of people's confidence and ability to act on decisions to engage in health-enhancing behaviour change.

Peer education as a method to enhance social and self regulatory skills

Peer education and peer facilitated group discussions are examples of HIV prevention interventions that could tap into this third component of this HIV prevention model.

The arepp: Theatre for Life performances use group discussions at the end of each performance to allow active discussion as well as transfer of knowledge and skills to learners.

A possible way to strengthen this mode of operation would be to train peer educators who could then produce their own prevention plays with facilitation from the more experienced actors. Peer education seeks to empower participants by transferring health-related knowledge and teaching methods into the hands of learners (Campbell, 2004). It also provides opportunities for the exercise of leadership by members of social groups. In so doing, it gives people a sense of ownership of the problem of HIV/AIDS and increases the likelihood that they will feel the problem is their own responsibility.

iv) Development or engagement of social supports

The final component involves creating and using social support in order to facilitate the change process and promote maintenance of safer sex behaviours (Bandura, 1990, 1994; Fisher & Fisher, 2000).

Bandura (in Fisher & Fisher, 2000, p.26) maintains that social influence, especially normative social influence, can help or hinder behaviour initiation and maintenance. Behaviour that violates social norms is generally punished by others, while actions that are consistent with social norms are rewarded.

Social norms are internalised by the individual and they assist in developing internal-self standards of conduct. They also assist in the development of an internal self-regulation system (Fisher & Fisher, 2000).

The arepp: Theatre for Life performances were hypothesised to have an effect on social norms as the characters are identified with by the audience. As mentioned in

previous sections, as the characters in the play model social interactions, the audience identifies and learns from characters most like themselves.

2.4 SUMMARY OF CHAPTER 2

In summary, Chapter 2 has covered a review of the literature relating to factors found to be associated with HIV/AIDS risk. These included factual knowledge, youth, gender, education, social or group norms, socioeconomic status, 'othering' of the disease and individual factors such as self-efficacy, perceived vulnerability and perceived cost.

The play "Look before you leap: Big Time" aims to increase self-efficacy in learners for negotiating safer sex behaviour. It also aims to change social and group norms regarding safer sex negotiation and condom use. The play was also hypothesised to influence learner's perception of vulnerability to HIV/AIDS by making them aware that they are not invulnerable to HIV, but have the power to make themselves less vulnerable through self awareness of their sexuality and sexual behaviour.

Chapter 2 has also related the arepp: Theatre for Life plays to Social Cognitive Theory in the control of HIV infection. Programme theory clarifies the connections between a programme's operations and its effects, and thus helps the evaluator to find either positive or negative effects that otherwise might not be anticipated (Chen, 1990). The next chapter will address programme evaluation as a methodology and describe the methods for the current research.

CHAPTER 3: METHODOLOGY

This Chapter addresses the merits and caveats of programme evaluation as a methodology through a discussion on ex-post facto programme evaluation, quasi-experimental evaluation and the use of theory in programme evaluation. It also discusses HIV/AIDS prevention programme evaluation methodologies.

The research design for the programme evaluation for the arepp: Theatre for Life performance is then discussed, followed by the sample and the procedure of data collection. The evaluation instrument and construction of the instrument are discussed including factor analysis techniques. Data cleaning and data analysis procedures are then described including the analysis of variance procedure.

3.1 PROGRAMME EVALUATION AS A METHODOLOGY

Programme evaluation as a methodology exists in the area of the scientific spectrum of research with little experimental control, much like naturalistic and quasi-experimental designs (Mouton, 2001).

Programmes run in community settings cannot be evaluated by randomisation of a sample and manipulation of an independent variable because of ethical concerns. As such, the type of quantitative evaluation that can be conducted is limited to either quasi-experimental designs or ex-post facto / causal-comparative research designs (Johnson, 2001).

3.1.1 Ex-post facto programme evaluation

Ex-post facto research refers to research where both the effect and the alleged cause have already occurred and must be studied in retrospect 'after the fact'. It is also known as causal-comparative research which involves starting with an effect and seeking possible causes after the event has occurred (Johnson, 2001).

Programme evaluation as a research methodology has been criticised for a lack of rigour in being able to establish causal outcomes due to context effects, a lack of random sampling as well as a tendency for unintended instrumentation effects to

occur (Mouton, 2001). In other words, there are often difficulties in operationalising and measuring outcome indicators in quantitative programme evaluations.

Due to the lack of manipulation of the independent variable and the problem of spuriousness, causal-comparative research designs cannot provide evidence for causality that can be shown by a study based on a randomized experiment or a strong quasi-experimental design (Johnson, 2001). Non-equivalent control groups are often used in ex-post facto analysis (Elmes, Kantowitz & Roediger, 1999). This means that matching is attempted after the fact and random assignment is not possible. Elmes et al. (1999) state that in this type of research the best that the researcher can hope for is to probe for suspected causal factors as carefully as possible.

A pre- and post-test research design would normally account for the problems with a lack of a random sample, however, in evaluation research; this design causes problems of response bias and priming (Rosenthal & Rosnow, 1991; Baron & Byrne, 1997). A pre- and post-test questionnaire would expose the respondents to the questions providing them with a cue to remember and keep their eye out for specific information in the intervention. A pre- and post-test Solomon Four Group design would be an ideal quantitative evaluation design to negate the effects of a pre-test. However, in the context of evaluating a programme in a community setting, with a busy non-governmental organisation (NGO), this design becomes logistically difficult to coordinate and also unethical as identifying details of the participant would need to be recorded in order to match the pre- and post-test questionnaires. An ex-post facto design was thus proposed to evaluate the arepp: Theatre for life performance of "Look before you leap: Big time".

3.1.2 The use of theory in programme evaluative research

In order to aid in explaining how the theatre performance operates, theory was used as a framework to understand the mode of information and skill transfer. The same theory was able to provide constructs against which to evaluate the performance. Chen and Rossi (1987) advocate that the theory-driven approach to evaluation avoids the drawbacks of traditional outcome or black-box evaluations because relationships among the relevant variables and the intervention processes can be modelled. This

provides a better understanding of the causal mechanisms underlying the relationships between treatment and effects. Therefore, theory was used in this research to help strengthen the ex-post facto research design by providing mechanisms to explain findings.

3.1.3 Quasi-experimental programme evaluation

Johnson (2001) and Giuffre (1997) assert that it is possible to do meaningful research with an ex-post facto design, however, both emphasise that the researcher should be cautious in interpretation of results. As will be described in the procedure section (Section 3.3), the proposed methodology for this research was an ex-post facto programme evaluation, however, the design changed to a quasi-experimental programme evaluation due to logistical reasons. Quasi-experimental designs resemble experimental designs in that there are treatments and outcome measures, but there is no random assignment and as such, causality of the treatment variable cannot be inferred (Rosenthal & Rosnow, 1991).

Experimental and quasi-experimental outcome evaluation research aims to answer the question of whether an intervention has been successful or effective. The main aim of an outcome evaluation is to establish whether the intended and unintended outcomes of the programme have occurred. Behaviourist and realist meta-theories are used in quantitative quasi-experimental methodology (Mouton, 2001).

In order to gain inferential power in quasi-experimental research, the researcher could match cases and controls and construct an after-the-fact comparison that might be considered random (Kessler, 1993). Matched samples can be created on such variables as age, sex and other demographic characteristics. However, this does not necessarily lead to valid conclusions. Kessler (1993) recommends that the researcher who works with nonexperimetal data use a theory-guided cross-validation.

3.1.4 HIV/AIDS prevention evaluation methodologies

Evaluators of HIV prevention programmes often rely on surveys carried out in the course of evaluating interventions to provide data that can be used to diagnose

problems and pinpoint opportunities to increase the effectiveness of the intervention programme (Kessler, 1993).

However, Ostow and Kalichman (2000) mentioned that reliability and validity of HIV/AIDS self report questionnaires has been a problem across survey research on HIV/AIDS in general. Hartell (2005) also raises the concern about the validity of standardised questionnaires relating to HIV/AIDS prevention compiled in other countries for South African adolescents.

The programme evaluation reported on in this study used a survey questionnaire based on theoretically defined constructs related to SCT in the control of HIV infection (Bandura, 1990; 1994). It used theory as a framework focusing on whether statistically significant differences could be found between high school learners who were exposed to a safe sex and life-skills dramatic presentation prior to completion of the survey and those who had not been exposed to the dramatic presentation prior to completion of the survey questionnaire.

Statistical techniques could then be employed to evaluate the importance of potential intervention targets as modifiers of theoretical pathways (Kessler, 1993; Baron & Kenny, 1986).

This current evaluation of the educational play **did not** attempt to define a definite pattern of causality of the effect of the play; it attempted to add evidence to previous findings to support or dispute these findings.

3.2 RESEARCH DESIGN AND RESEARCH QUESTIONS

The research design used in this study was a quasi-experimental programme evaluation through the use of an established AIDS risk reduction theory.

The study aimed to answer the following questions:

1) Were there significant differences between the knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high school adolescents in an

experimental school in 2006 who had seen the play "Look before you leap: Big time" and high-school adolescents in a control school who had not seen the play?

2) What was the factorial structure and internal reliability of the instrument constructed to measure the knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high school adolescents in these two schools?

3) Was there a similar factorial structure of this instrument to a similar instrument used to measure the knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high school adolescents ten years ago?

4) What were the attitudes, knowledge and perceptions regarding HIV/AIDS of high school adolescents in 2006 as compared to the results found in 1996, in a sample of learners of the same age group, educational level and in the same geographical area / community?

3.3 PROCEDURE

3.3.1 Ethics

The study obtained ethical approval from the University of the Witwatersrand Committee for Research on Human Subjects (Non-Medical), protocol number: 60708. The study also obtained approval from the Gauteng Department of Education. (The permission forms are provided in the appendix 1a and 1b). Please note that the school's names are not mentioned in the report in order to protect confidentiality and also because of the permission conditions from the department of education. Consent was obtained from the principals of the schools and the organisation, arepp: Theatre for Life.

The researcher met with the schools a week before the research was to be conducted and explained the consent procedure for the learners and the school. Consent forms were given to the Life Orientation teachers at both schools at this meeting. These included parental consent forms, learner assent forms and consent forms given to the principal (please see appendix 2a-2e). The consent forms were handed to learners

through their life orientation teachers and collected by the researcher from the Life Orientation teachers the day the questionnaires were completed by the learners.

Both schools were located in Naledi, Soweto. Discussions with the Life Orientation teachers revealed that both schools experienced similar concerns relating to financial difficulties, teenage pregnancy and drugs. According to the teachers, many of the learners came from families with difficulties financially and socially.

3.3.2 Data collection

arepp: Theatre for life (2006b) works in 3 year cycles following the school terms in each province of South Africa. Each tour lasts approximately four weeks in its allocated area according to a pre-arranged schedule, five days a week during term time. Each province is allocated two terms a year of performances. When this research was conducted, arepp: Theatre for Life was scheduled to discontinue performance of the "Look before you leap: Big Time" play in July 2006 and resume performing this play in 2008 thus the organisation was not scheduled to perform the play in Soweto in the last 6 months of 2006. The researcher had only received ethical and faculty approval for the research in August 2006 and consequently was only able to obtain data at the earliest in September 2006. Therefore the researcher had to put in a special request for the play to be performed by the organisation in Soweto in September 2006. This changed the proposed design from ex-post facto to a quasi-experimental design.

The organisation used annual school fees as an indication of socio-economic status of the schools. The schools were contacted by area in August / September 2006. All the schools that were contacted charged R100 per annum for their school fees, which was used as an indicator of the socio-economic status of the learners at the school.

The school principals and Life Orientation teachers were told briefly about the research telephonically and the schools that showed interest in the research were approached in person by the researcher to inform them in more detail about the research and to ask them if they would like to participate. Fortunately, both the schools that showed interest were in Naledi, Soweto and this could be used as an indication that the learners came from the same community.

The principals of both schools gave consent; however, the Life Orientation teachers were the main form of contact at both schools. The Life Orientation teachers were asked if they were of the opinion that the learners could understand English sufficiently enough to be able to read and complete the questionnaires in English. They maintained that their learners were able to sufficiently comprehend the English questionnaire. A pilot study was not conducted as it was not possible due to the narrow time period between receiving permission to conduct the research and the scheduling of the performances by arepp: Theatre for Life. This was not deemed problematic due to the fact that the questionnaire had been used with a similar sample of learners in 1996.

3.3.3 Sample

Sample composition

The proposed sample consisted of purposively drawn groups of learners studying at Grade 10, Grade 11 and Grade 12 levels in two high schools located in Soweto who were either going to see the life-skills play "Look before you leap: Big Time" performed prior to completing the evaluation questionnaire or after completion of the questionnaire. The geographical location was important in order to attempt to replicate the sample that had been used ten years earlier. However, at the time that the play was performed in September 2006, the Grade 12 learners were not able to be part of the study due to preliminary matric exams. Consequently the sample in this study consisted of Grade 10 and Grade 11 learners in Naledi, Soweto.

School A formed the group of Grade 10 and Grade 11 learners who completed the survey questionnaire before they were scheduled to see the play. School A will be referred to as 'School A_Control' group in the rest of this report.

School B formed the group of Grade 10 and Grade 11 learners who completed the survey questionnaire directly after they saw the play "Look before you leap: Big time". School B will be referred to as 'School B_Play' in the rest of this report.

School A, the control group filled in the questionnaires on the morning of the same day that School B_Play group filled in the questionnaires, after they saw the play. All questionnaires were administered personally by the researcher and all instructions to fill in the questionnaire were given by the researcher in English. Although the language used in the questionnaires was English, the plays were performed in the local language (Sotho) spoken by the learners mixed with English.

On the day that the learners completed the questionnaires, they were re-informed that completion of the questionnaire was voluntary and they were told that if there was a question in the questionnaire that they found too sensitive to complete, they could choose not to answer that question. They were also told that they could withdraw from the study and choose not to complete the questionnaire at any time without any negative consequences. They were told that their teachers would not see their answers and they were informed not to write their names on the questionnaire. None of the learner's asked for questions to be explained. The occasional learner did, however, ask if they needed to write their name on the questionnaire.

It is worth noting that at both the School A_Control and School B_Play the Grade 10 learners appeared more hyped up and less easy to settle in administration of the questionnaires. This was noted in all Grade 10 classes and may possibly indicate less maturity at this age to engage with this topic in a serious manner.

The learners completed the questionnaire anonymously to enhance honesty in completion of the questionnaire. The researcher administered all the questionnaires and learners who wanted to complete the questionnaire were given explicit instructions not to talk to each other while completing their questionnaire as well as to cover their answers if they were sitting nearby each other. Those that did not want to complete the questionnaire were asked to occupy themselves with something else.

It is also worth noting that the Life Orientation teacher at School A_Control was very enthusiastic and was present at every class where the questionnaire was administered. However, at School B_Play the Life Orientation teacher was more distracted by the

organisation and control of the learners (who were quite excitable after the play) and was not present for the administration of most of the questionnaires.

Sample size

Due to the fact that a factor analysis was to be conducted on the instrument, a large sample size was needed. Gorsuch (1997) mentions that the sample size for a factor analysis was in former times given as a function of the number of items in the questionnaire. This would have amounted to a sample of over 500 learners. However, Gorsuch (1997) stated that most item analyses of previously untested items, the traditional item analysis recommendation of n=300 was a good one for item factor analysis.

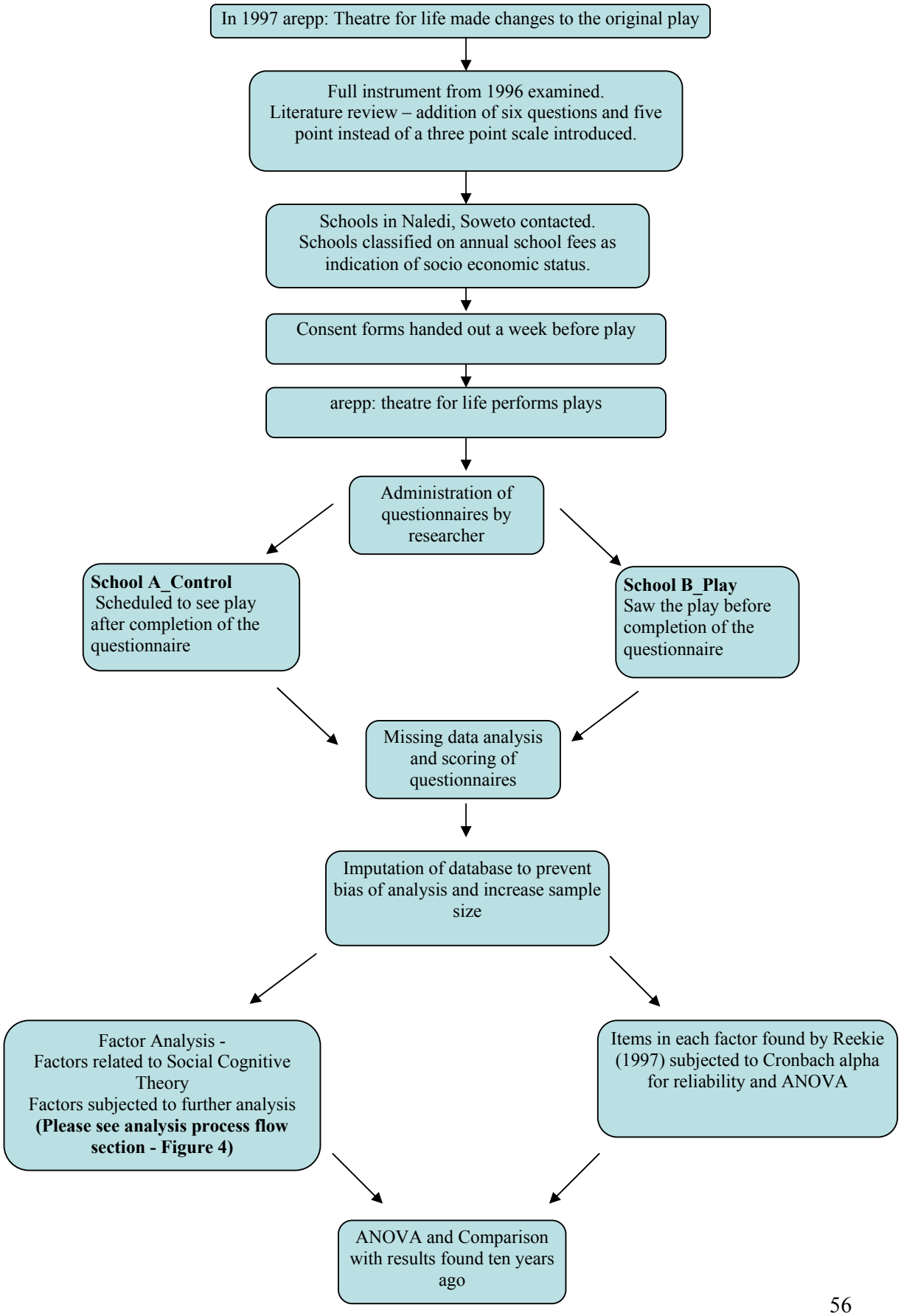
Due to this recommendation, the researcher of this study attempted to obtain a large sample of learners. The complete sample for the research was **n=437**. However, this was reduced to **n=392** after data cleaning (explained in Section 3.5) and thus the sample size was deemed adequate for factor analysis to be conducted. There were a total of **n=227** learners in the control group and **n=165** learners in the group that saw the play prior to completion of the questionnaire. Table 1 on the next page shows the frequency of learners by school, grade and gender.

TABLE 1: NUMBER OF LEARNERS IN SAMPLE BY SCHOOL, GRADE AND GENDER

Number of learners in sample by School, Grade and Gender				
			School	
			School A_Control	School B_Play
Gender	**Grade**			
Missing	**10**	**N**	3	11
	11	**N**	.	2
Male	**10**	**N**	42	33
	11	**N**	56	22
Female	**10**	**N**	58	48
	11	**N**	68	49
N = 392			**227**	**165**

For ease of interpretation, a summary of the research process is depicted in the flow chart on the next page (Figure 3).

Figure 3: Process flow of evaluation



3.4. EVALUATION INSTRUMENT

3.4.1 Construction of the instrument

The instrument used in the evaluation was a modified version of the full instrument used in the first evaluation of the play in 1996. The initial evaluation instrument was constructed by selection of items available from previous research conducted on AIDS related issues with adolescents from studies by Paniagua et al. (1994); Mathews et al. (1990); Crewe (1992) as well as using additional questions directly related to the content of the play (Reekie, 1997).

Most items were obtained from Paniagua et al. (1994), who presented a pool of AIDS-related items intended for researchers to use to develop self-report AIDS questionnaires for children and adolescents. They pooled together a total of 352 AIDS-related items from 18 AIDS survey studies involving children and adolescents ranging from 10 to 21 years and submitted them for content analysis. AIDS-related items were integrated into five mutually exclusive, theoretically defined groups:
a) factual knowledge, b) misconceptions, c) attitudes, d) perceived susceptibility and e) perceived self-efficacy. Paniagua et al. (1994) maintained that selection of items from these groups could lead to the development of a comprehensive and uniform self-report AIDS questionnaire for children and adolescents.

In the evaluation conducted ten years ago, these questions were grouped into subscales measuring, ‘attitudes’, ‘intended behaviour’, ‘susceptibility’, ‘group norms’ and ‘factual knowledge’. However, the original subscales yielded poor internal reliability coefficients after administration of the questionnaires. Thus an exploratory Principal Components Factor analysis (Varimax normalised) was conducted on the data obtained from the questionnaires (Reekie, 1997).

The questions loaded onto three factors which Reekie (1997) related to the three stages of the ARRM (Catania, et al., 1990). These factors were turned into subscales with adequate to good internal reliability coefficients. They were named Factual Knowledge (Cronbach alpha = 0.72); Intended Behaviour (Cronbach alpha = 0.59); and Self-Efficacy in Implementing AIDS Risk Reduction Measures (Cronbach

alpha=0.72). In addition, a fourth dependent variable based on the score yielded by the composite instrument was included in the analysis. The instrument was found to have a good internal consistency (Cronbach alpha = 0.77).

The current study used a modified version of the instrument used in 1996. An additional six questions were added to the end of the questionnaire related to the ARRM. However, on further examination, the researcher found that Social Cognitive Theory was a more appropriate model to relate the factors to. The instrument that was administered in the current study appears in appendix 3a. Appendices 3b-3d explain the source and scoring of each item.

3.4.2 Scoring of the instrument

In 1997 a binomial method of scoring the questions was used. The categories, 'true', 'false' and 'I don't know' were used for the knowledge type questions and response categories 'agree,' 'disagree' and 'uncertain' were used for attitudinal items. The response items that were more favourable to practicing safer sex were given a score of 1 and in all cases the answer 'don't know' was given a score of 0. Responses that indicated a negative attitude to safer sexual behaviour were also given a score of 0. The total scale was used as a measure of attitudes, intentions and perceptions conducive to HIV/AIDS risk reduction. Higher scores on the instrument reflected high knowledge of HIV/AIDS and its prevention as well as attitudes that were found to be related to preventative behaviour (Reekie, 1997).

In order to increase the sensitivity to the questions, the researcher of this study decided to provide a five point likert scale of agreement for all items. The categories of response in the current instrument were 'strongly agree', 'somewhat agree' 'uncertain,' 'somewhat disagree' and 'strongly disagree'. A 'not applicable' response category was also included as some learners might not have perceived some questions as being applicable to themselves.

In sexual and AIDS-related surveys respondents may become upset about questions that ask for intimate details of their sexual experiences. Catania et al. (1993) found that if respondents knew that they could decline to answer sensitive questions they

were more likely to continue an interview on sexual behaviour. Due to this and ethical reasons learners were informed that they could leave out questions that were distressing for them.

After completion of the questionnaires it was noticed that some of the questions were not conducive to an attitudinal scale. Thus logic and theory were used to assess each question. Each question was scored in the same direction as was done by Reekie in 1997. Items that tapped into knowledge, where there should have been a 'true,' 'false' or 'uncertain' category were scored according to the agreement. For example, if the person answered 'agree' or 'strongly agree' to a factual knowledge question, the answer was taken as being true to them. Each item in the instrument (appearing in appendices 3b-3d) is followed by a literature source as to why it was scored the way it was. On the whole the same logic of scoring was used as was done by Reekie in 1997. Thus higher scores on the instrument reflected high levels of knowledge of AIDS and higher levels of attitudes and perceptions conductive to HIV/AIDS risk reduction.

Due to the fact that one of the questions included in the research was whether the learner had engaged in sexual intercourse or not, and the fact that most learners answered this 'yes' or 'no' question, the database in the current study could be split and the 'uncertain' and 'not applicable' responses could be scored appropriately. This became necessary due to many learners who ticked the 'not applicable' option on questions where this response would indicate inadequate knowledge or a high risk attitude. The scoring for 'uncertain' and 'not applicable' was conducted as per the example below.

For example, Question 1 asked "I am able/would be able to tell my sex partner how many people I have had sex with before him or her". This question might not have been perceived as applicable to learners who were not sexually active as they would not have had previous sexual partners. They may have answered 'uncertain' or 'not applicable' or may have left the question out. If they answered 'uncertain' the definition of the construct was used for which the question was thought to tap into. Thus Question 1 appears to measure self-efficacy. The definition of self efficacy is the sense that one can control his or her motivation and environment and especially his or

her behaviour (Bandura, 1994; Fisher & Fisher, 2000). Therefore interpretation of the 'uncertain' answer on self efficacy questions can be scored the same for both those who were sexually active those who were not as it is the *belief* in their ability to control the situation and not necessarily whether they have been in the situation.

Because the database was split between those who indicated that they were sexually active and those who said that they were not, the 'not applicable' response became meaningful. For example, if a sexually active person answered 'not applicable' to Question 1, the theory is that they may be at higher risk for HIV infection because they will not be encouraging open communication in their partnerships or they may have a low sense of self-efficacy and therefore could not get a higher score for this question. The learners who indicated that they were sexually active and answered 'not applicable' would need to receive a low score for this item because it indicates an attitude or perception that is less conducive to HIV risk reduction. However, if a non-sexually active person answered this question as 'not applicable', the question may well be not applicable as they have not had sex before. In this case scoring of the 'not applicable' option by substitution with the mean would be necessary.

Catania et al., (1993) stated that some respondents found it more socially acceptable and less confrontational to report non performance rather than to refuse to answer a question in sexual behaviour surveys. It would therefore seem more logical to analyse the 'not applicable' responses by substituting with the mean for those respondents who reported that they were not sexually active as it is not possible to tell whether they truly felt that the question was not applicable or whether they felt that the item was not important, the latter response leading to higher HIV/AIDS infection risk.

After administration of the questionnaires, a brief analysis of the results revealed that there were many missing responses for various items in the questionnaire. This was hypothesised to affect the analysis quite drastically (Rubin, 1987) and thus a data cleaning procedure was conducted.

3.5. DATA CLEANING

The original sample consisted of n=437 questionnaires. However, on inspection of the questionnaires, it was found that a total of only n=191 learners had not left information out of the questionnaire.

Rubin (1987) stated that it is common in many sample surveys that some of the respondents do not respond to at least some of the items being asked. Missing values not only mean less efficient estimates because of reduced size of the data base, but also that standard complete-data methods cannot be used immediately to analyse the data. Rubin (1987) also stated that it is rare that the missing values occur completely at random as they might in some experimental contexts, in surveys it is often reasonable to suspect that non respondents systematically differ from respondents and thus it is desirable not only to adjust for non response, but also to study the effects of various assumed differences between respondents and non respondents. Analysis of only the fully completed questionnaires would be biased because there is possibly some variable accounting for this such as conscientiousness or less sensitivity to the questions. Therefore the respondents who completed all the questions fully would differ systematically from the respondents who left answers out.

Imputation is the statistical technique for replacing missing values with a statistically calculated estimate based on other data available in the survey dataset (van Buuren, 2005). According to Rubin (1987) multiple imputation is the technique that replaces each missing or deficient value with two or more acceptable values representing a distribution of possibilities. In other words the statistically estimated values are obtained through a procedure of obtaining the most probable response and estimating this response enough times so that the estimated values themselves become a normally distributed set of values. Therefore the most likely value is chosen. In order for an imputation to be performed the data needs to be missing at random, which means it has to have some relation to the rest of the data in the dataset. Imputation is not appropriate for data that is 'missing completely at random' or data that is 'not missing at random'.

However, if the dataset has a high level of non-response rate, imputation would severely bias the study and possibly be more disruptive. A missing response rate of more than 10% would be dangerous to impute (Rubin, 1987). As a result the researcher of this study decided to first perform a listwise deletion for questionnaires where there were over 10% of the responses missing per person/questionnaire.

3.5.1 Description of Listwise Deletions:

a) Five respondents were not captured due to the fact that they did not fill any demographic information on their questionnaires.
b) Nine respondents were deleted from the raw database because they either didn't fill out back page of the questionnaire or they stopped answering after a certain question. One of the reasons for this is that a few learners came late to the class where they were meant to fill in the questionnaires. All these respondents had more than 20 incomplete items.
c) Six respondents were further deleted from the raw database because more than 25% of the questionnaire was incomplete (i.e.14 questions incomplete).

Thus a total of 20 whole questionnaires (i.e. respondents) were excluded due to too much information being missing on questionnaire. The sample total (for a cut off point for listwise deletion being more than 25% missing responses) was n=417.

For a listwise deletion in a questionnaire with less than 10% missing, 6 questions would need to be missing per respondent to be deleted. The researcher therefore excluded a further 16 whole questionnaires. The sample number became 401.

The researcher then examined the key questions related to questionnaire scoring which was whether the person had indicated whether they were sexually active or not. It was found that a further 9 respondents did not indicate whether they were sexually active or not. These respondents had to be excluded as the questionnaire scoring was based on this response. This amounted to a total sample number of **n=392.**

Brief analysis of items with the highest frequency of missing data

The questions with the highest frequency of missing data and with the highest frequency of 'not applicable' responses were analysed.

There appeared to be two main reasons for the missing data. The first reason was that the questionnaire used MS Excel blocks for response categories to be ticked. Consequently some blocks were skipped and some blocks contained two ticks for one question. Data that is missing in this manner is called data that is missing at random. The second reason for the non-response rates was because learners could leave sensitive questions out and learners could tick the 'not applicable' response category.

From the analysis it appeared that Question 1 "I am able/would be able to tell my sex partner how many people I have had sex with before him or her" seemed to have the highest frequency of missing data as well as the highest frequency of 'not applicable' responses. It appeared that those who were not sexually active were more likely to leave this question out. The frequency of 'not applicable' responses to this question was double for learners who indicated that they were not sexually active in relation to those who were sexually active.

Thus Question 1 appeared to be a sensitive question and was hypothesized to influence the analysis. However, this question was included and excluded all the subsequent analyses and it did not appear to affect the results. It was also not a key question in the analysis because it loaded very poorly on any factor in the factor analysis (discussed in section 3.7). The researcher, however, hypothesises that the placement of this question in the beginning of the questionnaire caused it to be missing at a relatively high frequency. However, the fact that it loaded poorly on the factors considered in the analysis was not problematic because Bandura (1994) actually states that development of skills needed for safer sex behaviour should focus on communicative skills for negotiation safer sex behaviour rather than getting a history from a partner as this history is most likely going to be inaccurate leading to a false sense of security.

Question 52 “I am not at risk for getting HIV/AIDS” also had a relatively high frequency of missing responses. There appeared to be no difference in missing data frequencies between those who indicated that they were sexually active or and those who indicated that they were not sexually active. It appeared to be missing due to the placement of the question in the questionnaire towards the end of the survey and may have been affected by respondent fatigue and the lay out of the response boxes.

Question 29 “I know how to use a condom correctly” also had a high non-response rate. The respondents who were not sexually active left this question out at a three times higher frequency than those who indicated that they were sexually active. The frequency of ‘not applicable’ responses to this item was twenty times higher for those learners who indicated that they were not sexually active as compared to those learners who indicated that they were sexually active. The most probable reason for this is that the missing data in this question is due to those learners who were not sexually active possibly feeling that the question did not apply to them.

Other questions with high frequencies of missing data are listed in appendix 4. Not more than 10% of the dataset was imputed.

3.6 IMPUTATION PROCEDURE

The most common method of predicting missing data is through a linear regression. However, the data needs to be at least interval scale (Rubin, 1987). For the purposes of imputation in the current research it was deemed safest to consider the data as ordinal.

According to Rubin (1987) when the missing items are dichotomous or take on only a few values (as in ordinal data); a logistic regression model is likely to be more appropriate than a linear regression model. Rubin (1987) describes the formula for the logistic regression imputation model. For further elaboration of this procedure please refer to Rubin (1987, p.169).

In the current research, a logistic regression imputation with a cumulative logit link function was used. The technique was programmed by a statistician and implemented using coding for SAS™ 9th ed. (computer statistics analysis program).

Once the dataset was imputed further data analysis could be conducted. This included a factor analysis to construct internally reliable scales which could be used as dependent variables for which the effects of the exposure to the play, effects of age, effects of gender, effects of grade and effects of learner's reported sexual activity could be assessed. The next section of the procedure describes the factor analysis in order to create the subscales of the instrument used in this study.

3.7 FACTOR ANALYSIS

3.7.1 Brief explanation of factor analysis

Exploratory factor analysis is widely used as a technique to develop scales and subscales. Scales are preferred to items in measuring constructs because items have lower reliabilities than scales. Adding together a set of items with low reliabilities averages out the error of the items while combining the shared variance (Gorsuch, 1997). Cronbach's coefficient alpha estimates the reliability of this type of scale by determining the internal consistency of the scale or the average correlation of items within the scale (SAS Institute Inc, 2003d). A Cronbach coefficient alpha of 0.70 is most often taken as an acceptable reliability coefficient; smaller reliability coefficients are seen as inadequate (SAS Institute Inc, 2003d).

Factor analysis rewrites a set of variables into a new set of orthogonal factors (Rosenthal & Rosnow, 1991). A 'common factor' is an unobservable, hypothetical variable that contributes to the variance of at least two of the observed variables (SAS Institute Inc, 2003a). The term 'factor' often refers to a common factor. A 'unique factor' is an unobservable, hypothetical variable that contributes to the variance of only one of the observed variables. The model for common factor analysis yields one unique factor for each observed variable (SAS Institute Inc, 2003a).

The methods for factor extraction include amongst others principal component factor analysis. Principal component factor analysis is a multivariate technique for examining relationships among several quantitative variables. Principal components analysis should be conducted if one is interested in summarizing data and detecting linear relationships (SAS Institute Inc, 2003a). SAS Enterprise Guide™ 4th ed. (computer statistics analysis programme) uses the default method called principal components analysis in the factor analysis procedure (SAS Institute Inc, 2003a).

The factor analysis in this study used the default factor analysis procedure programmed in SAS Enterprise Guide™ 4th ed. This was under the factor procedure and called principal components factor analysis varimax normalised. It appears to be based on Kaiser's technique which says that the number of factors should be equal to the number of eigenvalues greater than one (Gorsuch, 1997). The salient factor loading of each item was determined by the programme. A loading of above 0.3 was considered as salient based on the sample size (SAS Institute Inc, 2003a).

Rotating a set of factors can help in interpreting a factor analysis. According to the SAS Institute (2003a) the choice among different rotations should be based on non-statistical grounds. The preferred rotation is that which is most easily interpretable, or which is most compatible with explanatory theories. If two rotations give rise to different interpretations, those two interpretations should not be regarded as conflicting. Rather, they reflect two different ways of looking at the same thing, two different points of view in the common-factor space. Any conclusion that depends on one and only one rotation being correct is invalid (Harman, 1967; SAS Institute Inc., 2003a).

3.7.2 Procedure for the factor analysis

After the database was cleaned and imputed a principal components factor analysis was conducted on the questionnaire excluding the demographic variables and the indicator question for scoring.

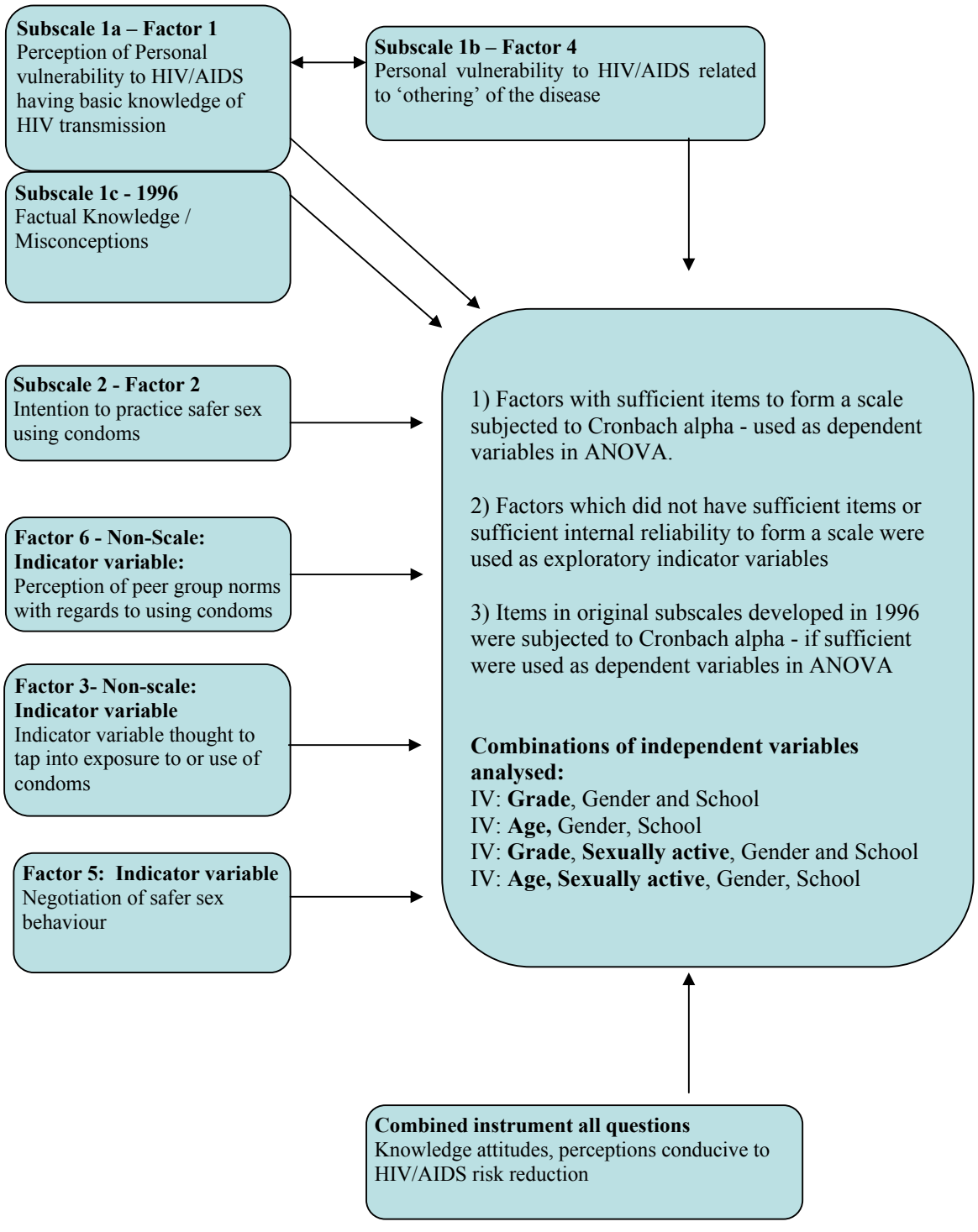
A varimax normalised unrotated factor pattern was obtained and examined. After this another principal components factor analysis was run with a varimax normalised orthogonal rotation on the imputed database.

The orthogonally rotated version of the factor analysis yielded similar results to the unrotated version of the factor analysis, however, the themes of the items appeared to be more easily interpretable in the rotated version.

The items loading saliently on each factor were then subjected to an internal reliability analysis. If the Cronbach coefficient alpha was sufficient, the factor was considered as a subscale which was considered as a dependent variable in further analysis.

The factors appeared to tap into Bandura's (1990; 1994) Social Cognitive Theory in control of HIV infection. The results of the factor analysis and relations to the theoretical model will be discussed in the results and discussion sections. For ease of interpretation, a summary of the data analysis process is depicted in the flow chart on the next page (Figure 4) and explained in detail in the analysis of variance section that follows.

Figure 4: Diagrammatic representation of the analysis process



3.8 ANALYSIS OF VARIANCE: PROCEDURE FOR ANALYSIS

Analysis of Variance (ANOVA) was used to assess whether the independent variables which included exposure to the play, grade, age, gender and the learner's indication of whether they were sexually active or not, had a main effect or moderating effect (as defined by Baron & Kenny, 1986) on the responses to the derived subscales.

In 1997 Grade was used as the classification system for older versus younger students (Reekie, 1997). The problem with only using grade is that there are many learners of different ages in each grade. Therefore, age was considered as an independent variable in a separate analysis in this study. However, Age and Grade were not considered in the same analysis as they covary with each other.

The dependent variables extracted from the factor analysis are depicted in Table 2 below. The actual scales and their link to Social Cognitive Theory in the control of HIV infection are described in the results section (Chapter 4).

TABLE 2: TABLE OF DEPENDENT VARIABLES AND SCALE NAMES

Dependent variable / Scale	Scale Name / Factor Name	Cronbach Alpha	Factor
Subscale 1a	Perception of Personal vulnerability to HIV/AIDS with basic knowledge of HIV transmission	**0.85**	Factor 1
Subscale 1b	Perception of personal vulnerability to HIV/AIDS related to othering of the disease	**0.72**	Factor 4
Subscale 1c	Factual knowledge / misconceptions of HIV/AIDS	**0.75**	Factor 1 in 1996
Subscale 2	Intention to use and negotiate the use of condoms	**0.66**	Factor 2
Indicator variable 6	Perceptions of peer group norms with regards to the use of condoms	**0.60***	Factor 6
Indicator variable 3	Exposure to and use of condoms	**0.59***	Factor 3
Indicator variable 5	Negotiation of safer sex practices	**0.41***	Factor 5
Combined instrument	Indication of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction	**0.85**	Full instrument

*(very low internal reliability and thus these indicator variables could not be considered a reliable measure of the construct. Caution was used in interpretation of results for these factors)

There were five independent variables that were included in the analysis of variance calculations using each subscale/indicator variable as a dependent variable. Due to the fact that some of the independent variables covary such as Age and Grade, four separate analyses were conducted with different combinations of the independent variables. The independent variables were:

- Exposure to the play/school (exposure to the play was synonymous with school)
- Age
- Gender
- Grade
- Whether the learner was reportedly sexually active or not sexually active (referred to as "Sexually Active" in the analysis)

The Tukey-Kramer post hoc test was used as an adjustment for multiple comparisons to compare results of subgroups in each ANOVA. This was a conservative post hoc test ensuring that the experimentwise type I error was less than 5%.

A statistical significance of $\alpha = 0.01$ was considered as a significant result for ANOVA as opposed to $\alpha = 0.05$ to avoid type I errors due to the large sample size. For larger samples, the effect size would need to be larger for a significant result (Rosenthal & Rosnow, 1991).

Traditionally for an ANOVA to be conducted, the four main assumptions that need to be met are that the distribution is normal, the variances are equal, the scale of the dependent variable is interval and the sampling method is random and independent (Rosenthal & Rosnow, 1991). This research violated the assumption of random sampling as this would not have been logistically possible. However, the researcher attempted to account for this by matching the schools according to geographical location, community and socio economic status.

3.9 DECISIONS ON PARAMETRIC AND NON-PARAMETRIC STATISTICS

Descriptive data analysis was conducted for each variable. A distribution analysis was also conducted on the dependent variables. This was to determine whether parametric statistics could be used in the analysis. The researcher also examined the residuals of the distribution because a histogram of residuals, if normally distributed, is often taken as evidence of normality of the variables (Garson, 2008).

3.10 SUMMARY OF CHAPTER 3

A summary of the research process is as follows: - the evaluation of the play was operationalised through conducting a factor analysis on the responses to a modified instrument used ten years ago. In order to conduct the factor analysis a full dataset was needed and thus a systematic imputation and data cleaning procedure was used. The results of the factor analysis provided scales which tapped into constructs of Social Cognitive Theory in the control of HIV infection. These scales were then used as measures to assess the effect of the play against. The effects of other variables were also assessed using these scales. These included Age, Gender, Grade and the learner's indication of whether they were sexually active or not. ANOVA was used to assess the effect of the independent variables on the subscales. Chapter 4 reveals the results of the analyses.

CHAPTER 4: RESULTS

The results of the evaluation are discussed in this chapter. Because scales to measure the effects of the play had to be created in order to operationalise the evaluation, this chapter includes both the results of the construction of the instrument and the results of how the independent variables affected the responses to the scales of the instrument.

The data are presented in the following way. Firstly, a descriptive analysis of the sample is presented, then the results of the factor analysis will be revealed. The results of the factor analysis will then be briefly discussed in relation to the theoretical constructs they tap into.

After the scales are described, a distribution analysis of the scales will be presented. Finally, the effects of the independent variables including exposure to the play, age, gender, grade and indication of whether the learner was sexually active or not will be presented.

4.1 DESCRIPTIVE DATA AND FREQUENCIES

Table 3 describes the mean age groups in each grade and Table 4 on the next page describes the sample with respect to age groups by each independent variable.

TABLE 3: DESCRIPTIVE STATISTICS FOR AGE AND GRADE OF THE LEARNERS IN THE SAMPLE

Basic Statistical Measures for Age in Years: Grade 10			
Mean	16.25	**Std Deviation**	1.12
Median	16.00	**Variance**	1.25
Mode	16.00	**Range**	6.00
		Interquartile Range	2.00

Basic Statistical Measures for Age in Years: Grade 11			
Mean	17.54	**Std Deviation**	1.43
Median	17.00	**Variance**	2.05
Mode	17.00	**Range**	7.00
		Interquartile Range	2.00

The mean age for the learners in Grade 10 was 16.3 years and the mean age for the learners in Grade 11 was 17.5 years.

TABLE 4: DESCRIPTIVE STATISTICS OF AGE BY EACH INDEPENDENT VARIABLE

Grade	Gender	School	Sexually Active	N Obs	Mean Age	Std Dev - age	Min age	Max age
10	**Male**	**School A_Control**	No	20	16.15	0.93	15	18
			Yes	22	16.81	1.50	14	20
		School B_Play	No	16	16.00	0.89	14	17
			Yes	17	16.43	1.41	15	19
	Female	**School A_Control**	No	46	16.09	1.02	14	18
			Yes	12	16.42	0.79	15	17
		School B_Play	No	41	16.03	1.01	15	19
			Yes	7	17.00	1.58	15	19
11	**Male**	**School A_Control**	No	22	17.36	1.56	15	21
			Yes	34	18.03	1.60	15	22
		School B_Play	No	4	17.75	2.22	16	21
			Yes	18	17.83	1.69	16	21
	Female	**School A_Control**	No	53	16.69	0.88	15	19
			Yes	15	18.07	1.53	15	20
		School B_Play	No	24	17.88	1.51	16	21
			Yes	25	17.92	0.81	16	20

A total of 37.3% (n=163 of n=437) of the sample indicated that they were sexually active.

- 23% of the sample = *males* who indicated that they were sexually active
- 14.5% of the sample = *females* who indicated that they were sexually active.
- 10% of the sample indicated that they were sexually active by age 16 years.
- 21% of the sample indicated that they were sexually active by age 17 years.

Eighty three percent (83%) of the learners who indicated that they were sexually active also indicated that they had used a condom before. Twenty nine percent (29%) of those learners who indicated that they were not sexually active also indicated that they had used a condom before.

4.2 DIFFERENCES IN SEXUAL ACTIVITY BETWEEN SCHOOLS

The indication of whether the learner was sexually active or not, was hypothesised to have an effect on the results of the survey. Pearson Chi-square tests of association were therefore performed on this variable to determine whether there were any significant differences between the schools in sexual activity of the learner. There were no significant differences between the schools in the learner's responses as to whether they were sexually active or not (χ^2 (1) = 1.53; p=0.21). Table 5 below shows the results of Pearson Chi-Square tests association to assess differences between schools in indication of sexual activity by grade and gender.

TABLE 5: PEARSON CHI-SQUARE TESTS OF ASSOCIATION FOR THE VARIABLE 'SEXUALLY ACTIVE' BY SCHOOL

Pearson Chi-square for sexually active by school: Controlling for grade and gender	**Chi-Square**
Grade=10, Gender=Male	χ^2 (1) = 0.01; p=0.94
Grade=10, Gender=Female	χ^2 (1) = 0.67; p=0.41
Grade=11, Gender=Male	χ^2 (1) = 3.17; p=0.08
Grade=11, Gender=Female	**χ^2 (1) = 10.62; p=0.001***

*(χ^2 statistic in bold indicates a significant result at α=0.01)

There appeared to be no significant difference in numbers of males at each school in Grade 10 in their indication of being sexually active or not (χ^2 (1) = 0.01, p = 0.94). There also appeared to be no significant difference in numbers of females at each school in Grade 10 in whether they indicated that they were sexually active or not (χ^2 (1) = 0.67, p = 0.41).

There was no difference between schools for Grade 11 male learners in their indication of whether they were sexually active (χ^2 (1) = 3.17; p = 0.08). There was a

significant difference, however, in numbers of females at each school in Grade 11 in their indication of being sexually active (χ^2 (1) = 10.62; p = 0.001).

There was also a significant difference in the number of learners in Grade 11 who were sexually active between the schools (χ^2 (1) = 7.06; p=0.001), which was possibly due to the significant difference between the female learners in this grade. Therefore, some caution is raised in interpretation of the differences in results between schools on other measures as they may be affected by the difference between Grade 11 learners in their indication of whether they were sexually active or not. The next section describes the results for the factor analysis.

4.3 RESULTS FOR THE FACTOR ANALYSIS

a) Kaiser's measure of sampling adequacy

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy in this study was **0.75** which indicates that the sampling adequacy for the factor analysis was good. None of the individual questions gave a sampling adequacy index of below 0.5.

b) Principal Components Factor Analysis

A principal components factor analysis retained 19 factors according to Kaiser's criterion with an eigenvalue above 1. Table 6 shows the eigenvalues for the first 19 factors (Please refer to appendix 5 for results of the factor analysis for the first seven factors).

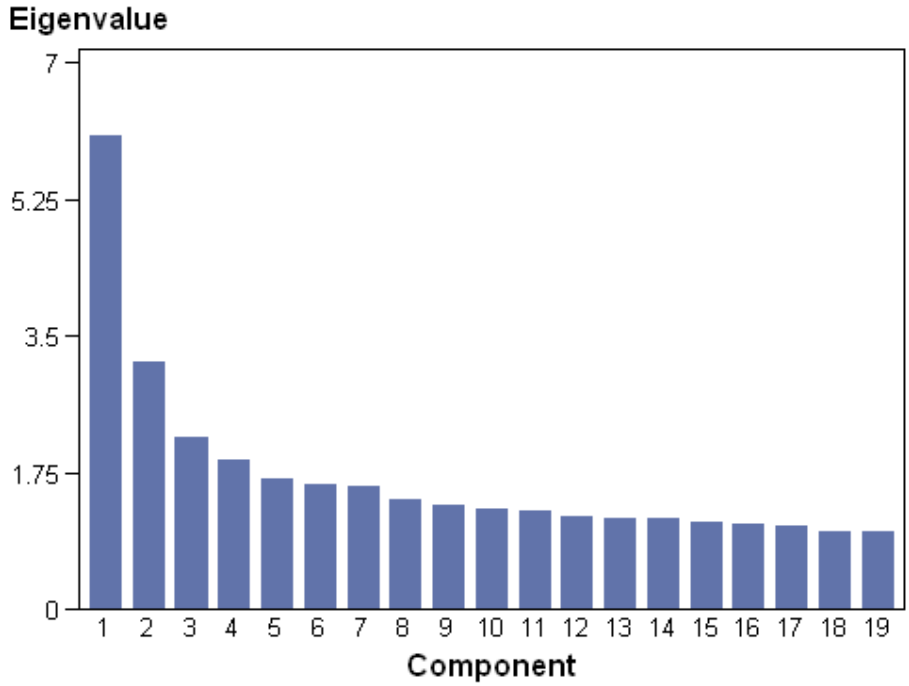
Cattell's scree plot and Kaiser's eigen criterion were used to extract the amount of factors to be considered in the analysis. Kaiser's method has been criticised for including too many factors and thus the scree plot was considered the best method of extraction (Jackson, 1993). The scree appeared to begin it's levelling at Factor 6 or 7 (please see figure 5), however, the scree did not totally level out as there were 19 other factors with an eigenvalue of over one. The researcher examined the rest of these factors but found that these factors loaded at most two items which was insufficient for scale creation and thus seven factors were considered in the analysis. It should be noted, however, that theoretically the meaning of the other factors not

considered in this report cannot be ignored and further research might elucidate the meaning of these other factors.

TABLE 6: EIGENVALUES YIELDED BY THE PRINCIPAL COMPONENTS FACTOR ANALYSIS

Eigenvalues of the Correlation Matrix: Average = 1				
	Eigenvalue	**Difference**	**Proportion**	**Cumulative**
1	6.06322033	2.88808710	0.1123	0.1123
2	3.17513322	0.95967807	0.0588	0.1711
3	2.21545515	0.28981410	0.0410	0.2121
4	1.92564106	0.24580511	0.0357	0.2478
5	1.67983594	0.06135241	0.0311	0.2789
6	1.61848354	0.04227501	0.0300	0.3088
7	1.57620853	0.14836729	0.0292	0.3380
8	1.42784124	0.07017403	0.0264	0.3645
9	1.35766722	0.05488019	0.0251	0.3896
10	1.30278703	0.03366029	0.0241	0.4137
11	1.26912673	0.06797021	0.0235	0.4372
12	1.20115653	0.02513680	0.0222	0.4595
13	1.17601972	0.00896552	0.0218	0.4813
14	1.16705420	0.03135981	0.0216	0.5029
15	1.13569439	0.04040996	0.0210	0.5239
16	1.09528443	0.01242045	0.0203	0.5442
17	1.08286398	0.07717600	0.0201	0.5642
18	1.00568798	0.00058893	0.0186	0.5829
19	1.00509905	0.01588117	0.0186	0.6015

Figure 5: Scree Plot of eigenvalues for principal components (factors)



4.4 FACTOR ANALYSIS: SUBSCALES

When the orthogonally rotated factor pattern was compared to the unrotated factor pattern, the items that loaded on each factor were similar. The items that loaded together in the rotated factor pattern appeared to tap into specific aspects of Bandura's (1990, 1994) Social Cognitive Theory in the control of HIV infection.

It was significant that the items loaded in a similar factor structure to the factor structure obtained ten years ago (Reekie, 1997) because the response categories and scoring differed slightly in this study. It appears that the items were interpreted in a similar fashion by the learners in both studies, indicating that the items in both studies were quite robust. Each subscale and the items making up the scale will be presented next.

SUBSCALE 1A:

Perception of personal vulnerability to HIV/AIDS with basic knowledge of transmission

The items loading saliently on Factor 1 appeared to relate to personal vulnerability to AIDS. Although the items relate to personal vulnerability, they appear to imply that the person answering them has an accurate knowledge of transmission of HIV. In other words, accurate knowledge of transmission would enable a person to answer the questions knowing that no one is invulnerable to HIV/AIDS, but that casual social contact with someone with HIV not involving blood or sexual fluids will not lead to infection. Table 7 (on the next page) shows the items making up the scale, the factor loadings and the source of the item.

TABLE 7: QUESTIONS FORMING SUBSCALE 1A DERIVED FROM FACTOR 1

Perception of personal vulnerability to HIV/AIDS with basic knowledge of HIV transmission ***Cronbach Coefficient Alpha:*** ***Raw = 0.85*** ***Standardized = 0.85***			
Original category and Source of item	**Question / Item**	**Factor 1: Rotated**	**Factor 1: 10 years ago**
Attitudes to people with AIDS - Mathews et al. (1990)	22. I would be scared to have a person with AIDS in my school	0.72	0.49
Knowledge of AIDS- Crewe (1992)	40. AIDS does not really exist	0.72	*
Misconception – Paniagua et al. (1994)	43. One can get AIDS by touching/ being near a person with AIDS	0.67	0.52
Misconception – Paniagua et al. (1994)	37. You can get AIDS from sharing knives and forks with an infected person	0.61	0.48
Original item from Reekie (1997)	30. I have heard about condoms but I am not sure what they are or what they do	0.60	*
Attitude to people with AIDS - Paniagua et al. (1994)	21. People with AIDS should be separated/ isolated for the safety of others	0.60	0.58
Susceptibility - Paniagua et al. (1994)	*17. Only people from Kwa-Zulu Natal or Zimbabwe/ Zambia should worry about AIDS	0.56	0.51
Peer Group Norm perception – Mathews et al. (1990)	8. At my age it is embarrassing to be a virgin	0.52	0.42
Susceptibility - Paniagua et al. (1994)	*14. I do not have to worry about getting AIDS	0.51	*
Susceptibility - Paniagua et al. (1994)	*13. AIDS is a disease that people in my community do not need to worry about	0.43	*
Attitudes to AIDS - Reekie (1997)	23. I feel anxious / uneasy when I hear the facts about AIDS	0.40	*
Susceptibility - Paniagua et al. (1994)	*16. AIDS is only a problem for homosexuals and drug addicts	0.44	0.42
Peer group norm / self efficacy - Scott (2006)	54. If I ask my partner if we can use a condom during sex, he/she will be insulted	0.35	*

*(These items also load saliently on factor 4 in the rotated factor pattern)

The questions were based on items used ten years ago when the terminology for AIDS was not linked as strongly with HIV. Consequently the questions only refer to AIDS and not HIV. The scoring of these items was such that a high score on the scale would indicate that the person had a sense of vulnerability to AIDS that was appropriate to

basic knowledge of transmission. It indicated a realistic perception that the learner (like everyone else) was not invulnerable to the disease. If a person scored poorly on items in this subscale, the probable reason would be that they had misconceptions of how the disease is spread and/or exhibited a fear response in relation to these misconceptions. Therefore it seemed that items loading on Factor 1 were related to the 'Personal Vulnerability' construct in the SCT model of the control of HIV infection.

The Cronbach coefficient alpha reflected a good internal reliability (Raw $\alpha = 0.85$; Standardized $\alpha = 0.85$). It is significant to note that 7 out of 12 the questions that loaded saliently on Factor 1 ten years ago *also* loaded saliently on Factor 1 in the current study in both the rotated and unrotated versions of the factor analysis. The seven common items to both studies gives further evidence of a genuine factor underlying these items. It also suggests that these are the key questions to interpreting this factor.

SUBSCALE 1B:

Personal vulnerability to HIV/AIDS related to 'othering' of the disease

The items loading saliently on Factor 4 appear to tap exclusively into the construct of personal vulnerability to HIV/AIDS. These items appear to be related to denial of vulnerability to the disease through 'othering' of the disease. Table 8 (on the next page) shows the items making up Subscale 1b.

TABLE 8: QUESTIONS FORMING SUBSCALE 1B DERIVED FROM FACTOR 4

Personal vulnerability to HIV/AIDS related to othering of the disease ***Cronbach Coefficient Alpha:*** ***Raw = 0.71*** ***Standardized = 0.72***			
Original category and Source of item	**Question / Item**	**Factor 4: Rotated**	**Factor 1: Rotated**
Susceptibility- Paniagua et al. (1994)	15. I am not the kind of person who is likely to get AIDS	0.68	0.11
Susceptibility- Paniagua et al. (1994)	16. AIDS is only a problem for homosexuals and drug addicts	0.53	0.44
Susceptibility Modified item based on- Paniagua et al. (1994)	17. Only people from Kwa-Zulu Natal or Zimbabwe/ Zambia should worry about AIDS	0.50	0.56
Susceptibility- Paniagua et al. (1994)	14. I do not have to worry about getting AIDS	0.42	0.51
Susceptibility- Paniagua et al. (1994)	13. AIDS is a disease that people in my community do not need to worry about	0.39	0.43

It appears that there is a link between Factor 1 and Factor 4 because four items that had a salient loading on Factor 1 also had a salient loading on Factor 4. Wulfert and Wan (1993) showed a strong link between knowledge of HIV/AIDS and perceived vulnerability. This research has also shown a link between these constructs in that Factor 1 is personal vulnerability related to knowledge of transmission.

SUBSCALE 1C

Factual knowledge / misconceptions

The questions that loaded on Factor 1 in 1997 were also subjected to analysis in order to compare the findings from ten years ago with the current findings. The Cronbach alpha for these items yielded a sufficient coefficient to be considered in further analysis as a dependent variable ($\alpha = 0.75$). This was possibly because of the seven common questions that loaded on Factor 1 in both studies. Table 9 shows the questions forming Subscale 1c.

TABLE 9: QUESTIONS FOR SUBSCALE 1C: DERIVED FROM FACTOR 1 TEN YEARS AGO

Factual knowledge / misconceptions ***Cronbach Coefficient Alpha using results in this study:*** ***Raw = 0.75*** ***Standardized = 0.75***
Items in questionnaire
A person can get AIDS by having **unprotected*** sexual intercourse
At the present time there is no known cure for AIDS
You can get AIDS from sharing knives and forks with an infected person
Using a condom during sex can lower the risk of getting AIDS
One can get AIDS by touching/being near a person with AIDS
I can avoid getting AIDS by exercising regularly
AIDS can be cured if treated early
People with AIDS should be separated / isolated for the safety of others
I would be scared to have a person with AIDS in my school
AIDS is only a problem for homosexuals and drug addicts
Only people from Kwa-Zulu Natal or Zimbabwe / Zambia should worry about AIDS
At my age it is embarrassing to be a virgin

*(Note that the word "unprotected" was added by the researcher and was not included in this item ten years ago).

In 1997, this subscale was called 'factual knowledge /misconceptions' and it shall be discussed in this frame of reference in this report. However, it is hypothesised that the items in Subscale 1c used ten years ago are in fact tapping into a personal vulnerability construct related to knowledge of HIV transmission rather than exclusively knowledge/misconceptions of HIV/AIDS. In terms of the SCT model, however, this scale would tap into the knowledge component.

SUBSCALE 2

Intention to use and negotiate the use of condoms

Subscale 2 measures intention to use and/or negotiate the use of condoms. Table 10 shows the items making up this subscale, their source and the factor loadings. Questions 19, 25 and 2 loaded saliently on Factor 2 for both the unrotated and rotated

versions of the factor analyses. These items also loaded saliently on Factor 2 ten years ago indicating that they are key questions in interpreting this factor.

TABLE 10: QUESTIONS FORMING SUBSCALE 2 DERIVED FROM FACTOR 2

Intention to use and/or negotiate the use of condoms ***Cronbach Coefficient Alpha*** ***Raw =0.62*** ***Standardised = 0.66***			
Original construct and source of item	**Question/Item**	**Rotated Factor 2**	**Factor 2 loadings 10 years ago**
Neutral Attitude to AIDS- Paniagua et al. (1994)	19. It is very important to use a condom every time you have sex	0.73	0.4
Intention- Mathews et al. (1990)	25. I intend to use a condom every time I have sex	0.72	0.49
Self efficacy- Paniagua et al. (1994)	2. I am able/ would be able to ask my sex- partner to use a condom.	0.56	0.55
Condom knowledge / experience- Reekie (1997)	28. I know where to get condoms if I need to	0.43	*
Self efficacy- Paniagua et al. (1994)	4. I feel confident that I am able to protect myself from being infected with the AIDS virus.	0.34	*
Attitude AIDS- Paniagua et al. (1994)	26. The only time I will have sex without a condom is if my sex partner has had the AIDS test and it shows that they do not have the AIDS virus	0.34	*
Factual Knowledge- Paniagua et al. (1994)	39. Using a condom during sex can lower the risk of getting AIDS	0.3	*

It appears that Subscale 2 taps into the 'Development of social and self-regulatory skills' component of SCT in the control over HIV infection as defined by Bandura (1990; 1994). The intended use and negotiation of the use of condoms is one of the social and self-regulatory skills needed for preventing HIV infection.

The internal reliability of this subscale was adequate, but it was at a borderline cut off point for internal reliability (Raw α =0.62 and Standardised α =0.66).

The items loading with a salient loading on Factor 2 using the unrotated extraction method included Question 11 and Question 12 which appeared to tap into the

construct of social group norms for the use of condoms. These two items also loaded on Factor 2 ten years ago. However, these two items loaded onto a separate factor of their own (Factor 6) in the rotated version of the factor analysis.

INDICATOR VARIABLE 6 (FACTOR 6)

Perceptions of peer group norms with regards to the use of condoms

Factor 6 included Question 11 and Question 12 which appear to tap into perceptions of peer group norms with regards to condom use. Question 47 loaded saliently on this factor in the reverse direction. When Question 47 was reverse scored and included in the analysis, a poor internal reliability coefficient was obtained ($\alpha = 0.45$). Questions 11 and 12 had a higher internal coefficient of reliability (Cronbach alpha=0.60). The items loading on this factor were too few to be considered a psychometric scale and thus the sum of these items was considered only as an indicator variable for peer group norms / comparison with regards to condom use. Table 11 shows the items loading on Factor 6 and the factor loadings.

TABLE 11: QUESTIONS FORMING INDICATOR VARIABLE 6 DERIVED FROM FACTOR 6

Perception of peer group norms with regards to the use of condoms ***Cronbach Coefficient alpha:*** ***Raw = 0.60*** ***Standardized = 0.60***		
Original construct / Source of item	**Question / Item**	**Factor 6: Rotated**
Peer Group Norm perception Reekie (1997)	11. Most of my friends wear a condom to protect themselves from AIDS if they have sex	0.76
Peer Group Norm perception Reekie (1997)	12. Most people my age use a condom every time they have sex	0.76
Suceptibility Reekie (1997)	47. I know someone who has AIDS	-0.33

There appears to be a link between social group norms and intentions to use condoms. Wulfert and Wan (1993) found that comparison with one's peers was the only variable in their model that was directly associated with condom use above and beyond its relationship to self-efficacy.

INDICATOR VARIABLE 3

Exposure to and use of condoms

Factor 3 loaded questions regarding the use of condoms and/or exposure to condoms. This formed indicator variable 3 as there were too few items on this factor to be considered a scale. Since Question 8 loaded in the opposite direction, it suggests that the factor is related to being sexually active. This factor may be tapping into the 'Enhancement of self regulatory skills' component of SCT relating to practicing safer sex, however, this part of the model would theoretically have many aspects in the control of HIV infection including being able to say no to unwanted sex. Factor 3 only appears to tap into a subsection of Bandura's (1990; 1994) model relating to the use of condoms as a form of safer sex behaviour. Table 12 shows which items make up this indicator variable.

TABLE 12: QUESTIONS FORMING INDICATOR VARIABLE 3 DERIVED FROM FACTOR 3

Exposure to and / or use of condoms ***Cronbach Coefficient Alpha:*** ***Raw = 0.59*** ***Standardized = 0.59***			
Original construct / Source of item	**Question / Item**	**Rotated factor 3**	**Factor 3 loading ten years ago**
Condom knowledge / Experience- Matthews (1990)	27. I have used a condom before	0.67	0.72
Condom knowledge / Experience- Reekie (1997)	29. I know how to use a condom correctly	0.80	0.63
Condom knowledge / experience- Reekie (1997)	28. I know where to get condoms if I need to	0.32	*
Peer Group Norm perception - Mathews (1990)	8. At my age it is embarrassing to be a virgin	-0.37	*

When all questions loading saliently on Factor 3 were considered (including reverse scoring item 8) the internal reliability of the scale was poor (Cronbach alpha=0.4). When item 8 was excluded, the internal reliability was still poor (Chronbach alpha =0.5). The best internal reliability occurred between Questions 27 and 29. The reliability coefficient was still lower than the required 0.7 level to be considered as a reliable scale (Cronbach alpha α=0.6).

Since there were too few questions loading on this factor, this factor could not be considered as a subscale. It was considered as an exploratory indicator variable which was interpreted with caution. It is significant to note that these two questions also loaded highly on this factor ten years ago, indicating that the questions probably form part of an underlying factor that could be improved upon if more items were added to the scale.

INDICATOR VARIABLE 5

Negotiation of safer sex practices

The items loading on Factor 5 appeared to measure 'Negotiation of safer sex practices'. It appears to tap into the 'Enhancement of social and self regulatory skills' component of the SCT model for the control of HIV infection. According to Bandura (1994) experiences in exercising control over social situations serve as self-efficacy builders. Table 13 below indicates which questions formed this indicator variable.

TABLE 13: QUESTIONS FORMING INDICATOR VARIABLE 5 DERIVED FROM FACTOR 5

Negotiation of safer sex practices ***Cronbach coefficient alpha*** ***Raw: 0.41*** ***Standardised: 0.41***		
Original construct / Source of item	**Question / Item**	**Factor 5 Rotated**
Self-efficacy Scott (2006)	50. I could tell my boyfriend / girlfriend that I don't want to have sex with him / her	0.60
Self-efficacy Modified – Paniagua (1994)	49. I would refuse to have sexual intercourse without a condom.	0.58
Factual Knowledge Paniagua (1994)	38. People can reduce their chance of becoming infected with the AIDS virus by not having sexual intercourse	0.46
Self-Efficacy Paniagua (1994)	6. I am too embarrassed to buy or get condoms	-0.57

The Cronbach alpha coefficient for items in this factor excluding and including item 6 reverse scored was α=0.41, which was unsatisfactory for internal reliability. The items making up this subscale could thus not be considered as a reliable measure for negotiation of safer sex. This factor was considered as a dependent variable in the analysis as an exploratory indicator variable. Further research including more items

relating to negotiation of safer sex practices might yield a better internal reliability coefficient. According to Bandura (2006) if the reliability coefficients are low, researchers should discard or rewrite the items with low correlates and increase the number of items.

INDICATOR VARIABLE 7

Misconceptions in prevention and cure

Items loading saliently onto Factor 7 appear to be related to misconceptions about prevention and cure of HIV/AIDS. Table 14 below indicates which questions formed part of this indicator variable.

TABLE 14: QUESTIONS FORMING INDICATOR VARIABLE 7 DERIVED FROM FACTOR 7

Misconceptions in prevention and cure ***Cronbach alpha*** ***Raw = 0.39*** ***Standardised = 0.39***		
Original construct / Source of item	**Question / Item**	**Factor 5 Varimax Rotated**
Misconception Paniagua et al. (1994)	45. I can avoid getting AIDS by exercising regularly	0.62
Misconception Paniagua et al. (1994)	46. AIDS can be cured if treated early	0.60
Misconception Paniagua et al. (1994)	44. A vaccine (medicine) has been developed to treat AIDS	0.41

Items loading saliently on this factor could not be considered as a scale or indicator variable due to exceptionally poor internal reliability ($\alpha = 0.39$). Furthermore, when exploratory analysis was carried out using the sum of the items in this scale as a dependant variable, the analysis of variance was not significant and thus no further information was obtained using this factor in the analysis.

FULL INSTRUMENT AS A SCALE

The full instrument as an indication of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction

The full instrument was subjected to an internal reliability analysis due to the fact that the questions were scored in a direction of knowledge, attitudes, perceptions and

intentions conducive to AIDS risk reduction. The internal reliability of the items was good and thus the full instrument could be considered an indication of knowledge, attitudes, perceptions and intentions conducive to AIDS risk reduction in this study (Chronbach α=0.85).

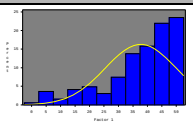
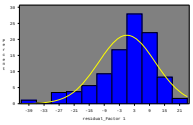
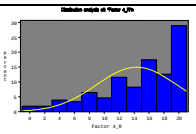
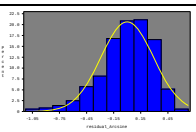
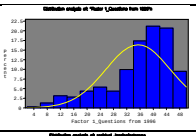
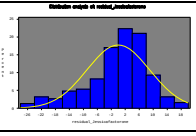
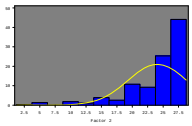
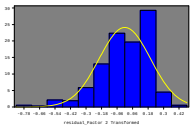
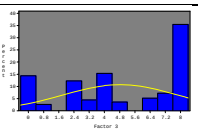
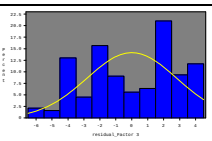
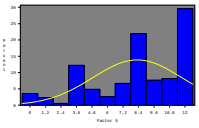
4.5 DISTRIBUTION ANALYSIS

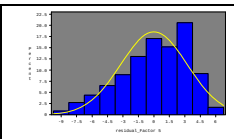
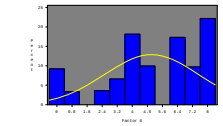
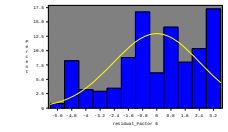
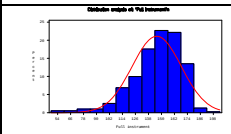
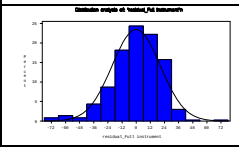
Each subscale or indicator variable mentioned in section 4.4 above, was subjected to a distribution analysis. The distributions of each subscale initially appeared to violate the assumptions of normality. However, residuals, if normally distributed indicate normality (Garson, 2008). Furthermore, Motulsky (1995) and Hopkins (2000) state that parametric tests such as ANOVA are robust to deviations from normal distributions as long as the samples are large and the residuals are normally distributed. An analysis of the residuals in this research showed that many of the distributions did in fact satisfy the conditions of a normal distribution.

When the distribution grossly violated the assumptions of normality, non parametric analysis of variance was conducted i.e. the Kruskal Wallis test. However, this did not allow for testing of interaction effects. Seeing that the main violation of normality was the skewness of the distributions, the researcher transformed the negatively skewed data using an arcsine root transformation. The arcsine root transformation corrects for a negative skew (Garson, 2008). In this transformation all values are subtracted from the highest value plus 1 and then a square root applied after which an inverse sine (arcsine) transform is applied (Garson, 2008).

Table 14 provides a brief distribution analysis of each of the subscales or indicator variables used as dependent variables in the analysis of variance.

TABLE 15: DISTRIBUTION ANALYSIS AND BRIEF DESCRIPTIVE STATISTICS FOR EACH SUBSCALE

Dependent Variable	Mean	Median	Mode	Std Dev	Histogram
Factor 1 / Subscale 1a	37.7	41.0	48.0	12.3	
Factor 1 residuals	Residuals roughly normally distributed for parametric statistics				
Factor 4 / Subscale 1b	14.3	16.0	20.0	5.3	
Factor 4 residuals arcsine transformed	Distribution of residuals initially had a negative skew. Thus applied arcsine transformation, which corrected the negative skew				
Factor 1_Questions from 1996	35.5	38.0	44.0	9.8	
Factor 1 1996 residuals	Residuals roughly normally distributed for parametric statistics				
Factor 2 / Subscale 2	24.1	25.0	28.0	4.8	
Factor 2 residuals Arcsine transformed	Distribution of residual initially had a negative skew and applied arcsine transformation which appeared to help correct the negative skew and allowed for parametric statistics to be conducted				
Factor 3	4.8	5.0	8.0	3.0	
Factor 3 residuals	Residuals not normally distributed and transformation did not appear to make the distribution normal therefore non-parametric statistics used				
Factor 5	8.3	8.0	12.0	3.5	

Factor 5 residuals	Residuals roughly normally distributed for parametric statistics				
Factor 6	5.0	5.0	8.0	2.5	
Factor 6 residuals	Residuals not normally distributed thus non-parametric statistics used				
Full instrument	145.7	149.0	151.0	22.7	
Residuals Full instrument	Normal distribution for full scale both for distribution and residuals. Therefore parametric statistics could be used				

The distributions which showed an improvement after transformation were subjected to parametric analysis and the distributions which were still grossly non-normal were subjected to the non-parametric Kruskal-Wallis test.

4.6 RESULTS FOR THE ANALYSIS OF VARIANCE (ANOVA)

The results for the analysis of variance tests are described in this section. They show the effects of the independent variables on the subscales. The results are presented according to the effects on each subscale separately. The tables describe the effects of the independent variables on the subscale.

4.6.1 DEPENDENT VARIABLE: SUBSCALE 1A

Perception of personal vulnerability to HIV/AIDS with a basic knowledge of HIV transmission

TABLE 16.1: OVERALL ANOVA FOR COMBINATIONS OF THE INDEPENDENT VARIABLES ON SUBSCALE 1A

Dependent Variable: Subscale 1a		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1a ANOVA 1	Grade, Gender, School	**F7,368 = 8.32; p<0.0001***
1a ANOVA 2	Age, Gender, School	**F30,338 =2.46; p<0.0001***
1a ANOVA 3	Sexually Active, Grade, Gender, School	**F15,360 = 4.28; p<0.0001***
1a ANOVA 4	Sexually Active, Age, Gender, School	**F51,317 = 1.96; p=0.0003***

*(F Statistic in bold indicates a significant result $\alpha = 0.01$ significance)

TABLE 16.2: EFFECT OF THE EXPOSURE TO THE PLAY (SCHOOL) ON PERCEPTION OF PERSONAL VULNERABILITY TO HIV/AIDS WITH BASIC KNOWLEDGE OF HIV TRANSMISSION

Dependent Variable: Subscale 1a		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1a ANOVA 1	Grade, Gender, School	**F1,368 = 24.13; p<0.0001***
1a ANOVA 2	Age, Gender, School	**F1,338 = 11.37; p=0.0008***
1a ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360=18.22; p<0.0001***
1a ANOVA 4	Sexually Active, Age, Gender, School	**F 1,317 = 9.34; p=0.0024***

*(F Statistic in bold indicates a significant result at $\alpha = 0.01$)

The mean score for both School A and School B was just above the midpoint for this scale indicating that the learners at both schools leaned towards a realistic perception of personal vulnerability to HIV/AIDS based on knowledge of transmission. The mean for both these groups of learners was not at the highest level on the scale,

however, which indicates that the learners may have had some misconceptions about transmission leading to a less realistic perception of personal vulnerability.

Tukey-Kramer post hoc analysis revealed that School A_Control had a significantly higher level of personal vulnerability to HIV/AIDS based on more accurate knowledge of transmission than School B, who were exposed to the play ($p<0.01$). Figure 6 shows a plot of the means for each School.

Figure 6: Plot of means for the effects of School on Subscale 1a

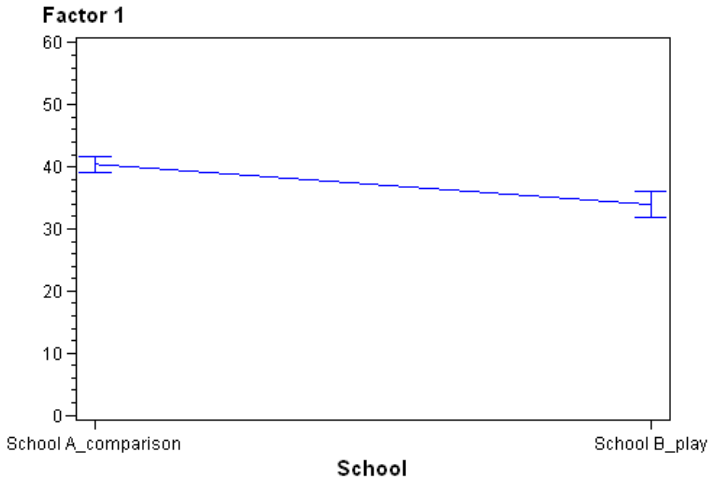


TABLE 16.3: EFFECT OF GRADE ON PERCEPTION OF PERSONAL VULNERABILITY TO HIV/AIDS WITH BASIC KNOWLEDGE OF HIV TRANSMISSION

Dependent Variable: Subscale 1a – Factor 1		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1a ANOVA 1	Grade, Gender, School	**$F_{1,368}=15.73$; $p<0.0001$***
1a ANOVA 3	Sexually Active, Grade, Gender, School	**$F_{1.360}=14.62$; $p=0.0002$***

*(F Statistic in bold indicates a significant result at $\alpha = 0.01$)

The Grade 11 learners as a combined group perceived themselves as being significantly more vulnerable to HIV based on more accurate knowledge of HIV transmission than the learners in Grade 10 as a combined group ($p<0.001$). Grade 10 learners scored in the average range on this scale and Grade 11 learners scored just

above the midpoint score for this scale. Figure 7 shows a plot of the means for each grade.

Figure 7: Plot of means for the effects of Grade on Subscale 1a

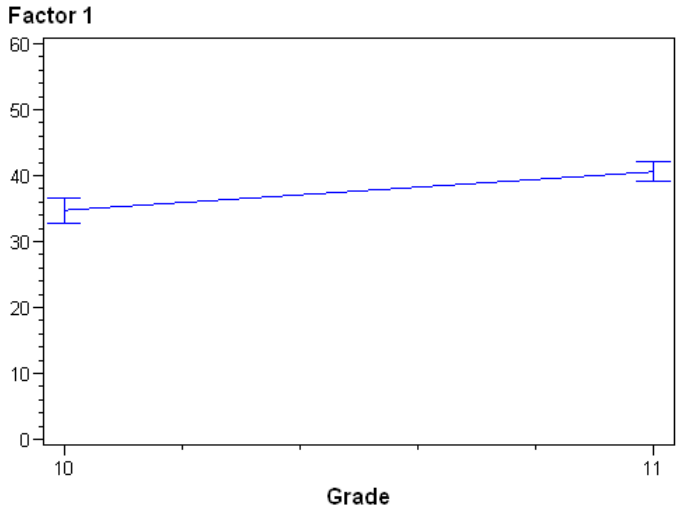


TABLE 16.4: EFFECT OF AGE ON PERCEPTION OF PERSONAL VULNERABILITY TO HIV/AIDS WITH BASIC KNOWLEDGE OF HIV TRANSMISSION

Dependent Variable: Subscale 1a		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1a ANOVA 2	Age, Gender, School	F8,338 = 1.20; p=0.2964
1a ANOVA 4	Age, Gender, School, Sexually active	F8,317 = 1.84 p=0.0689

*(F Statistic in bold indicates a significant result at $\alpha = 0.01$)

The mean scores for the learners analysed in their respective age groups were just above the midpoint for this subscale. The mean scores for the various age groups in the sample did not differ significantly from each other. The learners in the age groups 14, 20, 21 and 22 years of age were quite small in comparison to the other age group sizes. The researcher included and excluded these outlying age groups in the analysis and no differences in the results were found. However, due to the small sample in the outlying age groups, it would be safer to consider the result more accurate for the age range 15 to 19 years of age. Figure 8 shows a plot of the means for each age group.

Figure 8: Plot of means for the effect of Age on Subscale 1a

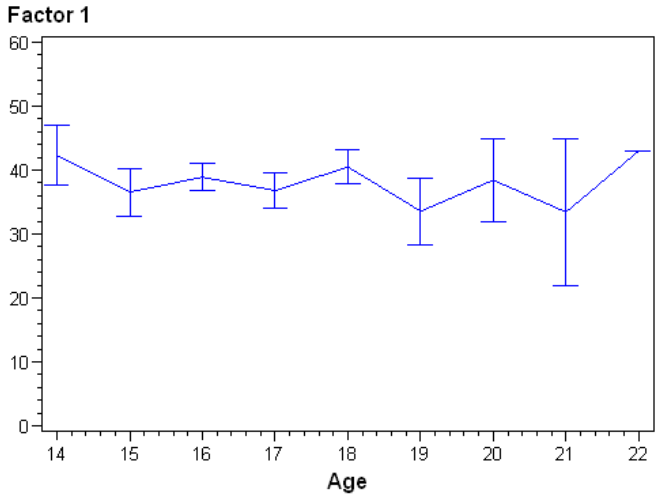


TABLE 16.5: EFFECT OF GENDER ON PERCEPTION OF PERSONAL VULNERABILITY TO HIV/AIDS WITH BASIC KNOWLEDGE OF HIV TRANSMISSION

Dependent Variable: Subscale 1a		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1a ANOVA 1	Grade, Gender, School	F1,368=5.98 p=0.0150
1a ANOVA 2	Age, Gender, School	F1,338 = 3.60; p=0.0586
1a ANOVA 3	Sexually Active, Grade, Gender, School	F1,360=3.28 p=0.0709
1a ANOVA 4	Sexually Active, Age, Gender, School	F1,317 =5.56 p=0.0190

*(F Statistic in bold indicates a significant result at α=0.01)

Male and female learners in the sample scored just above the midpoint on the scale. Although the females in the study appeared to score slightly higher on the scale than the males, the gender of the learner yielded an insignificant main effect on responses to the questionnaire. In other words, whether the learner was male or female did not appear to impact significantly on the responses to perceived vulnerability related to a basic knowledge of HIV transmission. Figure 9 shows a plot of the means for males and females.

Figure 9: Plot of means for the effect of Gender on subscale 1a

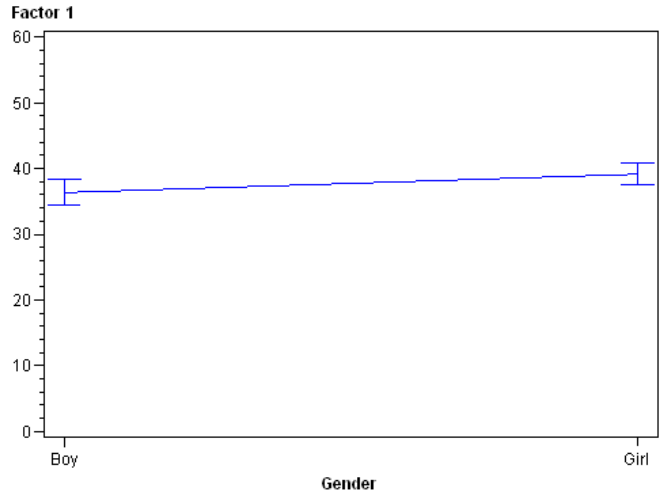


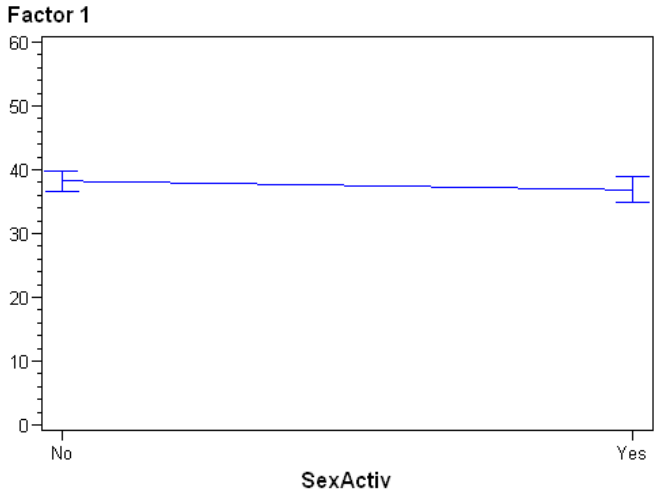
TABLE 16.6 EFFECT OF REPORTED SEXUAL ACTIVITY ON PERCEPTION OF PERSONAL VULNERABILITY TO HIV/AIDS WITH BASIC KNOWLEDGE OF HIV TRANSMISSION

Dependent Variable: Subscale 1a		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1a ANOVA 3	Sexually Active, Grade, Gender, School	F1,360=0.42 p=0.5175
1a ANOVA 4	Sexually Active, Age, Gender, School	F1, 317 = 2.41 p=0.1215

*(F Statistic in bold indicates a significant result at α=0.01)

Both the groups of learners who indicated that they were sexually active and the learners who indicated that they were not sexually active had a mean score just above the midpoint of the scale. Learners who indicated that they were not sexually active did not differ from those who indicated that they were sexually active in their responses to perceived vulnerability to HIV/AIDS related to basic knowledge of transmission of HIV/AIDS. Figure 10 shows the plot of means for the group of learners who indicated that they were sexually active and the group of learners who indicated that they were not sexually active.

Figure 10: Plot of means for the effect of 'Sexually active' on Subscale 1a



MODERATING EFFECTS

There were no interactive or moderating effects (as defined by Baron and Kenney, 1986) for each of the independent variables on the responses to Subscale 1a.

4.6.2 DEPENDENT VARIABLE: SUBSCALE 1B

Personal vulnerability to HIV/AIDS related to 'othering' of the disease

TABLE 17.1: OVERALL ANOVA FOR COMBINATIONS OF THE INDEPENDENT VARIABLES ON SUBSCALE 1B

Dependent Variable: Subscale 1b (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1b ANOVA 1	Grade, Gender, School	**F7,368 = 44.44; p<0.001***
1b ANOVA 2	Age, Gender, School	**F30,338 = 1.77; p=0.0092***
1b ANOVA 3	Sexually Active, Grade, Gender, School	**F15,360 = 2.42; p=0.0024***
1b ANOVA 4	Sexually Active, Age, Gender, School	F51,317 = 1.52; p=0.0176

*(F Statistic in bold indicates a significant result at α=0.01)

TABLE 17.2: EFFECT OF EXPOSURE TO THE PLAY (SCHOOL) ON PERSONAL VULNERABILITY TO HIV/AIDS RELATED TO OTHERING OF THE DISEASE

Dependent Variable: Subscale 1b (Arcsine-root transformed data)		
ANOVA Label	Independent Variable Combination	F Statistic
1b ANOVA 1	Grade, Gender, School	**F1,368 = 12.73; p=0.0004***
1b ANOVA 2	Age, Gender, School	**F1,338 = 10.05; p=0.0017***
1b ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360 = 7.62; p=0.0061***

*(F Statistic in bold indicates a significant result at α=0.01)

The mean scores for learners in both School A and School B were above the midpoint for this scale. However, learners in School A, the control school scored significantly higher on this scale than learners in School B ($p<0.01$) indicating that they were more likely to perceive themselves and their community as being vulnerable to HIV/AIDS without othering the disease. Figure 11 shows a plot of the means for each School.

Figure 11: Plot of means for the effect of exposure to the play (school) on Subscale 1b

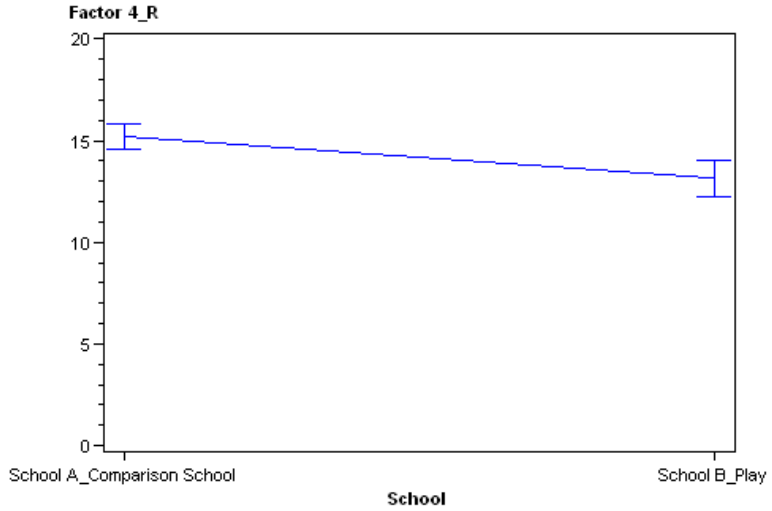


TABLE 17.3: EFFECT OF GRADE ON PERSONAL VULNERABILITY TO HIV/AIDS RELATED TO OTHERING OF THE DISEASE

Dependent Variable: Subscale 1b (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1b ANOVA 1	Grade, Gender, School	**$F_{1,368} = 9.97$; $p = 0.0017$***
1b ANOVA 3	Sexually Active, Grade, Gender, School	$F_{1,360} = 4.90$; $p = 0.0276$

*(F Statistic in bold indicates a significant result at $\alpha = 0.01$)

Both Grade 10 and Grade 11 learners had a mean score above the midpoint for this scale. Grade yielded a significant main effect on Subscale 1b when Grade, Gender and School were considered in the analysis. However, when the variable 'Sexually Active' was considered in the analysis, the result became insignificant. This might have occurred due to the effect of the four-way analysis of variance or it might be because the main effect of Grade was not very strong.

Tukey-Kramer post hoc analysis for the significant results indicated that the Grade 11 learners were more likely to perceive themselves and their community as being vulnerable to HIV/AIDS by not othering the disease ($p<0.01$). Figure 12 shows a plot of the means for each Grade.

Figure 12: Plot of means for the effect of Grade on Subscale 1b

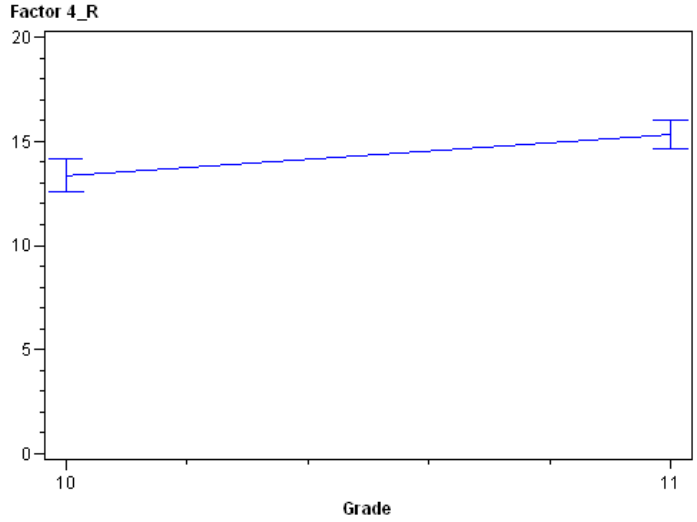


TABLE 17.4: EFFECT OF AGE ON PERSONAL VULNERABILITY TO HIV/AIDS RELATED TO OTHERING OF THE DISEASE

Dependent Variable: Subscale 1b (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1b ANOVA 2	Age, Gender, School	F8,338 = 0.55; p=0.8158

*(F Statistic in bold indicates a significant result at α =0.01)

All age groups considered in the analysis scored above the midpoint of this subscale. However, there were no differences in the age groups on the responses to this subscale. Figure 13 shows the effect of age on subscale 1b

Figure 13: Plot of means for the effect of age on Subscale 1b

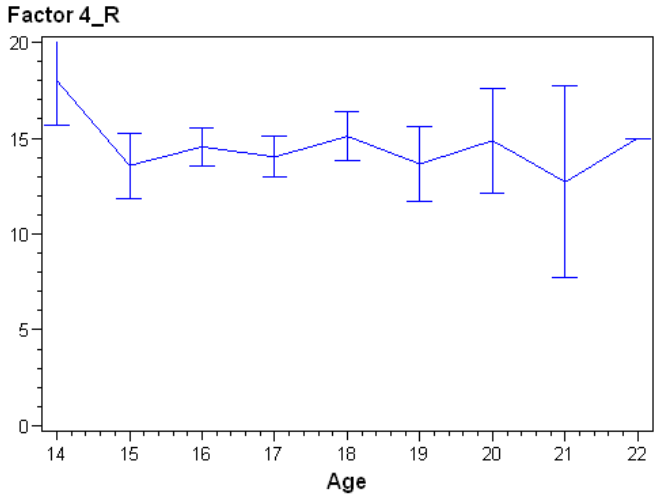


TABLE 17.5: EFFECT OF GENDER ON PERSONAL VULNERABILITY TO HIV/AIDS RELATED TO OTHERING OF THE DISEASE

Dependent Variable: Subscale 1b (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1b ANOVA 1	Grade, Gender, School	F1,368 = 0.44; p=0.5057
1b ANOVA 2	Age, Gender, School	F1,338 = 1.52; p=0.2188
1b ANOVA 3	Sexually Active, Grade, Gender, School	F1,360 = 1.41; p = 0.2355

*(F Statistic in bold indicates a significant result at α =0.01)

Both males and females obtained a mean score above the midpoint of the scale. There were no differences between males and females in their perceptions of personal vulnerability related to othering of the disease. Figure 14 shows the plot of means.

Figure 14: Plot of means for the effect of Gender on Subscale 1b

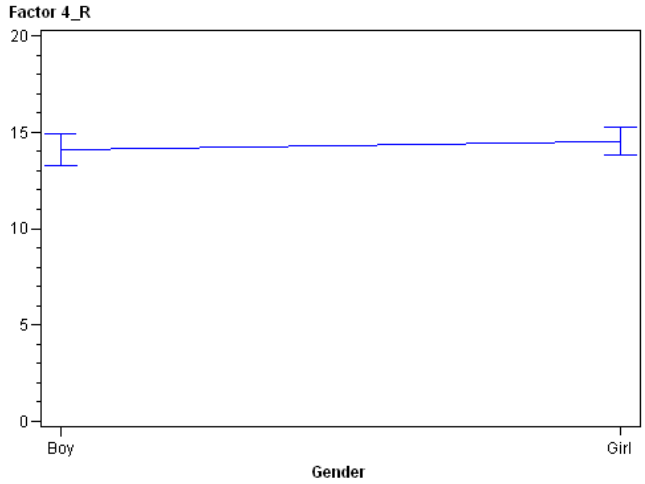


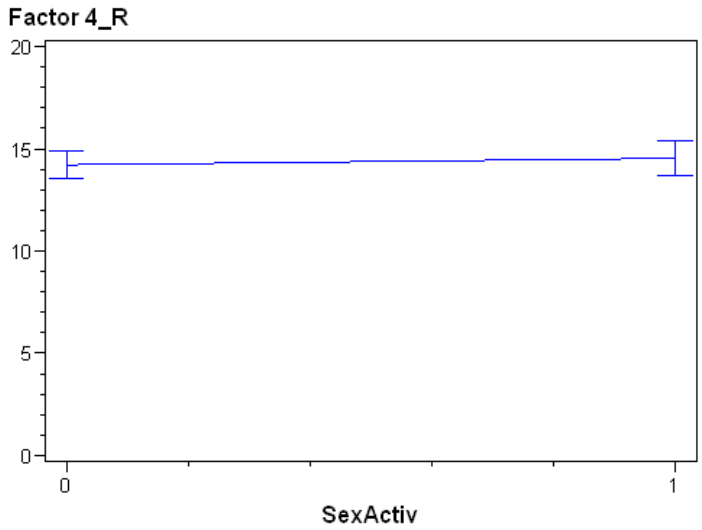
TABLE 17.6: EFFECT OF REPORTED SEXUAL ACTIVITY ON PERSONAL VULNERABILITY TO HIV/AIDS RELATED TO 'OTHERING' OF THE DISEASE

Dependent Variable: Subscale 1b (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1b ANOVA 3	Sexually Active, Grade, Gender, School	F1,360 = 1.24; p=0.2664

*(F Statistic in bold indicates a significant result at α=0.01)

There was no significant difference between learners who indicated that they were sexually active and those that indicated that they were not sexually active in perceptions of personal vulnerability to HIV related to othering of the disease. Figure 15 shows the plot of means.

Figure 15: Plot of means for the effect of the variable 'Sexually Active' on Subscale 1b



MODERATING EFFECTS

There were no interactive or moderating effects (as defined by Baron and Kenny, 1986) of each of the independent variables with each other on Subscale 1b.

4.6.3 DEPENDENT VARIABLE: SUBSCALE 1C

Factual knowledge /misconceptions

TABLE 18.1: OVERALL ANOVA FOR COMBINATIONS OF THE INDEPENDENT VARIABLES

Dependent Variable: Subscale 1c		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1c ANOVA 1	Grade, Gender, School	**F 7,368 = 8.12; p<0.0001***
1c ANOVA 2	Age, Gender, School	**F30,338 = 2.50; p<0.0001***
1c ANOVA 3	Sexually Active, Grade, Gender, School	**F15,360 = 4.14; p<0.0001***
1c ANOVA 4	Sexually Active, Age, Gender, School	**F51,317 = 2.12; p<0.0001***

*(F Statistic in bold indicates a significant result at α=0.01)

TABLE 18.2: EFFECT OF EXPOSURE TO THE PLAY (SCHOOL) ON FACTUAL KNOWLEDGE / MISCONCEPTIONS OF HIV/AIDS

Dependent Variable: Subscale 1c		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1c ANOVA 1	Grade, Gender, School	**F1,368 = 24.20; p<0.0001***
1c ANOVA 2	Age, Gender, School	**F1,338=9.94; p=0.0018***
1c ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360 = 17.00; p<0.0001***
1c ANOVA 4	Sexually Active, Age, Gender, School	**F1,317=8.19; p=0.0045***

*(F Statistic in bold indicates a significant result α=0.01)

The learners in both School A and School B had a mean score above the midpoint score for the scale indicating that most of the learners knew the basic facts about HIV transmission. However, learners at School A, the control school were more knowledgeable with less misconceptions about HIV/AIDS than learners at School B ($p<0.01$). Figure 16 shows the plot of the means of each of the schools for this subscale.

Figure 16: Plot of means for the effects of School on Subscale 1c

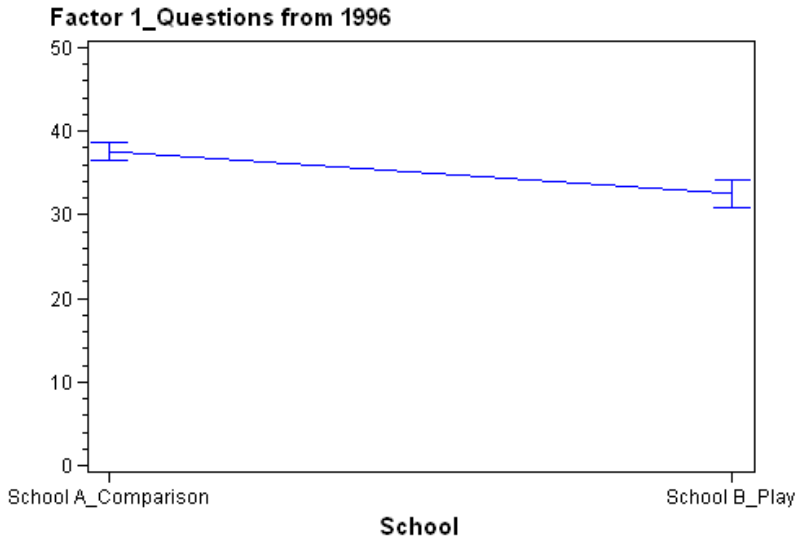


TABLE 18.3: EFFECT OF GRADE ON FACTUAL KNOWLEDGE / MISCONCEPTIONS OF HIV/AIDS

Dependent Variable: Subscale 1c		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1c ANOVA 1	Grade, Gender, School	**F1,368 = 14.95; p=0.0001***
1c ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360 = 14.55; p=0.0002***

*(F Statistic in bold indicates a significant result at alpha=0.01)

Learners in Grade 10 and Grade 11 had a level of knowledge of HIV/AIDS above the midpoint score on the scale measuring factual knowledge and misconceptions. However, learners in Grade 11 as a combined group had higher levels of factual knowledge / less misconceptions about HIV/AIDS than the Grade 10 learners ($p<0.001$). Figure 17 shows the plot of means for each grade.

Figure 17: Plot of means for the effect of Grade on Subscale 1c

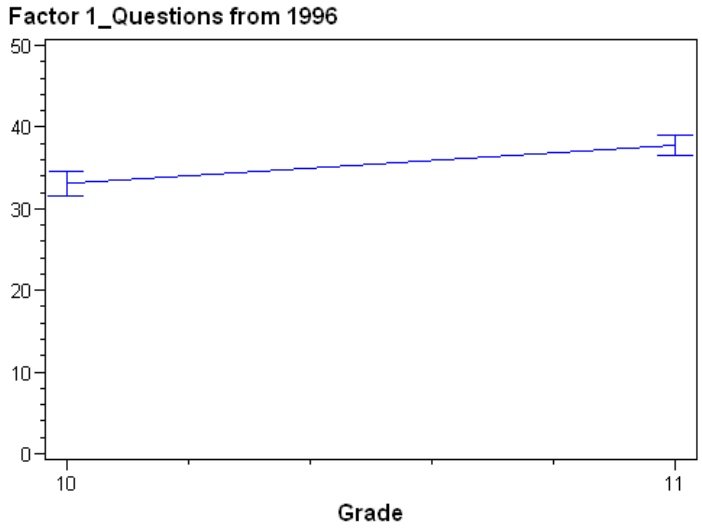


TABLE 18.4: EFFECT OF AGE ON FACTUAL KNOWLEDGE / MISCONCEPTIONS OF HIV/AIDS

Dependent Variable: Subscale 1c		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1c ANOVA 2	Age, Gender, School	F8,338 = 1.71; p=0.0953
1c ANOVA 4	Sexually Active, Age, Gender, School	F8,317 = 2.22; p=0.0261

*(F Statistic in bold indicates a significant result at α=0.01)

Although all the age groups considered in the analysis scored in the average or just above average range of the scale, there were no significant differences between the age groups considered in this analysis. This result occurred when including outlying age groups (14, 20, 21 and 22 year old learners) and excluding these age groups. Figure 18 shows the plot of means for each age group considered in the analysis.

Figure 18: Plot of means for the effect of Age on Subscale 1c

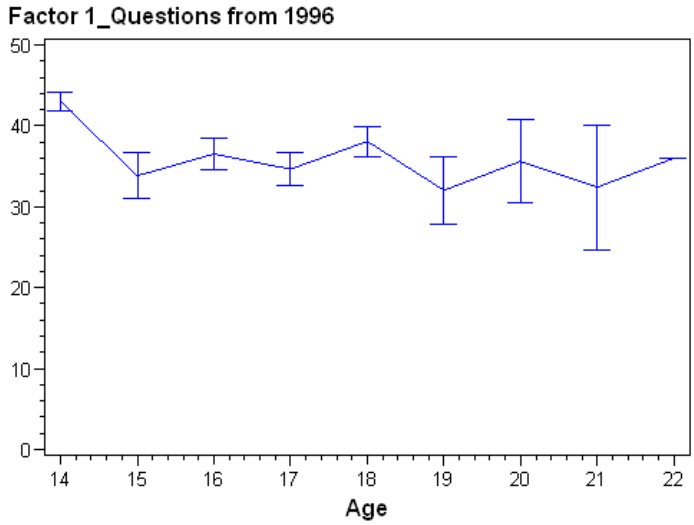


TABLE 18.5: EFFECT OF GENDER ON FACTUAL KNOWLEDGE / MISCONCEPTIONS OF HIV/AIDS

Dependent Variable: Subscale 1c		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1c ANOVA 1	Grade, Gender, School	**F 1,368 = 10.65; p=0.0012***
1c ANOVA 2	Age, Gender, School	F1,338 = 2.74; p=0.0986
1c ANOVA 3	Sexually Active, Grade, Gender, School	F1,360 = 4.70; p=0.0309
1c ANOVA 4	Sexually Active, Age, Gender, School	F1,317 = 6.12; p=0.0139

*(F Statistic in bold indicates a significant result at α =0.01)

Both the males and females in the study scored just above the midpoint on the scale. Gender yielded a significant main effect on Subscale 1c measuring factual knowledge / misconceptions only when Gender, School and Grade were included in the analysis ($p<0.01$). Females as a combined group appeared to have somewhat more knowledge of HIV and less misconceptions of the transmission of HIV than the males as a combined group However, when the variables 'age' and 'sexually active' were considered the effect became insignificant. The effect of gender thus appeared to have

an effect; however, this appeared to be a weak effect. Figure 19 shows the plot of means for gender on Subscale 1c.

Figure 19: Plot of means for the effect of Gender on Subscale 1c

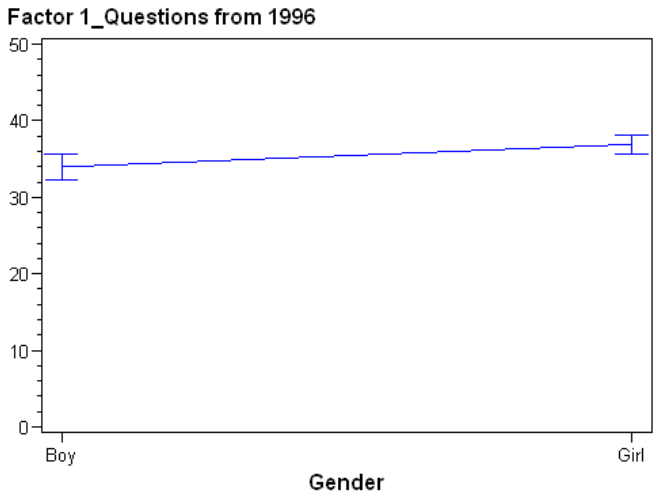


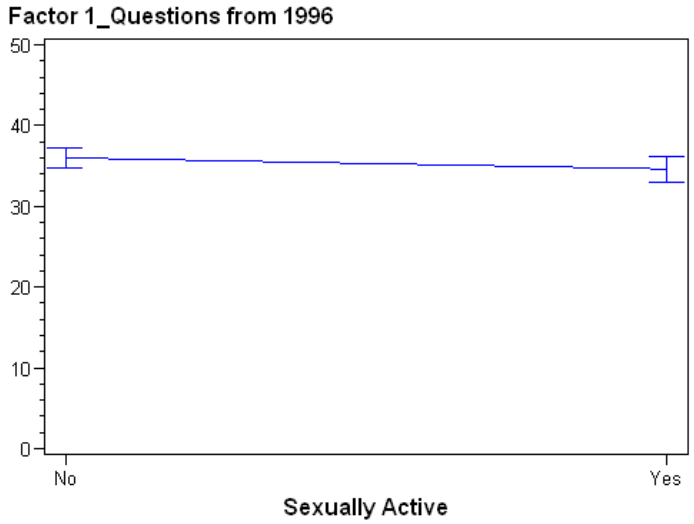
TABLE 18.6: EFFECT OF REPORTED SEXUAL ACTIVITY ON FACTUAL KNOWLEDGE / MISCONCEPTIONS OF HIV/AIDS

Dependent Variable: Subscale 1c		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
1c ANOVA 3	Sexually Active, Grade, Gender, School	F1,360 = 0.74; p=0.3914
1c ANOVA 4	Sexually Active, Age, Gender, School	F1,317 = 3.67; p=0.0563

*(F Statistic in bold indicates a significant result at α=0.01)

Learners who indicated that they were sexually active had the same levels of knowledge as those who indicated that they were not sexually active. Figure 20 shows the plot of means for this effect.

Figure 20: Plot of means for the effect of 'Sexually Active' on Subscale 1c



F) MODERATING EFFECTS

There were no significant moderating effects of any of the independent variables with each other.

4.6.4 DEPENDENT VARIABLE: SUBSCALE 2

Intention to use and negotiate use of condoms

TABLE 19.1: OVERALL ANOVA FOR COMBINATIONS OF THE INDEPENDENT VARIABLES

Dependent Variable: Subscale 2 (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
2a ANOVA 1	Grade, Gender, School	**F7,368 = 3.80; p=0.0005***
2a ANOVA 2	Age, Gender, School	F30,338 = 1.42; p=0.0754
2a ANOVA 3	Sexually Active, Grade, Gender, School	**F15,360=2.59; p=0.0011***
2a ANOVA 4	Sexually Active, Age, Gender, School	F51,317 = 1.22; p=0.1575

*(F Statistic in bold indicates a significant result at α=0.01)

Significant results occurred only when the variable Grade and not Age were included in the analysis. It was noted that the size of the effect when including Grade as an independent variable was not very big. According to Rosenthal and Rosnow (1991) the calculation for effect size is $r^2/1- r^2$. This equalled to 0.07 for ANOVA 1 and 0.11 for ANOVA 3 (Please see appendix 6 for R-squared values). Most learners in the sample scored highly on this subscale accounting for the negative skew in the distribution.

TABLE 19.2: EFFECT OF EXPOSURE TO THE PLAY (SCHOOL) ON INTENTION TO USE AND NEGOTIATE USE OF CONDOMS

Dependent Variable: Subscale 2 (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
2a ANOVA 1	Grade, Gender, School	**F1,368 = 13.92; p=0.0002***
2a ANOVA 2	Age, Gender, School	Overall AVOVA was not significant
2a ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360=10.60; p=0.0012***
2a ANOVA 4	Sexually Active, Age, Gender, School	Overall ANOVA was not significant

*(F Statistic in bold indicates a significant result at α=0.01)

The group of learners attending School A and the learners attending School B scored significantly above the midpoint of this scale indicating high levels of intentions to use condoms in both groups. However, School A, the control group had a mean score significantly higher than School B ($p<0.01$). In other words learners attending School A_Control had higher intentions to use/negotiate the use of condoms than learners attending School B_Play. Figure 21 shows the plot of means for this effect.

Figure 21: Plot of means for the effect of exposure to the play (school) on Subscale 2

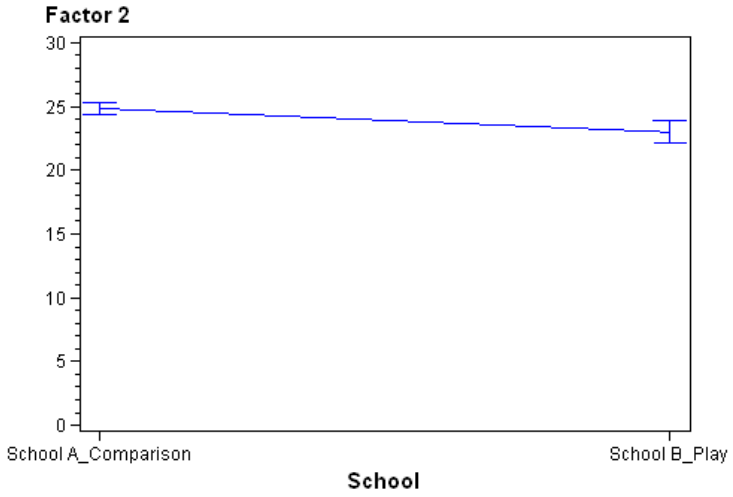


TABLE 19.3 EFFECT OF GRADE ON INTENTION TO USE / NEGOTIATE USE OF CONDOMS

Dependent Variable: Subscale 2 (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
2a ANOVA 1	Grade, Gender, School	**F1,368=7.00; p=0.0085***
2a ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360 = 8.01; p=0.0049***

*(F Statistic in bold indicates a significant result at α=0.01)

Although learners in both Grade 10 and Grade 11 expressed high intentions to use and negotiate the use of condoms, Grade 11 learners expressed higher intentions than Grade 10 learners ($p<0.01$). Figure 22 shows the effect of Grade on Subscale 2.

Figure 22: Plot of means for the effect of Grade on Subscale 2

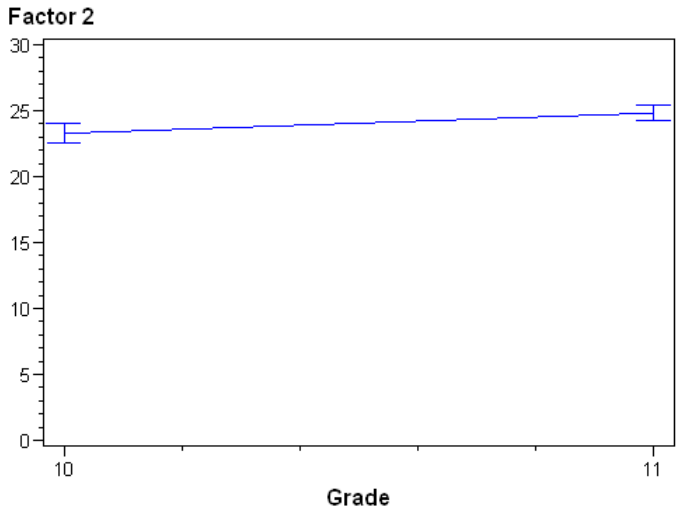


TABLE 19.4: EFFECT OF AGE ON INTENTION TO USE / NEGOTIATE USE OF CONDOMS

Dependent Variable: Subscale 2 (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
2a ANOVA 2	Age, Gender, School	Overall AVOVA was not significant
2a ANOVA 4	Sexually Active, Age, Gender, School	Overall ANOVA was not significant

*(F Statistic in bold indicates a significant result at α=0.01)

Due to the fact that the overall ANOVAs including age groups in the analysis was insignificant, differences could not be established between the age groups in the sample. Figure 23 shows a plot of means showing no differences between the age groups considered in the analysis.

Figure 23: Plot of means for the effect of Age on Subscale 2

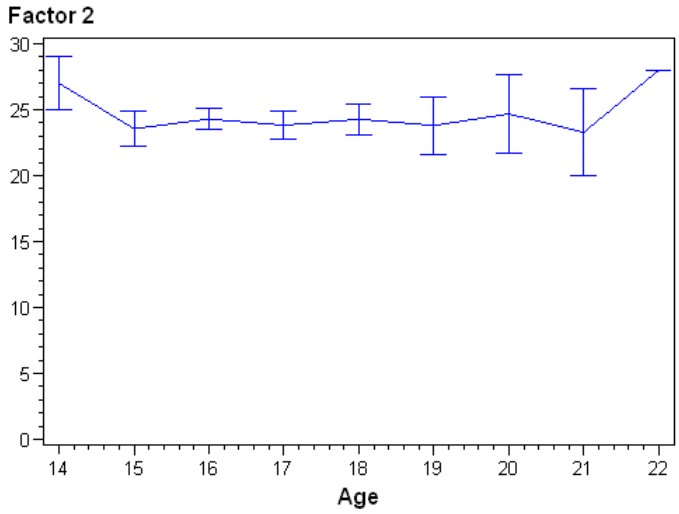


TABLE 19.5: EFFECT OF GENDER ON INTENTION TO USE AND/OR NEGOTIATE USE OF CONDOMS

Dependent Variable: Subscale 2 (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
2a ANOVA 1	Grade, Gender, School	F1,368 = 1.31; p=0.2536
2a ANOVA 2	Age, Gender, School	Overall ANOVA was not significant
2a ANOVA 3	Sexually Active, Grade, Gender, School	F1,360 = 1.26; p=0.2620
2a ANOVA 4	Sexually Active, Age, Gender, School	Overall ANOVA was not significant

*(F Statistic in bold indicates a significant result at α=0.01)

Both males and females in the sample expressed high levels intentions to use and negotiate the use of condoms. There were no significant differences between males and females in their intentions to use and/or negotiate the use of condoms. Figure 24 shows the plot of means for the effect of Gender on Subscale 2.

Figure 24: Plot of means for the effect of Gender on Subscale 2

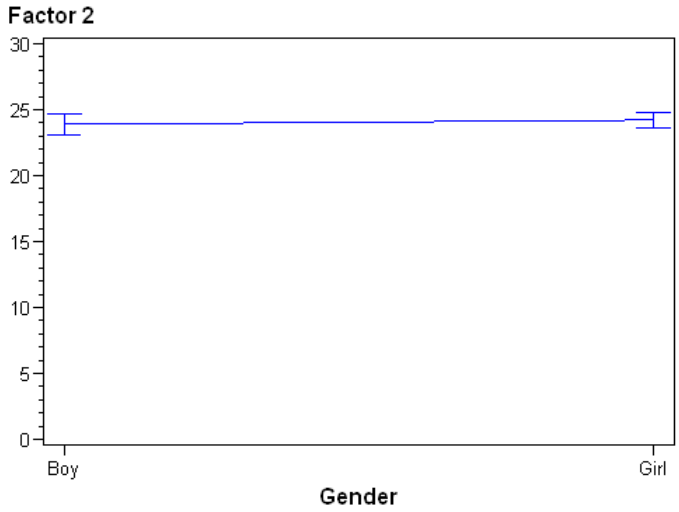


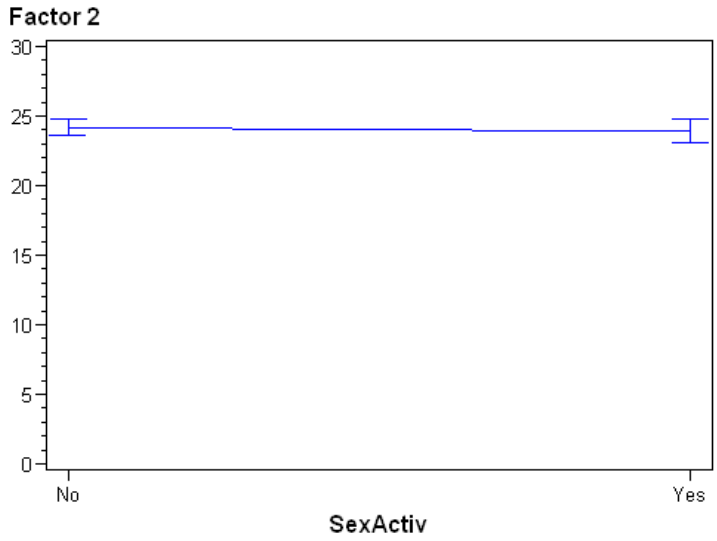
TABLE 19.6 EFFECT OF REPORTED SEXUAL ACTIVITY ON INTENTION TO USE AND NEGOTIATE USE OF CONDOMS

Dependent variable: Subscale 2 (Arcsine-root transformed data)		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
2 ANOVA 3	Sexually Active, Grade, Gender, School	F1,360 = 0.29; p=0.5884
2 ANOVA 4	Sexually Active, Age, Gender, School	F1,317 = 0.58; p=0.4481

*(F Statistic in bold indicates a significant result at α=0.01)

Both the groups of learners who indicated that they were sexually active and those who indicated that they were not sexually active indicated high levels of intentions to use and negotiate the use of condoms. There were no significant differences between these groups in intentions to use and negotiate the use of condoms. Figure 25 shows this result graphically.

Figure 25: Plot of means for the effect of 'Sexually Active' on Subscale 2



F) MODERATOR EFFECTS

There were no interactive or moderating effects (as defined by Baron and Kenny, 1986) of each of the independent variables on each other on Subscale 2.

4.6.5 DEPENDENT VARIABLE: INDICATOR VARIABLE 6

Perception of peer group norms with regard to condom use

The Non parametric Kruskal-Wallis test was used in analysis using Factor 6 as a dependent variable.

TABLE 20.1: EFFECT OF EXPOSURE TO THE PLAY (SCHOOL) ON PEER GROUP COMPARISON WITH REGARD TO CONDOM USE

Wilcoxon Scores (Rank Sums) for Variable Factor 6 Classified by Variable School					
School	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
School A_Control	227	44792.0	44605.50	1093.53723	197.321586
School B_Play	165	32236.0	32422.50	1093.53723	195.369697
Average scores were used for ties.					

The learners in both schools scored above the midpoint for this variable indicating that most learners perceived their peers to be using condoms. The non-parametric Kruskal-Wallis test revealed no significant difference between the school that was exposed to the play prior to completion of the questionnaire and the control school (Kruskal-Wallis test: χ^2 (1) = 0.03, p=0.86).

TABLE 20.2 EFFECT OF GRADE ON PERCEPTION OF PEER GROUP NORMS WITH REGARD TO CONDOM USE

Wilcoxon Scores (Rank Sums) for Variable Factor 6 Classified by Variable Grade					
Grade	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
10	195	38215.50	38317.50	1107.46266	195.976923
11	197	38812.50	38710.50	1107.46266	197.017766
Average scores were used for ties.					

There was no difference between the Grade 11 and Grade 10 groups of learners in their perceptions that their peers were using condoms (Kruskal-Wallis test: χ^2 (1) = 0.01, p=0.93).

TABLE 20.3: EFFECT OF GENDER ON PERCEPTION OF PEER GROUP NORMS WITH REGARD TO CONDOM USE

Wilcoxon Scores (Rank Sums) for Variable Factor 6 Classified by Variable Gender					
Gender	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
Girl	223	40516.0	42035.50	1021.96939	181.686099
Boy	153	30360.0	28840.50	1021.96939	198.431373
Average scores were used for ties.					

The non-parametric Kruskal-Wallis test revealed an insignificant effect of gender on Factor 6 (Kruskal-Wallis test: χ^2 (1) = 2.21, p=0.14). Both males and females appeared to indicate a similar level of perception of their peers using condoms.

TABLE 20.4: EFFECT OF AGE ON PERCEPTION OF PEER GROUP NORMS WITH REGARD TO CONDOM USE

Wilcoxon Scores (Rank Sums) for Variable Factor 6 Classified by Variable Age					
Age	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
18	60	12159.50	11340.0	764.109653	202.658333
16	116	21497.50	21924.0	964.050265	185.323276
17	99	17076.50	18711.0	919.158537	172.489899
15	49	9762.00	9261.0	702.401438	199.224490
19	26	5493.50	4914.0	529.286312	211.288462
14	3	539.50	567.0	185.586704	179.833333
20	16	3151.50	3024.0	421.079426	196.968750
21	7	1453.00	1323.0	281.968317	207.571429
22	1	120.00	189.0	107.434645	120.000000
Average scores were used for ties.					

The non-parametric Kruskal-Wallis test revealed that there were no significant differences between the age groups considered in the analysis on Factor 6 thought to tap into perception of peer group norms with regard to condom use (Kruskal-Wallis test: χ^2 (8) =5.72, p=0.68).

TABLE 20.5 EFFECT OF REPORTED SEXUAL ACTIVITY ON PERCEPTION OF PEER GROUP NORMS WITH REGARD TO CONDOM USE

Wilcoxon Scores (Rank Sums) for Variable Factor 6 Classified by Variable SexActiv					
SexActiv	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
No	235	46187.0	46177.50	1085.33155	196.540426
Yes	157	30841.0	30850.50	1085.33155	196.439490
Average scores were used for ties.					

The learners who indicated that they were sexually active did not differ from those who indicated that they were not sexually active in their perceptions about whether their peers used condoms (Kruskal-Wallis test: χ^2 (1) =0.0001, p=0.99). Both groups scored highly on this variable.

4.6.6 DEPENDENT VARIABLE: INDICATOR VARIABLE 3

Exposure to / use of condoms

The Non parametric Kruskal-Wallis test was used in analysis using Factor 3 as a dependent variable.

TABLE 21.1: EFFECT OF EXPOSURE TO THE PLAY (SCHOOL) ON EXPOSURE TO OR USE OF CONDOMS

Wilcoxon Scores (Rank Sums) for Variable Factor 3 Classified by Variable School					
School	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
School A_Control	227	43628.50	44605.50	1077.47654	192.196035
School B_Play	165	33399.50	32422.50	1077.47654	202.421212
Average scores were used for ties.					

There were no significant differences between learners in both schools in their levels of exposure to or use of condoms (Kruskal-Wallis: χ^2 (1) = 0.82; p = 0.36). At least half the learners in the sample had been exposed to or had used a condom.

TABLE 21.2 EFFECT OF GRADE ON EXPOSURE TO OR USE OF CONDOMS

Wilcoxon Scores (Rank Sums) for Variable Factor 3 Classified by Variable Grade					
Grade	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
10	195	35256.50	38317.50	1091.19744	180.802564
11	197	41771.50	38710.50	1091.19744	212.038071
Average scores were used for ties.					

The Grade 11 learners showed a significantly higher level of exposure to or use of condoms than the Grade 10 learners (Kruskal-Wallis test: χ^2 (1) = 7.87, p < 0.01).

TABLE 21.3 EFFECT OF AGE ON EXPOSURE TO OR USE OF CONDOMS

Wilcoxon Scores (Rank Sums) for Variable Factor 3 Classified by Variable Age					
Age	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
18	60	12785.50	11340.0	752.212960	213.091667
16	116	18641.50	21924.0	949.040625	160.702586
17	99	18851.00	18711.0	904.847832	190.414141
15	49	8400.50	9261.0	691.465501	171.438776
19	26	6577.00	4914.0	521.045665	252.961538
14	3	200.50	567.0	182.697239	66.833333
20	16	4169.00	3024.0	414.523491	260.562500
21	7	1318.50	1323.0	277.578252	188.357143
22	1	309.50	189.0	105.761957	309.500000
Average scores were used for ties.					

The non-parametric version of the one-way ANOVA revealed a significant main effect of Age on the use of condoms when all age groups in the sample were considered [Kruskal-Wallis test: (χ^2 (8) = 34.83, p<0.0001)]. The older learners scored higher than the younger learners. However, when outlying age groups (14, 20, 21 and 22 year old learners) were excluded the main effect of age became insignificant (χ^2 (4) = 5.24, p = 0.2631). This indicates that the differences possibly arose from the differences in the sexual activity of younger and older learners who formed part of the outlying age groups.

TABLE 21.4: EFFECT OF GENDER ON EXPOSURE TO OR USE OF CONDOMS

Wilcoxon Scores (Rank Sums) for Variable Factor 3 Classified by Variable Gender					
Gender	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
Girl	223	37544.50	42035.50	1007.34950	168.360987
Boy	153	33331.50	28840.50	1007.34950	217.852941
Average scores were used for ties.					

Males showed a higher level of exposure to or use of condoms than females did (Kruskal-Wallis test: χ^2 (1) = 19.88, p<0.0001).

TABLE 21.5: EFFECT OF REPORTED SEXUAL ACTIVITY ON EXPOSURE TO OR USE OF CONDOMS

Wilcoxon Scores (Rank Sums) for Variable Factor 3 Classified by Variable SexActiv					
SexActiv	**N**	**Sum of Scores**	**Expected Under H0**	**Std Dev Under H0**	**Mean Score**
No	235	35081.50	46177.50	1069.39138	149.282979
Yes	157	41946.50	30850.50	1069.39138	267.175159
Average scores were used for ties.					

The non-parametric version of the one-way ANOVA revealed a significant main effect of the indication of whether the learner was sexually active or not on Factor 3 [Kruskal-Wallis test: (χ^2 (1) = 107.66, $p<0.0001$)]. Those who were sexually active scored significantly higher on this variable than those who were not sexually active.

4.6.7 DEPENDENT VARIABLE: INDICATOR VARIABLE 5

Negotiation of safer sex practices

TABLE 22.1: OVERALL ANOVA FOR COMBINATIONS OF THE INDEPENDENT VARIABLES

Dependent Variable: Indicator variable 5		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
5 ANOVA 1	Grade, Gender, School	**F7,368 = 6.08; p<0.0001***
5 ANOVA 2	Age, Gender, School	**F30,338 = 1.79; p=0.0078***
5 ANOVA 3	Sexually Active, Grade, Gender, School	**F15,360 = 4.61; p<0.0001***
5 ANOVA 4	Sexually Active, Age, Gender, School	**F51,317 = 1.66; p=0.0049***

*(F Statistic in bold indicates a significant result at α=0.01)

TABLE 22.2 EFFECT OF EXPOSURE TO THE PLAY (SCHOOL) ON NEGOTIATION OF SAFER SEX PRACTICES.

Dependent Variable: Indicator variable 5		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
5 ANOVA 1	Grade, Gender, School	F1,368 = 3.28; p= 0.0710
5 ANOVA 2	Age, Gender, School	F1,338 = 0.08; p=0.7743
5 ANOVA 3	Sexually Active, Grade, Gender, School	F1,360=1.42; p=0.2336
5 ANOVA 4	Sexually Active, Age, Gender, School	F1,317 = 4.42; p=0.0363

*(F Statistic in bold indicates a significant result at α=0.01)

Learners attending School A_Control and learners in School B_Play scored above the midpoint on this scale. Although this variable had a low internal consistency, the learners appeared to have reasonably high level of belief that they could negotiate safer sex practices with a sexual partner. There was no significant difference between the schools on the items for this indicator variable. The non-parametric version of the

one-way ANOVA confirmed this insignificant effect (Kruskal-Wallis test: χ^2 (1) =2.53, p = 0.11). Figure 26 shows a plot of means for this result.

Figure 26: Plot of means for the effect of exposure to the play (school) on indicator variable 5

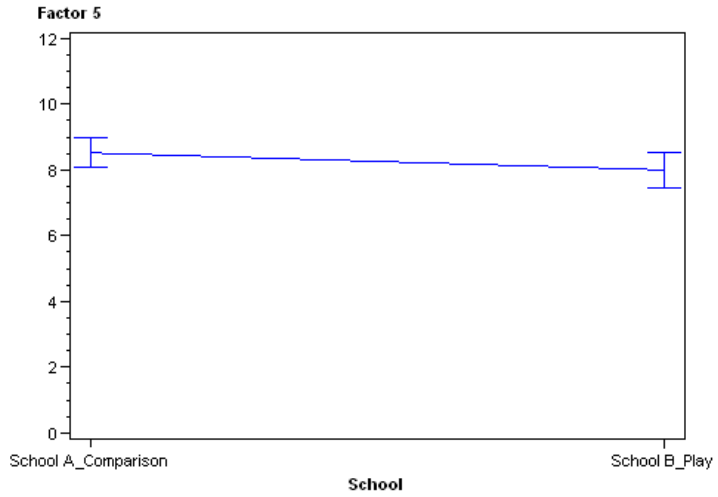


TABLE 22.3: EFFECT OF GRADE ON NEGOTIATION OF SAFER SEX PRACTICES

Dependent Variable: Indicator variable 5		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
5 ANOVA 1	Grade, Gender, School	F1,368 = 0.35; p=0.5549
5 ANOVA 3	Sexually Active, Grade, Gender, School	F1,360=0.00; p=0.9592

*(F Statistic in bold indicates a significant result at α=0.01)

The learners in both Grades obtained the same mean score on this indicator variable tapping into negotiation of safer sex practices. Grade 10 and Grade 11 learners gave an above average indication that they would be able to negotiate safer sex practices with their partners. The non-parametric version of the one-way ANOVA also confirmed an insignificant main effect of Grade on Indicator variable 5 (Kruskal-Wallis test: χ^2 (1) = 0.0774, p = 0.78). Figure 27 shows a plot of means to show this effect.

Figure 27: Plot of means for the effect of Grade on indicator variable 5

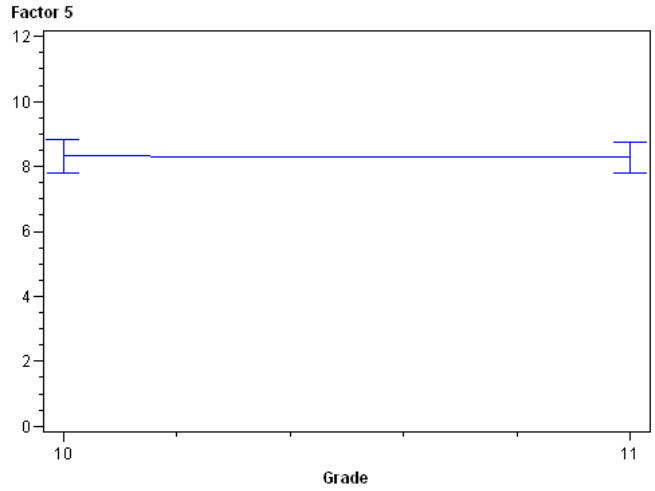


TABLE 22.4: EFFECT OF AGE ON NEGOTIATION OF SAFER SEX PRACTICES

Dependent Variable: Indicator variable 5		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
5 ANOVA 2	Age, Gender, School	F8,338 = 1.34; p=0.2241
5 ANOVA 4	Sexually Active, Age, Gender, School	F8,317 = 0.66; p=0.7269

*(F Statistic in bold indicates a significant result at α=0.01)

Although the mean scores for each age group in the analysis appeared to differ from each other, there were no significant differences between the ages in the sample on their scores for negotiation of safer sex practices.

The non-parametric version of the one-way ANOVA confirmed the insignificant main effect of Age on indicator variable 5 [Kruskal-Wallis test: χ^2 (8) = 12.74, p = 0.12].

Figure 28: Plot of means for the effect of Age on indicator variable 5

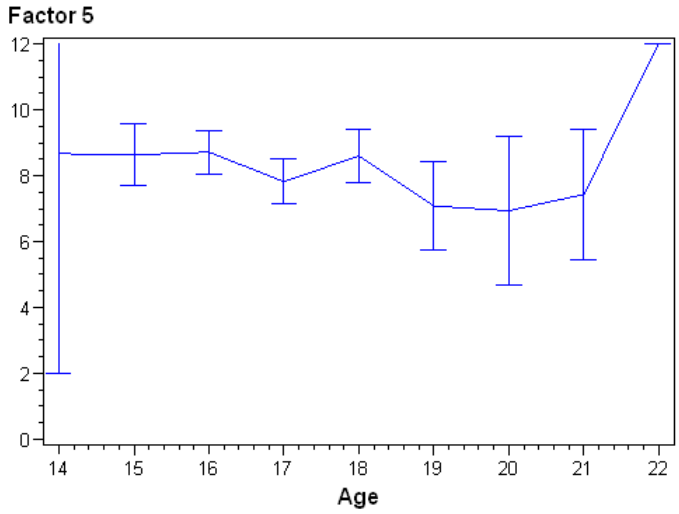


TABLE 22.5: EFFECT OF GENDER ON NEGOTIATION OF SAFER SEX BEHAVIOUR

Dependent variable: Indicator variable 5		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
5 ANOVA 1	Grade, Gender, School	**F1,368 = 25.06; p<0.0001***
5 ANOVA 2	Age, Gender, School	F1,338 = 4.98; p=0.0263
5 ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360 = 8.63; p=0.0035***
5 ANOVA 4	Sexually Active, Age, Gender, School	F1,317 = 0.29; p= 0.5890

*(F Statistic in bold indicates a significant result at α=0.01)

The parametric ANOVA using Grade and not Age revealed a significant main effect of Gender on responses to beliefs in ability to negotiate safer sex practices with females scoring higher than males on the scale ($p<0.01$). However, when ANOVAs were conducted using Age in place of Grade in the analysis the effect became insignificant. Due to the possibility of the result being affected by the group sizes using age as a variable, non-parametric analysis was also conducted. The non-parametric version of the one-way ANOVA revealed a significant main effect of Gender on indicator variable 5 [Kruskal-Wallis test: (χ^2 (1) = 21.3976, $p<0.0001$)]. Females expressed higher levels of belief in their ability to negotiate safer sex

behaviour on this scale. Figure 29 shows the plot of means for the effect of gender on indicator variable 5.

Figure 29: Plot of means for the effect of Gender on indicator variable 5

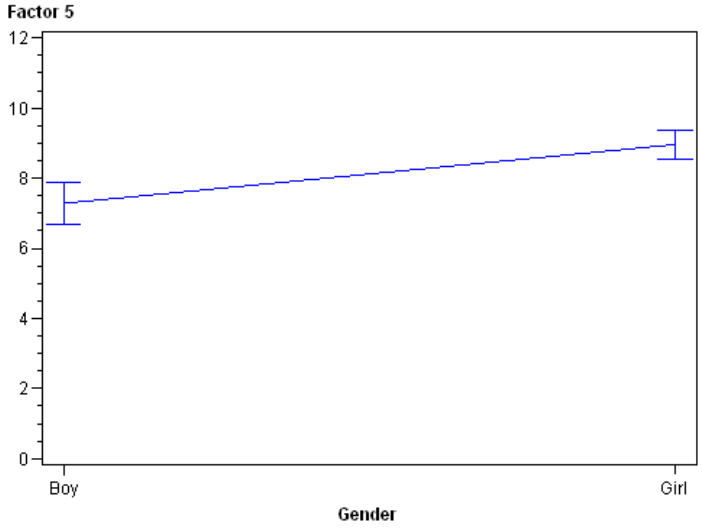


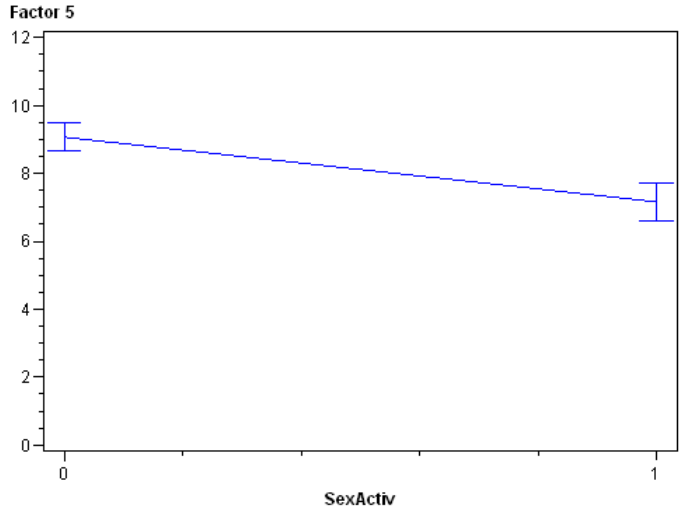
TABLE 22.6: EFFECT OF REPORTED SEXUAL ACTIVITY ON NEGOTIATION OF SAFER SEX PRACTICES

Dependent variable: Indicator variable 5		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
5 ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360=13.19; p=0.0003***
5 ANOVA 4	Sexually Active, Age, Gender, School	**F1,317=7.84; p=0.0054***

*(F Statistic in bold indicates a significant result at α=0.01)

The learners who were not sexually active scored significantly higher on this indicator variable ($p<0.01$). Non parametric analysis using this indicator variable confirmed this result [Kruskal-Wallis test: χ^2 (1) = 28.21, $p<0.0001$]. Therefore learners who indicated that they were not sexually active showed a higher level of belief that they could negotiate safer sex practices than learners who were reportedly sexually active. Figure 30 shows a plot of means for this effect.

Figure 30: Plot of means for the effect of 'Sexually Active' on indicator variable 5



F) MODERATOR EFFECTS

There was a significant interaction between School and Grade ($F_{1,360}=7.46$; $p=0.0066$), however, the Tukey Kramer adjustment for multiple comparisons revealed that none of the interactions were significant at the $\alpha = 0.01$ level.

4.6.8 DEPENDENT VARIABLE: FULL INSTRUMENT

Knowledge, attitudes and perceptions conducive to AIDS risk reduction

TABLE 23.1: OVERALL ANOVA FOR COMBINATIONS OF THE INDEPENDENT VARIABLES

Dependent Variable: The sum of items of the full instrument		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
ANOVA 1	Grade, Gender, School	**F7,368 = 7.20; p<0.0001***
ANOVA 2	Age, Gender, School	**F30,338 = 2.27; p = 0.0003***
ANOVA 3	Sexually Active, Grade, Gender, School	**F15,360 = 3.87; p<0.0001***
ANOVA 4	Sexually Active, Age, Gender, School	**F51,317 = 2.09; p<0.0001***

*(F Statistic in bold indicates a significant result at α=0.01)

TABLE 23.2: EFFECT OF EXPOSURE TO THE PLAY (SCHOOL) ON THE FULL INSTRUMENT

Dependent Variable: Full instrument		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
ANOVA 1	Grade, Gender, School	**F1,368 = 21.43, p<0.0001***
ANOVA 2	Age, Gender, School	**F1,338 = 9.16; p=0.0027***
ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360 = 14.54; p=0.0002***
ANOVA 4	Sexually Active, Age, Gender, School	**F1,317 = 12.53; p=0.0005***

*(F Statistic in bold indicates a significant result at α=0.01)

The learners in School A and School B had a mean score above the midpoint of the scale indicating a reasonably high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. Although the schools did not differ vastly from each other in terms of the mean scores obtained on the instrument, School A, the control school had significantly higher levels of knowledge, attitudes and perceptions

conducive to HIV/AIDS risk reduction ($p<0.01$). Figure 31 represents these results graphically.

Figure 31: Plot of means of the effect of exposure to the play (school) on the responses to the full instrument

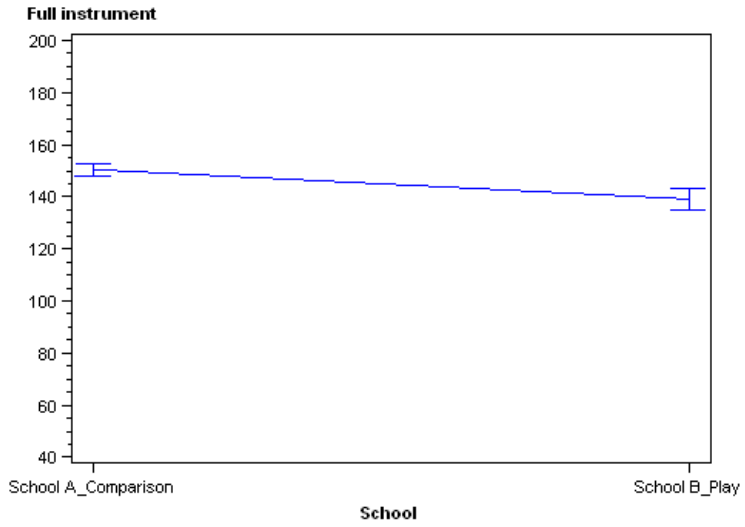


TABLE 23.3: EFFECT OF GRADE ON THE FULL INSTRUMENT

Dependent Variable: Full instrument		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
ANOVA 1	Grade, Gender, School	**F1,368 = 13.01; p=0.0004***
ANOVA 3	Sexually Active, Grade, Gender, School	**F1,360 = 14.06; p=0.0002***

*(F Statistic in bold indicates a significant result at α=0.01)

Grade 10 and Grade 11 learners had a reasonably high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction according to their above average score on the scale. However, Grade 11 learners scored significantly higher than Grade 10 learners on this scale ($p<0.001$). Figure 32 shows this result graphically.

Figure 32: Plot of means for the effect of Grade on the full instrument

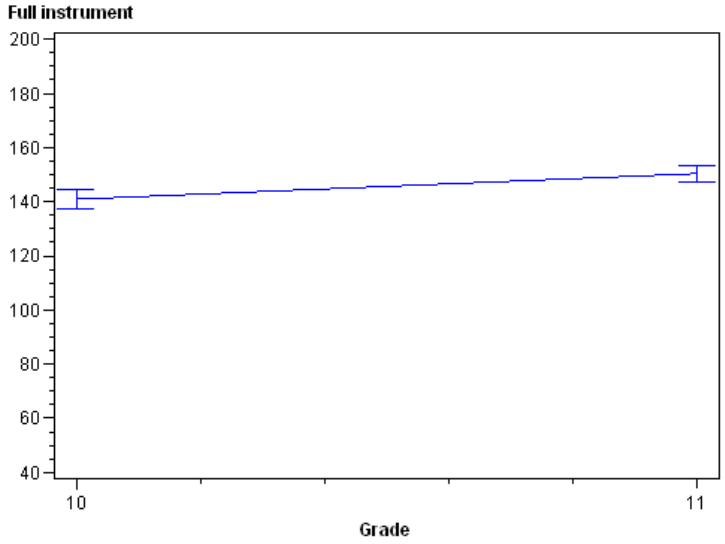


TABLE 23.4: EFFECT OF AGE ON THE FULL INSTRUMENT

Dependent Variable: Full instrument		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
ANOVA 2	Age, Gender, School	F8,338 = 1.15; p=0.3270
ANOVA 4	Sexually Active, Age, Gender, School	F8,317 = 1.50; p=0.1556

*(F Statistic in bold indicates a significant result at α=0.01)

Age yielded an insignificant main effect when including and excluding outlying age groups in the analysis.

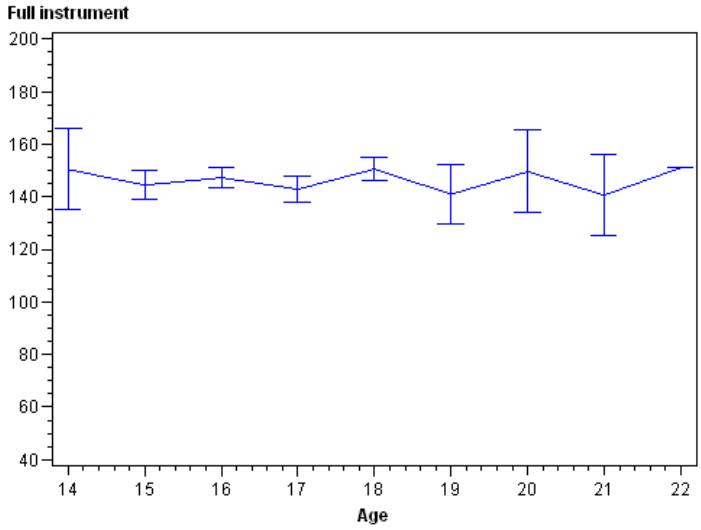


TABLE 23.5: EFFECT OF GENDER ON THE FULL INSTRUMENT

Dependent Variable: Full instrument		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
ANOVA 1	Grade, Gender, School	**F1,368 = 11.46; 0.0008***
ANOVA 2	Age, Gender, School	F1,338 = 6.63; p=0.0105
ANOVA 3	Sexually Active, Grade, Gender, School	F1,360=6.27; p=0.0128
ANOVA 4	Sexually Active, Age, Gender, School	**F1,317 = 6.42; p=0.0099***

*(F Statistic in bold indicates a significant result at α=0.01)

The results of the analysis of variance on the full instrument showed that Gender yielded a main effect on the full instrument ($p<0.01$). However ANOVA 2 and ANOVA 3 yielded insignificant results at $\alpha = 0.01$. It therefore appears that Gender has a main effect; however, the size of this effect was not very large (0.14 for ANOVA 1 and 0.3 for ANOVA 4. Please see appendix 6 for R-squared values). Although both males and females indicated a reasonably high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction, the results that were significant revealed that females scored somewhat higher on the scale than males ($p<0.01$). Figure 33 shows this result.

Figure 33: Plot of means for the effect of Gender on the full instrument

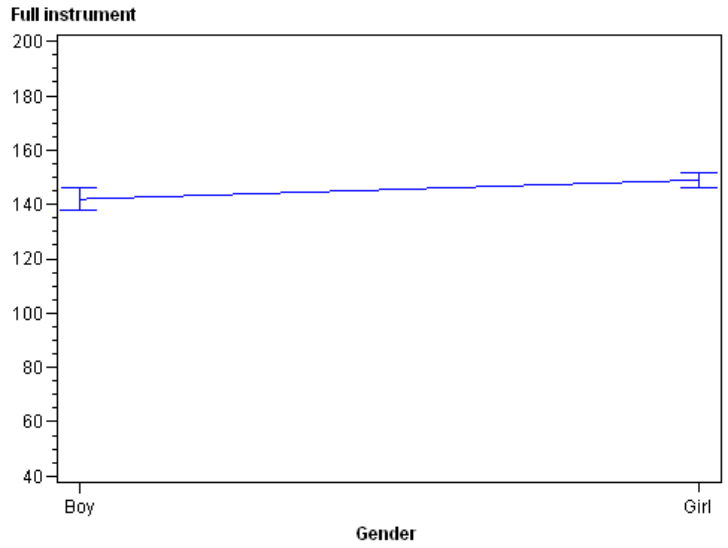


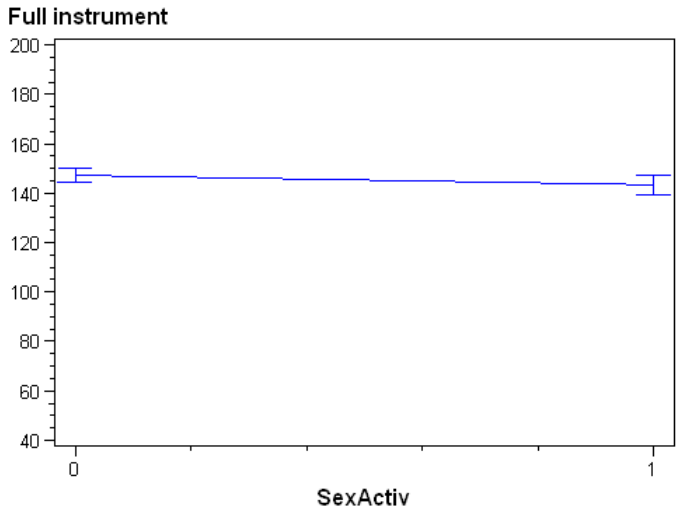
TABLE 23.6: EFFECT OF REPORTED SEXUAL ACTIVITY ON THE FULL INSTRUMENT

Dependent Variable: The full instrument		
ANOVA Label	**Independent Variable Combination**	**F Statistic**
ANOVA 3	Sexually Active, Grade, Gender, School	F1,360 = 1.19; p=0.2767
ANOVA 4	Sexually Active, Age, Gender, School	F1,317 = 1.52; p=0.2189

*(F Statistic in bold indicates a significant result α=0.01)

There was no significant difference in mean scores for the group of learners who indicated that they were sexually active and learners who indicated that they were not sexually active in their knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. Figure 34 represents this result graphically.

Figure 34: Plot of means for the effect of 'Sexually active' on the full instrument



4.7 SUMMARY OF THE EFFECTS OF THE INDEPENDENT VARIABLES ON THE SCALES

Effect of exposure to the play (school)

In sum, the learners in School A and School B had a reasonably high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. However, School A, the control school had significantly higher levels than learners attending School B.

The learners in both schools showed a level of vulnerability to HIV/AIDS that leaned towards a realistic sense of vulnerability based on knowledge of transmission of HIV. However, the learners showed some misconceptions about transmission of the disease allowing for a fear response related to denial of susceptibility. Similarly, although the learners in the sample did not strongly deny the reality of HIV/AIDS, they felt to some extent that the disease was more relevant to groups they did not belong to.

Learners at School B, who were exposed to the play, had significantly less realistic perceptions of personal vulnerability possibly induced by misconceptions of transmission than learners at School A, the control school. In line with this, learners at School A had a significantly higher level of knowledge of the basic facts of AIDS than the learners at School B. Learners at School B, also indicated that they felt significantly stronger that HIV/AIDS was more relevant to groups they did not belong to than learners at School A.

The learners attending both schools reported high intentions to use and negotiate the use of condoms. Although there was no difference between schools in their beliefs about their ability to negotiate safer sex practices and no difference between schools in exposure to or use of condoms, learners attending School A had higher intentions to use/negotiate the use of condoms than learners at School B_Play.

Effects of Grade and Age

Learners in Grades 10 and 11 showed a reasonably good level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. However, Grade 11 learners

had significantly higher scores than the learners in Grade 10. There were no significant differences between the age groups considered in this regard.

The Grade 11 learners had scores that leaned significantly more towards a realistic sense of vulnerability based on more accurate information on transmission than the Grade 10 learners. Grade 11 learners also reported less inclination to deny vulnerability through othering the disease than Grade 10 learners.

Although the grade of the learner was significant in the analysis, there were no significant differences between the age groups considered in the analysis on the measure of perception of personal vulnerability to HIV/AIDS. There were also no differences between the age groups in the sample on knowledge of HIV/AIDS.

Grade 11 learners reported a higher level of exposure to or use of condoms than learners in Grade 10. This result was also found between older and younger learners in the sample. Learners in both Grade 10 and 11 gave a strong indication that they believed they would be able to negotiate safer sex practices with their partners. There were no differences between the grade levels on these beliefs. Similarly there were no significant differences between the age groups considered in the analysis on belief in ability to negotiate safer sex practices.

Grade 11 learners indicated significantly higher intentions to use and negotiate the use of condoms than Grade 10 learners. Although Grade had a significant main effect on intentions to use and/or negotiate the use of condoms, the age groups in this analysis showed no differences in intentions to use and negotiate the use of condoms.

Effects of Gender

Although both males and females indicated a reasonably high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction, the results that were significant revealed that females showed a higher level than males. Females appeared to have somewhat more knowledge of HIV and less misconceptions of the transmission of HIV than the males. However, when the variables age and sexually active were considered the effect became insignificant. Thus although there were

differences between males and females, the effect of gender did not appear to be strong.

There were no significant differences between males and females on the measure of perception of personal vulnerability to HIV/AIDS related to the basic facts of transmission and there were no differences between males and females related to othering of the disease.

Males reported a higher level of exposure to or use of condoms than females. There were no significant differences between males and females in their intentions to use and negotiate the use of condoms, however, females scored significantly higher than males did in their belief of being able to negotiate safer sex practices.

Effects of reported sexual activity

Learners who indicated that they were sexually active reported a higher level of use / exposure to condoms than those learners who indicated that they were not sexually active.

Those learners who indicated that they were sexually active did not differ in their levels of knowledge, attitudes and perceptions conducive to AIDS risk reduction. There were also no differences in factual knowledge about HIV/AIDS between learners who indicated that they were sexually active and those who indicated that they were not sexually active.

There were no significant differences between the learners who indicated that they were sexually active and those who indicated that they were not sexually active on the measure of perception of personal vulnerability to HIV/AIDS both in relation to basic facts of transmission and in relation to othering the disease. There were also no differences between learners who indicated that they were not sexually active and learners who indicated that they were sexually active in intention to use and negotiate the use of condoms.

The learners who were not sexually active indicated a higher belief in their abilities to negotiate safer sex behaviour with their partners than those learners who indicated that they were not sexually active.

In summary the exposure to the play, the age, grade, gender and indication of sexual activity showed various effects on the responses to scales developed from the questionnaire. The hypothesised reasons for the above results are discussed in Chapter 5.

CHAPTER 5: DISCUSSION

This study aimed to evaluate a modified version of a life-skills educational play promoting safer sex behaviour. In order to aid in explaining how the theatre performance operates, Social Cognitive Theory was used as a framework to understand the mode of information and skill transfer. The same theory was able to provide constructs against which to evaluate the performance. These constructs were hypothesised to be influenced by the performance. Each scale, developed in the study is hypothesised to tap into aspects of Bandura's (1990; 1994) Social Cognitive Theory for the exercise of control over HIV infection and is discussed in this frame of reference.

The original form of this play was found to have an impact on knowledge, attitudes and perceptions about HIV/AIDS, as well as intentions to practice safer sex behaviours. This study aimed to provide additional evidence to support the results that were significant ten years ago. It also aimed to assess possible differences in attitudes and knowledge levels of a sample of learners of the same age group living in the same geographical area as the original study.

Bandura's (1990; 1994) Social Cognitive Theory proved to be a useful theory to conceptualise the mode of information and skill transfer of the educational play. It also proved to be a useful theory to evaluate the play against. The results provided further evidence in support of some of the findings related to the target audience of the play that would be useful for the planning of future HIV prevention interventions.

5.1 SOCIAL COGNITIVE THEORY AS THE THEORETICAL BASIS FOR THE EVALUATION

According to Nell and Shapiro (2005) arepp: Theatre for Life's approach helps learners initiate and reinforce the processes of self-development and self-knowledge. This allows a change in social attitudes regarding sex, sexuality and gender. It is hypothesised to contribute to HIV prevention. One of the main objectives of the play

"Look before you leap: Big time" was to increase self-efficacy of the audience in negotiating safer sex behaviours (arepp: Theatre for Life, 2006c).

Self efficacy has been hypothesised by Bandura (1990; 1994), Wulfert and Wan (1993) to influence a person's ability to put safer sex behaviours into practice. Self-efficacy is hypothesised to be influenced by HIV/AIDS knowledge, perceived vulnerability, development of social and self-regulatory skills, enhancement of self-regulatory skills and peer group support / comparison (Bandura, 1990; Fisher & Fisher, 2000; Wulfert & Wan, 1993). The effects of the play, age, grade, gender and reported sexual activity are discussed according to their effects on scales thought to tap into these factors.

5.2 PERCEIVED VULNERABILITY AND KNOWLEDGE OF HIV TRANSMISSION

The first two factors found in the analysis appeared to tap into perceived vulnerability to HIV/AIDS and knowledge of transmission of the virus.

5.2.1 Perceived vulnerability, knowledge and Social Cognitive Theory

Perception of personal vulnerability to HIV is an important factor in implementing safer sex behaviour. Most theories of HIV prevention hypothesise that perceived vulnerability is the primary motivation for the avoidance of risky behaviour and the initiation of precautionary behaviour (Gerrard et al., 1996).

In Fisher and Fisher's (2000) as well as Wulfert and Wan's (1993) conceptualisation of Bandura's Social Cognitive Theory in relation to HIV prevention, perceived vulnerability to HIV/AIDS is linked to knowledge about the disease. In this model, self-efficacy in implementing safer sex behaviour is affected by perceived vulnerability and factual knowledge of HIV/AIDS.

Although researchers have found a relationship between perceived vulnerability and sexual behaviour (as mentioned in the literature review), Gerrard et al. (1996), Wulfert and Wan (1993) state that the role of perceived vulnerability is unclear because it sometimes has, and sometimes has not predicted risk reduction. Maticka-

Tyndale (cited in Wulfert & Wan, 1993, p.347) suggested that knowledge may act as a cue and heighten perceived vulnerability to HIV infection.

The results of this study would support the hypothesised link between knowledge and perceived vulnerability that has been proposed by Wulfert and Wan (1993). Factors 1 and 4 loaded common items saliently. Factor 1 appeared to measure perceived vulnerability to HIV/AIDS related to knowledge of transmission and Factor 4 appeared to measure perceived vulnerability related to othering of the disease. Both these measures included items which tapped into knowledge and affect related to vulnerability.

Gerrard et al. (1996) maintain that the vast majority of research has assumed that perceived vulnerability is unidimensional and that it can be captured by a cognitive representation of a likelihood estimate. However, they suggest that affective components of perceptions of vulnerability are the critical motivators in performing safer behaviours. The fact that two related measures of the construct of perceived vulnerability were found in this study is a significant finding. It suggests that perceived vulnerability is a complex construct.

The results of the study indicate that the learners at both schools leaned towards a realistic perception of personal vulnerability to HIV/AIDS, which was based on higher levels of accurate information on transmission. This result might be explained by the fact that HIV/AIDS has been widely publicised through schools and the media over the past years (van Wyk et al., 2006) and that the items in the questionnaire tapped into basic knowledge of HIV/AIDS. Many learners in this sample (66%) also appear to have been exposed to people who have HIV/AIDS. Macintyre, Brown and Sosler (2001) found that knowing someone who had or who had died of AIDS increased an individual's awareness of the consequences of HIV/AIDS. This would possibly affect perceptions of personal vulnerability.

The learners in the sample did not report a high level of belief that HIV/AIDS was only a problem of other communities or the ‘out-group’. Learners at both schools scored above the midpoint on the scale measuring personal vulnerability related to

othering of the disease. This corresponds to the findings of Stadler et al. (2008), who found that many residents of Soweto felt affected by HIV/AIDS to a very strong degree. It is significant to note that in 1990, Mathews et al. found that many of the high school learners they interviewed felt that AIDS was not an immediate or future problem in their township. They found that 53% respondents in their sample indicated that AIDS was a problem for other people in South Africa, whereas only 17% of the sample in this research felt that AIDS was a problem for other people in SA.

Gerrard et al., (1996) suggested that participant characteristics such as age, gender, experience with risk behaviours and risk status moderate the relationship between HIV-preventive behaviour and perceptions of vulnerability to AIDS. They suggest that these variables be taken into consideration in studies of personal vulnerability.

The current study included participant characteristics of age, gender and experience with risk (i.e. whether the learner was sexually active or not). However, contrary to the prediction of Gerrard et al., (1996) perceived vulnerability as measured by subscale 1a and 1b and the construct of factual knowledge (measured by subscale 1c); showed main effects, but no significant moderating effects on the scales.

5.2.2 Effect of exposure to the play (school) on perceived vulnerability

Many health behaviour theories emphasize that low perceived vulnerability causes no motivation to change high HIV risk behaviour (Gerrard et al., 1996; Rosenstock et al., 1994). However, there is also some research suggesting that programmes which underestimate an adolescent's ability to make a realistic judgement about risk may lead to the learner rejecting the total content of the message, instead of engaging in a rational decision making process (Moore and Rosenthal, 1991).

It was hypothesised that the life-skills education play would increase personal relevance of HIV/AIDS and the necessity of safer sex practices. In other words, it was thought that exposure to the play would cause an increase in scores on the 'personal vulnerability' scales developed in the study. One of the characters in the play placed herself at risk of HIV infection and teenage pregnancy through the play and contracted HIV by the end of the play. Theoretically, it was hypothesised that the play

would act as a modelled scenario of what could happen if a learner puts themselves in a high risk situation.

However, learners at School B, who were exposed to the play, appeared to have had significantly less realistic perceptions of personal vulnerability based on knowledge of transmission than learners at School A, the control school. In line with this, learners at School A had a significantly higher level of knowledge of the basic facts of AIDS than the learners at School B. Learners at School B, also indicated that they felt significantly stronger that HIV/AIDS was more relevant to community groups they did not belong to than learners at School A. These results were unexpected and possibly occurred because of a variety of reasons, which will now be discussed.

Possible reasons for the differences in perceived vulnerability between schools

Firstly it should be noted that, due to the quasi-experimental research design, the difference between the schools could not be exclusively attributed to the play.

If the effect of the play was responsible for the difference in scores on this measure of perceived vulnerability, one of the reasons for this unexpected result could be that the learners who had seen the play may have identified with the role modelled protagonists who managed to successfully negotiate difficult situations. The learners who saw the play may have felt less vulnerable in that they gained a sense of motivation to negotiate safer sex behaviour through identifying with the characters who did not contract HIV.

Another reason for this result may have been because of the affect the learners felt after seeing the play. Seeing that the questionnaire was administered directly after the play when learners appeared to be in high spirits, the feelings they felt at that moment may have had an effect on their responses to the questions on perceived vulnerability. They may not have wanted to think of more serious issues at that time.

There have been studies that have found that affect influences social thought and ultimately social judgements (Baron & Byrne, 1997). According to Baron and Byrne (1997), there are two major mechanisms through which this happens. First, affect

serves to prime similar or related cognitive categories. In other words, feelings serve to prime positive or negative associations. In addition, affective states may influence attention in such a way that more attention is paid to information congruent with the affective state. Second, affect may influence cognition by acting as a heuristic cue. According to this mechanism, when asked to make a judgement about something in the social world, feelings are examined and then responded to accordingly.

Hence, the affective state and effects of identification with the protagonists in the play (who modelled a sense of efficacy in managing difficult situations) may have allowed the learners to feel less vulnerable just after the play. However, the researcher suspects that there were qualitative differences between the schools accounting for some of the differences in responses to the instrument. This was suspected because this trend was repeated throughout the results.

The qualitative differences probably lie in aspects of the school life that were not considered in the data collection process. These factors will be elaborated on in section 5.6 after the effects of the other variables have been discussed.

5.2.3 Effect of grade and age on perceived personal vulnerability

Although learners in both grades scored above the midpoint for this scale, it appeared that the Grade 11 learners encompassed a more realistic perception of personal vulnerability to HIV (with basic knowledge of HIV transmission) than the learners in Grade 10. Grade 11 learners also appeared to show a higher level of awareness that they, like all individuals in their own and other communities, were not invulnerable to HIV.

Although the grade of the learner was significant in the analysis, there were no significant differences between the age groups considered in the analysis. There were also no differences between the age groups in the sample on knowledge of HIV/AIDS.

This suggests that either the level of education of the learner or the social / peer group norm in each grade had more of an effect on perceived vulnerability than the physical

age of the learner (in the age group range 15 to 19 years). It should however, be noted that the mean age for the learners in Grade 10 was 16.3 years and the mean age for the learners in Grade 11 was 17.5 years and thus the argument of the variable 'Age' as being a factor contributing to this difference cannot be totally excluded. It should also be noted that the sample number for the age groups, 14, 20, 21 and 22 years of age included in the analysis were too few to be considered an accurate reflection for these age groups (even though the analysis did not show an effect of these age groups on the scale either).

Possible reasons for differences between grade and not age for perceived vulnerability

The reasons for the effect of grade and not age could be explained by a few factors. Firstly, as explained in the literature review, SCT maintains that peer group norms have an impact on attitudes of individuals. Each grade level at a school may have particular social group norms affected my many factors. As Campbell (2004) explains, researchers in the social identity tradition emphasise that a person's sexual choices or decisions are often deeply influenced by the socially constructed norms or values of liked and trusted peers who share a common identity. Such norms and values are constructed and reconstructed in the ongoing interactions between a group of people united through a sense of perceived common interests or shared social position.

According to a psychodynamic stage theory of life, such as Erikson's stages of development, the adolescent is in a phase of developing an identity and a sexual identity (Meyer, Moore & Viljoen, 1997). Life stage theorists such as Erikson maintain that the adolescent in this stage asks themselves "What am I in the eyes of other people?" and "How do images of me correlate with my self image?" (Meyer et al., 1997). In this stage it is common for adolescents to explore and develop relationships and partnerships. These would have a higher chance of developing in the same grade. Grade 11 learners would possibly have had more opportunity than Grade 10 learners to negotiate romantic relationships which may have had an impact on perceived vulnerability to HIV/AIDS.

Another reason for the Grade 11 scores being higher on the perceived personal vulnerability scales could be that perceived vulnerability may be affected by education level and life orientation curricula. The life orientation curricula differ between grades and this may have influenced the learner's perception of personal susceptibility, especially in light of the hypothesised link between perceived vulnerability and knowledge about HIV/AIDS. It is significant to note that the Grade 11 group had a significantly higher level of knowledge of the basic facts of HIV/AIDS than the Grade 10 group (The findings on the scale measuring knowledge / misconception are explained in Section 5.3).

5.2.4 Effect of gender on perceived personal vulnerability

Male and female learners in the sample scored high enough on the scale to indicate that both groups experienced a sense of personal vulnerability to HIV/AIDS. There were no significant differences in the responses of the male learners and female learners in perceived vulnerability (with basic knowledge of HIV/AIDS) and vulnerability related to 'othering' of the disease. This finding coincided with a similar finding by Moore and Rosenthal (1991) that AIDS risk denial showed similar patterns for males and females. It is significant that there were no differences between males and females because it suggests that education about HIV/AIDS has not been perceived differently by each gender.

5.2.5 Effect of reported sexual activity on perceived vulnerability

The learners who indicated that they were sexually active and the learners who indicated that they were not sexually active obtained a similar mean score. There were no significant differences between these groups on their responses to the scales measuring personal vulnerability to HIV/AIDS.

In this study, being sexually active as an adolescent was viewed as a higher risk behaviour for HIV infection. Even though condoms do help prevent HIV infection, these learners would be at a higher risk than learners who were not sexually active. Therefore the research findings about the level of personal vulnerability between learners who indicated that they were and were not sexually active was significant as

it was expected that those who indicated that they were sexually active would see themselves as being more personally vulnerable to HIV.

This finding also differs from that of Gerrard et al. (1996), who found that most people who had engaged in risky behaviours reported that they were more vulnerable to the negative consequences associated with those behaviours. They also found that those who had put safer behaviours into practice or avoided risk behaviours often reported that they were not vulnerable. Although the results in this study contradict this finding, it would appear that in order to measure personal vulnerability carefully, other factors such as actual behaviour measures would need to be put into place.

Gerrard et al. (1996) also maintain that people who believe they are at risk may begin to engage in preventive actions because of that belief. Then, having practiced preventive behaviours, they should decide that they are less susceptible than they were previously. This points to a very important phenomenon when using a scale to assess a person's perception of vulnerability as it could mean that the measurement of the learner's personal vulnerability would change according to their behaviour and state of mind. It is also consistent with SCT which asserts that the environment, perceptions and behaviour all have an effect on each other (Bandura, 1994).

The effects of exposure to the play, grade, age, gender and whether the learner indicated that they were sexually active or not will now be discussed in relation to knowledge and misconceptions about HIV/AIDS.

5.3 FACTUAL KNOWLEDGE / MISCONCEPTIONS OF HIV/AIDS

The items that loaded on Factor 1 ten years ago were used as a scale measuring 'factual knowledge / misconceptions' of HIV/AIDS. When these same items were examined, they were found to have sufficient internal reliability to be considered as a scale reflective of factual knowledge / misconceptions of HIV/AIDS. The results of the effect of the independent variables on this scale yielded a similar pattern to that of ten years ago.

5.3.1 Effect of exposure to the play (school) on factual knowledge/misconceptions

Ten years ago Reekie (1997) indicated that the play contained a lot of factual information about HIV/AIDS which was imparted to the audience. However, Reekie (1997) found that exposure to the play did not appear to affect responses to the questionnaire on the scale measuring factual knowledge / misconceptions. She examined specific items related to factual knowledge and found mixed findings with regards to knowledge/misconceptions on individual items between learners who saw the play and those who did not. There was a significant difference between learners that saw the play and those who did not on some factual knowledge items. However, there were some items that exposure to the play did not appear to affect. The problem with analysis of individual items is that one item does not represent a reliable measure of the construct.

In the current study, learners at both schools had an average to above average range of factual knowledge about the transmission of HIV/AIDS. However, it appeared that the learners at School A, the control school were more knowledgeable than learners at School B. It is likely that this result represents a difference in the school HIV/AIDS education. As mentioned above, this difference between the schools occurred consistently through the results and the possible reasons for this will be discussed after the discussion of the effects of the other independent variables on the constructed scales.

5.3.2 Effect of grade on factual knowledge/misconceptions

The learners in both Grades 10 and 11 indicated a good level of knowledge related to the basic facts of HIV/AIDS transmission. However, the learners in Grade 11 appeared to be more knowledgeable with fewer misconceptions about HIV/AIDS transmission than the Grade 10 learners as a combined group. Unlike the variable Grade, Age did not have a significant main effect in all the analyses. This result is best explained by the fact that the Grade 11 learners would have been exposed to more HIV/AIDS education in the school curriculum than Grade 10 learners. It is supported by the fact that the same result was found in the study conducted ten years ago. Reekie (1997) found that the Grade 12 learners in her sample scored significantly higher than the Grade 10 learners on the scale measuring knowledge / misconceptions.

As stated in the methodology section, the researcher also noticed that the Grade 10 learners in each school appeared less easy to settle during questionnaire administration providing an indication that the Grade 10 learners as a group might have found it a bit more challenging to engage with the serious topic of HIV/AIDS more seriously.

5.3.3 Effect of gender on factual knowledge/misconceptions

Both the male and female learners in the study scored just above the midpoint on the scale measuring knowledge / misconceptions of HIV/AIDS. Females as a combined group appeared to have a somewhat higher level of knowledge of HIV/AIDS than the males as a combined group. However, when the variables 'Age' and 'Sexually Active' were considered the effect became insignificant. The gender of the learner thus appeared to have an effect, however, this appeared to be a weak effect.

Ten years ago females scored significantly higher than males on the factual knowledge / misconceptions scale. Therefore the fact that the difference was not as significant as it was ten years ago would indicate a positive trend. However, the effects of gender should not be overlooked in HIV prevention. According to (Campbell, 2004) males are often allowed to be open about their enjoyment of sex and to behave accordingly. Women have less opportunity for public expression of sexual desire are also more likely to behave in a way that hides sexual activities from the public.

The large differences in knowledge between men and women in the past may have indicated that women had tried to gain power through taking in more information. It is a positive result that this difference in knowledge was not found to be as large as it used to be. However, the effects of gender and power are vital in the planning of HIV prevention interventions and have been discussed at length in many research papers. According to Wood et al. (1998) the degree to which women are, or feel able to control various aspects of their sexual lives is clearly a critical question for health promotion and the design of appropriate HIV/AIDS interventions.

Much of the literature has criticised a ‘knowledge leads to action' model due to the fact that these interventions ignore the realities of power dynamics and gender inequities (Wood et al., 1998). The arepp: Theatre for Life plays all role model various ways that women and men can negotiate safer sex practices. The knowledge and debate session after the play with the actors is very much focused on empowerment of marginalised groups such as youth and women who have traditionally been disempowered.

5.3.4 Effect of reported sexual activity on factual knowledge/misconceptions

Indication of whether the learner was sexually active or not did not have an effect on factual knowledge / misconceptions about HIV/AIDS. Both groups indicated a similar level of knowledge on HIV/AIDS which was above the midpoint score on the scale. Seeing that the majority of the learners who indicated that they were sexually active had also used a condom, it would seem that learners may have used this knowledge about using condoms to protect themselves against HIV, which is encouraging. However, the fact that this variable did not have a main effect on knowledge suggests that knowledge/misconception levels were not related to decisions to abstain from sex.

The next section describes the effect of exposure to the play (school), gender, age, grade and reported sexual activity on intentions to use condoms which was measured using subscale 2, derived from the factor analysis.

5.4 INTENTIONS TO PRACTICE SAFER SEX USING CONDOMS

Factor 2 consisted of items that appeared to measure intention to use and negotiate the use of condoms. The factor analysis conducted ten years ago also found that the items that loaded on Factor 2 were related to the intentions to practice safer sex. It appears then that factor two taps into the ‘Development of social and self-regulatory skills’ construct in SCT for the control over HIV infection (Bandura, 1990; 1994). This is because intentions to use condoms would be one way to develop social and self-regulatory skills for safer behaviours. Bandura (2006) maintains that self-efficacy is a major determinant of intention, but the two constructs are conceptually and empirically separable.

Ten years ago, the items relating to social group norms with regards to condom use loaded together with the items for intention to use condoms. In this study, the items loading on Factor 2 using the unrotated extraction method included the items relating to social group norms in condom use. The rotated extraction method caused these items to load on a separate factor. This, together with the findings from ten years ago, suggests that there is a link between individual intentions to use condoms and social group norms with regards to intentions to use condoms. This is a significant finding because according to Bandura (1994), Wulfert and Wan (1993), peer group norms play an important part in the use of condoms. In fact Wulfert and Wan (1993) found that comparison with ones peers was the only variable in their model that was directly associated with condom use above and beyond its relationship to self-efficacy.

Social norms influence behaviour anticipatorily by the social consequences they provide. Behaviour that violates existing social norms brings social disapproval, whereas behaviour that fulfils socially valued norms is approved and rewarded (Bandura, 1994).

The researcher of this study hypothesises that if more items were included in the study, Factor 6 (tapping into group norms) could form a scale of its own measuring perceptions of peer group norms and this could then be compared to self efficacy and safer sex practices.

Most learners in the sample scored highly on the subscale measuring intended use and negotiation of the use of condoms. It appears then that most learners in the sample intended to use and negotiate the use of condoms as a form of safer sex.

Most learners also believed that their peers used condoms. There was no difference between each gender, each age group, each grade, reported sexual activity and exposure to the play (school) on perceptions of peer group norms. This was a significant finding because if the school that saw the play had a lower baseline level of knowledge and attitudes toward safer sex behaviour, the insignificant difference of the learners on the social group norms suggests that the school that saw the play may

have increased levels of perceptions that peers were using condoms. However, this is speculation as there is no strong evidence to support this.

One of the methods that the arepp: Theatre for Life performances use as a mode of information transfer is social modelling. Wulfert and Wan (1993) found that condom use was related to social modelling influences. Participants who compared themselves favourably with their peers believed they were using condoms at least as often as their peers, reported greater self-efficacy and more consistent condom use. The effects of the play (school) on intentions to use condoms will be discussed in the next section.

5.4.1 Effect of exposure to the play (school) on intentions to use and/or negotiate the use of condoms

The group of learners attending School A and the learners attending School B reported high levels of intentions to use condoms. However, the learners attending School A had higher intentions than the learners attending School B. This was an unexpected result as the play was hypothesised to have an effect on intentions to use and negotiate the use of condoms. One of the main messages of the play was the importance of using condoms to protect against unwanted pregnancy and HIV. Ten years ago the learners who saw the play "Look before you leap" reported a significantly higher intention to practice safer sex than the learners who did not see the play.

If the play did have an effect on the results, one possible explanation for the result could be 'information fatigue' as explained by Stadler et al. (2008). These authors found that younger men and women residing in Soweto felt tired of hearing about HIV in light of the constant bombardment of messages about AIDS, the increasing numbers of infections and death. These authors had found that for some, the disease had become so commonplace, that it hardly seemed to matter any more. It is possible then that if the play had affected learner's intentions to use condoms, they may have felt irritated or tired by the message to use condoms or the questions asking them about condoms in the questionnaire.

Alternatively, the measure of intentions may have been subjected to social desirability biases (Hartell, 2005). It is significant that the Life Orientation teacher was present during completion of the questionnaire at School A. This might have led the learners at School A to answer the questionnaire in a socially desirable fashion even though they were told that their teacher would not see their answers to the questionnaire.

What is clear from the results is that learners at both schools expressed high levels of intentions to use and negotiate the use of condoms. Therefore in spite of the 'information fatigue' as spoken about by Stadler et al. (2008), learners in the sample as a whole appeared to show intentions to use condoms. This is significantly different from the results found ten years ago. It is speculated that the many HIV/AIDS and condom use campaigns have influenced intentions to use condoms.

It would also appear then that further development of a social norm scale with regards to condom use or other safer sex practices would be a beneficial scale to be used as an evaluation tool for an intervention such as educational plays. The play is hypothesised to influence the audience through social modelling and thus a scale of this kind might be useful to assess changes in the audience perceptions of group norms. It would also be useful in light of the fact that social group norms were hypothesised by Bandura (1990; 1994), Wulfert and Wan (1993) to directly affect the implementation of safer sex practices.

5.4.2 Effect of grade and age on intention to use / negotiate use of condoms

Although learners in Grade 10 and Grade 11 expressed high intentions to use and negotiate the use of condoms, Grade 11 learners scored significantly higher on this scale. However, the age groups considered in the analysis did not appear to have an effect on intentions to use or negotiate the use of condoms.

This result suggests that it is possible that either the educational level and/or social group norms had an effect on intentions to use and negotiate the use of condoms. However, there were no differences between Grade 10 and Grade 11 learners on peer group norm perceptions for the use of condoms. Thus the learners in the sample had the perception that their peers were using condoms, but their intentions differed. It is

unclear why this result might have occurred and might indicate other variables in interaction with intentions to use condoms that were not measured in this study.

The Grade level of the learner also did not appear to moderate the effect of seeing the play on the learner's intentions to use condoms. This is a very different result to the result obtained ten years ago. Ten years ago the Grade 10 learners who saw the play scored significantly higher on intended behaviour than the other groups of learners. The differences between the current results as compared to ten years ago is hypothesised to have arisen through further widespread media and HIV prevention campaigns implemented in schools.

5.4.3 Effect of reported sexual activity on intention to use and negotiate the use of condoms

Both the groups of learners who indicated that they were sexually active and those who indicated that they were not sexually active reported high levels of intentions to use and/or negotiate the use of condoms. There were no differences between these groups in intention to use and negotiate the use of condoms and no differences in their beliefs that their peers were using condoms.

The high levels of intentions to use condoms amongst those learners who were sexually active and those who were not are encouraging because if learners are not abstaining from sex, it is a good sign that they have awareness and intentions to practice safer sex. However, further studies on actual implementation of safer sex behaviour would need to be conducted to form firm conclusions as to whether intentions to practice safer sex behaviour were put into practice.

5.4.4 Effect of gender on intention to use and negotiate use of condoms

Both males and females in the sample expressed high levels intentions to use and negotiate the use of condoms. An interesting finding is that there were no significant differences between males and females in their intentions to use and negotiate the use of condoms. This is a very different result to that which was found ten years ago. Reekie (1997) found that females reported a significantly higher intention to practice safer sex than the males did. This is an encouraging result as it suggests that the

widespread education and media campaigns asking both partners to take responsibility for safer sex practices has had an impact on males of this age as compared to ten years ago. However, a cautionary note about this finding should be mentioned in that the sample considered ten years ago consisted of a slightly older mean age group.

5.5 ENACTMENT OF SAFER SEX BEHAVIOUR WITH REGARDS TO EXPOSURE TO OR USE OF CONDOMS

The part of the SCT related to HIV prevention called 'Enhancement of self regulatory skills' suggests that individuals need to practice safer sex behaviour / avoidance of high risk behaviour and in each practice they should receive constructive feedback on how they could improve these skills. These skills can include negotiation of safer sex behaviour which could be the use of condoms or saying not to unwanted sex. The stronger sense of self-efficacy that results, the more likely individuals are to use their new skills and to maintain their use in the face risky situations (Fisher & Fisher, 2000, p.26).

Factor 3 loaded questions regarding the use of condoms. This factor may form part of the model in the 'enhancement of self-regulatory skills' section. However, Factor 3 only appears to tap into a subsection of Bandura's (1990; 1994) model as it only relates to the use of condoms as a form of safer sex behaviour. Factor 5, discussed in section 5.6, appears to tap into another aspect of the 'enhancement of self-regulatory skills' section of the model.

Ten years ago the questions that loaded saliently on Factor 3 included the questions loading on Factor 3 in the current study. It also included other related questions and the factor was named "Knowledge, sexual experience and self-efficacy in implementing AIDS risk reduction measures."

Factor 3 in this study can not be considered a reliable and valid measure of the enactment of safer sex using condoms as it only contains two questions, however, it is suspected that if further studies were conducted with the addition of related questions, Factor 3 might tap into enactment of safer sex behaviour.

5.5.1 Effect of school on exposure to or use of condoms

At least half the learners reported that they had been exposed to or had used condoms in the sample. There was no difference between schools in the frequency of learners' reports of exposure to or use of condoms. Condoms were used as props in the play and thus the play may have had an effect on the reports of learners of exposure to condoms; however, the play could not have had an effect on actual use of condoms in this study as the questionnaire was administered directly after the play.

5.5.2 Effect of grade and age on exposure to or use of condoms

Grade 11 learners reported a higher level of exposure to or use of condoms than Grade 10 learners. This would be expected seeing that the Grade 11 group had a higher frequency of sexually active learners than the Grade 10 group did. When age was considered as a variable in the analysis, there was a significant main effect of age on indication of exposure to or use of condoms when all age groups in the sample were considered, however, when outlying age groups were excluded (i.e. 14, 20, 21 and 22 year old learners), the main effect of age became insignificant. This indicates that the differences possibly arose from the differences in the sexual activity of younger and older learners.

5.5.3 Effect of gender on exposure to or use of condoms

Male learners reported a higher level of exposure to or use of condoms than female learners. This would be expected because it is the male learner who uses the condom whereas females would have to negotiate use of condoms. Although in terms of HIV prevention, it would be beneficial for females to be exposed to and learn the correct use of condoms as well, because sexual practices take place within a partnership. Males and females in the play were exposed to condoms; however, proper use of condoms was not explained in the play. The learners were exposed to discussions surrounding the use of condoms in the debates and discussion after the play, but the topics were led by the learners. Learners might have been too shy to ask about proper use of condoms in front of other learners.

5.5.4 Effect of reported sexual activity on exposure to or use of condoms

Those learners who indicated that they were sexually active scored higher on this variable than those who were not sexually active. This result would be expected as sexually active learners would have had more opportunity to be exposed to or use condoms.

5.5.5 Previous results as compared to the current results for use of condoms

A review by Eaton et al. (2003) reported that at least 50% of young people were sexually active by the age of 16 years, with between 50% and 60% of sexually active youth never using condoms. In 1990, Mathews et al. reported that 75% of the high school learners in their sample were sexually active and of the sexually active learners only 11% reported having used a condom.

A total of 37.5% of the sample in this research indicated that they were sexually active. A higher proportion of males indicated that they were sexually active as compared to females. Ten percent of the sample was sexually active by the age of 16 years and 21% of the sample was sexually active by age 17 years. The frequency of learners becoming sexually active between the ages of 16 and 17 years doubled showing that learners in this age group represent important targets for HIV prevention.

The results of this study also showed that a lot less learners reported that they were sexually active as compared to earlier studies. Delay of sexual debut places learners at lower risk for HIV infection which means that this result is encouraging.

5.6 EXPLORATORY FACTOR 5: NEGOTIATING SAFER SEX

Factor 5 appears to be related to negotiation of safer sex. It appears to tap into the component of SCT called 'Enhancement of social and self regulatory skills' in practicing safer sex. According to Bandura (1994), after people gain knowledge of new skills and social strategies, practice of these skills should occur and should be continued until the skills are performed skilfully and spontaneously. Some of the

gains result from raising people's beliefs in their capabilities which would link to self-efficacy. Experiences in exercising control over social situations serve as self-efficacy builders (Bandura, 1994).

Although Factor 5 appears at face value to tap into negotiation of safer sex practices, the internal reliability coefficient was not high enough for the scale to be considered as a reliable measure of this construct.

5.6.1 Effect of the exposure to the play (school) on negotiation of safer sex

Moore and Rosenthal (1991) suggest that modelling of appropriate communications in films, or role plays incorporated into educational programs may help to break down awkwardness in negotiation of safer sex behaviour.

The results of this study showed no difference between the school that was exposed to the play and the school that was not exposed to the play on their belief in their ability to negotiate safer sex. The previous trends in the results indicating that School A performed better on the other scales suggests that the play may have had an effect on this variable as the baseline for School B in all the measures appears to be lower than School A. However, this can only be speculated upon as the internal reliability of the scale is low.

5.6.2 Effect of the grade and age on negotiation of safer sex

There were no differences between Grade 10 and Grade 11 learners on this scale and no difference in age on this scale. It would seem then that belief in negotiation of safer sex was not affected by education level, possible social norms and physical age.

5.6.3 Effect of the gender on negotiation of safer sex

Females scored significantly higher than males on this indicator variable. As mentioned in the literature review, the major burden for self-protection against HIV often falls on women (Bandura, 1994). Unlike protection against pregnancy, where women can exercise independent control through oral or implant contraceptives, use of condoms requires them to exercise control over the behaviour of men (Bandura, 1994). Thus the responsibility of negotiation often falls on females. Moore and

Rosenthal (1991) also found that males were more likely than females to express responses indicating that responsibility for precautions lay with their partner, and to make excuses for not initiating a discussion of such precautions. The results of this study suggest that female learners may be taking more responsibility than males in negotiation of safer sex.

5.6.4 Effect of reported sexual activity on negotiation of safer sex

The learners who indicated that they were not sexually active scored significantly higher on this indicator than those who indicated that they were sexually active. This might indicate that the learners who were not sexually active had already negotiated safer sex through abstaining or that they had a belief that they would be able to negotiate safer sex.

5.7 KNOWLEDGE, ATTITUDES, PERCEPTIONS AND INTENTIONS CONDUCIVE TO AIDS RISK REDUCTION

All the items in the questionnaire were scored in the direction of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. Therefore the full instrument could be used as a measure of these attitudes. The learners as a combined group scored quite highly on this scale.

5.7.1 Effect of the exposure to the play (school) on knowledge, attitudes and perceptions conducive to AIDS risk reduction

One of the main hypotheses of the research was that the play would have an effect on knowledge, attitudes, perceptions and intentions conducive to HIV/AIDS risk reduction. However, as occurred on many of the scales used as dependent variables in the analysis, the learners attending School B scored significantly lower on the full instrument than learners at School A.

This main effect occurred throughout all the various combinations of the independent variables in the analysis and also occurred on the other scales used as dependent variables. These results were unexpected and some of the reasons for these results have been discussed in relation to each of the subscales. One important effect which

has not been discussed as yet is the large amount of extraneous variables that could have accounted for the result. These will now be discussed.

Variables affecting differences between schools across the scales

One of the more likely reasons for these results was that the schools differed from each other in variables other than the exposure to the play. Although the schools were matched by using the same feeder community, the same socio-economic status and similar social difficulties such as drugs and teenage pregnancy, each school is in itself a community on its own with different stakeholders, power structures and social peer group norms. The school may also have a very different structure in its life orientation programmes or extra mural programmes.

According to Wicks-Nelson and Israel (2000) the school is one of the most central contexts in children's lives. The primary function of the school is to teach intellectual skills and knowledge accumulated by society, but formal education also plays a role in socialising children to society's social and political values. The messages given about these values can act powerfully on development. Furthermore schools operate as social systems in and of themselves. Student-teacher relationships, classroom structure, pedagogy, rules, methods of discipline, standards and expectations all play a role in shaping individual learners.

Bandura (1989) states that many social factors, apart from formal instruction, such as peer modelling of cognitive skills, social comparison with the performances of other students and teacher opinions affect learners self efficacy. In fact, Wicks-Nelson and Israel (2000) state that there is evidence that certain qualities of the school climate and practice can foster scholastic and positive social behaviours.

One variable that School A, the control school was exposed to that School B was not exposed to, was that the life orientation teacher was enthusiastic and was present with the researcher in administration of the questionnaires. The life orientation teacher at School B, was not present during administration of the questionnaires as she was busy

organising and coordinating the venues and learners, who were quite excitable prior to and during the play.

Learners at School A may have had the impression that they had to answer the questions in a socially desirable way with a teacher present even though learners did not hand completed questionnaires to the teacher and they were told that the teacher would not see their answers. The mere fact that the teacher was present may have given the impression that the learners had to respond to the questionnaire in a socially desirable light.

The differences between schools could have better been addressed in the study through use of a different methodology. The ideal methodology to investigate these differences would be through a qualitative needs analysis interviews. The study thus highlights the importance of conducting a needs analysis before any programme is run in a community however big or small the programme may be. It also highlights the methodological advantages of combining a qualitative and a quantitative methodology as part of a programme evaluation. The best possible methodology to follow for a programme such as the one evaluated in this study is a multi-method theory driven approach. As discussed in the methodology section, the unwanted pre- and post-testing effects could better be dealt with through the use of at least two schools who saw the play and two schools who did not. Further limitations and recommendations of the study will be discussed in Chapter 6.

As much as there were probably qualitative differences between schools accounting for some differences in results, the effect of the play cannot be ignored especially in light of the fact that the questionnaire was administered directly after the performance. Studies involving the youth by Bandura show how behaviour can be learnt through observation of a model, however, numerous variables influence the imitative process including multiple models, conflicting models and attributes of the models (Wicks-Nelson & Israel, 2000 p. 61). As such, the learners may have identified with different characters in the play which may have affected their responses to the questions.

5.7.2 Effect of grade and age on knowledge, attitudes and perceptions conducive to AIDS risk reduction

Grade 11 learners scored significantly higher than Grade 10 learners on this scale. This main effect on the responses to the questionnaire did not occur when the age groups were substituted for grade in the analysis. There was no effect for age including and excluding age groups with low sample numbers in the analysis.

Ten years ago, the Grade of the learner also had an effect on the responses to this scale with the Grade 12 learners scoring higher than the Grade 10 learners (Reekie, 1997). However, ten years ago the grade of the learner modified the effect of the play such that the learners in the lower grades were more receptive to the play's message. It would thus appear that the change from Grade 10 to 11 represents a significant change in knowledge, attitudes, perceptions and intentions conducive to AIDS risk reduction. Unfortunately Reekie (1997) did not assess the effect of age on the responses to this scale in order for this to be compared. However, the results of the current study suggest that the physical maturity of the learner was not as important as educational level and/or social peer group norms in determining knowledge, attitudes and perceptions conductive to HIV/AIDS risk reduction.

This finding confirms what Bandura (1990; 1994), Parker (in van Wyk et al., 2006, p. 11) and Wulfert and Wan (1993) maintain, which is that social dynamics have as much, if not more influence over individual decisions about sexual behaviour than individual cognition.

The researcher did notice that the Grade 10 learners were more difficult to settle in completion of the questionnaire indicating possible less maturity in engaging with this topic. This would not only be affected by biological age, but also would be related to the peer group norms. The Grade 10 learners in particular also participated in a very lively debate with the actors at the end of the play. There was a group of Grade 10 males who argued with the actors that using a condom during sex is like "eating a sweet with its wrapper". The actors encouraged the debate and facilitated appropriate knowledge sharing. However, it appeared that the group of Grade 10 males stirred up a lot of responses from the group as well. These learners completed the questionnaire

in the venue that the play was performed in and not in the class rooms as did the Grade 11 learners and the learners at the comparison school. This may have had an effect on the results, however, no significant interaction effects occurred for the variables Grade and School and thus the lively debate at the end of the Grade 10 performance did not reflect in the statistical results.

5.7.3 Effect of the gender on knowledge, attitudes and perceptions conducive to AIDS risk reduction

The gender of the learner appeared to play a role on the indications of knowledge, attitudes and perceptions conducive to HIV/AIDS prevention. Although the differences in mean scores for males and females was not large, females did score significantly higher than males on the scale indicating a higher level of knowledge, attitudes and perceptions conducive to HIV/AIDS prevention. However, when the researcher substituted Age for Grade in the analysis, the effect of gender became insignificant at $\alpha = 0.01$. Thus Gender may have a main effect, however, the size of this effect was not very large.

Combining this result with the results for intentions to use condoms, perception of personal vulnerability and knowledge of HIV/AIDS, it appears that attitudes between male and female adolescents have changed in the last ten years. Previously it was the females who showed a higher level of knowledge and intentions to use condoms than males did. Now males and females do not differ largely in their levels of knowledge and attitudes conducive to AIDS risk reduction. Significantly, males and females do not differ in their levels of intention to use condoms. However, females still appear to take the responsibility for the negotiation of safer sex.

5.7.4 Effect of reported sexual activity on knowledge, attitudes and perceptions conducive to safer sex behaviour

A variable that was hypothesized to have an effect on knowledge, attitudes and perceptions conducive to AIDS risk reduction was whether the learner was sexually active or not. It was not possible to assess accurately whether the learner was sexually active or not and thus the researcher had to rely on self report data of a direct question placed at the end of the questionnaire. Although the questionnaire was completed

anonymously and the researcher ensured that the learners did not communicate to each other in completion of the questionnaire, self report data on sexual activity is sensitive and may not be entirely accurate (Ostow & Kalichman, 2000).

The research indicated yet another unexpected result in that there were no significant differences between the group of learners who indicated that they were sexually active and learners who indicated that they were not sexually active on the full instrument. It appears then that although the learners had knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction, this was not affecting whether they chose to be sexually active or not.

Of the learners in the sample, 37.3% indicated that they were sexually active. This figure appears to be on par with some of the literature in South Africa. Hartell (2005) reported that more than a third of adolescents in South Africa were sexually active. Eaton et al. (2003) reported that at least 50% of young people in South Africa were sexually active by the age of 16.

Most of the learners in the sample who reported that they were sexually active also reported that they had used a condom before (83%). In 1995 Goliath (cited in Hartell, 2005, p. 174) found that most sexually active adolescents never used a condom. This result indicates a large difference as compared to ten years ago. This is a positive indication for the current study, even though it would be better if all learners who indicated that they were sexually active also reported that they used a condom.

However, it should also be noted that the question asking if learners had used a condom had an agreement scale which was not appropriate for this question. Thus the result that 29% of those learners who indicated that they were not sexually active also indicated that they had used a condom before could be due to exposure to condoms or could be the effect of the response category of the item.

Chapter 6 will discuss the limitations of the results and improvements for future research.

CHAPTER 6: LIMITATIONS AND RECOMMENDATIONS

This chapter covers the limitations of this research and how it could be improved upon. Recommendations for improvement of HIV/AIDS educational performances will also be discussed.

6.1 RESEARCH DESIGN

The major caveat in this research has been the research design. Due to the fact that this programme was run in a community and school setting, random assignment of learners to treatment and control groups would have been unethical and logistically not possible.

As mentioned in the methodology section, quasi-experimental, ex-post facto and field research has an inherent limitation in that causality cannot be attributed to an intervention. This is one of the main reasons why psychological theory is useful in measurement based ex-post facto and quasi-experimental evaluations. It provides a mechanism to gather evidence in support of an hypothesis.

Nevertheless, the design used in this evaluation was a weak one. What would have been a better design to use would have involved the inclusion of at least two schools exposed and not exposed to the theatre performance. Having only two sites of comparison in this evaluation provided no power to test for site level effects (Ostrow & Kalichman, 2000). A further improvement would have been to conduct a pre-test a few months before the theatre performance. This would have made the research design a stronger one.

Another area in which the research design fell short on, was that the evaluation was limited to HIV prevention. This was a major feature of the play ten years ago. However, at this point in time, this was not a central theme of the play. This made the evaluation incomplete and frustrating for future plans for the organisation as this study could not evaluate the functioning of the play itself on its other aims.

A further area for improvement of the research design would be to combine qualitative and quantitative methods. In other words it would be beneficial to use the instrument as part of a multimethod design and include interviews or focus groups to deepen the interpretation of the findings. Interviews and focus groups provide the possibility of holistic evaluation as they allow for the discussion of attitudes towards the performance as well as opinions not known to the researcher. Whereas participatory approaches work truly from the community level upwards, theory based interventions use external ideas and explanations of behaviour mostly from psychology and health promotion to bring about change (van Wyk et al., 2006). Therefore focus groups and interviews would broaden the data provided by participants as they would not be restricted to a set of preconceived ideas about the possible impact of the play.

6.2 THEORETICAL LIMITATIONS

The major limitation of using Social Cognitive Theory in HIV prevention as the model for evaluation is that the model that was described by Bandura (1990) was structurally defined by other authors namely Wulfert and Wan (1993) and Fisher and Fisher (2000). They conceptualised the theory as a path model. According to Fisher and Fisher the theory does not lend itself easily as an integrated multivariate model and cannot be tested as such.

Kalichman et al. (in Fisher & Fisher, 2000, p.27) provided a meta-analysis of some evaluated HIV/AIDS prevention programmes and they found that although relatively few of the interventions included all the SCT components, they did appear to share a core of central components that included features such as risk reduction, risk sensitisation, self-efficacy building and skills training. Although Fisher and Fisher (2000) have found that SCT contains most or all the elements typically associated with effective interventions, van Wyk et al. (2006) have found few reports of programmes driven by behavioural and cognitive theories having been successful when implemented in community contexts in developing countries. This might be related to the fact that individual decisions are more often influenced by broader societal and community enabling factors. It has been argued that community oriented

theories might be more useful in developing HIV prevention programmes for developing countries.

6.3 THE INSTRUMENT

The development of the instrument was the central feature of the operationalisation of the research. The instrument used ten years ago yielded significant internal reliability and was one of the main rationales for using it as a measure of the effects of the play. However, there were a few problems with the instrument. Firstly, the words used in the items of the instrument were changed as little as possible to keep them consistent across studies. However, in the 1990's AIDS was only referred to as AIDS and this was not linked colloquially to HIV. Nowadays, HIV is linked to the term AIDS as widespread campaigns have drawn people's attention to the fact that HIV leads to AIDS. This might have been confusing for learners in filling in the questionnaire and it also caused confusion in interpretation of some of the results.

In line with the above, newer items related to important knowledge about HIV/AIDS were not included in the questionnaire and consequently many issues may have been missed. For example, other sexually transmitted illnesses were not covered in the questionnaire. Other modes of transmission of HIV were also not included in the items in the questionnaire. For example, oral sex was not covered as a mode of transmission and oral sex is not entirely safe, as HIV can be transmitted through both insertive and receptive oral sex (Rothenberg, Scarlett, del Rio, Reznik and O'Daniels, 1998). Although the content of the play does not specifically cover these issues, a development of an accurate instrument would necessitate these topics to be covered as they represent further risk factors.

One risk factor that was covered by the play and not by the questionnaire was the risk factor of alcohol and drugs. Drugs and alcohol can lower a person's perceived ability to adhere to safer sexual practices (Bandura, 1994). This would have been helpful to have been covered in the questionnaire.

Another problem with the instrument stemmed from the structure of the answering categories and the placements of the items in the questionnaire. This caused major

problems with missing data and scoring of the instrument. The response categories should not have used blocks placed on top of each other to tick as it caused unintentional skipping of items through errors in visual perception.

The response categories themselves also caused problems with the instrument. Paniagua et al. (1994) suggest that factual knowledge should not be measured through a percentage agreement or likert scale responses as the central issue is not whether people agree or disagree with that fact, but whether they know the fact. The agreement response categories caused confusion in interpretation of knowledge questions. Also, the inclusion of a "not applicable" category was both necessary, but problematic as it invited the learners to skip items. Scoring the "not applicable" category was a controversial decision on the part of the researcher. It was partly motivated by the large amount of missing data as well as through logical reasoning about the sensitive nature of the items.

A further improvement of the instrument would be to include more items related specifically to self-efficacy. This research does not measure self-efficacy per se; it measures constructs thought to have an effect on the self-efficacy of the learner.

According to Bandura (2006) the efficacy belief system is not a global trait but a differentiated set of self-beliefs linked to distinct areas of functioning. Therefore items measuring self-efficacy would need to relate to different aspects of implementation of safer sex behaviour. Bandura (2006) states that efficacy items should accurately reflect the construct. Self-efficacy is concerned with perceived capability and should be phrased in terms of *can do* rather than *will do*.

6.4 SELF-REPORT DATA

According to Catania et al. (1993) survey research can provide a basic programme evaluation tool, but the quality of this work depends on there being reliable and valid methods for assessing self-reported sexual behaviour. They maintain that surveys of sexual behaviour and attitudes suffer from numerous problems related to self report data.

Catania et al. (1993) mention that privacy needs, embarrassment and fear of punishment may motivate people to conceal their true sexual behaviour, while others may find it self-enhancing to embellish on their actual sexual experiences. The current research suffers from limitations of self report data. Male learners indicated that they were sexually active at almost double the frequency to females. It is plausible that to prove their potency they embellished their behaviours. Yet another concern in self report data is also mentioned by Catania et al. (1993), which is that even respondents who are highly motivated to provide "truthful" responses can have distorted memories of how often they have actually performed specific sexual behaviours. This research carries a major limitation in that it relies on self-report data on a key question used to score the questionnaires and this should not be overlooked.

6.5 IMPUTATION

According to Copas, Johnson and Wadsworth (1997) those participants who do not answer the specific question of interest may differ in sexual behaviour from those who do and thus an imputation of the database can provide a more accurate representation of the sample. However, the drawback of using an imputation procedure is that the data are statistically "guessed" using the available data and thus the variances of the sample are affected.

The researcher ensured anonymity in completion of the questionnaire which aids in lessening frequencies of missing data. Many psychometric test instructions instruct participants to complete all the questions, even those that do not seem to be applicable. However, in sexual surveys this would not be possible due to the sensitive nature of the topic.

6.6 FACTOR ANALYSIS

Factor analysis, as a statistical technique, yields solutions which are convertible from one form to another and a preference of form must depend upon appropriate content criteria (Harman, 1967). In other words, a drawback of the factor analysis technique is that a 'meaningful' solution can often be obtained and the result can be biased by what the researcher wants to see. Since the solution (extraction of factors) is based on correlations between variables, the researcher can produce factors that have nothing in

common conceptually and this may not mean that they are really measuring the same underlying dimension (de Vaus, 1991). However, factor analysis still provides a useful measure of patterns of responses leading to enhancement of validity of instruments.

6.7 ANOVA

The effect sizes for most of the ANOVA's were not very large (please see appendix 6). This is significant due to the large sample. According to Rosenthal and Rosnow (1991) the effect sizes should always be examined together with significance. The results where there was a significant effect are thus an indication that there were differences in the groups compared, however, the effect sizes suggest that these differences were not large. A curious finding was that 'grade' and 'school' consistently caused main effects on the scales and 'age' consistently did not show main effects. It suggests that further analysis of statistical artefacts might have been useful.

Another potential problem in the ANOVA was the very different group sizes. Although ANOVA is a robust enough technique to be able to deal with these differences, some skewing of results may have occurred.

6.8 AREPP: THEATRE FOR LIFE - THEATRE AND PEER EDUCATION

The arepp: Theatre for life programme uses theatre as a theoretically effective way to impart social skills in negotiation of safer sex behaviour. This research has highlighted the fact that the particular samples of Grade 10 and Grade 11 learners in this evaluation responded to the topic of HIV/AIDS very differently. Therefore the decision to show different plays to different Grade levels was a useful one. If the play had an effect on personal vulnerability, the results point to possible effects of emotions on responses to evaluations and thus future evaluations would need to take this into consideration.

The results show that learners in the sample had high intentions to use condoms, but although the learners showed a high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction, this was not associated with whether they

were sexually active or not. Although most sexually active learners indicated that they had used a condom before, it would be useful to get more conclusive evidence of whether learners were engaging in safe sex.

Peer education

Many social scientists and community activists argue that social dynamics have as much influence if not more over individual decisions about sexual behaviour than individual cognition (van Wyk et al., 2006). Therefore van Wyk et al. (2006) recommend that programmes draw on the active participation of members of the community in the implementation of the intervention (e.g. peer educators) or in some or all the stages of development and implementation (e.g. community mobilisation).

Peer educators can be very useful in designing prevention interventions as they have access and understanding of at-risk groups, and they can be influences in groups (van Wyk et al., 2006). In fact Bandura's SCT could even be applied to a peer education programme on HIV/AIDS through social modelling and altering peer group norms. One example of how theatre can be used in a peer education setting is if peer educators are trained to facilitate interactive plays where learners get to tell their stories and see their stories being acted out.

According to Campbell (2004) mainstream health psychology has hindered the HIV-prevention struggle. Individual-level explanations of sexual behaviour seek to change individuals by increasing their knowledge about HIV/AIDS, their perceived vulnerability to infection or their ability to act assertively in sexual encounters. However, such interventions fail to take account of those features of social context that enable or support the individual's ability to act on this newly acquired knowledge or this increased sense of personal vulnerability to HIV/AIDS where factors such as gender and poverty limit a person's freedom to act.

Bandura (1990) states that social influences rooted in indigenous sources generally have greater impact and sustaining power than those applied by outsiders for a limited time. Campbell (2004) recommends that one method to help empower people in

disempowered situations is through the participation of grassroots people in the design and implementation of HIV prevention efforts.

Peer education can provide opportunities for the exercise of leadership by members of traditionally excluded social groups. In so doing it gives people a sense of ownership of the problem of HIV/AIDS and increases the likelihood that they will feel the problem is their own responsibility rather than the responsibility of the more distant agencies of government and health departments (Campbell, 2004). The peer education approach provides a context in which a group of peers who share a common identity can debate the possibility of constructing new sexual norms and values which are less damaging to their sexual health. Thus the use of community principles of empowerment and active participation in conjunction with Social Cognitive Theory would be useful in future developments of HIV prevention interventions for youth in South Africa.

arepp: Theatre for life appears to use some of the principles of peer education in that they use young individuals to provide an entertaining play who are not health professionals and who can generate debate amongst young learners on an equal basis. However, the actors are still external individuals and there might be less of an active learning about negotiation of safer sexual practices than if learners were facilitated by actors to create their own role plays and discussions.

CHAPTER 7: CONCLUSION

The arepp: Theatre for Life organisation uses theatre as a theoretically effective means to impart social skills in negotiation of safer sex behaviour. As stated in the literature review, theatre can be used as a powerful medium for AIDS education.

Bandura's (1990; 1994) Social Cognitive Theory provided a useful conceptual framework for understanding important psychological factors involved in sexual risk behaviour, it allowed the researcher to operationalise the study so as to reflect the mechanisms of operation of the programme and consequently provided a theoretical framework against which to evaluate the programme.

In evaluating the arepp: Theatre for life intervention with respect to HIV prevention, an instrument was constructed which was applied with samples of Grade 10 and Grade 11 learners in two schools which were matched on a number of demographic variables. In the one school the learners had seen the play, while in the other the learners had not.

The aim of the research was to investigate whether there were significant differences between the knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction of high school adolescents in an experimental school in 2006 who had seen the play "Look before you leap: Big time" and high school adolescents in a control school who had not seen the play.

The play was well received by the audience. It covered many factors found to influence risk of HIV infection. It used social modelling in an entertaining way to impart skills on how to negotiate safer sex behaviour.

The results showed that learners at both schools had a reasonably high level of knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. However, the control school had significantly higher levels than learners attending the school exposed to the play. Reasons for these differences have been discussed in the report.

The play aimed to help learners develop a greater sense of self-efficacy through exposure to role models similar to themselves. The instrument was thought to tap into aspects of SCT influencing self-efficacy in implementing safer sex behaviour.

The research also aimed to investigate the factorial validity and internal reliability of the instrument. The research provided evidence in support of the hypothesis that the instrument taps into aspects of Social Cognitive Theory in the control of HIV infection. This was achieved through use of principal components factor analysis.

The first three factors in the study corresponded very strongly to the factors found ten years ago providing a form of evidence for stability in interpretation of the items in the questionnaire as well as evidence for possible constructs that the instrument taps into.

In terms of the evaluation, it is perhaps unfortunate that the samples of Grade 10 and Grade 11 learners in the control school provided evidence indicating that their perceptions of vulnerability to HIV/AIDS were more informed than those of learners in the experimental school exposed to the arepp: Theatre for life play. These results may have been a factor of the particular samples included in this study.

As a result, however, this evaluation could not provide conclusive evidence about the effect of the play. Nevertheless, it provided evidence supporting the results found ten years ago. The theoretical grounding of the programme allowed for hypotheses to develop around the possible effects the play had on specific aspects of the target audience related to a particular theoretical construct.

The results also highlighted significant differences between Grade 11 and Grade 10 learners in knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction. The physical age of the learner did not appear to be as important as educational level and/or social peer group norms in determining knowledge, attitudes and perceptions conductive to HIV/AIDS risk reduction. The results also highlighted the fact that Grade 10 and Grade 11 learners respond to the topic of HIV/AIDS very differently. Therefore the decision by the organisation to show different plays to

different Grade levels is a useful one. Peer education using theatre was also proposed as another option to enhance HIV prevention interventions of this nature.

In comparing the results yielded by this evaluation with those of Reekie's (1997) evaluation ten years ago, a number of changes were evident. In particular, it is evident at this point in time that the differences in attitudes and knowledge between male and female learners do not appear to be as large as they were ten years ago. In the current study, it appeared that although the learners had knowledge, attitudes and perceptions conducive to HIV/AIDS risk reduction, this was not affecting whether they chose to be sexually active or not. It was encouraging though that most of the sample who reported that they were sexually active also stated that they had used a condom (83%). This was much higher than earlier studies had reported. There were also high levels of intentions to use condoms amongst the sample.

The overall conclusion from this evaluation is that learners in both schools showed much higher levels of personal vulnerability to HIV/AIDS as compared to literature in the early 1990s. If the play had an effect on personal vulnerability, the results would point to possible effects of emotions while viewing the play and the effect of emotions on responses to evaluations.

In summary, this evaluation yielded some significant results. Overall, however, it was not possible to conclude on the basis of comparison of the particular samples of Grade 10 and Grade 11 learners included in this study that learners exposed to the arepp: Theatre for Life play had higher levels knowledge, attitudes and perceptions conducive to HIV risk reduction as compared to learners who had not seen the play. For more conclusive results to be obtained a modified version of this research design using a qualitative and quantitative multimethod theory driven approach, as well as a broader sample of experimental and control schools, would have been necessary.

REFERENCES

arepp:Theatre for Life (2006a). *General profile.* Retrieved November 1, 2007 from http://www.arepp.org.za/generalprofile.htm

arepp:Theatre for Life (2006b). *Methodology: Edutainment theatre*. Retrieved November 1, 2007 from http://www.arepp.org.za/methodology.htm

arepp:Theatre for Life (2006c). *The "Look Before You Leap" series*. Retrieved November 1, 2007 from http://www.arepp.org.za/grades8to12.htm

arepp:Theatre for Life (2006d). *Aims and objectives*. Retrieved November 1, 2007 from http://www.arepp.org.za/aims.htm

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annuals of child development: Six theories of child development*. (Vol. 6, pp. 1-60). Greenwich: JAI Press.

Bandura, A. (1990). Perceived self-efficacy in the exercise of control over AIDS infection. *Evaluation & Program Planning, 13*, 9-17.

Bandura, A. (1994). Social cognitive theory and exercise of control over HIV infection. In R.J. DiClemente & J.L. Peterson (Eds.), *Preventing AIDS: Theories and methods of behavioural interventions*. (pp. 25-59). New York: Plenum.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents*. (Vol. 5., pp. 307-337). Greenwich: Information Age Publishing.

Baron, R.A. & Byrne, D. (1997). *Social psychology.* (8th ed.). Boston: Allyn and Bacon.

Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51* (6), 1173-1182.

Blair, C., Valadez, J.J., Falkland, J. (1999). The use of professional theatre for health promotion including HIV/AIDS. *The Journal of Development Communication, 10* (1), 9-15.

Campbell, C., Foulis, C. A., Maimane, S. & Sibiya, Z. (2005). The impact of social environments on the effectiveness of youth HIV prevention: A South African case study. *AIDS Care, 17* (4), 471-478.

Campbell, C. (2004). The role of collective action in the prevention of HIV/Aids in South Africa. In K. Ratele, N. Duncan, D. Hook, N. Mkhize, P. Kiguwa, & A. Collins (Eds.), *Self, community and psychology*. (pp.12.1-12.25). Lansdowne: UCT Press.

Catania, J.A., Kegeles, S.M.& Coates, T.J. (1990). Towards an understanding of risk behaviour: An AIDS risk reduction model (ARRM). *Health Education Quarterly, 17* (1), 53-72.

Catania, J.A., Turner, H., Pierce, R.C., Golden, E., Stocking, C., Binson, D. & Mast, K. (1993). Response bias in survey of AIDS-Related sexual behaviour. In D.G. Ostrow & R.C. Kessler (Eds.), *Methodological issues in AIDS behavioural research*. (pp. 133-162). New York: Plenum.

Chabedi, M. (2003). State power, violence, crime and everyday life: A case study of Soweto in post-apartheid South Africa. *Social Identities, 9* (3), 357-371.

Chen, H.T. (1990). *Theory driven evaluations.* California: Sage.

Chen, H.T. & Rossi, P.H. (1987). The theory-driven approach to validity. *Evaluation and Programme Planning*, 10 (1), 95-103.

Crewe, M. (1992). *AIDS in South Africa: The myth and the reality*. Johannesburg: Penguin Books.

Copas, A.J., Johnson, A.M. & Wadsworth, J. (1997). Assessing participation bias in a sexual behaviour survey: Implications for measuring HIV risk. *AIDS, 11*, 783–790.

de Vaus, D.A. (1991). *Surveys in social research.* (3rd ed.). London: Allen & Unwin

DiClemente, R.J., Crittenden, C.P., Rose, E., Sales, J.M., Wingood, G.M., Crosby, R.A. & Salazar, L.F. (2008). Psychosocial predictors of HIV-associated sexual behaviors and the efficacy of prevention interventions in adolescents at-risk for HIV infection: What works and what doesn't work? *Psychosomatic Medicine, 70* (5), 598-605.

DiClemente, R.J. (1992). *Adolescents and AIDS: A Generation in jeopardy*. Newbury Park: Sage.

Eaton, L., Flisher, A.J. & Aarø, L.E. (2003). Unsafe sexual behaviour in South African youth. *Social Science & Medicine, 56* (1), 149-165.

Elliot, N., Crump, J., McGuire, A., Bagshaw, S., Chambers, S. (1999). Knowledge, attitudes and behaviour towards HIV infection among family planning clinic attendees: Changes between 1991 and 1997. *The New Zealand Medical Journal*, *112* (1085), 121-123.

Elmes, D.G., Kantowitz, B.H. & Roediger, H.L. (1999). *Research methods in psychology*. (6th ed.). Pacific Grove: Brooks/Cole.

Fisher, J.D. & Fisher, W.A. (2000). Theoretical approaches to individual level change in HIV risk behaviour. In J.L. Peterson & R.J. DiClemente (Eds.). *Handbook of HIV prevention.* (pp. 3-55). New York: Plenum.

Galavotti, C., Pappas-DeLuca, K.A. & Lansky, A. (2001). Modeling and reinforcement to combat HIV: The MARCH approach to behavior change. *American Journal of Public Health, 91* (10), 1602-7.

Gallant, M. & Maticka-Tyndale, E. (2004). School-based HIV prevention programmes for African youth. *Social Science & Medicine, 58* (7), 1337-1351.

Garson, G.D. (2008). *Testing of Assumptions. Syllabus for PA 765: Quantitative research in public administration*. Retrieved April 1, 2008 from http://www2.chass.ncsu.edu/garson/pa765/assumpt.htm

Gerrard, M., Gibbons, F.X. & Bushman, B.J. (1996). Relation between perceived vulnerability to HIV and precautionary sexual behavior. *Psychological Bulletin, 119* (3), 390-409.

Giuffre, M. (1997). Designing research: Ex post facto designs. *Journal of PeriAnesthesia Nursing, 12* (3), 191-195.

Gonzalez, J.A.G. (2000). The HIV/AIDS epidemic: An international perspective. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology.* (pp.948-950). New York: Kluwer Academic.

Gorsuch, R.L. (1997). Exploratory factor analysis: Its role in item analysis. *Journal of Personality Assessment, 68* (3), 532-560.

Gregson, S., Waddell, H. & Chandiwana, S. (2001). School education and HIV control in Sub-Saharan Africa: From discord to harmony? *Journal of International Development, 13,* 467-485.

Harman, H.H. (1967). *Modern factor analysis.* (2nd rev. ed.). Chicago: University of Chicago press.

Hartell, C.G. (2005). HIV/AIDS in South Africa: A review of sexual behavior among adolescents. *Adolescence, 40* (157), 171-181.

Harvey, B., Stuart, J. & Swan, T. (2000). Evaluation of a drama-in-education programme to increase AIDS awareness in South African high schools: A randomized community intervention trial. *International Journal of STD & AIDS, 11* (2), 105-111.

Hopkins, W. G. (2000). *A new view of statistics*. Retrieved April 1, 2008 from http://www.sportsci.org/resource/stats.htm

Jackson, D.A. (1993). Stopping rules in principal components analysis: A comparison of heuristical and statistical approaches [Abstract]. *Ecology, 74* (8), 2204-2214.

James, S., Reddy, S.P., Taylor, M. & Jinabhai, C.C. (2004). Young people, HIV/AIDS/STIs and sexuality in South Africa: The gap between awareness and behaviour. *Acta Paediatrica, 93* (2), 264-9.

Jemmott III, J.B. & Jemmott, L.S. (2000). HIV behavioural interventions for adolescents in community settings. In J.L. Peterson & R.J. DiClemente (Eds.). *Handbook of HIV prevention.* (pp. 103-127). New York: Plenum.

Johnson, B. (2001). Toward a new classification of nonexperimental quantitative research. *Educational Researcher, 30* (2), 3–13.

Joint United Nations Programme on HIV/AIDS (UNAIDS) & World Health Organisation (WHO) (2007). *2007 AIDS epidemic update*. Geneva: UNAIDS. Retrieved January 19, 2007 from http://data.unaids.org/pub/EPISlides/2007/2007_epiupdate_en.pdf

Kalichman, S.C., Simbayi, L.C., Kagee, A., Toefy, Y., Jooste, S., Cain, D. & Cherry, C. (2006). Associations of poverty, substance use, and HIV transmission risk behaviors in three South African communities. *Social Science & Medicine, 62* (7), 1641-1649.

Kang, S.Y., Deren, S., Andia, J., Colón, H.M. & Robles, R. (2004). Effects of changes in perceived self-efficacy on HIV risk behaviors over time. *Addictive Behaviors, 29* (3) 567-574.

Kelly, J.A., Murphy, D.A., Sikkema, K.J. & Kalichman, S.C. (1993). Psychological interventions to prevent HIV infection are urgently needed: New priorities for behavioral research in the second decade of AIDS. *American Psychologist, 48* (10), 1023-1034.

Kessler, R.C. (1993). Quasi-experimental designs in AIDS psychosocial research. In D.G. Ostrow & R.C. Kessler (Eds.). *Methodological issues in AIDS behavioural research*. (pp. 75-92). New York: Plenum.

Kirby, D. (2000). School-based interventions to prevent unprotected sex and HIV among adolescents. In J.L. Peterson & R.J. DiClemente (Eds.). *Handbook of HIV prevention.* (pp. 83-101). New York: Plenum.

Kirby, D. (1993). Sexuality education: It can reduce unprotected intercourse. *SIECUS Report, 21* (2):19-25.

Kim, J.C. & Watts, C.H. (2005). Gaining a foothold: Tackling poverty, gender inequality, and HIV in Africa. *British Medical Journal, 331,* 769-772.

Klimas, N., Koneru, A.O.B., Fletcher, M.A. (2008). Overview of HIV. *Psychosomatic medicine, 70* (5), 523-530.

Krueger, L.E., Wood, R.W., Diehr, P.H. & Maxwell, C.L. (1990). Poverty and HIV seropositivity: the poor are more likely to be infected. *AIDS, 4* (8), 811-4.

Kuhn, D., Steinberg, M., & Matthews, C. (1994). Participation of the school community in AIDS education: An evaluation of a high school program in South Africa. *AIDS Care, 6* (2), 161-171.

Latkin, C. A. & Knowlton, A. R. (2005). Micro-social structural approaches to HIV prevention: A social ecological perspective. *AIDS Care, 17* (1), 102-113.

Macintyre, K., Brown, L. & Sosler, S. (2001). "It's not what you know, but who you knew": Examining the relationship between behavior change and AIDS mortality in Africa. *AIDS Education Preview, 13* (2), 160–174.

Mathews, C., Kuhn, L., Metcalf, C.A., Joubert, G. & Cameron, N.A. (1990). Knowledge, attitudes and beliefs about AIDS in township school students in Cape Town. *South African Medical Journal, 78* (3), 511-516.

Meyer, W.F., Moore, C., Viljoen, H.G. (1997). *Personology: From individual to ecosystem.* (2nd ed.). Sandton: Heinemann.

Meyers, T.M., Pettifor, J.M., Gray, G.E., Crewe-Brown, H. & Galpin, J.S. (2000). Pediatric admissions with human immunodeficiency virus infection at a regional hospital in Soweto, South Africa. *Journal of Tropical Pediatrics 46* (4), 224-230.

Moore, S.M. & Rosenthal, D.A. (1991). Condoms and coitus: Adolescents attitudes to AIDS and safe sex behavior. *Journal of Adolescence, 14*, 211-227.

Motulsky, H. (1995). *Intuitive Biostatistics* [Electronic version]. New York: Oxford University Press. Retrieved March 30, 2008 from http://www.graphpad.com/www/book/choose.htm

Mouton, J. (2001). How to succeed in your master's and doctoral studies: A South African guide and resource book. Pretoria: Van Schaik.

Nell, M. & Shapiro, J. (2005). *"Beyond Gut Feeling"*. Report on the arepp: Theatre for Life Evaluation Project 2002-2004. (Available from Nell and Shapiro cc, Johannesburg, South Africa).

Neuman, W.L. (2000). *Social research methods: Qualitative and quantitative approaches.* (4th ed.). Boston: Allyn and Bacon.

Oakley, A., Fullerton, D. & Holland, J. (1995). Behavioural interventions for HIV/AIDS prevention. *AIDS, 9* (5), 479-486.

Ostrow, D.F. & Kalichman, S. (2000). Methodological issues in HIV behavioural interventions. In J.L. Peterson & R.J. DiClemente (Eds.). *Handbook of HIV prevention*. (pp. 67-80). New York: Plenum

Ostrow, D.G., Kessler, R.C., Stover, E. & Pequegnat, W. (1993). Design, measurement, and analysis issues in AIDS mental health research. In D.G. Ostrow & R.C. Kessler (Eds.). *Methodological issues in AIDS behavioural research*. (pp. 1-16). New York: Plenum.

Padayachee, G.N. (1991). Evaluation of AIDS prevention programmes: The key to success. *South African Medical Journal, 80* (7) 310-311.

Paniagua, F.A., O'Boyle, M., Wagner, K. & Ramirez, S.Z. (1994). AIDS-related items for developing an AIDS questionnaire for children and adolescents. *Journal of Adolescent Research, 9* (3), 311-341

Pauw, I. & Brener, L. (1997). Women and AIDS in South Africa. In C. De la Rey, N. Duncan, T.Shefer & van Niekerk (Eds.). *Contemporary issues in human development*. (pp.250-273). Halfway House: Thomson International.

Peltzer, K., Cherian, L., & Cherian, V.I. (2000). Knowledge, self-efficacy and behavioural intent towards AIDS prevention behaviours among culturally diverse secondary school pupils in South Africa. *East African Medical Journal, 77* (5), 279-282.

Pervin, L.A. & John, O.P. (1997). *Personality: Theory and research.* (7th ed.). New York: John Wiley & Sons.

Petersen, P. & Swartz, L. (2002). Primary health care in the era of HIV/AIDS: Some implications for health systems reform. *Social Science & Medicine, 55*, 1005–1013.

Reekie, J.M. (1997). *An evaluation of the efficacy of an AIDS prevention play for high-school students*. Unpublished masters thesis, University of the Witwatersrand, Johannesburg.

Rosenthal, R. & Rosnow, R.L. (1991). *Essentials of behavioural research: Methods and data analysis*. (2nd ed.). Boston: McGraw-Hill.

Rosenstock, I.M., Strecher, V.J. & Becker, M.H. (1994). The health belief model and HIV risk behaviour change. In R.J. DiClemente & J.L. Peterson (Eds.). *Preventing AIDS: Theories and methods of behavioural interventions.* (pp.5-24). New York: Plenum.

Rothenberg, R.B., Scarlett, M., del Rio, C., Reznik, D., O'Daniels, C. (1998). Oral transmission of HIV. *AIDS 12* (16), 2095–2105.

Rubin, D.B. (1987). *Multiple imputation for nonresponse in surveys.* New York: John Wiley & Sons.

Sagar, M., Lavreys, L., Baeten, J.M., Richardson, B.A., Mandaliya, K., Ndinya-Achola, J.O., Kreiss, J.K., Overbaugh, J. (2004). Identification of modifiable factors that affect the genetic diversity of the transmitted HIV-1 population. *AIDS, 18* (4), 615–619.

SAS Institute Inc. (2003a). *The factor procedure*. SAS Enterprise Guide Help. (4th ed.). [computer software]. Cary, NC, USA: SAS Institute Inc.

SAS Institute Inc. (2003b). *The univariate procedure*. SAS Enterprise Guide Help (4th ed.). [computer software]. Cary, NC, USA: SAS Institute Inc.

SAS Institute Inc. (2003d). *The corr procedure*. SAS Enterprise Guide Help (4th ed.). [computer software]. Cary, NC, USA: SAS Institute Inc.

Stadler, J.J., Delany, S. & Mntambo, M. (2008). Women's perceptions and experiences of HIV prevention trials in Soweto, South Africa. *Social Science & Medicine 66,* 189-200.

Sterk, C.E., Klein, H. & Elifson, K.W. (2004). Self-esteem and "at risk" women: Determinants and relevance to sexual and HIV-related risk behaviors. *Women Health, 40* (4), 75-92.

van Buuren, S. (2005). *Multiple imputation online*. Retrieved December 16, 2007 from www.multiple-imputation.com.

van Wyk, B. Strebel, A., Peltzer, K. & Skinner, D. (2006). Community-level behavioural interventions for HIV prevention in Sub-Saharan Africa. *Social Aspects of HIV/AIDS and Health Research Programme*. (Occasional Paper 3). Cape Town: HSRC Press.
Retrieved March 15, 2008 from www.hsrcpress.ac.za/downloadpdf.php?pdffile=files/PDF/2126/2126_00_hiv_prevention~23112005094600AM.pdf

Weiss, R.A. (1993). How does HIV cause AIDS? *Science, 260* (5112), 1273–9.

Wicks-Nelson, R. & Israel, A.C. (2000). *Behaviour disorders of childhood.* (4th ed.). New Jersey: Prentice Hall.

Wood, K., Maforah, F. & Jewkes, R. (1998). "He forced me to love him": putting violence on adolescent sexual health agendas. *Social Science & Medicine, 47* (2), 233-242.

Wulfert, E. & Wan, C.K. (1993). Condom use: A self-efficacy model. *Health Psychology, 12* (5), 346-353.