

E. de Groot

QUESTIONNAIRES QUESTIONED

The influence of response style when measuring attitudes towards HIV/AIDS among white Dutch
and black South African students

E. de Groot

QUESTIONNAIRES QUESTIONED

The influence of response style when measuring attitudes towards HIV/AIDS among white Dutch and black South African students

KU Nijmegen

Department of Business Communication

Nijmegen, the Netherlands, August 2003

Supervisors:

Prof. Dr. C. Jansen (KU Nijmegen, the Netherlands)

Ms D. Ehlers (UNISA, Pretoria, South Africa)

Abstract

In order to be able to improve HIV/AIDS prevention messages that are used in South Africa and often seem to be derived from messages that are developed for a Western audience, it is important to examine the differences and the similarities in beliefs and attitudes towards HIV/AIDS between people from Western cultures and South Africans.

Likert scale questionnaires are used frequently when measuring beliefs and attitudes. But before Likert scale questionnaires can be used to investigate attitudes and beliefs across cultures, attention should be paid to potential response style differences (systematic ways of answering which are not directly related to the question content, but which represent typical behavioural characteristics of the respondents). Respondents from culturally different groups may differ in response style, which might influence the results of comparative research in a way that could lead to misinterpretation of the results.

This study examines whether 7-point Likert scale questionnaires can be used in comparative studies between black South African and white Dutch students investigating attitudes and beliefs towards HIV/AIDS without running the risk of misinterpreting the outcomes because of response style differences between the target groups. First, it was investigated whether the target groups differ in response style. Then it was investigated in what specific ways the target groups differ in response style, and finally it was investigated whether observed response style differences would significantly influence the results of research that compares beliefs and attitudes towards HIV/AIDS between black South African students and white Dutch students. Results show that the participating white Dutch and black South African students did not differ much in response style, and that the differences that were observed did not influence the results of comparative research. Results also show that beliefs and attitudes towards HIV/AIDS among subgroups of black South African students may strongly vary. This implies that black South African students should not be treated as one group in communication about HIV/AIDS.

CONTENTS

Foreword	6
1 INTRODUCTION	7
1.1 Aids in Africa	7
1.2 South Africa's response	7
1.3 Limited success	8
1.4 EPIDASA-project	10
1.5 Likert scale questionnaires	10
2 THEORETICAL BACKGROUND	12
2.1 Fear appeals	12
2.1.1 History of fear appeals	12
2.1.2 The Extended Parallel Process Model	13
2.1.3 Cultural beliefs influencing the effectiveness of fear appeals	14
2.1.4 Specific African beliefs	16
2.1.5 Designing effective fear appeal messages for South Africa	16
2.2 Likert scale questionnaires across cultures	18
2.2.1 Questionnaires	18
2.2.2 Response style bias	18
2.2.3 Interpretation problems of cross-cultural research results as a consequence of response style differences	20
3 RESEARCH QUESTIONS	22
4 METHODOLOGY	23
4.1 Research questions	23
4.1.1 Do black South African students and white Dutch students differ in response style on a 7-point Likert scale?	23
4.1.2 If so, in what respects do black South African students and white Dutch students differ in response style on a 7-point Likert scale?	25
4.1.3 To what extent do differences in response style between black South African students and white Dutch students on a 7-point Likert scale questionnaire hinder results from comparative research?	26
4.2 Participants	26
4.3 Questionnaire design	26
4.3.1 The Risk Behaviour Diagnosis Scale	26

4.3.2	Explanatory questions	28
4.3.3	Language of the questionnaire	29
4.4	Procedure	29
5	DATA ANALYSIS	30
6	RESULTS	32
6.1	Do black South African students and white Dutch students differ in response style on a 7-point Likert scale?	32
6.2	If so, in what respects do black South African students and white Dutch students differ in response style on a 7-point Likert scale?	34
6.3	To what extent do differences in response style between black South African students and white Dutch students on a 7-point Likert scale questionnaire hinder results from comparative research?	35
6.4	Explanatory questions	35
6.5	Feedback on the questionnaire	36
7	CONCLUSIONS	37
	LITERATURE	39
	ATTACHMENTS	43
	Attachment 1	44
	Attachment 2	52
	Attachment 3	60
	Attachment 4	61
	Attachment 5	62
	Attachment 6	69
	Attachment 7	73
	Attachment 8	75

FOREWORD

In November 2001, I heard that a large-scale research project was going to be carried out by three South African (University of Pretoria, University of South Africa and University of Stellenbosch) and three Dutch Universities (KU Nijmegen, Twente and Tilburg). The goal of this EPIDASA-project was to analyse and improve the effectiveness of HIV/AIDS public information documents in South Africa. I immediately knew that I wanted to be part of this research project. A student-exchange agreement between aforementioned Universities made it possible for me and four fellow students (Rachèl Wannet, Deborah Moulen, Michel Lodder and Maarten Schumm) to go to Pretoria for six months to contribute to this research project.

Today I am glad to present my thesis on the presence and potential influence of response style differences on a 7-point Likert scale between black South African and white Dutch students. I would like to use this opportunity to thank my supervisors Prof. Dr. Carel Jansen and Ms Dineke Ehlers whose comments helped me to develop and conduct this research and who guided me through the writing process. I would also like to thank Dr. Frans van der Slik who helped with the necessary statistical analyses.

Special thanks goes to the supervisors in South Africa, Piet Swanepoel, Adelia Carstens, Elvis Saal and Dineke Ehlers who gave us a warm welcome and invited us for a South African dinner on the very first day we arrived. Thank you for your hospitality!

1 INTRODUCTION

1.1 Aids in Africa

In the early 1980s, AIDS appeared in Africa first around the Great Lakes region of Central Africa from where it spread rapidly throughout the whole of Africa. In the beginning, Uganda, Tanzania, Rwanda and the Republic of Congo were the countries with the greatest incidence of AIDS (Herselman 2001). Nowadays, HIV/AIDS is causing a crisis in sub-Saharan Africa and this region is known as the worst affected region in the world. In the report on the global HIV/AIDS pandemic (UNAIDS 2002: 17) it is stated that 'approximately 3.5 million new HIV infections occurred there in 2001, bringing the total number of people living with HIV/AIDS in sub-Saharan Africa to 28.5 million. Fewer than 30.000 people were estimated to have been benefiting from antiretroviral drugs at the end of 2001. The estimated number of children orphaned by AIDS living in the region is 11 million. Even if exceptionally effective prevention, treatment and care programmes would take hold immediately - South Africa's decision in August 2003 to make AIDS-medication available is promising in this respect- the scale of the crisis means that the human and socio-economic toll will remain significant for many generations.'

The pandemic in South Africa has been the last to develop in Africa and is one of the most severe in the world. The South African Ministry of Health (2002) states that HIV prevalence among pregnant women attending antenatal clinics reached 24.8% in 2001. About one in nine South Africans (or 5 million people) are living with HIV/AIDS, and it is estimated that over 60% of HIV infections occur before the age of 25 (loveLife 2000, 2001:5). Thousands of children in South Africa have been orphaned by AIDS-related deaths. Many families have lost one or both parents to the illness, and thousands of children have already contracted the disease as a result of mother-to-child transmission. In the report on the global HIV/AIDS pandemic (UNAIDS 2002) it is stated that the number of AIDS-related deaths among young adults is projected to peak in 2010-2015 in South Africa.

1.2 South Africa's response

The co-ordination of South Africa's response to the AIDS pandemic lies with the Directorate HIV/AIDS & STD's in the Department of Health. Over the years, the HIV/AIDS & STD's Directorate has run a number of national communication campaigns. One example is the Beyond Awareness Campaign, which formed the cornerstone of communications activities in South Africa. This campaign was conducted in two phases from 1997 to 2000. Next to awareness raising activities it provided and promoted access to communications tools and resources that could be used in support of prevention, care and support activities and initiatives at the local level. Placement of advertisements in print media and on television was an important part of the campaign.

Two other main HIV/AIDS prevention programmes in South Africa are the multimedia edutainment programme Soul City and the youth programme of loveLife (Coulson 2002).

Soul City has been the longest running project in the battle against HIV/AIDS. Their target audience consists of black and coloured South Africans between the ages of 16-65. Print media is used as a way of supporting the television and radio series. Soul City is mostly donor funded and has received in total approximately ZAR 8 million from the Department of Health. In 2001 they received ZAR 1 million and from 2002 this figure will be doubled (Coulson 2002).

The youth programme of loveLife is a five-year strategy designed to reduce the rate of HIV infection among 15-20 years old by 50% in five years. The annual budget for the youth programme of loveLife is ZAR 150 million of which ZAR 60 million is spent on their media component including television, radio, advertising and print media (Coulson 2002).

Before the development of the Beyond Awareness Campaigns, Soul City and the youth programme of loveLife, the use of national mass media for HIV/AIDS prevention in South Africa was very underdeveloped. While the first signs of the HIV/AIDS pandemic lead to major media advertising in other countries, South Africa was slow in its response. Nowadays, however, the South African government is spending more money than ever before on mass media campaigns for HIV/AIDS prevention.

1.3 Limited success

Despite the money spent on HIV/AIDS prevention, HIV/AIDS campaigns in South Africa seem to remain only partially successful (EPIDASA-project: Effectivity of Public Information Documents on Aids in South Africa 2003). The question arises why this is the case.

Developing public health campaigns includes developing public information documents, such as leaflets, posters, booklets and brochures. These documents are of great importance in HIV/AIDS prevention campaigns and other HIV/AIDS prevention programmes because they can contribute to disease prevention and health promotion. To develop public information documents, the documents should be based on theories, methodologies and heuristics from the field of document design, which provide the theory and practice of designing effective documents in the field of HIV/AIDS communication. From a great number of studies in the field of document design, it is obvious that the interaction between document characteristics on the one hand and target group characteristics on the other hand is of central importance in order to produce effective public information documents (for an overview see Schriver 1997). Jansen and several students of KU Nijmegen, for example, conducted a study on the effectiveness of culturally tailored HIV/AIDS documents among sub-Saharan Africans in the Netherlands. Based on

responses to the questionnaire they developed, a distinction was made between respondents with traditional values and respondents with non-traditional values. Results showed that respondents with traditional values had different perceptions of AIDS than respondents with non-traditional values. Respondents with traditional values also indicated more often that they would visit a traditional healer (next to visiting a Western doctor) compared to respondents with non-traditional values. These findings support the document design theory that traditional cultural beliefs should be taken into consideration when designing HIV/AIDS public information documents, because these beliefs indeed do influence ideas on HIV/AIDS (Jansen 2003).

Maibach and Parrott (1995) also argued that public information campaigns for racial and ethnic populations should have an audience-centred perspective in which the realities of people's everyday lives and their current practices, attitudes and beliefs, and lifestyles are reflected. Kreuter, Strecher and Glassman (1999) share this opinion and stated that 'targeting specific segments of a population and tailoring messages' are methods to make prevention initiatives effective for the target audiences. De Jong and Schellens (2000) even argued that the effectiveness of public information documents mainly depends on the extent to which these documents are tailored to their readers. Michal-Johnson and Perlmutter Bowen (1992) also suggested that HIV education and prevention messages that take into account cultural characteristics create the best opportunity to offer believable messages in communities of colour. Airhihenbuwa (1995) argued that African theory and practice, particularly in the context of health, should be rooted in African cultural codes and meaning. He stated that those who develop health and education programmes must 'carefully examine the differences as well as the similarities in cultural perceptions, so as to understand health belief and practices more fully and to address them appropriately within their particular contexts.' Van Dyk (2001) argued that Western-based education and prevention programmes will never succeed if the diverse cultural and belief systems in Africa are not understood and integrated into such programmes. These theories underscore document design theories that argue that cultural characteristics should be taken into account when effective HIV/AIDS prevention messages need to be developed.

In South Africa, however, the development of models for public health campaigns is largely uncharted territory (Coulson 2002) and research into the field of document design is just getting started. This implies that, until now, HIV/AIDS prevention campaigns in South Africa have been based on Westernised models of prevention, and that HIV/AIDS prevention campaigns which did not take cultural characteristics of South African target groups into account have been applied in an African context. This is in contradiction with all document design theories that state that in order to develop *effective* health campaigns and prevention messages, cultural characteristics of the target group should be taken into account. If HIV/AIDS prevention messages in South Africa indeed have been based on

prevention messages that are developed in the West, for a Western target audience, then this may be one of the main reasons for the limited success HIV/AIDS prevention messages in South Africa.

1.4 EPIDASA-project

Since 2002, researchers and students from three South African universities (UNISA, Pretoria and Stellenbosch) and three Dutch universities (KU Nijmegen, Tilburg and Twente) have been making a joint effort to improve the effectiveness of public information documents on HIV/AIDS in South Africa (EPIDASA-project 2003). The EPIDASA-project is divided into several subprojects, and one of the subprojects focuses on analysing and improving the effectiveness of fear appeal messages in South Africa. Fear appeal messages to promote health are widespread (Hale & Dillard 1995) and emphasise the harmful physical or social consequences of failing to comply with message recommendations (Witte 1992, 1998).

In order to analyse and improve HIV/AIDS fear appeal messages which are used in South Africa and which are probably derived from messages that are developed for a Western audience, it is necessary to investigate differences as well as similarities in cultural beliefs and attitudes towards HIV/AIDS between Western and South African target groups.

1.5 Likert scale questionnaires

The investigation of similarities and differences in attitudes and beliefs on HIV/AIDS between two different cultural groups can be carried out by conducting comparative research. In the Western world, attitudes and beliefs are usually measured with 7-point Likert scale questionnaires. However, respondents belonging to various cultural groups may differ in response style when Likert scale questionnaires are used. Response style can be described as 'systematic ways of answering which are not directly related to the question content, but which represent typical behavioural characteristics of the respondents' (Oskamp 1977). Differences in response style may hinder the interpretation of results of comparative research because they may significantly influence the results. If no attention is paid to the possibility of response style differences, wrong conclusions might be drawn from comparative research on HIV/AIDS.

The following study investigates whether 7-point Likert scale questionnaires can be used in comparative research that investigates similarities and differences in cultural perceptions on HIV/AIDS without running the risk of misinterpreting results of the research. The Western respondent group is represented by a white Dutch group of students and the South African target group is represented by a group of black South African students. It is researched whether the two groups differ in response style, in what way they differ in response style and whether differences in response style influence the results measured

with a 7-point Likert scale. This study also serves as pilot study for fear appeal research in South Africa, which is why some attention is also paid here to fear appeal theories and which is why the items analysed for response style differences have been based on the underlying constructs of fear appeal messages.

Chapter 2.1 explains how fear appeal messages work and how cultural beliefs and attitudes may influence the effectiveness of fear appeal messages. Chapter 2.2 provides information about problems that may occur when Likert scale questionnaires are used cross-culturally. Chapter 3 describes the research questions. Chapter 4 and 5 provide the methodology and data analysis of the experiment that has been conducted to answer the research questions. Chapter 6 discusses the results of the experiment and chapter 7 presents the conclusions.

2 THEORETICAL BACKGROUND

2.1 Fear appeals

Unprotected sex remains the main cause of HIV infections in South Africa. A question that is of particular importance within the context of South African campaigns is therefore how texts that are aimed at behaviour change in order to constitute safer sex practices should be tailored to a South African target audience. One strategy that has been used extensively when behaviour change needs to be constituted is the fear appeal message (Mongeau 1998).

Since research into the field of document design is just getting started in South Africa, current fear appeal messages are probably based on, or copied from Western fear appeal messages. Western fear appeal messages on HIV/AIDS are developed for respondents belonging to Western cultures and will therefore be tailored to Western beliefs and attitudes towards HIV/AIDS. These fear appeal messages will probably not be similarly effective for South African target groups since they have different cultural beliefs and attitudes towards HIV/AIDS. Since effective fear appeal messages for South Africa can only be developed if cultural characteristics of South African target groups are taken into account, it is important to investigate how South African target groups differ in their attitudes and beliefs towards HIV/AIDS from Western target groups.

This chapter describes how fear appeals work and how cultural beliefs may influence the effectiveness of fear appeal messages.

2.1.1 History of fear appeals

A fear appeal message tries to convince the audience by showing the negative consequences that will occur if the audience does not comply with the message recommendations (Perloff 2001). Fear appeal messages first began to be studied in the early 1950s. At this time it was believed that fear was a negative drive, an unpleasant state, and that people would want to get rid of that unpleasant feeling of fear. Specific behaviours were offered in the message that, if performed, would eliminate the threat and presumably the fear. The trick was to arouse enough fear to motivate action, but just enough so the recommended response eliminates the fear and becomes the reinforced response (Janis 1967). However, Dabbs and Leventhal (1966), Higbee (1969), Leventhal, Jones and Trembly (1966) and Leventhal, Watts and Pagano (1967) as referred to in Witte et al. (1996) contradicted the theory that a moderate amount of fear would lead to the greatest behaviour change in later studies. They found that one could have high levels of fear *and* high levels of behaviour change.

Leventhal (1970, 1971) found that two distinct processes occurred in responses to fear appeal messages (Parallel Process Model). He separated the cognitive from the emotional responses. Leventhal said that when people thought about the danger and ways to control it, they were likely to make recommended behavioural changes and protect themselves against the danger (danger control process). When people focused on controlling their feelings, they would be more likely to engage in maladaptive processes to control their fear (fear control process).

Rogers (1975) focused on the 'danger control' side of Leventhal's Parallel Process Model. He proposed a protection motivation explanation hypothesizing that persuasive outcomes would be a multiplicative function of a) the severity of the threat, b) the target group's vulnerability to the threat, and c) response efficacy. If a health message failed to depict a negative outcome, it would not be persuasive. If the message predicted a negative outcome, but the target group did not feel vulnerable or at risk for the negative outcome, then the fear appeal would not be persuasive. If a message depicted a negative outcome and the target group felt vulnerable to the outcome, but the recommended means to avoid the outcome was ineffective, the fear appeals would not produce the recommended behaviour and the fear appeal would still not be persuasive (Hale & Dillard 1995).

Beck and Frankel (1981) argued that a differentiation should be made between personal efficacy on the one hand and response efficacy on the other. Personal efficacy refers to the ability to perform the recommended response. Response efficacy refers to beliefs about the effectiveness of the recommended response (Hale & Dillard 1995).

None of the aforementioned theories, however, explained potential failures or sometimes even backfiring of fear appeal messages. Witte (1992,1998) developed a theory that explains both successes and failures of fear appeals. She integrated existing fear appeal theories and expanded upon Leventhal's Parallel Process Model. She also took previous behavioural change theories into account such as the Health Belief Model (Janz & Becker 1984; Rosenstock 1974), the Theory of Reasoned Action (Ajzen & Fishbein 1980), the social-cognitive theory (Bandura 1989) and the Elaboration Likelihood Model (Petty & Cacioppo 1986). This resulted in the Extended Parallel Process Model (EPPM).

2.1.2 The Extended Parallel Process Model

According to the EPPM, health risk messages initiate two cognitive appraisals; an appraisal of the threat and an appraisal of the efficacy of the recommended response. The first cognitive appraisal is of the threat. When people are presented with a health risk message, people first think about whether the threat is relevant to them (susceptibility), and whether the threat is significant (severity). If people perceive the threat as irrelevant to them or if they do not perceive the threat as significant, the message will be ignored. If people *do*

believe that they are vulnerable to the threat and/or do believe it could lead to serious harm, then they become fearful and motivated to act. The greater the perceived threat, the more motivated individuals are to begin the second appraisal, which is an evaluation of efficacy of the recommended response. When people think about the recommended response, they evaluate the level of response efficacy as well as their level of self-efficacy. If people think they can perform the recommended response and they believe that the recommended response works in averting the threat, the message leads to a danger control response. The thoughts occurring in the danger control processes elicit protection motivation, which stimulates adaptive actions such as attitude, intention or behaviour changes that control the danger. Thus, when individuals perceive themselves to be vulnerable to a serious risk, and when they believe they can do something to effectively and easily avert that risk, then they protect themselves against the threat. However, if persons realise that they cannot prevent a serious threat from occurring, either because they believe the response to be ineffective and / or because they have low self-efficacy and believe they are incapable of performing the recommended response, fear control processes will begin to dominate over danger control processes. Fear control processes are emotional processes where people cope with their fear instead of the danger. When people focus on controlling their fear, they will not protect themselves against the health threat (Witte 1992, 1998).

In short, threat motivates action, any action, and perceived efficacy determines whether the action taken controls the danger (which is protective) or controls the fear (which inhibits protective behaviour). For successful campaigns, it is critical that high threat messages are accompanied by high efficacy messages.

2.1.3 Cultural beliefs influencing the effectiveness of fear appeals

In the past, fear appeals have shown to be effective in convincing people to change behaviour. 'However, most fear appeal research has been conducted with members of individualist cultures' (Murray-Johnson, Witte, Liu, Hubbell, Sampson, & Morrison 2001). Members of individualist cultures tend to place individual needs and concerns above group needs and concerns (Hui & Triandis 1986 and Triandis, Brislin & Hui 1988). A self-targeted threat may therefore appear very important because individuals recognise that their behaviour alone, regardless of in-group behaviour, will determine their ability to avert the threat.

In traditional African cultures though, including black cultures in South Africa, family and community are more central to the construction of health and well-being than the individual (Airhihenbuwa 1995). Airhihenbuwa, Makinwa and Obregon (2000) state that 'in these (African) cultures, individuals are less likely to articulate their level of well-being from the standpoint of ego' (the 'I'). It is the state of well-being of family and community that

regulates how individuals measure their state of health.' Therefore, individual targeted threats in fear appeal messages may be less effective for members of these collectivist cultures than for members of individualist cultures. 'Members of collectivist cultures may for example have greater motivation to comply with a message's recommendations when their group is threatened than when they themselves are threatened' (Murray-Johnson et al. 2001).

Murray Johnson et al. (2001) investigated the effectiveness of individualist and collectivist oriented fear appeal messages among individualist and collectivist cultures. In their first study with Mexican and African-American respondents, they found that an individualist oriented fear appeal raised more fear among the individualist culture and a collectivist oriented fear appeal raised more fear among the collectivist culture. In this study, however, cultural orientation was assumed based on ethnicity. In a second study with Chinese/Taiwanese and American respondents, cultural orientation was measured on the individual level instead of being ascribed to the individual's cultural heritage (Murray-Johnson et al. 2001). The assumption based on Hofstede's (1980, 1983 as referred to in Murray-Johnson et al. 2001) categorization of Taiwan as a more collectivist culture was contradicted by the results: Chinese / Taiwanese respondents were found to be more idiocentric (individualistically oriented) while Americans were found to be more allocentric (collectively oriented). One explanation might be that respondents are influenced by their social contexts in activating allocentric or idiocentric values within themselves (Triandis 1995, as referred to in Murray-Johnson et al. 2001). Results of these studies showed that cultural orientation should indeed be taken into account when effective fear appeal messages need to be developed, but results also showed that cultural orientation could not be assumed based on ethnicity.

This finding should be taken into consideration. It suggests that it cannot be assumed that, based on ethnicity, black South African groups are collectivist oriented and that a collectivist oriented fear appeal message will be more effective than an individualist oriented fear appeal message.

Besides investigating whether black South African target groups would have a more individualist or collectivist cultural orientation, investigating specific cultural beliefs and attitudes that exist towards HIV/AIDS seems necessary. Black South African target groups have a different worldview when it comes to illness, AIDS and safer sex practices compared to Western target groups. It is necessary to have knowledge of specific cultural beliefs, not only to decide on the right focus of the threat for the fear appeal message, but also to provide effective recommendations to avert the threat.

2.1.4 Specific African beliefs

Taking a closer look at certain cultural beliefs regarding illness in general, and HIV-infection, AIDS and safer sex practices in particular provides a good insight into cultural beliefs that could influence the effectiveness of fear appeal messages. Traditional Africans have different worldviews with respect to causation of illness, fear of death and dying and with respect to the consequences of certain behaviour compared to Western people (Hammond-Tooke 1989, as referred to in Van Dyk 2001). The traditional African worldview includes the belief in the influence of ancestor spirits, the belief in witchcraft and pollution beliefs. It is believed that ancestors look after the interests of their descendants, but that they can also send illness and misfortune if moved to wrath. Thus ancestor beliefs provide an explanation of sickness and misfortune. Witchcraft is the belief 'that certain individuals, driven by envy and malice, send mythical animals to harm others.' Another belief is that some forms of illness and malaise are caused because people find themselves, often inadvertently, in a state of ritual impurity (widows, women who have had an abortion or miscarriage, persons who have handled a corpse, twins). These beliefs represent an *external locus of control*, which means that traditional Africans believe that their health is not determined by their own behaviour, but by powerful others; the outcome of an event is beyond their control. The external locus of control, which implies that many people in Africa do not consider their own behaviour as a possible reason for HIV infection, has important consequences for the design of effective fear appeal messages for members belonging to traditional African cultures.

A more specific cultural difference with regard to having unprotected sex is the widespread belief among for example the Zulus in South Africa that 'repeated contributions of semen are needed to form or 'ripen' the growing fetus in the womb and that condoms interfere in the process of natural fetal development' (Van Dyk 2001). It is also believed that semen provide vitamins which necessary for the continued physical and mental health, the beauty and the future fertility of women (Heald 1995; Ngubane 1977; Schoepf 1992, as referred to in Van Dyk 2001).

2.1.5 Designing effective fear appeal messages for South Africa

Considering the aforementioned cultural attitudes and beliefs, it seems obvious that fear appeal messages that have been designed in the Western world where it is believed that an individual can prevent HIV/AIDS (the threat) by using condoms (the recommended response) (high efficacy), cannot be uncritically copied and exported to a country like South Africa, where different cultural groups believe that HIV infection is not caused by their own behaviour (low self-efficacy) and where condom use is not considered a solution to HIV-infection (perceived response efficacy is low). Document design theories clearly showed that it is necessary to take cultural characteristics of the target group into account when effective public information documents need to be developed. In order to be able to

improve the existing Western-derived fear appeal messages, researchers must 'carefully examine the differences as well as the similarities in cultural perceptions, so as to understand health beliefs more fully and to address them appropriately within their particular contexts' (Airhihenbuwa 1995). This implies that in order to develop effective fear appeal messages for South Africa, comparative research between people from Western and South African groups on attitudes and beliefs towards HIV/AIDS is necessary.

In order to conduct comparative research between two culturally different target groups, valid research instruments are necessary. A widely used measuring instrument among Western researchers to measure beliefs and attitudes is the Likert scale questionnaire. A new question arises; can Likert scale questionnaires be used cross-culturally without running the risk of misinterpreting the results of comparative research between the target groups?

2.2 Likert scale questionnaires across cultures

Comparative research between people from Western and South African groups into the attitudes and beliefs with regard to HIV/AIDS is necessary in order to develop effective fear appeal messages for South Africa. In order to compare attitudes and beliefs between two groups, valid research instruments are necessary. In the communication field in the Western world, many researchers collect their data through the use of structured questionnaire surveys, often employing Likert scale response options. These Likert scale response options are so popular because of their convenience; they are easy to explain and produce straightforward data.

2.2.1 Questionnaires

A structured questionnaire is a research instrument that consists of a set of scales that converts the constructs that are being studied into numerals. Usually rating scales offer between 4 and 11 response alternatives, i.e. ordinal scale points which are supposed to be equidistant. Numbers of words or graphic symbols (or a combination thereof) can be used to denote the categories, but verbal labelling has become the dominant approach to facilitate communication (Rohrmann 2002). Either words or short expressions are used, e.g. 'never / seldom / sometimes / often / always', 'not / slightly / fairly / quite / very', 'bad / poor / fair / good / excellent', 'strongly disagree / disagree / undecided / agree / strongly agree.' Instead of labelling every point, only the scale endpoints may be verbalised. How scale points are denoted is very likely to affect response behaviour (Dixon, Bobo & Stevick 1984; LeBlanc et al. 1998; Lehto, House & Papastavrou 2000).

One standard method is used extensively by communication researchers: Likert's summated rating method. Smith (1988) found that in the communication field in the Western world, many researchers collect their data using questionnaires employing Likert scale response options (Smith 1988).

Likert's Summated Rating Method

This method, often known as Likert scales, is a widely used measuring instrument among researchers. Likert scales consist of a series of positive and negative opinion statements concerning a construct, each accompanied by a five- or seven- point response scale. Respondents are asked the extent of their agreement or disagreement with each statement on a scale ranging from 'strongly disagree' to 'strongly agree'. Thus Likert scales are forced-choice instruments, requiring respondents to select one response from a fixed set of options provided by the researcher.

2.2.2 Response style bias

In cross-cultural research, which compares the individuals of different cultures in their responses to various items of interest, Likert scale questionnaires are a popular measuring

instrument. Cheung and Rensvold (2000), however, argue that one needs to be careful not to uncritically compare the scale scores of a scale that has been validated in Culture A and which has been administered in Culture B, because cross-cultural bias may occur.

In cross-cultural psychology, item bias refers to 'every difference in an observed score for which no corresponding difference can be found in the psychological domain to which the scores are generalised' (Poortinga & Malpass 1986, Van de Vijver & Leung 1997). Van de Vijver and Leung (1997) identified the most common causes of item bias. These included poor item translation and inadequate item formulation (e.g. complex wording). Also, contents of items are not always appropriate in all cultures. When numbers are used, as is often the case, respondents with different cultural backgrounds may have different associations with these numbers. For instance, in the Dutch educational system, grades range from 1 to 10, where 1 means a low grade and 10 is high. In the German educational system, grades 1 to 6 are used but in Germany low numbers indicate high grades. This difference between the two countries may be reflected in response behaviour. A partial solution to this problem is not to label scale points with numbers, but to provide only verbal labels (Krosnick & Fabrigar 1997). Furthermore, respondents from different cultures may be more or less experienced in filling out such questionnaires, which may influence their responses. However, in this study the focus is on another kind of bias.

One main consideration in cross-cultural research is the problem of a difference in response styles for self-rating scales. Response styles are defined here as 'systematic ways of answering which are not directly related to the question content, but which represent typical behavioural characteristics of the respondents' (Oskamp 1977). If two target groups have a different response style, then this might cause problems in the interpretation of the results of comparative research. Let's say that attitudes and beliefs of group X and Y need to be compared with each other. Respondents of group X always use the extreme response categories on a scale to express their agreement or disagreement. Respondents from group Y on the other hand, always use modest response categories; the categories next to the midpoint to express their agreement or disagreement. If results between these two groups are compared, differences may be found. However, the problem is that it is unknown whether or not this result has been influenced by the different response styles.

Smith (2001) argues that it is well established that respondents in different nations vary in response style. Bachman and O'Malley (1984) conducted research among black and white Americans and found for example that blacks were more likely than whites to use the extreme response categories on Likert-type scales. Hui and Triandis (1989) who investigated whether Hispanics had an extreme response style found that Hispanics used the extremes on a 5-point Likert scale more frequently than non-Hispanics. Other studies

also showed the existence of response style differences between people of different cultures. Lee and Green (1991) discovered that Koreans tend to avoid extremes and prefer the midpoints of scales. Chen, Lee and Stevenson (1995) found that Japanese respondents tend to use the middle of rating scales while western respondents are more likely to use the full range response options. Zhang and Gelb (1996) compared the responses of Chinese and American participants. They found that Chinese participants are less likely to use the end points of the scale than U.S. participants. Korzenny, Korzenny and Wong (2002) state that Hispanic respondents are known for using extremes of scales while Asian respondents tend to avoid the extremes.

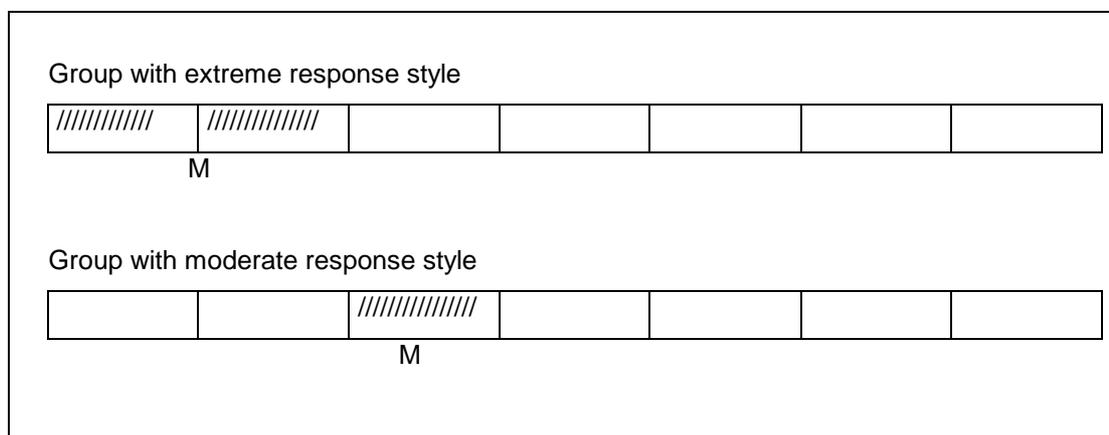
Hui and Triandis (1989) provide a possible explanation for the differences in response style. They state that members of certain cultures may desire to appear modest and non-judgemental. To use scores around the midpoint of the scale would be an expression of this modesty, whereas the use of the extremes of the scale would be in 'poor taste' and boisterous. Members of other cultures, however, may wish to demonstrate sincerity and conviction. They may use extreme response categories because they consider such a response sincere. To use the middle of the scale would be considered as trying to hide one's feelings.

2.2.3 Interpretation problems of cross-cultural research results as a consequence of response style differences

Clarke (2000) argues that bias that is caused by differences in response style may alter statistical analysis in cross-cultural research. Cheung and Rensvold (2000) also argue that differences in response style between two cultures are a hazard for cross-cultural research because they may affect interpretation.

Groups are usually compared on the basis of mean scores. If two groups that differ in response style respond to the same statement, the following pattern may occur:

Figure 2.2.3.1



The mean scores will be different between the two respondent groups, but the difference in mean scores may not be automatically interpreted as a difference in belief or attitude. The difference may also be caused by the differences in response style. Black South African respondents might have used more modest response categories where the white Dutch respondents used the extreme response categories while expressing the same opinion.

A difference in mean scores, which might be interpreted as a difference in belief or attitude, leads to certain design decisions when designing HIV/AIDS prevention messages to South African target groups. However, the difference could also have occurred as a consequence of differences in response style between the target groups, and different design decisions would be more appropriate.

Because document design decisions will be influenced by results from comparative research between the target groups, the research instrument should produce unambiguous results. If potential differences in response style on Likert scale questionnaires significantly influence the results of comparative research, then Likert scale questionnaires should be used with the greatest care when conducting comparative research on HIV/AIDS between these target groups. Hence, it seems of crucial importance to investigate whether the target groups differ in response style and to what extent response style differences hinder the interpretation of results of comparative research when a 7-point Likert scale questionnaire is used.

3 RESEARCH QUESTIONS

Research into document design clearly shows that the effectiveness of documents may be influenced by the extent to which the message is tailored to the target group. So far, most HIV/AIDS persuasive prevention messages in South Africa have been based on Western-derived theories. Considering the limited success of these messages, it seems important to investigate how these messages can be tailored to South African target groups.

Comparative studies into cultural beliefs and attitudes with regard to HIV/AIDS among both black South African target groups and Western target groups are needed. These beliefs and attitudes are usually measured with 7-point Likert scale questionnaires. As discussed above, it was found that cultures might differ in their response style. If some groups have a general tendency toward the extreme response categories, while others tend to use response categories around the midpoint of the scale, the scores may be influenced by the differential response styles. If comparative research needs to be conducted between Western and South African groups to learn more about their different beliefs and attitudes, it is first of all important to investigate whether these groups differ in their response style on a 7-point Likert scale questionnaire and whether potential differences would hinder the interpretation of results of comparative research between these groups.

The research questions:

- 1) *Do black South African students and white Dutch students differ in response style on a 7-point Likert scale questionnaire on HIV/AIDS?*
- 2) *If so, in what respects do black South African students and white Dutch students differ in response style on a 7-point Likert scale?*
- 3) *To what extent do differences in response style between black South African students and white Dutch students on a 7-point Likert scale questionnaire hinder the interpretation of results from comparative research?*

4 METHODOLOGY

The previous chapters described the necessity of tailoring Western-derived HIV/AIDS prevention messages to a South African audience and the necessity of investigating the influence of response style differences before drawing conclusions from comparative HIV/AIDS research between Western and South African groups. An experiment was designed in order to investigate the research questions. This chapter describes the design of the experiment.

4.1 Research questions

To determine whether the white Dutch students and the black South African students differed in response style on a 7-point Likert scale questionnaire, a 7-point Likert scale questionnaire on HIV/AIDS was developed (see attachment 1 and 2). Both groups filled out this questionnaire. The independent variable in the experiment was the cultural group: a Western respondent group, represented by white Dutch students, and a South African respondent group, represented by black South African students. The dependent variable was response style.

4.1.1 Do black South African students and white Dutch students differ in response style on a 7-point Likert scale questionnaire on HIV/AIDS?

This research question wanted to find out whether the two cultural groups differed in response style on a 7-point Likert scale questionnaire. Response style is defined as a systematic way of answering which is not directly related to the question content, but which represents typical behavioural characteristics of the respondents (Oskamp 1977). In this study, a potential difference in response style was detected when a structural difference in variance around the mean was found between the respondent groups. A difference in variance around the mean can be measured by comparing standard deviations of the respondent groups. If a significant difference in standard deviations was found, then the respondent groups differed in variance around the mean. Whether the difference in variance around the mean was *independent of the content of the statement* (and thus due to response style differences), was measured by comparing standard deviations on the original scale with standard deviations on a collapsed scale (see paragraph 4.1.2). If the difference in standard deviations disappeared on the collapsed scale while it was present on the original scale, then a difference in response style was detected.

Firstly, it was investigated whether or not the responses of the two groups differed in variance around the mean. To test this, Levene's tests for equality of variances were performed. If Levene's tests for equality of variances would not show significant differences in variances between the groups, it would mean that there was no significant difference in response styles. If Levene's tests for equality of variances *would* show significant

differences in variances between the groups, it would mean that a difference in response style *could* indeed be present.

Secondly, it was investigated whether the differences in variance were independent on the content of the statement (response style differences were detected only when the difference in variance was independent on the content of the statement). To investigate this, the concept of a collapsed scale was used. On a collapsed scale the various degrees of agreement (strongly agree and agree) are combined into a simple 'agree', the various degrees of disagreement (strongly disagree and disagree) are combined into a simple 'disagree' and the various neutral degrees (partially agree, neutral and partially disagree) are combined into one neutral category.

Figure 4.1.1 An original 7-point Likert scale and a collapsed version

Original scale						
Strongly disagree	disagree	partially disagree	neutral	partially agree	agree	strongly agree
1	2	3	4	5	6	7
Collapsed scale						
disagree		neutral		agree		
1		2		3		

The collapsed scale was developed as follows: the original scoring scale in all cases assigned a score of '7' to the response showing the strongest form of agreement, a score of '6' to the response showing the next strongest form of agreement, a score of '5' to partial agreement, a score of '1' to the response showing the strongest disagreement, a score of '2' to the response showing the next least form of agreement, a score of '3' to the response showing partial disagreement, and a score of '4' to the neutral midpoint response. The collapsed scoring scale assigned a score of '3' to responses showing strong agreement or agreement (i.e. categories that scored '6' and '7' in the original scale version), a score of '1' to responses showing strong disagreement or disagreement ('1', and '2' in the original scale version) and a score of '2' to neutral responses (i.e. categories that scored '3', '4' and '5' in the original scale version) (based on Bachmann & O'Malley 1984).

The collapsed scale does not have extreme response categories; extreme and less extreme answers are combined into one category. Since distinctions between extreme and less extreme answers are no longer visible on the collapsed scale, differences in variance

around the mean that were caused on the original scale by a systematically different use of the extreme and less extreme response categories (response style differences) would be no longer visible on this collapsed scale.

This implies that if Levene's tests for equality of variances performed on the collapsed scale would not show a difference in variance around the mean, while the same test performed on the original scale *would* show such differences in variances, then a difference in response style was detected. If a difference in variance would occur on the collapsed scale *and* on the original scale, the difference in variance would not be due to response style differences. The question then arises how differences in variance that occur on the collapsed can be explained in such a case. The answer is that in such a case respondents within one group would have different opinions, whereas respondents within the other group would have more similar opinions.

4.1.2 If so, in what respects do black South African students and white Dutch students differ in response style on a 7-point Likert scale?

Response style differences were caused by a systematically different way of responding to statements independent on the content of the statement. So far it has been described how the presence of response style differences was investigated. This paragraph describes the analyses that were conducted to find out in what way the two respondent groups differed in response style. These analyses were carried out only for items for which a response style difference was detected.

In the first analysis, only the response categories 1 and 7 were considered extreme response categories. In a second analysis, the response categories 1,2 and 6,7 were considered extreme response categories.

In the first analysis, the extreme scores (1, 7) were recoded into 1 and the non-extreme scores (2, 3, 4, 5 and 6) were recoded into 2. For each group of respondents, the numbers 1 were counted and chi-square tests were performed (in cases where the expected frequencies were smaller than 5, exact tests were performed) to see if each of the groups differed significantly in their use of the extreme categories as opposed to the less extreme response categories.

In the second analysis, the extreme scores (1, 2, 6, 7) were recoded into 1 and the non-extreme scores (3, 4, 5) were recoded into 2. For each target group, the numbers 1 were counted and exact chi-square tests were performed to see if each of the respondent groups differed significantly in their use of the extreme categories (1, 2, 6, 7) as opposed to the less extreme response categories (3, 4, 5).

4.1.3 To what extent do differences in response style between black South African students and white Dutch students on a 7-point Likert scale questionnaire hinder the interpretation of results from comparative research?

If response style differences were found between the two participating groups, it needed to be investigated whether these differences would hinder the interpretation of the results of comparative research. In other words, would response style differences significantly influence the results of comparative research? Analyses to investigate this were only carried out for items for which a response style difference was found. The results of independent sample t-tests on the original scale were compared with results of independent sample t-tests on the collapsed scale. If the mean scores differed on the original scale, and also differed on the collapsed scale or if mean scores did not differ on the original scale and also did not differ on the collapsed scale, the conclusion could be drawn that response style differences had not significantly influenced the results. If on the other hand, mean scores did differ on the original scale, but did not differ on the collapsed scale, or vice versa, the conclusion could be drawn that response style differences had significantly influenced the results.

4.2 Participants

The target audience in this study consisted of 46 black South African students and 46 white Dutch students. 19 students were studying at UP (University of Pretoria) and 27 students were studying at VISTA University in the township of Mamelodi. The Dutch participants were all studying at KU Nijmegen (the Netherlands). The South African respondent group included 25 males and 21 females, the Dutch respondent group included 11 males and 35 females. The mean ages of the South African and Dutch students were respectively 21.39 and 22.15. The minimum age among both respondent groups was 18. The maximum age was 30 in South Africa and 29 in the Netherlands (see attachment 3 and 4).

4.3 Questionnaire design

This study, which investigates whether 7-point Likert scale questionnaires can be used in comparative research on HIV/AIDS among white Dutch and black South African students without running the risk of misinterpreting the results, also serves as a pilot study for fear appeal research in South Africa. It is for this reason that the items analysed for response style in this study have been based on Witte's Extended Parallel Process Model.

4.3.1 The Risk Behaviour Diagnosis Scale

Witte, Cameron, McKeon and Berkowitz (1996) developed a research instrument which is grounded in the EPPM and which briefly asks questions about perceptions of severity, susceptibility, response and self-efficacy. This instrument is called the Risk Behaviour Diagnosis Scale and a template of this instrument has been used to develop the questionnaire items. The template is shown in figure 4.3.1.1

Figure 4.3.1.1 A template for the Risk Behaviour Diagnosis Scale (Witte et al. 1996)

<p>Severity</p> <ol style="list-style-type: none">1. [health threat] is a serious threat2. [health threat] is harmful3. [health threat] is a severe threat
<p>Susceptibility</p> <ol style="list-style-type: none">4. I am at risk for [getting / experiencing health threat]5. it is possible that I will [get / experience health threat]6. I am susceptible to [get / experience health threat]
<p>Response efficacy</p> <ol style="list-style-type: none">7. [performing recommended response] prevents [health threat]8. [performing recommended response] works in deterring [health threat]9. [performing recommended response] is effective in getting rid of [health threat]
<p>Self-efficacy</p> <ol style="list-style-type: none">10. I am able to [perform recommended response] to prevent [health threat]11. It is easy to [perform recommended response] to prevent [health threat]12. I can [perform recommended response] to prevent [health threat]

The questionnaire statements were derived from this template and were worded as follows:

HIV/AIDS is a deadly disease (severity)

HIV/AIDS has severe health consequences (severity)

I don't want to get HIV/AIDS (severity)

HIV/AIDS can be presently cured (severity)

It is possible that I might get HIV/AIDS (susceptibility)

The risk that I will get HIV/AIDS is high (susceptibility)

HIV/AIDS is a serious health threat to me (susceptibility)

Using condoms during sex is an effective way of preventing HIV/AIDS (response efficacy)

It is easy to use condoms correctly (self-efficacy)

It is easy to ask your partner to use a condom (self-efficacy)

It is easy to tell your partner that you will be using a condom (self-efficacy)

If my partner refuses to use a condom, I will refuse to have sex with him / her (self-efficacy)

A man can demand sex from his girlfriend (self-efficacy)

I can make sure that I don't get HIV/AIDS (self-efficacy)

The questionnaires that were developed were identical for both target audiences except for statements 2 and 17. Statement 2 'you can catch the HIV virus by shaking hands with an infected person' was changed into 'you can catch the HIV virus through contact with body fluids of an infected person' for the Dutch target group. The general knowledge among white Dutch students compared with black South African students regarding HIV/AIDS is high, and the statement 'you can catch the HIV virus by shaking hands with an infected person' would not have been taken seriously by Dutch students. The same goes for statement 17 'HIV/AIDS can be caused by evil powers (for example witches)', which was replaced by 'HIV/AIDS can be transmitted via mother to unborn babies during pregnancy' for the Dutch target group.

The responses to these statements have not been included in the statistical analysis of this study because the different content of the statements could influence the results.

4.3.2 Explanatory questions

If there would be differences in response style between the two target groups, social desirability could be one of the explanatory factors. Therefore, the following three questions were developed and included in the questionnaire. Each question had two response categories:

- 1) I find it difficult to give my honest personal opinion if it is an extreme opinion
- 2) If my opinion is asked and I think my opinion to be extreme, I would
 give my extreme opinion
 give a less extreme opinion
- 3) If I am asked to give my opinion, I will give my honest personal opinion, even if it is not a socially desirable opinion

The answers of the explanatory questions were counted per target and compared.

The last closed question in the questionnaire intended to measure whether the respondents found the statements in the questionnaire too personal. This question was analysed for response style differences together with the other items.

The questionnaire also included space for respondents to give feedback on the questionnaire. The answers were not statistically analysed, but some comments were reported on in the results section, chapter 6.

4.3.3 Language of the questionnaire

South Africa is a multilingual nation with 11 official languages: Afrikaans, English, Ndebele, Northern Sotho, Southern Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa and Zulu. Nine of these official languages are black languages. Since the target group consists of 'black South African students', the target group would be linguistically diverse. One option with regard to the language of the questionnaire was to develop the questionnaire in Dutch and translate the questionnaire into as many languages as necessary. However, translation of questionnaires would not be an unambiguous process and would be time-consuming and expensive as well (Harzing 2002). Fortunately, there is a shared second language among all respondents. Harzing (2002) found that English functions as a lingua franca in South Africa and is spoken throughout the country. She states that it is a compulsory subject in all schools, and it is the preferred medium of instruction in most schools and tertiary institutions. Dutch tertiary students are also expected to have a reasonable working knowledge of English. Therefore, it was decided to develop the questionnaires in English.

4.4 Procedure

In total, 46 questionnaires were filled in by black South African students and 46 questionnaires were filled in by white Dutch students. Respondents were recruited from the University of Pretoria (UP) in South Africa, from VISTA University in the township of Mamelodi in South Africa and from KU Nijmegen in the Netherlands. Each participant was given a copy of the questionnaire. Questionnaires required approximately 15-20 minutes to complete.

5. DATA ANALYSIS

Four items in the questionnaire are not included in the analysis of the data set. Item 2 'you can catch the HIV virus by shaking hands with an infected person' for the South African target groups was changed into 'you can catch the HIV virus through contact with body fluids of an infected person' for the Dutch target group. Item 17 'HIV/AIDS can be caused by evil powers (for example witches)' for the South African target group was replaced by 'HIV/AIDS can be transmitted via mother to unborn babies during pregnancy' for the Dutch target group. Since items 2 and 17 were different in the questionnaires received by each group of respondents, they have been excluded from the analysis.

The way statement 11 'It is easy to ask your partner to use a condom', and statement 12 'It is easy to tell your partner that you will be using a condom' are designed makes them mutually exclusive. A respondent must either answer the one or the other, dependent on gender. Some marked both, but it is programmatically easy to identify whether the respondent was male or female, and to include only the correct response by gender. At the same time, doing this might exclude gay people. However, by including these two mutually exclusive responses, a valid item-analysis cannot be obtained. If a male was the respondent, item 11 will be 'missing', thus incomplete; if a female was the respondent, item 12 will be 'missing', thus incomplete. The two statements contain valuable information considering their content, but this study investigates differences in the use of scale extremes between the two culturally different target groups, so the statements were excluded from the study.

The open question, which asked for feedback on the questionnaire, has not been analysed since it does not directly contribute to answering the research questions, but was reported on in chapter 6.

Because the abovementioned statements have been excluded from statistical analyses, the remaining statements have been recoded and are numbered as follows:

- 1) HIV/AIDS is a deadly disease
- 2) HIV/AIDS has severe health consequences
- 3) It is possible that I might get HIV/AIDS
- 4) I don't want to get HIV/AIDS
- 5) HIV/AIDS can be presently cured
- 6) HIV/AIDS is a serious health threat to me
- 7) The risk that I will get HIV/AIDS is high
- 8) Using condoms during sex is an effective way of preventing HIV/AIDS
- 9) It is easy to use condoms correctly

- 10) The HIV-virus is mainly transmitted through sexual intercourse
- 11) If my partner refuses to use a condom I will refuse to have sex with him / her
- 12) A man can demand sex from his girlfriend
- 13) AIDS is a punishment from God
- 14) I can make sure that I don't get HIV/AIDS
- 15) This questionnaire contains statements that are too personal

6 RESULTS

This chapter describes the results of the experiment that was carried out to investigate the presence and potential influence of response style differences.

6.1 Do black South African students and white Dutch students differ in response style on a 7-point Likert scale questionnaire on HIV/AIDS?

Levene's tests for equality of variances (see attachment 5) showed that significant differences in standard deviations between SA and Dutch students were found for statements 1, 2, 4, 7, 8, 11, 12, 13, 14 and 15.

Table 6.1.1 Standard deviations for the black South African respondents and the white Dutch respondents

Items	Standard deviations		
	SA	Dutch	
1) HIV/AIDS is a deadly disease	1.72	0.62	*
2) HIV/AIDS has severe health consequences	1.50	0.53	*
3) It is possible that I might get HIV/AIDS	1.69	1.91	
4) I don't want to get HIV/ AIDS	1.08	0.21	*
5) HIV/AIDS can be presently cured	1.71	1.41	
6) HIV/AIDS is a serious health threat to me	1.88	1.80	
7) The risk that I will get HIV/AIDS is high	2.05	1.07	*
8) Using condoms during sex is an effective way of preventing HIV/ AIDS	1.63	0.70	*
9) It is easy to use condoms correctly	1.39	0.91	
10) The HIV-virus is mainly transmitted through sexual intercourse	1.53	0.95	
11) If my partner refuses to use a condom, I will refuse to have sex with ...	1.89	1.43	*
12) A man can demand sex from his girlfriend	2.09	0.68	*
13) AIDS is a punishment from God	2.49	0.51	*
14) I can make sure that I don't get HIV/AIDS	1.42	1.83	*
15) This questionnaire contains statements that are too personal	2.09	1.27	*

* = $p < 0.05$ (the standard deviations differ significantly between the two groups)

Table 6.1.1 shows that for 10 of the 15 statements a difference in variance around the mean was found. This means that for 10 of the 15 statements, a response style *could* be present. For the 5 statements for which no differences in variance were detected, no differences in response style were present. In almost all cases where differences in variance *were* found, black South African students had a larger standard deviation than white Dutch students, which, if caused by response style differences, implied a greater use of the extreme categories by black South African students than by white Dutch students.

To investigate whether the differences in variance were due to differences in response style, Levene's tests for equality of variances were performed on the collapsed scale (see

attachment 6) and the standard deviations were compared with standard deviations of the original scale. Table 6.1.2 shows the results of Levene's test for equality of variances per respondent group per item for the original scale and for the collapsed scale. The table indicates for which items a difference in variance was found and also for which items no difference in variance was found.

Table 6.1.2 Overview of differences in variances on the original and the collapsed scale

Items	original scale		collapsed scale	
	SA	Dutch	SA	Dutch
1) HIV/AIDS is a deadly disease	1.72	0.62 *	0.61	0.25 *
2) HIV/AIDS has severe health consequences	1.50	0.53 *	0.58	0.15 *
4) I don't want to get HIV/ AIDS	1.08	0.21 *	0.35	0.00 *
7) The risk that I will get HIV/AIDS is high	2.05	1.07 *	0.83	0.46 *
8) Using condoms during sex is an effective way of preventing...	1.63	0.70 *	0.64	0.28 *
11) If my partner refuses to use a condom, I will refuse to have...	1.89	1.43 *	0.72	0.58
12) A man can demand sex from his girlfriend	2.09	0.68 *	0.84	0.15 *
13) AIDS is a punishment from God	2.49	0.51 *	0.88	0.15 *
14) I can make sure that I don't get HIV/AIDS	1.42	1.83 *	0.47	0.78 *
15) This questionnaire contains statements that are too personal	2.09	1.27 *	0.84	0.52 *

* = p < 0.05 (the standard deviations differ significantly between the two groups)

Table 6.1.2 shows that for all items except one, a difference in variance around the mean scores was found on the collapsed scale as well as on the original scale. This means that for all items except one, the difference in variance on the original scale was not due to response style differences. The difference in variance on the original scale was in these cases due to the fact that respondents within one group had very different opinions while respondents from the other group had more similar opinions. Respondents within the group with the larger standard deviation did not use more extreme response categories than the group with small standard deviation, but the group with the large standard deviation differed more in their beliefs than the group with the smaller standard deviation. In almost all cases the black South African students showed a larger standard deviation on the collapsed scale than the white Dutch students. This finding suggests that among the black South African students more different opinions were present with regard to HIV/AIDS compared with the white Dutch students who seemed to share more similar opinions.

6.2 If so, in what respects do black South African students and white Dutch students differ in response style on a 7-point Likert scale?

Only for statement 11 'if my partner refuses to use a condom, I will refuse to have sex with him / her' a difference in response style was found. For this statement it was investigated how the respondent groups differed in response style.

Table 6.2.1 gives an overview of the percentage per respondent group of the use of the response categories (1,7).

Table 6.2.1 Overview of the percentage per respondent group of the use of the response categories (1,7) for items for which a difference in response style was found

Items	SA (1,7)	Dutch (1,7)
11) If my partner refuses to use a condom, I will refuse to have sex..	56.5%	26.1% *
* = p < 0.05		

Chi-square tests (in cases where the expected frequencies were smaller than 5, exact tests were performed) showed that black South African and white Dutch students differed in their use of the extreme response categories 1 and 7 (see attachment 7). With regard to this particular statement 'If my partner refuses to use a condom, I will refuse to have sex with him / her', a significant difference was found: $X^2(1) = 8.79$, $p < 0.05$ in the use of the most extreme response categories between black South African students and white Dutch students. The black South African students used the extreme response categories more often than white Dutch students did.

Table 6.2.2 gives an overview of the percentage per respondent group of the use the categories (1,2, 6,7).

Table 6.2.2 Overview of the percentage per respondent group of the use of the categories (1,2,6,7) percentages for items for which a difference in response style was found

Items	SA (1,2,6,7)	Dutch (1,2,6,7)
11) If my partner refuses to use a condom, I will refuse to have sex ...	78.3%	69.6%
* = p < 0.05		

Chi-square tests (in cases where the expected frequencies were smaller than 5, exact tests were performed) showed that black South African and white Dutch students did not significantly differ in their use of the response categories 1, 2, 6 and 7 (see attachment 7).

Results in table 6.2.2 and table 6.2.1 suggest that the respondent groups differed in response style with regard to statement 11 because of a different use of the most extreme response categories 1 and 7. The black South African students used the extreme response categories significantly more often than the white Dutch students did.

6.3 To what extent do response style differences between black South African students and white Dutch students on a 7-point Likert scale questionnaire hinder results from comparative research?

For the statement for which a response style difference was found, statement 11 'if my partner refuses to use a condom, I will refuse to have sex with him / her', analyses were carried out to determine whether the response style difference would influence results of comparative research. An independent sample t-test was carried out on the original scale and table 6.3.1 shows that no difference in mean results was found (see attachment 5). The same independent sample t-test was now carried out on the collapsed scale (see attachment 6). It turned out that on the collapsed scale also no difference in mean results was found. In conclusion: the same results were found no matter which scale was used. This finding shows that the response style difference in this case did not significantly influence the results of comparative research. Thus, the response style difference would not hinder the interpretation of results of comparative research on HIV/AIDS between the two respondent groups.

Table 6.3.1 Overview of the results of independent sample t-tests on the original scale and the collapsed scale

ITEM	ORIGINAL SCALE		COLLAPSED SCALE	
	SA	Dutch	SA	Dutch
11) if my partner refuses to use a condom, I will refuse to have sex with him / her	5.59	5.52	2.52	2.61
* = p < 0.05 (the mean scores differ significantly between the respondent groups)				

6.4 Explanatory questions

The explanatory questions intended to measure whether the respondent groups would find it difficult to give an extreme opinion, and whether they would give their honest opinion even if it was an extreme opinion. The answers were counted per respondent group and it turned out that over 80% of each respondent group stated that they would not have any difficulty with expressing their honest opinion (see attachment 8). Over 80% of each respondent group stated that they would give their honest opinion even if it was not a socially desirable opinion.

6.5 Feedback on the questionnaire

The last question of the questionnaire provided space for feedback on the questionnaire. While only a few white Dutch students commented on the questionnaire, there were a great number of black South African students that provided feedback. Their feedback, however, was not directed at the questionnaire itself, but on the topic of HIV/AIDS. The following comments are cited from black South African respondents and suggest an external health locus of control, the belief that their health is not determined by their own behaviour, but by powerful others:

'HIV/AIDS are a great punishment from God, not because he hates us but because he loves us, but we are against his laws. So if people listen to God's will, there won't be sickness'.

'I feel that sooner or later it will be impossible to not get infected because everyone around you will be infected'.

'In my opinion, HIV/AIDS might be a punishment from God and it can also mean that God is on his way back (these are the last days for alive people to come right to God). By faith, God can / is curing Aids'.

'I strongly believe that AIDS is not natural, I believe that it is an American man-made disease to reduce Africans all over the world'.

7 CONCLUSIONS

This study aimed to investigate whether 7-point Likert scale questionnaires can be used in a study into beliefs and attitudes towards HIV/AIDS among black South African and white Dutch students without running the risk of misinterpreting results because of response style differences between the respondent groups. Three research questions were formulated to investigate this matter:

- 1) Do black South African students and white Dutch students differ in response style on a 7-point Likert scale questionnaire on HIV/AIDS?
- 2) If so, in what respects do black South African students and white Dutch students differ in response style on a 7-point Likert scale?
- 3) To what extent do differences in response style between black South African students and white Dutch students on a 7-point Likert scale questionnaire hinder the interpretation of results from comparative research?

This chapter describes the conclusions that can be drawn from this study.

To answer the first research question, fifteen items were analysed for potential response style differences and their influence. For ten of the fifteen items, a significant difference in standard deviation between the two groups was found. This means that for ten of the fifteen statements the two respondent groups differed in their variance around the mean. In almost every case, a larger standard deviation was found for the black South African students than for the white Dutch students. This implied that a response style difference *could* be present for these statements (black South African students would use more extreme response categories than white Dutch students). Further analyses of the standard deviations on the collapsed scale showed that all differences in standard deviations, except one, returned on the collapsed scale, which means that these differences were not caused by differences in response style. The conclusion that could be drawn from this finding is that black South African students and white Dutch students do not structurally differ in response style. Based on findings from Bachman and O'Malley (1984), Hui and Triandis (1989), Lee and Green (1991), Chen, Lee and Stevenson (1995), Zhang and Gelb (1996) and Korzenny, Korzenny and Wong (2002) who detected differences in response styles between culturally different groups, it was expected that response style differences would also be present between white Dutch students and black South African students. The results of this study however do not confirm the expectation that the two respondent groups differ in response style.

Only once, a difference in response style was detected. Chi-square tests showed that the difference in response style was due to a different use of the extreme response categories 1 and 7. It turned out that black South African students used the most extreme categories 1 and 7 significantly more often than white Dutch students did. This result provides the answer to the second research question.

In order to answer the third research question, the potential influence of this response style difference was investigated. Mean scores between the groups were compared on the original scale as well as on the collapsed scale with independent sample t-tests. The same results were found no matter which scale was used. The conclusion could be drawn that the response style difference that was found once in this study did not significantly influence the results of comparative research on HIV/AIDS between black South African students and white Dutch students.

The general conclusion of this study is that 7-point Likert scale questionnaires can be used in comparative studies on beliefs and attitudes towards HIV/AIDS between black South African and white Dutch students without running the risk of misinterpreting the results because of response style differences between the target groups.

The answer to the question how structural differences in variance around the mean can be explained if they are not due to response style differences, provides another important finding of this study. Differences in variance around the mean that are not due to response style differences are caused by respondents within one group showing a wider variation in opinions than respondents within the other group. Since in this study in almost all cases it were black South African students having the larger variance around the mean, it was concluded that black South African students might have more divergent opinions with regard to the statements on HIV/AIDS compared to white Dutch students.

The conclusion that can be drawn from this finding is that black South African students should not be studied as a single group in comparative research when investigating attitudes and beliefs towards HIV/AIDS. This finding has important implications for researchers working at the EPIDASA-project, and suggests that the divergent beliefs and attitudes towards HIV/AIDS that seem to exist among this group need to be investigated more fully before effective documents can be developed.

LITERATURE

- Airhihenbuwa, C.O. (1995). *Health & Culture: Beyond the Western Paradigm*. Thousand Oaks: Sage Publications.
- Airhihenbuwa, C.O., Makinwa, B. & Obregon, R. (2000). Toward a new communications framework for HIV/AIDS. *Journal of Health Communication* 5, pp. 101-111.
- Ajzen, I. & Fishbein M. (1980). *Understanding attitudes and predicting social behaviour*. Prentice-Hall: Englewood Cliffs, N.J
- Bachman, J.G., & O'Malley, P.M. (1984). Yea-saying, nay-saying, and going to extremes: black and white differences in response styles. *Public Opinion Quarterly* 48, pp. 491-509.
- Bandura, A. (1986) *Social foundations of thought and action; A social cognitive theory*. Prentice Hall: Englewood Cliffs, N.J.
- Beck, K.H., & Frankel, A. (1981). A conceptualization of threat communications and protective health behavior. *Social Psychology Quarterly* 44, pp. 204-217
- Chen, C., Lee, S. & Stevenson, H.W. (1995). Response style and cross-cultural comparisons of rating scales among East Asian and North American students. *Psychological Science* 6, pp. 170 - 175.
- Cheung, G. & Rensvold, R. (2000). Assessing extreme and acquiescence response style in cross-cultural research using structural equation modelling. *Journal of Cross Cultural Psychology* 31, pp. 187-212.
- Clarke, I. (2000), "Extreme Response Style in Cross-Cultural Research: An Empirical Investigation," *Journal of Social Behavior & Personality* 15 (1), pp. 137-152.
- Coulson, N. (2002). Developments in the use of the mass media at the national level for HIV/AIDS prevention in South Africa. Retrieved from http://www.comminit.com/pdf/HIV-AIDS_south_africa_campaigns_report.pdf on 12-03-2003
- Dixon, P. N., Bobo, M., & Stevick, R. A. (1984). Response differences and preferences for all-category-defined and end-defined Likert formats. *Educational and Psychological Measurement* 44, pp. 61-66.
- EPIDASA: Effectivity of Public Information Documents on Aids in South Africa. Retrieved from www.epidasa.org on 14-03-2003
- Hale, J. L., & Dillard, J. P. (1995). Too much, too little, or just right: The role of fear in message design. In E. Maibach, and R. L. Parrott (Eds). *Designing health messages: Perspectives from communication theory and public health*, pp.65-80. Newbury Park: Sage.
- Harzing, A. (2002). The interaction between language and culture: a test of the cultural accommodation hypothesis in seven countries. *Language and Intercultural Communication* 2, pp. 120-139.
- Hammond-Tooke, D. (1989). *Rituals and medicines*. Johannesburg: AD Donker.
- Herselman, S. (2001). *Antropology and Health Care*. Pretoria: University of South Africa (internal publication)

- Hui, C.H. & Triandis, H.C. (1986). Individualism-collectivism: A study of cross-cultural researchers. *Journal of Cross-Cultural Psychology* 17, pp. 225-248.
- Hui, C.H. & Triandis, H.C. (1989). Effects of culture and response format on extreme response style. *Journal of Cross-Cultural Psychology* 20, pp. 296-309
- Janis, I.L. (1967). Effects of fear arousal on attitude change: Recent developments in theory and experimental research. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, pp. 166-225. New York: Academic Press.
- Jansen, C., (2003). Be wise – condomise? Naar verbeterde HIV/AIDS-voorlichtingsteksten in een multiculturele samenleving. KU Nijmegen (submitted for publication in *Tydskrif vir Nederlands en Afrikaans*).
- Janz, N.K., & Becker, M H. (1984). The health belief model: A decade later. *Health Education Quarterly* 11, pp. 1-47.
- Jong, M. de & Schellens, P.J. (2000). Optimizing public information brochures: formative evaluation in document design processes. In D. Janssen & D. Neutelings (eds.). *Reading and writing public documents*, pp. 59–83.
- Korzenny, F, Korzenny, B.A. and Wong, S.M.J. (2002). *Imagery in cross-cultural research*. Retrieved from <http://www.hamcr.com/imagery.htm> on 15-3-2003
- Kreuter, M.W., Strecher, V.J. & Glassman, B. (1999). One Size Does Not Fit All: The Case For Tailoring Print Materials. *Annals of Behavioral Medicine* 21, pp.276-283.
- Krosnick, J.A., & Fabrigar, L.R. (1997). Designing rating scales for effective measurement in surveys. In L.E. Lyberg, P. Biemer, M. Collins, E. De Leeuw, C. Dippo, N. Schwarz, & D. Trewin (Eds), *Survey, measurement and process quality*, pp. 141-164. New York NY: Wiley.
- LeBlanc, A., Chang-Jin, Y., Simpson, C. S., Stamou, L., & McCrary, J. (1998). Pictorial versus verbal rating scales in music preference measurement. *Journal of Research in Music Education* 46, pp. 425-435.
- Lee, C. & Green, R.T. (1991) Cross-Cultural Examination of the Fishbein Behavioural Intentions Model. *Journal of International Business Studies*, (Second Quarter), pp. 289-305.
- Lehto, M. R., House, T., & Papastavrou, J. D. (2000). Interpretation of fuzzy qualifiers by chemical workers. *International Journal of Cognitive Ergonomics* 4, pp. 73-86.
- Leventhal, H. (1970). Findings and theory in the study of fear communications. In L. Berkowitz (Ed.), *Advances in experimental social psychology* 5, pp. 119-186. New York: Academic Press.
- Leventhal, H. (1971). Fear appeals and persuasion: The differentiation of a motivational construct. *American Journal of Public Health* 61, pp. 1208-1224.
- loveLife (2000). *Hot prospects, cold facts. Portrait of young South Africa*. Johannesburg: loveLife.
- loveLife (2001). *Impending catastrophe revisited. An update on the HIV/AIDS epidemic in South Africa*. Johannesburg: loveLife.
- Michal-Johnson, P. & Perlmutter-Bowen, S. (1992). The place of culture in HIV education. In: Edgar, T., Fitzpatrick, M., et al., (Eds.). *AIDS: A communication perspective*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

- Mongeau, P.A. (1998). Another look at fear-arousing persuasive appeals. In M. Allen & R. Preiss (Eds.), *Persuasion: Advances through meta-analysis*, pp. 53-68. Cresskill NJ: Hampton Press.
- Murray-Johnson, L., Witte, K., Liu, W. Y., Hubbell, A. P., Sampson, J., Morrison, K. (2001). Addressing cultural orientation in fear appeals: Promoting AIDS-protective behaviors among Hispanic immigrants and African-American adolescents, and American and Taiwanese college students. *Journal of Health Communication* 6, pp. 1-23.
- Oskamp, S. (1977). *Attitudes and Opinions*. New Jersey: Prentice-Hall, Inc.
- Perloff, R.M. (2001). *Persuading people to have safer sex. Applications of social science to the AIDS crisis*. Mahwah NJ: Lawrence Erlbaum.
- Petty, R.E. & Cacioppo, J.T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed) *Advances in Experimental Social Psychology* 19, pp. 123-205. New York: Academic Press.
- Poortinga, Y.H. & Malpass, R.M (1986). Making inferences from cross-cultural data. In W.J. Lonner & J.W. Berry (Eds.), *Field methods in cross-cultural research*, pp. 17-46. Beverly Hills CA: Sage.
- Rogers, R.W. (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology* 91, pp. 93-114.
- Rohrmann, B. (2002). Verbal qualifiers for rating scales: sociolinguistic considerations and psychometric data. Retrieved from <http://www.psych.unimelb.edu.au/staff/br/vqs-report.pdf> on 16-05-2003
- Rosenstock, I.M. (1974). The health belief model and preventative health behaviour. *Health Education Monographs* 2, pp. 354-386.
- Schriver, K.A. (1997). *Dynamics in document design*. London: John Wiley & Sons.
- Smith, P.B. (2001). The end of the beginning? *International Journal of Cross Cultural Studies* 1, pp. 21-24.
- Smith, M.J. (1988). *Contemporary communication research methods*. Wadsworth Publishing company : Belmont, California.
- Triandis, H. C., Brislin, R., & Hui, C. H. (1988). Cross-cultural training across the individualism-collectivism divide. *International Journal of Intercultural Relations* 12 (3), pp. 269-289.
- UNAIDS and World Health Organization. (2002) *AIDS Epidemic Update December 2002*. Retrieved from <http://www.unaids.org/worldaidsday/2002/press/Epiupdate.html> on 12-03-2003
- Van Dyk, A. (2001). Traditional African beliefs and customs: Implications for AIDS education and prevention. *South African Journal of Psychology*, 31, pp. 60-66.
- Van de Vijver, F.J.R. & Leung, K. (1997). *Methods and data analysis for cross-cultural research*, Thousand Oaks, CA: Sage
- Van de Vijver, F.J.R., & Poortinga Y.H. (2000). Methodological issues in psychological research on culture. *Journal of Cross-Cultural Psychology* 31, pp. 33-51.

- Witte K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs*, 59 pp. 329-349.
- Witte, K., Cameron, K., McKeon, J., & Berkowitz, J. (1996). Predicting risk behaviors: Development and validation of a diagnostic scale. *Journal of Health Communication* 1, pp. 317-341.
- Witte, K. (1998). Fear as motivator, fear as inhibitor: Using the extended parallel process model to explain fear appeal successes and failures. In P. A. Andersen & L. K. Guerrero (Eds.), *Handbook of communication and emotion* (pp. 424-451) San Diego: Academic Press.
- Zhang, Y., & Gelb, B.D. (1996). Matching advertising appeals to culture: The influence of products' use conditions. *Journal of Advertising* 25 pp. 29-46.