

**THE CROSS CULTURAL COMPARABILITY OF THE
OCCUPATIONAL PERSONALITY PROFILE**

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ABSTRACT

Psychological testing in South Africa has been placed under the spotlight since the inception of the Employment Equity Act 55 of 1998, which consequently has a significant bearing on employment testing in organisations. Whilst the value of psychological testing is not denied, it becomes important to determine whether the psychological tests used in organisations are suitable for use in certain cultural groups. The main purpose of this research is thus to determine whether the results of the Occupational Personality Profile (OPP) are comparable in a cross cultural setting such as the Public Service.

The sample consisted of 270 individuals, identified for participation through their application for senior management positions in the organisation or for developmental purposes. The sample was divided into African and White individuals as well as males and females from different language backgrounds. Descriptive statistics were conducted in order to test for significant differences as well as Cronbach's coefficient alpha in order to examine the internal consistency of the constructs of the OPP.

The results showed that the gender variable did not have any significant influence on the scores obtained. Where the language groups are concerned, the African language group obtained lower means than the Afrikaans and English language groups, although only on some of the constructs of the OPP. Significant differences between the means of the African and White respondents were further found on the majority of the constructs. In general, the studies further revealed acceptable reliability coefficients. However, the results of the reliability studies revealed specific problems with the Motivational Distortion scale for the African and White and male and female sub-samples, as well as the Reserved-Gregarious scale, specifically for the White respondents, suggesting very low reliability coefficients. Significant differences between means for the African and White respondents and the relevant norm group were further found on many of the constructs of the OPP. Research to assess why these discrepancies exist and the likely practical implications for the Public Service was subsequently recommended.

DECLARATION

I declare that *The Cross Cultural Comparability of the Occupational Personality Profile* is my own work, that it has not been submitted before for any degree or examination in any other University, and that all sources I have used or quoted have been indicated and acknowledged as complete references.

Lindsey Anne Philand

November 2005

Signed: _____



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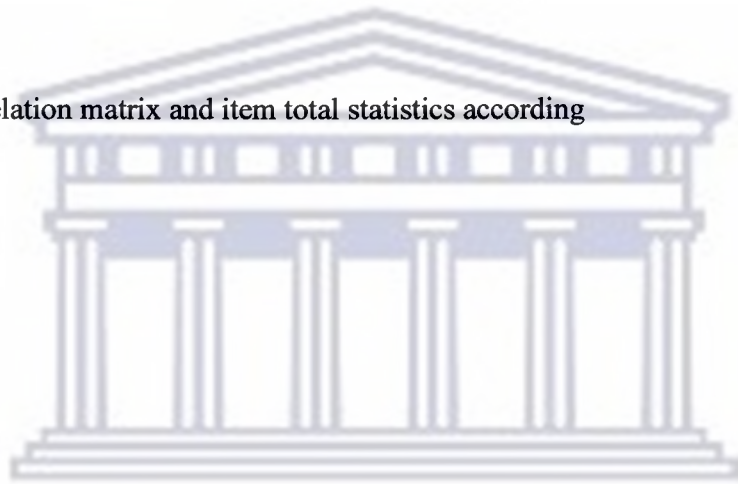
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CHAPTER 1

INTRODUCTION

1.1 Background

In order for organisations to remain competitive, it needs to invest in employing and developing people with the necessary skills and competencies. These factors have consequently resulted in a need to identify behaviours and abilities capable of predicting job success (La Grange & Roodt, 2001). Johnson and Kleiner (2000) suggest that as employers acknowledge the need for competent and capable employees, they are also embracing many forms of assessment to obtain and retain the best people. They further suggest that as a consequence, many believe that testing employees is likely to result in success in the business world. Based on numerous literature and research, a relationship between personality and its ability to predict job performance has been established. However, whilst a number of personality tests have been proven to be valid and reliable, this appears to apply mainly to certain cultural groups for which they have been standardised (Foxcroft, Roodt & Abrahams, 2001).

Numerous studies conducted, to be discussed in chapter two, indicates that certain popular personality tests were in fact not suitable for cross-cultural use, for example Abrahams' (1996) study on the cross-cultural comparability of the Sixteen Personality Factor Questionnaire (16PF). Malhotra and McCort (2001) highlights arguments by some cross-cultural psychologists, who suggest that any theory articulated and drafted by individuals of a specific culture is likely to be susceptible to ethnocentric biases. Psychological testing in South Africa can surely not be considered without reflecting on the past discriminatory laws of apartheid. In fact, large inequalities in South Africa's social and economic structure still exist today. Variables such as language, race, social and educational backgrounds are all likely to impact on an individual's performance on any psychological test. Taylor cited in Abrahams (1996) suggests that there is a great need to conduct research on test bias based on different cultural groups in South Africa.

Developments in South African labour legislation and specifically the Employment Equity Act, illustrates the importance of test validation, specifically in industry. Preceding the inception of the Employment Equity Act, individuals were not protected against any form of unfair discrimination, which inevitably led to the misuse and abuse of tests and test results (Abrahams, 1996). However, current legislation compels test users to develop and establish psychological tests that are valid and reliable and that does not discriminate unfairly against any individual or group. As such, before any psychological test is used within the workplace, the issue of cross-cultural comparability must be addressed.

1.2 Aims of the research

Psychological testing is being used within various industries, including the Public Service. These tests are being used for various purposes including selection and development. It is however important to be aware of the degree of impact associated with the use of psychological tests, especially when used for occupational related decision-making. It thus becomes important to assess cultural differences associated with such psychological tests. As the Public Service makes use of the OPP as part of its selection processes or for development purposes, it is critical to determine whether this personality test is culturally generalisable to enable cross-cultural comparisons and to ensure that the requirements of the Employment Equity Act are upheld. Thus, the main purpose of this study is:

To determine whether the results of the total test score as well as the nine personality constructs and the motivational distortion scale of the OPP are comparable between various cultural groups assessed for selection and development purposes within the Public Service.

CHAPTER 2

LITERATURE SURVEY

2.1 Introduction

In the past, personality tests were generally not regarded as sufficient predictors of job performance. Recent research has however generally supported the existence of a significant relationship between personality tests and job performance, which has led to a revival in the use of personality testing. However, many personality tests used in South Africa today have been imported from foreign countries. Considering the diversity of South African organisations though, it becomes essential to establish whether these imported tests are in fact suitable for use in a diverse and multicultural society such as South Africa. However, only from the 1980's onwards and specifically with the promulgation of the Employment Equity Act, has there been a significant realisation that factors such as education, language and cultural bias can impact on an individual's performance on a psychological test. Consequently, more emphasis is being placed on providing and developing culturally appropriate and high quality psychological tests.

In light of the above, this chapter will focus on the origin and establishment of psychological testing and essentially personality testing within the work context, as well as recent studies conducted in the field of cross-cultural testing. Issues relating to bias and fairness are further discussed.

2.2 The nature and use of psychological tests

Anastasi and Urbina (1997) states that in the past, psychological testing was essentially used to assess differences between individuals or between the reactions of individuals in varying situations. Murphy and Davidshofer (1998, p.1) further postulates that:

... psychological tests represent systematic applications of few relatively simple principles in an attempt to measure personal attributes thought to be important in describing and understanding individual behaviour.

Foxcroft and Roodt (2001) suggest that numerous psychological tools have been developed to assess human behaviour and these tools are generally described as tests, measures, assessment measures, instruments and techniques. Huysamen (2002) does however highlight that the Standards for Educational and Psychological Testing of the American Psychological Association (APA) use the term assessments as a broader term than tests. Huysamen (2002) further suggests that assessments are typically an extensive evaluation through which test information is integrated, whilst tests provide an indication of the constructs to be measured and also provides standardisation of the process by which an individual's responses to test materials are evaluated and scored.

In light of the above, Murphy and Davidshofer (1998, p.3) defines a psychological test as:

a measurement instrument that can be characterised by three dimensions.

They continue and suggest that these dimensions should comprise of a sample of behaviour which is typically obtained under standardised conditions, whilst standardised rules and guidelines for scoring and obtaining quantitative data are further provided.

Anastasi and Urbina (1997, p.4) similarly define a psychological test as:

an objective and standardised measure of a sample of behaviour.

Standardisation, as described by Anastasi and Urbina (1997) implies consistency in the procedure when administering and scoring a psychological test. They further state that in order to ensure consistency and standardisation of testing conditions, the test developer provides detailed directions for administering a psychological test, which typically

includes the relevant test material, time limits as well as oral instructions. Anastasi and Urbina (1997) further provide another important step in the standardisation of a test, which entails the establishment of norms. Kline (1993) describes norms as a set of scores obtained from a set of samples and further states that such norms provide test scores with psychological meaning which essentially makes interpretation possible. According to Anastasi and Urbina (1997), the process of standardising a psychological test typically entails administering it to a relatively large, representative sample of the group of people for whom the test is designed for and this group, known as the standardisation sample, is typically used to establish the norms. Norms provide an indication of an individual's performance in terms of average, below average and above average performance. Kline (1993) however cautions that if norms are inaccurate, they are likely to provide incorrect information. He thus suggests that if norms are to be used to provide an indication of test performance, it must be completely accurate. Anastasi and Urbina's (1997) definition of a psychological test suggests that such a test is also characterised as an objective measure. They indicate that the administration, scoring and the interpretation of test scores are to some extent objective and impartial as they are independent of the subjective judgment or estimation of the examiner.

But why are psychological tests considered to be so important if other forms of measuring individual behaviour also exist? Kline (1993) is of the opinion that as psychological tests can be standardised relatively easily, allowing relatively accurate comparisons to be made with norm groups, makes them valuable for measuring and drawing inferences of individual behaviour. Kline (1993) further states that one of the main advantages of utilising psychological tests is that they can be easily standardised, unlike other methods of testing such as interviews or repertory grids. Psychological tests as indicated by Bedell, Van Eeden and Van Staden (1999) provide valuable information about people in a fairly quick, economical and objective manner. Anastasi and Urbina (1997) suggest that psychological testing in all areas of life has been growing substantially. It is used to measure various attributes and characteristics ranging from intelligence and cognitive ability to interests and personality. As such, psychological testing is used within various contexts and across various fields.

In educational psychology, psychological tests are typically used to assist in the diagnosis and treatment of educational problems in children (Kline, 1993). It can further assist schools in assessing and evaluating the effectiveness of different curricula (Murphy and Davidshofer, 1998). Psychological tests can also be used in educational settings to predict future performance at tertiary institutions. Psychological testing is also employed in clinical situations. A number of objective and projective personality tests as well as diagnostic tests are used widely by clinical psychologists, who employ neuropsychological tests in order to detect and diagnose many types of brain damage or even clinical depression (Murphy and Davidshofer, 1998). Most importantly, and particularly relevant to the present study, is the use of psychological tests in industry or occupational related situations. These psychological tests are typically used for assessing training needs, assessing an individual's work performance for future development within an organisation, for career development and for recruitment and selection. Schultz and Schultz, as cited in Van Der Merwe (1999) suggest that psychological tests can add value specifically in industry because of their objectivity and validity. Further research concur that psychological tests hold much value, especially when used in context with other information, such as interviews, competency based exercises or reference checks. In a study conducted by Foxcroft, Paterson, le Roux and Herbst (2004), relating to the test use patterns and needs of psychological assessment practitioners in South Africa, it was established that psychological tests were being perceived more positively and that such testing added value, provided that culturally appropriate, psychometrically sound and high quality tests were used.

Considering the above, psychological tests are available to meet a wide variety of practical needs from personnel selection to neurological diagnosis. In industry for example, Anastasi and Urbina (1997) points out that there is scarcely a type of job for which some kind of psychological test has not contributed in occupational decision-making, including selection, job assignments, transfers, promotion or even termination of employment. Murphy and Davidshofer (1998) indicate that there are many psychological tests that might be used in any specific setting, and they vary considerably in cost and quality.

However, given the widespread use of tests, there has been and still is considerable potential for the abuse of psychological testing, specifically within the South African context, taking its previous discriminatory laws and practices into account. Whilst psychological testing has increased in popularity over the years, it is however not infallible and concerns regarding validity and reliability of some psychological tests do exist.

2.3 Brief historical background of psychological testing in South Africa

As Foxcroft et al (2001) suggest, the use of psychological tests have been placed under the spotlight but a particularly strong stance against improper use of such tests has come from industry. Huysamen (2002) indicates that psychological testing had to undergo major restructuring and change as a result of unsuitable tests that were used to make decisions about individuals. In South Africa in particular, psychological tests had to be redesigned and sometimes even discontinued in order to eradicate imbalances and discriminatory practices of the past. A good deal of attention has thus been devoted to the development of professional and legal standards and guidelines for psychological testing in South Africa.

The need for change has however developed gradually throughout the history of psychological testing in South Africa (Bedell, et al., 1999). The introduction of psychological testing can generally be attributed to South Africa's colonial heritage (Claassen cited in Foxcroft et al., 2001). However, although similarities exist in terms of the development of psychological testing in South Africa, the US and Europe, the context in which it took place is significant. Psychological testing in South Africa progressed in an environment characterised by unequal distribution of resources based on racial segregation and as such, one cannot look at the origin and progression of psychological testing in South Africa without considering the effects that apartheid policies had on test development and use (Foxcroft et al., 2001). Bendix (2000) states that past practices in the recruitment and selection of employees did in most instances not meet specified standards and did also not adhere to the principles of fairness.

Foxcroft et al (2001) further suggests that even before the Nationalist Party governed from 1948, the initial psychological tests were in fact standardised only for whites and used by the Education Department to place white pupils into special education. Foxcroft cited in Van de Vijver and Rothmann (2004) indicates that at the beginning of the 1900's, tests were imported from foreign countries and were utilized in all sectors of the community. Wilcocks cited in Foxcroft et al (2001) suggests that the early tests used were either adaptations from foreign countries such as the Stanford-Binet, the South African revision of the Fick scale or they were developed for use in South Africa. Foxcroft et al (2001) further postulates that not only were these tests standardised for whites, but measures of intellectual ability were also used in research studies to draw distinctions between different races in order to prove the superiority of whites over other racial groups. They further describe Fick's study during the 1930's and 1940's in which he administered psychological tests of motor and reasoning abilities, standardised only for white children, to a group of black, coloured, Indian and white children. Fick's results indicated that the mean score of the black children were in fact inferior to that of the Indian and coloured children, whilst the mean scores of the white children were superior. Foxcroft et al (2001) continues and states that Fick's conclusion ascertained that the black children's underperformance were as a result of poor schooling, teaching methods (considering the establishment of Bantu education at the time) and their unfamiliarity with the nature of the psychological tests. However, upon further studies, Fick suggested that mediocre performance of the black children when compared to the white children were due to innate differences. Fick's findings were of course strongly criticised and challenged, by amongst others, Biesheuvel, whose early work in South Africa focused on the investigation of potential bias associated with cross-cultural testing.

Between 1960 and 1984, the apartheid policies prevalent at the time resulted in almost no research taking place regarding the equivalence and bias of psychological tests (Van de Vijver & Rothmann, 2004). Notwithstanding the continued and widespread use of psychological tests in South Africa, the first thorough study of bias only took place in 1986 (Foxcroft et al., 2001). Owen investigated test and item bias using the Senior Aptitude Test, the Mechanical Insight Test and the Scholastic Proficiency Test. He found

significant differences between the test scores of black and white individuals and concluded that understanding the reasons for such differences and reducing it would be a major challenge (Foxcroft et al., 2001). Owen cited in Van de Vijver and Rothmann (2004) further found that language was a potential source of bias in the Junior Aptitude Test. Further research conducted by Abrahams, Retief, Taylor and Boeyens and Taylor and Radford showed that bias existed in other South African ability and personality tests as well.

As such, the misuse of tests and test results, as well as issues of bias is rife throughout the early history of psychological testing in South Africa. However, with the annihilation of apartheid and subsequently discriminatory laws, applicants from different racial and socio-economic groups started competing for the same jobs. The use of psychological tests were strongly criticised and a number of questions were consequently raised, which included how one could compare scores and appoint people if different measures are used (Foxcroft et al., 2001). Thus, a growing awareness of culture and its effect on psychological testing became critical. Realignment of previous views towards the possibility that cultural bias, inherent in the tests themselves, may constitute a source of systematic error in test results further took place (Bedell et al., 1999). Demands on the cultural appropriateness of psychological tests and their usage were subsequently placed under the spotlight with the promulgation of the Employment Equity Act. The Employment Equity Act has major implications for psychological test use in South Africa because many of these tests currently in use have not been thoroughly investigated for bias and have not been cross-culturally validated (Foxcroft et al., 2001). As a consequence, the issue of psychological testing in a diverse and multi-cultural South African society could not be ignored.

2.4 Current legislation

When considering the widespread use and misuse of psychological tests in the past, essentially to exclude black South Africans from occupational and educational opportunities, negative perceptions regarding the usefulness of psychological testing

developed and many South Africans began to question and reject the use of such tests (Foxcroft et al., 2001). As a result, the use of psychological testing in South Africa today is under statutory control. The Health Professions Act 56 of 1974 restricts the use of psychological tests to appropriately registered psychology professionals and guides the profession of psychology. However, as South Africa's history in terms of psychological testing is rife with discrimination, cultural bias and general misuse of tests and test results, psychological testing was seen as a barrier to equal opportunity. Consequently, addressing past imbalances by focusing on issues of equity within the work context became a growing objective of governing political parties. Legislators thus deemed it necessary to identify forms of testing as possible obstacles to the employment of previously disadvantaged individuals (Bendix, 2000). Hence the clause in Section 8 of the Employment Equity Act was drafted and states the following:

Psychological testing and other similar forms of assessment of an employee are prohibited unless the test or assessment being used –

- (a) Has been scientifically shown to be valid and reliable
- (b) Can be applied fairly to all employees and
- (c) Is not biased against any employee or group.

The Employment Equity Act includes recruitment and selection, job grading, remuneration, employment benefits, terms and conditions of employment, training and development, performance appraisals, promotion and transfers as well as dismissal as potential barriers to employment equity (Bendix, 2000). Huysamen (2002) suggests that the Employment Equity Act's implications for testing practices are not only limited to Section 8. Section 15 of the Employment Equity Act deals with affirmative action, which is a means of ensuring that suitably qualified people from designated groups have equal employment opportunities and are equitably represented in all occupational categories and levels within the workplace. The Employment Equity Act defines a designated group as black people, women and people with disabilities. Black people are further described as a generic term and refer to Africans, Coloureds and Indians. The basis for the Employment Equity Act and its emphasis on both the elimination of discrimination and

affirmative action is further reflected in the South African Constitution (1996). It lists the primary rights of individuals in Article 9 and states:

Equality

- 9(1) Everyone is equal before the law and has the right to equal protection and benefit from the law
- (3) The state may not unfairly discriminate directly or indirectly against anyone on one or more grounds, including race and culture.
- (4) No person may unfairly discriminate directly or indirectly against anyone on one or more grounds in terms of subsection (3). National legislation must be enacted to prevent or prohibit unfair discrimination.
- (5) Discrimination on one or more grounds listed in subsection (3) is unfair unless it is established that the discrimination is fair.

The purpose of the clause in the Employment Equity Act as well as the Constitution gives due regard to the misuse of psychological tests in the past. Bendix (2001) points out that these provisions have not been enacted to prohibit all forms of psychological testing. It has essentially been established to ensure test reliability and validity, that cultural and language bias has in all cases been eliminated and that privileged educational or social backgrounds have no effect on the effective completion of a psychological test. Legislation ensures that each individual has the right not to be unfairly discriminated against, to be treated with dignity and respect and that each individual has an equal opportunity to compete for employment opportunities. Bendix (2001, p.435) is however of the opinion that “equal opportunities are only possible if all contestants are able to commence from the same starting point”. Wallis (2004) concludes that it is essential that psychological tests accurately measure the psychological constructs they claim to measure, before any inferences or conclusions are drawn. The main goals, as suggested by Van de Vijver and Rothmann (2004) of the testing profession in South Africa is to ensure that current practices are aligned with legal requirements, including developing new tests and validating existing tests for use in diverse groups. They further suggest that although the Employment Equity Act may currently be seen as a threat to the profession

of psychology, in the long run the Employment Equity Act may enhance the professional level of psychological practices by encouraging the development of new tests. Bendix (2000) points out that there has certainly been a growing awareness of possible education, cultural, linguistic and interpretation problems in psychological tests. She is further of the opinion that if stimulating cautiousness in the choice and application of tests was the aim of the Employment Equity Act, then it may have already achieved its purpose. However, considering the results of recent research conducted regarding cultural bias in psychological testing much is still to be done. Research regarding equivalence and bias of tests in South Africa for example, is still in its early stages and more research is needed before psychology and psychological practices can meet the requirements contained in the Employment Equity Act (Van de Vijver & Rothmann, 2004).

2.5 Measuring personality

2.5.1 Introduction

As suggested earlier in the study, psychological testing has grown at an increasing pace and is used within various contexts and across various fields. Murphy & Davidshofer (1998) does however suggest that some psychological constructs are more relevant than others when making decisions about individuals and this depends on the nature of the decision to be made. They further state that several ways of classifying the broad domain of psychological testing exists and one way is the extent to which the constructs being measured are relatively stable or relatively fluid. Murphy and Davidshofer (1998) provide adult intelligence as an example of a stable attribute, whilst attitudes and moods are examples of fluid attributes. They regard stable attributes as more relevant for making decisions about individuals and the three domains that are most relevant to decision-making are the domains of ability, interest and personality. Ability is typically seen as contributing to an individual's performance in varying situations. Interests, as described by Kalane (1998, p.7) "have to do with people's likes and dislikes and is the tendency to favour certain activities in a relatively consistent manner". Personality on the other hand, involves the consistency in a person's behaviour in a wide range of situations

(Murphy & Davidshofer, 1998). The personality domain will consequently form the focus of this study.

2.5.2 Brief historical foundation of personality testing

Systematic efforts to describe and classify human behaviour can be traced back to the ancient Greeks (Murphy & Davidshofer, 1998). The writings of the Greeks from the fifth century BC contained personality descriptions related to the amounts of the four humours in the blood, namely sanguinity, irritability, melancholy and placidity in terms of which people could be described (Rorer, 1990). This fourfold classification provided a basis for the taxonomy of personality types as well as a possible theory regarding the causes of individual differences in personality and it basically persisted well into the nineteenth century (Murphy & Davidshofer, 1998). The idea of behavioural indicators was however non-existent until the end of the seventeenth century (McReynolds cited in Rorer, 1990). In the last half of the nineteenth century however, Galton started collecting systematic measurements of behavioural as well as physical characteristics of people, and by so doing, paved the way for the use of questionnaires and other forms of testing methods (McReynolds cited in Rorer, 1990). By the 1930's, research in personality moved beyond its initial focus on abnormal behaviour to the phenomena of describing and classifying personality types (Murphy & Davidshofer, 1998). Binet and Woodworth further established the notion of assembling a set of items into a scale, "a seemingly simple step that basically represented the start of psychological testing as we know it today" (Rorer, 1990, p.695). Woodworth however broke new ground by means of determining an item's validity by drawing a distinction between the responses of normal individuals with those of individuals diagnosed as mentally ill (Murphy & Davidshofer, 1998). The 1930's and 1940's were further a time of "grand theories" of personality, all attempting to explain a wide range of behaviours and these "grand theories" had a great influence on personality psychologists to develop tests that were broader than those concerned solely with psychopathology (Murphy & Davidshofer, 1998). These include the factor-analytic research of Guilford and Guilford, Cattell and Eysenck. This early

research on personality provided the theoretical basis for several modern multifactor personality tests, in an attempt to describe manifold personality dimensions.

2.5.3 Defining personality

Historically, personality psychologists have varied with the definitions provided in describing personality (Pervin, 1990a). In the words of one psychologist “what personality is, everybody knows, but nobody can tell” (Pervin, 1990a, p. 12). Frank cited in Murphy and Davidshofer (1998), noted that an initial difficulty in describing personality was a lack of adequate understanding of what is to be studied. Today, uncertainty over what personality is still exists. However, Pervin (1990b, p.723) highlights a statement made by MacKinnon in 1951 in which he suggested that “although psychologists may disagree about the best and most efficient way to conceptualise and describe the structure of personality ... there generally is unanimity”. In the first attempts to define personality, MacKinnon, Eysenck, and Klein, Barr and Wolitzky cited in Pervin (1990a) was all of the opinion that personality could not be adequately defined. In a further attempt to define personality, attention was drawn to the individual differences and organismic views, which others on the other hand have been critical of, believing it to be improbable to provide an understanding of the dynamic processes of personality (Pervin, 1990a).

In an attempt to define personality, Pervin (1990a) proposes focusing on both individual differences and on the organisation of component parts. Pervin (1990a) is particularly concerned with how the organism as a whole functions, and states that acknowledging this would lead to a greater emphasis in research on the system aspects of personality functioning. Allport cited in La Grange and Roodt (2001) thus defines personality as:

the dynamic organisation within the individual of those psychophysical systems that determine his unique adjustment to his environment (p35).

Similarly Murphy and Davidshofer (1998, p.4) defines personality as:

the set of characteristics of a person or of people that account for consistent patterns of response/s to situations.

According to Ivancevich and Matteson as cited in La Grange and Roodt (2001), one of the most complex matters to understand within the work context is the relationship between work behaviour and personality. As such, they provide the following definition of personality, which will be considered for the purposes of this study.

An individual's personality is a relatively stable set of characteristics, tendencies and temperaments that have been significantly formed by inheritance and by social, cultural and environmental factors and this set of variables determine the commonalities and differences in the behaviour of the individual (p.98).

2.5.4 Personality taxonomies

2.5.4.1 Introduction

Considering the various personality tests available for use today, many of the constructs described have similar characteristics. Thus, in examining how personality constructs have generally been condensed from thousands of words, the works of Cattell, one of the first researchers to develop a taxonomy for the classification of personality traits, will be discussed. Of further discussion will be the works of Thurstone, Fisk, Tupes and Christal, Norman, Goldberg and McCrae and Costa, who have largely contributed to the development of the Big Five personality factors, a universally accepted taxonomy and currently the most frequently used in personality testing.

2.5.4.2 Personality taxonomies

De Bruin (2001) suggest that one of the obstacles that trait psychologists have experienced in the past is classifying a basic yet comprehensive set of traits that could be used to provide a description of various personality constructs. However, thousands of words to describe various personality traits exist. De Bruin (2001) suggests that as these words used to describe personality are relatively similar in nature, it is in fact possible to reduce the number of words that describe personality to a smaller number of dimensions. Cattell was one of the first researchers to develop a taxonomy for the classification of personality and this taxonomy consisted of sixteen primary factors, which he called the 16PF, a test that has established itself as one of the most widely used (and the most researched and debated) test of normal personality in the world. His taxonomy consisted of sixteen primary factors and eight second-order factors. Digman (1990) states that Cattell's approach was generally accepted as the most objective in describing personality. Since its development, the 16PF has undergone major revisions and although the basic theory of the test has remained similar, a number of adaptations have been made to the original test to both update and improve it (Murphy & Davidshofer, 1998). Digman (1990) is however of the opinion that Cattell's system was of daunting complexity.

As early as 1934, Thurstone's conclusions drawn in a study in which raters were provided with a list of sixty trait adjectives to describe personality were that five common factors accounted for most of the overlap (Goodstein & Lanyon, 1999). In a further attempt to revise and simplify the analysis of Cattell's correlations, Fiske, and Tupes and Christal came to relatively similar conclusions and agreed that five factors appeared to account for the observations to an exceptional degree (Digman, 1990). These five factors were labelled *Surgency*, *Agreeableness*, *Dependability*, *Emotional Stability* and *Culture*. An additional study done by Norman concluded that five factors, similar to those of Tupes and Christal accounted for most of the significant relationships among the descriptors (Goodstein & Lanyon, 1999). Using Norman's descriptors, Goldberg also demonstrated that five factors accounted for all significant relationships and that it remained so in spite of which approach to factor analysis was used (Goodstein & Lanyon,

1999). Goldberg further labelled these traits as the markers for the Big Five. More recently, McCrae and Costa, cited in Goodstein and Lanyon (1999), demonstrated that the Big Five accounted for most of the variability in personality and also showed the stability of individual profiles on the Big Five over extended periods of time, concluding that personality is relatively stable. Research suggests that the Big Five (or Five Factor Model) is probably the most frequently used taxonomy and has come to be universally accepted. The five factors include *Extraversion*, *Emotional Stability*, *Agreeableness*, *Conscientiousness* and *Openness to Change*. According to Salgado in Van der Walt, Meiring, Rothmann and Barrick (2002), the Five Factor model is a very efficient taxonomy as it provides an indication of personality dimensions that can be related to all jobs and criteria.

However, although the Five Factor model enjoys extensive support, it has received considerable criticism from varying viewpoints (Barrick, 2001). It is nonetheless a useful taxonomy and currently the one considered as the most practical in personality. Goodstein and Lanyon (1999) is of the opinion that since the development and adoption of the Big Five approach to personality testing worldwide, there has been a significant increase in the use of personality testing in industry.

2.5.5 Personality testing as an aid in predicting job performance

La Grange and Roodt (2001, p.35) asks whether “personality factors such as those measured by questionnaires or inventories can in fact predict job performance in organisations”. The relationship between personality and job performance has certainly been a much debated and researched topic in psychology. Before 1990, most researchers did not view personality as a valid predictor of job performance (La Grange & Roodt, 2001). During the period 1900 to mid-1980, research conducted was typically characterised by examining the relationship of individual personality constructs to various aspects of job performance (Barrick, Mount & Judge, 2001). The overall conclusion made by Barrick, et al (2001) was that personality and job performance were not related in any significant way across various situations. Today, this perception is

drastically changing. Barrick et al (2001) suggests that the mid-1980's to present is characterised by the use of the Five Factor model or a variation thereof, to classify personality constructs. They further suggest that most research conducted since 1990 have used tests that assess personality constructs at the Five Factor model level, or have used the Five Factor model to classify individual scales from personality tests. In addition, Barrick et al (2001) contends that the use of meta-analytic research methods to review, integrate and analyse previous findings of personality-performance relationships have further led to more optimism and has enhanced the general understanding of this relationship. A substantial body of evidence has since emerged, post 1990, suggesting that personality can be used to predict job performance.

In determining whether personality and a measure of cognitive ability would significantly predict the job performance of sales people, La Grange and Roodt (2001) conducted a study in which the Customer Contact Styles Questionnaire (CCSQ5.2) and the Verbal Evaluation Test (VCC3) were administered to 170 broker consultants and their managers were further requested to rate their job performance on the Customer Competency Inventory (CCCI). It was concluded that certain personality constructs significantly predicted job performance. Barrick and Mount (1991) further conducted a meta-analysis investigating the relationship of the Big Five personality factors to three job-performance criteria, namely job proficiency, training proficiency and personnel data for five occupational groups, including professionals, police, managers, sales and skilled/semi-skilled workers. The results indicated that the construct conscientiousness showed congruence with all job performance criteria for all occupational groups. The construct extraversion was found to be a valid predictor for occupational groups involving social interaction, managers and sales. Openness to experience and extraversion were further found to be valid predictors of the training proficiency criterion. In a further study conducted by Lievens, Coetsier, De Fruyt and De Maeseneer (2002), the aim was to determine the personality constructs that are typical of medical students and which of those personality constructs in fact predicted medical student's performance in pre-clinical years. It was consequently concluded that conscientiousness significantly predicted final scores in each pre-clinical year. In addition, medical students who scored

low on conscientiousness and high on gregariousness and excitement seeking were found to be significantly less likely to complete their examinations successfully. As conscientiousness was found to affect performance which could also be reliably assessed at the start of a medical study career, personality testing was said to be a useful tool in student career counselling and guidance (Lievens et al., 2002). In establishing whether personality could predict academic performance, Chamorro-Premuzic and Furnham (2003) conducted two longitudinal studies of two British university samples. Academic performance was assessed throughout a three year period whilst several indicators of academic behaviour namely absenteeism, essay writing and tutor's exam prediction, were also examined with regards to both academic performance and personality traits (Chamorro-Premuzic & Furnham, 2003). It was found that the Big Five personality factors, particularly neuroticism and conscientiousness, predicted overall final exam scores. The results suggested that neuroticism could have a negative impact on academic performance, whilst conscientiousness could lead to higher academic achievement.

Salgado cited in La Grange and Roodt (2001), in a meta-analysis investigating the Big Five model of personality in relation to job performance conducted in the European community, further found that conscientiousness and emotional stability are valid predictors of job performance across all criteria and occupational groups investigated, whilst extraversion predicted job performance in jobs where interpersonal characteristics were considered important. Barrick et al (2001) further attempted to review the results of fifteen prior meta-analytic studies that have previously investigated the relationship between the Five Factor model and job performance. The findings demonstrated that similarities existed in the results across a number of meta-analyses (Barrick et al., 2001). The results supported the previous findings that conscientiousness is a valid predictor of job success. Emotional stability was also found to be a generalisable predictor when overall work performance was the criterion, but its relationship to specific performance criteria and occupations were less consistent (Barrick et al, 2001). Extraversion, openness to experience and agreeableness did however not predict overall work performance, although they did predict success in specific occupations or when related to specific criteria (Barrick et al., 2001). Barrick (2001) further provides a similar

conclusion and agrees that the two constructs, conscientiousness and emotional stability are most likely to affect performance in all jobs, whilst extraversion, agreeableness and openness to experience are expected to be valid predictors of performance only in certain occupational groups.

Others have however concluded different results regarding the Big Five personality dimensions and its relationship to job performance. Packman, Brown, Englert, Sisarich and Bauer (2005) investigated the differences in personality traits across ethnic groups within New Zealand and across an international sample. The countries compared were New Zealand, Australia and South Africa. Analysis revealed some significant group differences at both the global and facet personality trait level. Packman et al (2005) illustrates that at the global trait level, the largest differences were between countries on the extraversion, neuroticism and agreeableness constructs. Small but significant differences were further found between ethnic and country groups on the constructs considered as the most predictive of job performance, namely conscientiousness and neuroticism. In a further study conducted by Hough and Oswald (2000) it was stated that the Five Factor model provides information about the higher order factor structure of personality but obscures an understanding of the variables combined into these five factors. Matthews cited in Hough and Oswald (2000) in a review of meta-analyses, concluded that the Five Factor model constructs do in fact not correlate significantly with job performance. As seen from the research highlighted above, conscientiousness is said to be a valid predictor of job performance. Others, including Hough, and Robertson and Callinan question this conclusion. Hough and Oswald (2000, p.637) states that whether conscientiousness predicts performance “depends on the criterion construct and how conscientiousness is defined and operationalised”. In addition, Wright and Staw cited in Hough and Oswald (2000, p.637) postulates that “a state measure of emotionality did not correlate with job performance, but rather a dispositional measure did”. As a result, several important personality constructs not within the Five Factor model have been used for predicting job performance. Hough cited in Hough and Oswald (2000) thus proposes developing a more refined taxonomy.

With the exception of La Grange and Roodt (2001), most of the above-mentioned studies were carried out in the US, Canada and Europe. A study conducted by Van der Walt, et al (2002), the first meta-analysis research between the Big Five constructs of personality and job performance, was conducted in South Africa. Similarly, the results indicated that extraversion, emotional stability and conscientiousness are valid predictors of job performance. However, the study supports the Five Factor model as a predictor of job performance, specifically with individuals with a qualification of Grade 12 or higher. The constructs appeared to depict better predictions for samples with a Grade 12 qualification or higher (Van der Walt et al., 2002). Administering a personality test in a language in which the individual is able to understand the items properly was consequently highlighted as a recommendation.

In light of the above, La Grange and Roodt's (2001) statement holds much truth, in which they suggest that it is possible to identify dimensions of behaviour that are likely to predict particular types of job performance, although different dimensions of personality will relate to different aspects of job performance. Personality testing and its relationship to job performance have certainly yielded mixed results. A substantial body of evidence nonetheless suggests that personality testing can to some degree assist in predicting job performance, thus establishing that personality testing can in fact add much value in areas such as recruitment, selection and development. The problem however is whether such personality tests can be used to make efficient occupational related decisions within a multi-cultural society such as South Africa. When personality tests are used in a multi-cultural context, which is most likely to be the case in South African organisations, and considering that South Africa does not have a long history of developing culturally appropriate norms, attention must be paid to the cultural relevance and potential bias of these tests. Consequently, the following sections will focus on cross-cultural issues in personality testing, particularly within the South African context.

2.5.6 Cross-cultural issues in personality testing in South Africa

Cross-cultural issues in psychological testing emerged in the 1920's, where the assessment of black people became more systematic and empirically orientated (Bedell et al., 1999). Through the 1940's and 1950's, psychological testing focused on the educability and trainability of black South Africans (Meiring, Van de Vijver, Rothmann & Barrick, 2005). It was generally recognised that cultural differences influenced testing outcomes and attempts to create "culture-free" tests were all the rage. Following this period, the development of tests of adaptability dominated interest (Bedell et al., 1999). Retief in Bedell et al (1999) further states that during the 1970's and 1980's, there was an increasing awareness of the fact that culture is likely to present ubiquitous effects where psychological testing is concerned and that it is thus not possible to remove culture from the equation. A growing recognition that culture is an important moderator of test performance resulted. Certain aspects of fairness, bias and discriminatory practices received more attention in line with international developments (Meiring et al., 2005). A move towards the consideration of cultural bias inherent in the tests themselves furthermore strengthened the notion that culture may constitute a source of systematic error in test results (Bedell et al., 1999). Kagiticibasi and Berry, as cited in Azevedo, Drost and Mullen (2002) noted that significant cross-cultural differences were found in basic psychological processes such as learning, social perception and attribution. Retief cited in Bedell et al (1999) noted that personality tests rarely preserve the level of reliability when utilised cross-culturally and the validity sometimes even diminishes substantially. Taylor and Boeyens cited in Bedell et al (1999) conducted their study on the South African Personality Questionnaire (SAPQ) and concluded that while some evidence of construct comparability between black and white individuals existed, analysis of item bias indicated that the test was not suitable cross-culturally.

Historically, psychological test development in South Africa was characterised by the development of tests for separate cultural and language groups (Foxcroft, 2004). Although South African tests are generally considered to be valid and reliable, this applies mainly to the groups for which they have been standardised. It has been stated

earlier, that psychological testing in South Africa evolved in an environment characterised by unequal distribution of resources based on racial segregation (Foxcroft et al., 2001). However, Foxcroft (2004) points out that when one considers how psychological tests have been used in the past, it is somewhat surprising to note that very few new cross-culturally relevant tests have been developed. Research suggests that many are in favour of adapting and standardising well-researched international tests. However, given the heterogeneity of the South African society, problems with the development of culturally appropriate tests are likely to exist (Shuttleworth-Jordan cited in Bedell et al., 1999). Personality testing is nonetheless used widely in South Africa, although few studies have been conducted on the comparability of the results for different cultural groups (Van de Vijver & Rothmann, 2004).

When examining gender differences in personality testing, Maccoby and Jacklin cited in Costa, Terracciano and McCrae (2001) conducted the first research relating to gender differences in cognition, temperament and social behaviour and established that males were generally more assertive, whilst females were more anxious. No differences were reported on the locus of control and self-esteem traits though. Feingold (1994) on the issue of male and female personality differences examined four meta-analyses in personality based on literature as well as in normative data for popular personality tests, including the Big Five. Their findings indicated that males had relatively higher scores in terms of the assertiveness dimension and further had slightly higher levels of self-esteem than females. In terms of extraversion, anxiety, trust and tender-mindedness, females scored considerably higher. There were however virtually no differences between the males and females on social anxiety, impulsiveness, the activity facet of extraversion, ideas, locus of control and orderliness (Feingold, 1994). In an additional study, Costa et al (2001) conducted a secondary analysis of the revised NEO-PI (Neuroticism, Extraversion and Openness to change-Personality Inventory), from 26 different cultures. In general, males were established to be higher in assertiveness and openness to ideas than females, whilst females obtained higher scores on neuroticism, agreeableness, warmth and openness to feelings. Ones and Anderson (2002) on the other hand concluded that there were no large gender differences across three personality tests, namely the

Hogan Personality Inventory (HPI), the Occupational Personality Questionnaire (OPQ) and the Business Personality Indicator (BPI), on a British sample. In her study on the 16PF in the South African context though, Abrahams (2002) contends that the race variable tends to have a greater impact on scores obtained than the gender variable. Nel (1994) on the other argues that based on available literature, language is the most important single moderator of test performance.

Abrahams (1996) conducted a study on the cross-cultural comparability of the 16PF and subsequently related articles, Abrahams and Mauer (1999) were published. The results of the research suggest problems with the construct and item comparability of the 16PF and significant mean differences were found when the different race groups were compared (Abrahams, 2002). It was recommended that the 16PF not be used cross-culturally as the reliability was not acceptable for certain race groups. In addition, the results showed that participants whose home language was not English or Afrikaans had more difficulty understanding many of the words (Abrahams, 2002). Prinsloo and Ebersöhn (2002) responded to the studies conducted by Abrahams (1996) and Abrahams and Mauer (1999) and concluded that the usefulness of the 16PF can only be decided within the context or purpose of a specific situation. Prinsloo and Ebersöhn (2002) further argued that the conclusions drawn by Abrahams and Mauer's listing of the "bad or negative traits" attributed to black individuals are in fact very controversial and that this violates the interpretation requirements, process and value of the technique. They are of the opinion that the language problem as suggested by Abrahams and Mauer may have been over-accentuated because of their techniques employed and the subjectivity of the ratings. Abrahams (2002) responded and strongly reaffirmed her conclusions. Abrahams (2002) rejected Prinsloo and Ebersöhn's (2002) suggestion that there is a generally negative response to "everything American" and stated that thorough research must be conducted on any psychological test, prior to its adoption within South Africa, as race seems to have the greatest influence on test scores.

The issue of language is further particularly relevant to studies relating to cross-cultural comparability. Considering South Africa's past language policies in education, large discrepancies exist (Meiring, Van de Vijver & Rothmann, 2004). Considering the history of South Africa's language policies and considerable differences in language proficiencies, administering a psychological test in English can certainly become problematic. Meiring, et al (2004) states that the development of culturally appropriate tests in a multi-lingual, multi-cultural South African society is likely to be very challenging. They further suggest that test performance could in fact be reduced because of language and not because of ability factors if a test is administered to a person in a language that is not their mother tongue. Meiring et al (2004) further highlights a study conducted by Owen, who found that language was a potential source of test bias for black pupils in South Africa who completed an aptitude test in English. Linguistic factors are thus critical in evaluating the appropriateness of a psychological test in a multi-lingual context (Van de Vijver and Leung, 1997).

Meiring et al (2005) conducted a study on the construct, item and method bias of cognitive and personality tests, namely the Fifteen Factor Questionnaire Plus (15FQ+) in South Africa. The 15FQ+ is a personality test developed by Psytech International as an update of the original 15FQ and both were designed for use in occupational decision-making (Tyler cited in Meiring et al., 2005). This test is based on Cattell's sixteen personality factors and was designed as an alternative to the 16PF. In their study, Meiring et al (2005) found that the various scales of the 15FQ+ revealed construct bias in various cultural groups. Low internal consistencies for several personality scales were revealed, specifically in the black groups, which limited the usefulness of the 15FQ+. An investigation into bias in an adapted version of the 15FQ+ by Meiring et al (2004) further concluded that the adapted version produced less construct and item bias than the original version, although the adapted version showed minor increases in internal consistencies, again for the black groups specifically.

Foxcroft et al's (2004) study regarding the test use patterns and needs of psychological assessment practitioners in South Africa revealed that the majority of the psychological

tests being used were in need of adapting to South Africa's diverse society. Practitioners indicated that psychological tests were needed in all South Africa's official languages and varied norms in order to address language issues in testing.

The above findings thus provide useful information but nonetheless have significant implications for the use of personality tests in a multi-cultural context, especially considering the impact of the Employment Equity Act. It appears that race, education and language are the main variables impacting on construct and item comparability of psychological tests. When examining the requirements as set out in the Employment Equity Act and considering the studies conducted above as well as the extent to which personality testing is used in industry today, there are concerns regarding whether the requirements of the Employment Equity Act for some personality tests are in fact being met.

2.6 Cross-cultural psychology

2.6.1 Defining culture

As culture is a central concept in cross-cultural psychology, it is important to firstly define this concept. Watt and Norton (2004) states that culture is a much used word and it typically includes the system of shared ideas, rules and meanings that inform us how to perceive and act in varying situations. Throughout history, culture has been defined and redefined. Lonner and Malpass cited in Abrahams (1996) noted that approximately 175 definitions of culture exist. Amongst the most common definitions of culture include that of Kroeber and Kluckhohn. Their definition as cited in Abrahams (1996, p.35) states the following:

Culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups including the embodiments in artefacts; the essential core of culture consist of traditional ideas and especially their attached values; culture systems may, on the other hand be considered as a course of product or action and on the other as conditioning elements of further action.

This definition did however prove to be rather lengthy and impractical. Culture, according to Arbona (1998) is essentially a wide-ranging term that covers a multitude of interrelated facets of human experiences. Much difficulty was thus found in obtaining a wide-ranging yet concise definition of culture. After considering numerous literature surrounding cross-cultural psychology, Segall (1986, p.527) thought it evident that “culture per se is not a variable” and that almost no contemporary research reports portray human behaviour as a product of culture. More recently though, attempts to define culture has become more clear and direct. Thus, taking Berry, Poortinga, Segal and Dasen, and Smith and Bond’s definitions of culture and combining it, Abrahams (1996, p.37) defines culture as:

... a relatively organised system of meanings shared by a group of people.

Luthans (1998) further suggests that culture can be defined as acquired knowledge that people use to interpret experience and generate social behaviour. An individual’s cultural identity can be shaped by their language, ethnicity, race, religion, education, gender and socio-economic status. Helman cited in Watt and Norton (2004) refers to the “cultural lens” of society and describes it as a perception of the world or lens through which we view life. The term culture can thus be used to refer to multiple issues related to a sense of belonging to various groups identified by race, ethnicity, age, socioeconomic status, gender orientation or religion (Ridley cited in Arbona, 1998). When examining ethnicity, a concept closely related to culture, people within a group typically have certain background characteristics that generally separate them from other groups, providing them with a distinctive identity. Ethnicity thus involves a system of shared characteristics

or behaviour originating in a social and economic context (Watt & Norton, 2004). To examine the consequences of ethnicity within the psychological testing context, Arbona (1998) suggests that considering factors such as our adherence to cultural values, ethnic or racial identity and the status of the group we belong to is critical. Culture and ethnicity are thus central to the issue of cross-cultural psychology, in that it provides an indication of how identities are perceived and how people typically describe themselves.

These different definitions and contentions thus demonstrate that the term culture can be applied in several ways and is not permanent or genetically inherited but transforms and alters in response to new situations (Watt & Norton, 2004). South Africa at present is an example where a more extensive focus on issues of cultural diversity has become an important principal in national cultural policy agendas, than that of international trends (Barnett, 2000). The political transformation from apartheid to that of democracy has highlighted a change in terms of cultural political debates, shifting from resistance towards being more open and having a more productive understanding of potential relationships between cultures (Barnett, 2000). The Employment Equity Act can be considered a product of such a productive understanding.

2.6.2 Cross-cultural psychology

Shweder and Sullivan (1990) is of the opinion that from the periods 1970 to 1980, the “person” or the “subject” prompted significant interest specifically within anthropology, which essentially led to the field of investigation known as cultural psychology. They define cultural psychology as the following:

... the study of the way in which culture and consciousness make each other up and it is further a basic principle of cultural psychology that the process of consciousness may not be uniform across the cultural regions of the world (p.399)

Abrahams (1996, p.13) adopts Berry, Poortinga, Segal and Dasen’s definition of cross-cultural psychology. It states the following:

Cross-cultural psychology is the study of similarities and differences in individual functioning in various cultural and ethnic groups, of the relationships between psychological variables and socio-cultural, ecological and biological variables and of current changes in these variables (p.13).

Shweder and Sullivan (1990) notes that numerous studies confirm the dynamics of various emotions in various cultural contexts. Abrahams (1996) gives attention to the long-standing debate in cross-cultural psychology between those who prefer working in one culture to establish native psychological trends and those who prefer to work across cultures, in an attempt to establish generalisations about human behaviour that are universally valid. Barrick (2001) argues that the critical issue is to examine whether the content of a psychological test generalises across cultures or is specific to the culture of a group. Berry cited in Barrick (2001) states that this research bears on the Emic-Etic debate, which is essentially the core of cross-cultural research. Berry cited in Abrahams (1996) believes that these should not be considered in isolation and both are important aims in cross-cultural research. Etic constructs have universal application and typically compares many cultures. Emic constructs or culture-specific constructs studies only one culture. Barrick (2001) predicts that the Five Factor model dimensions are Etic traits and these personality constructs provide a universal structure across all cultures. He further states that the lower level dimensions of personality are Emic traits, those which reflect culture specific influences. Barrick (2001) is of the opinion that tests, which assume the structure of the Five Factor model, will generate useful comparisons across multiple cultures, whilst tests of lower level personality dimensions are likely to be relevant to a specific culture. He further explains by suggesting that extraversion typically consists of sociability, unrestraint or assertiveness, and whilst extraversion may be replicated across cultures, components of sociability, unrestraint or assertiveness may be found to be culture specific. Claassen cited in Foxcroft (2004) however cautions that as the South African society has a diverse culture, there should be consideration that the culture of origin exists together with discrepancies in acculturation towards a Western norm. Considering that many researchers have mainly concentrated on measuring those abilities that originate from Western societies, it is negligent to assume that they encompass

universally valid indicators of intelligence (or personality for that matter) and would certainly appear to be open to cultural variation (Kendall, Verster and Mollendorf cited in Bedell et al., 1999). Abrahams (1996) thus stresses the necessity to conduct research on all psychological tests imported from foreign countries in order to ensure that the test does not unfairly discriminate against any individual or group and as such, does not constitute an unfair labour practice. Abrahams and Mauer (1999) further suggests that research must demonstrate that the psychological constructs applicable on the culture of origin have matching parts in the target culture. Lind (1995) suggests asking whether the use of a test in other cultures is meaningful and whether a comparison across these cultural boundaries is likely to be fair, considering that standards typically originate in the culture of Western backgrounds.

2.6.3 Cross-cultural comparability

Abrahams (1996) states that comparability of psychological tests has raged in the US since the 1960's and various terms have been used to refer it, for example, equivalence, bias and invalidity. Abrahams (1996, p.43) further suggests that in order to make meaningful comparisons between various groups of people, "it is essential that the variable that forms the scale has identical properties for the person or groups to be compared". Comparability looks at whether the same constructs are being measured across different cultural groups (Bedell et al., 1999). It should thus be established whether inter-group differences on a test reflect real differences in the construct measured or to what extent these differences are factors relating to the test, in other words, is the test bias (Bedell et al., 1999). Owen (as cited in Bedell et al., 1999) divides comparability into three main categories, namely, construct comparability, which assesses to what extent different variables are measured for different groups, score comparability which relates to item bias and predictive comparability, which is concerned with performance prediction for different groups.

Van de Vijver and Leung (1997) suggests that differences between cultural groups can be attributed to culture but as culture is too broad a concept to be meaningful as an

exploratory variable, it should be replaced by its constituents. They describe these constituents as context variables or cultural dimensions when they refer to culture level phenomena. These context variables can be person-related, such as age or psychological characteristics or culture-related, such as educational systems. Poortinga in Van de Vijver & Leung (1997) contends that two closely related concepts play an essential role in cross-cultural comparisons, namely bias and equivalence. Van de Vijver & Leung (1997, p.7) describes equivalence as the “the measurement level at which scores obtained in different cultural groups can be compared”, whereas bias is characterised by the “presence of factors that challenge the validity of cross-cultural comparisons”. Bias thus refers to the nuisance factors but systematic sources of variation in cross-cultural comparisons, whereas equivalence is the consequence of nuisance factors concerning the comparability of scores across varying cultures (Meiring et al., 2005). It is thus important to define these concepts and to show their relationship to comparability.

2.7 Bias and equivalence

2.7.1 Bias

Murphy & Davidshofer (1998, p.301) defines bias as “a statistical characteristic of the test scores or of the predictions based on those scores”. They further indicate that bias is prevalent when a test makes a systematic error in a measurement or prediction. Bias is a generic term for all factors that threaten the validity of cross-cultural comparisons and poor item translations, inappropriate item content and lack of standardisation in administration procedures are just a few examples (Van de Vijver and Leung, 1997). Taylor and Radford as cited in Bedell et al (1999) argue that bias can never be eliminated entirely, but an attempt to minimise the effects of bias associated with known or potential sources can be made. Meiring et al (2005) suggests that whether a test is biased cannot be answered in general terms, but can be addressed when a test is biased in a specific comparison or judgment. Various types of bias presented by Van de Vijver and Leung (1997) will be discussed further.

2.7.1.1 Construct bias

Construct bias as suggested by Van de Vijver and Rothman (2004) occurs when the construct measured is not identical across cultural groups, preventing the cross-cultural measurement of a construct with the same test. Construct bias can also be generated by a lack of similarity in behaviours associated with the construct in the cultures studied (Van de Vijver & Leung, 1997). Inadequate sampling of the domain in a psychological test can further cause construct bias. Another source of construct bias includes the exportation of studies from West to non-West countries. Van de Vijver and Leung (1997) suggest that such studies can typically not be generalised to non-Western countries or cultures. They are of the opinion that such studies are generally shaped by the cultural background of Western researchers and when applied in non-Western countries, are likely to produce different results.

2.7.1.2 Method bias

Van de Vijver and Leung (1997) suggest that even if a construct is well represented in a test, one cannot assure that no bias in the scores will exist. They further suggest that bias could arise from particular characteristics of the test or its administration. Method bias, as suggested by Meiring et al (2005), refers to the problems caused by the manner in which the study is conducted. Meiring et al (2005) further distinguishes three types of method bias. The first is referred to as sample bias in which the inappropriateness of samples on factors other than the target variable can lead to method bias. The second includes instrument bias where problems arise from the instrument characteristics. The third type of method bias is referred to as administration bias, in which problems arise from the administration procedure.

2.7.1.3 Item bias

The items on a test can also be a source of bias. According to Van der Vijver and Rothman (2004), an item is biased if respondents with the same standing on the

underlying construct but who come from different cultures do not have the same mean score on the item. In other words, an item can be considered as biased if it favours one cultural group across all test scores. Van de Vijver and Leung (1997) states that item bias can be produced by various sources such as incidental differences in appropriateness of the item content, (for example, items of an educational test are not in the curriculum for one cultural group), inadequate item formulation (such as complex wording) and inadequate translation. Several techniques are available to identify item bias and, with reference to Abrahams (1996), some of these include discrimination value of the item, rank order of item, difficulty values, transformed item difficulty values, analysis of variance, chi square and item characteristic curve.

2.7.2 Equivalence

Van de Vijver and Leung (1997) refer to the implications of bias with regards to the comparability of constructs and test scores. They state that when a test measures different constructs in two cultures, one cannot make any comparisons as there is no link between scores obtained in one cultural group and scores obtained in other groups. This is referred to as construct inequivalence and typically results from measurement problems. Three types of equivalence are identified.

Construct equivalence, as described by Meiring et al (2005) is when the same construct is measured across various cultural groups, despite the possibility that the measurement of the construct may be biased on the same test across cultures. Meiring et al (2005) further highlights metric or measurement equivalence as the second (and higher) level of equivalence, which they state is typically obtained when two metric measures have the same measurement unit but different origins. The last (and highest) level of equivalence is called scalar equivalence or full-scale comparability. According to Van de Vijver and Leung (1997) one can typically attain scalar equivalence when the measurement instrument is on the same ratio scale for each cultural group. They further suggest that scalar equivalence can also be achieved when scores on a test have the same internal scale across various cultural groups.

In summary, the equivalence levels and the various types of bias can be said to be closely related to each other. Bias of a test will generally lower the level of equivalence.

2.8 Fair use of tests

De Jong and Visser (2000) indicate that a large number of research have concentrated on determining to what extent selection techniques add value when making occupational related decisions, including bias. However, they further suggest that test fairness is also essential in evaluating the fair use of selection techniques. Bedell et al (1999) postulates that test bias is established via objective statistical indicators that provide an indication of whether or not test scores have the same or different meanings. They further suggest that test fairness on the other hand, reflect social values and attitudes toward test use. Whereas bias is a statistical concept, fairness in the sense of equality in testing outcomes, is a socio-political issue (Huysamen, 2002). Thus, fairness can be viewed as acceptance of a candidate identified as most likely to be successful in any given position (Bedell et al., 1999). It can on the other hand refer to the process as a whole, whether it was fair and equitable and if there was any unfair discrimination or bias towards any group. Singer as cited in De Jong and Visser (2000) notes that irrespective of how test fairness is defined and even though it is often confused with test bias, selection fairness is a critical issue in South African organisations.

Bendix (2000) raises the question of whether any psychological test or assessment can be completely free of bias in one form or another. She further states that different cultural groups are likely to alter their responses to a particular situation and as such, these different responses do not necessarily invalidate the test score. Bendix (2000) suggests that the problem arises where these responses are subject to negative interpretation (or have an adverse impact where individuals of a specific demographic group are less likely to be selected for employment opportunities than individuals of other demographic groups) and the answer therefore does not necessarily lie in “culture free” tests but rather in understanding and interpreting responses within the context of each individual’s background. Abrahams (1996) further recommends that only information that is

systematically related to work success should be considered for decision-making. Although the OPP is a psychometric test, Psytech International (n.d.) and Tredoux (2002) claims that it focuses on specific competencies typically found within the workplace, as it was designed for use in industrial and organisational settings. The OPP has further been described as a cross-culturally valid and reliable means of personality testing. Based on research conducted, discussed previously in this chapter, many personality tests used in industry were found not suitable for use in a multi-cultural society such as South Africa. Consequently, the following chapters within this study will place a focus on the OPP in order to determine its cross-cultural comparability between various race, language and gender groups assessed for selection and development purposes within the Public Service.

2.9 Conclusion

This chapter has attempted to provide an overview of psychological test development in South Africa. It was shown that there was a general misuse of tests and test results during the apartheid regime, the majority of tests used being mainly standardised for whites. However, since our first democratic election, governing political parties began focusing on issues likely to act as barriers to equal opportunities in the workplace, psychological testing being one of them. Hence Section 8 in the Employment Equity Act was drafted which has since created an awareness that issues of culture, education and language can impact on an individuals performance on any psychological test. Major research relating to the relationship between personality testing and job performance was discussed, whilst research relating to cross-cultural issues in personality testing was subsequently highlighted. Issues of cross-cultural comparability were further discussed and related concepts such as bias and equivalence were defined.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Research problem

As part of a transformation and restructuring process of the Senior Management Services within the Public Service, individuals in this study were required to undergo an assessment centre, developed by a group of Psychologists, in order to enhance the States ability to recruit, retain and develop competent managers. This assessment centre battery, including the OPP, is a standardised battery used for senior managers within the Public Service or for individuals applying for senior management roles. The OPP is thus used extensively in specific departments within the Public Service, as part of selection processes or for development purposes.

Based on research conducted, as discussed in chapter two, concerns regarding the cross-cultural comparability of some personality tests have been raised. It thus becomes important to consider the issue of cross-cultural comparability before using any psychological test (Kalane, 1998). The extent to which a particular psychological test can be used within any cultural group and whether it will still sufficiently measure the same constructs must be established (Kalane, 1998). Current legislation compels test users to develop and establish psychological tests that are valid and reliable and that does not discriminate unfairly against any individual or group. Wallis (2004) states that psychological tests must accurately measure the psychological constructs they claim to be measuring before any conclusions are drawn from the test regarding both the person tested as well as the construct concerned. As highlighted and discussed in chapter two, often tests are used to assess various aspects of personality that have not been scientifically proven to be valid and reliable. In many cases, tests still used to date have been proven non-comparable across cultures. To continue with these practices will have devastating consequences for the candidate being tested as well as for the organisation in terms of costly lawsuits. As Abrahams (1996) suggests, establishing the cross-cultural comparability of psychological tests is critical especially in the South African context,

considering that very often selection and promotion decisions were (and still is) made on the basis of tests that have not been proven to be comparable across cultures. Given the prevalence of the use of personality tests in organisations in South Africa and the potential legal and ethical implications, it is important to determine whether any cultural group in South African organisations are being differentiated through personality tests. As such, it becomes important to closely look at whether the tests we use are in fact suitable for use in certain cultural groups.

An attempt will therefore be made in this study to provide essential information to the Public Service, making use of the OPP as part of their selection and development assessment processes, regarding the cross-cultural comparability of the OPP and its suitability for use in certain cultural groups.

3.2 Hypotheses

The following broad hypotheses are formulated for investigation.

Hypothesis 1

Significant differences between males and females exist in terms of their results of the total test score on the OPP, within the Public Service.

Hypothesis 2

Significant differences between males and females exist in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

Hypothesis 3

Significant differences between respondents speaking English, Afrikaans and an African language as their home language exist in terms of their results of the total test score on the OPP, within the Public Service.

Hypothesis 4

Significant differences between respondents speaking English, Afrikaans and an African language as their home language exist in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

Hypothesis 5

Significant differences between African and White respondents exist in terms of their results of the total test score on the OPP, within the Public Service.

Hypothesis 6

Significant differences between African and White respondents exist in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

Hypothesis 7

Differences exist between the reliabilities of the male and female respondents in terms of their results of the total test score on the OPP, within the Public Service.

Hypothesis 8

Differences exist between the reliabilities of the male and female respondents in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

Hypothesis 9

Differences exist between the reliabilities of the African and White respondents in terms of their results of the total test score on the OPP, within the Public Service.

Hypothesis 10

Differences exist between the reliabilities of the African and White respondents in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

3.3 Sample

The sample consists of 270 individuals, identified for participation through their application for senior management positions in the organisation or for developmental purposes. The race distribution of the respondents is illustrated in Figure 3.1, whilst Table 3.1 shows the frequency of the participants according to race. As indicated, respondents from the Coloured and Indian racial groups comprise too small percentage to provide meaningful comparisons. Consequently, these respondents will be excluded from the analysis. As can be seen from Figure 3.1 and Table 3.1, sufficient participants are present in the African and White racial groups to make meaningful statistical comparisons.

Figure 3.1: Race distribution

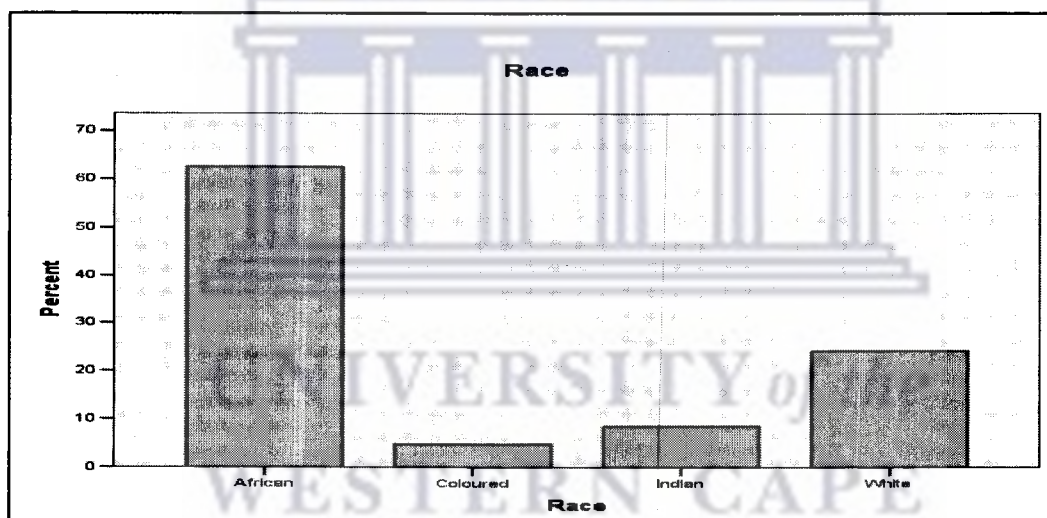


Table 3.1: Frequency and percentage distribution of respondents according to race

Race	Frequency	Percent	Cumulative Percent
African	169	62.6	62.6
Coloured	13	4.8	67.4
Indian	23	8.5	75.9
White	65	24.1	100.0
Total	270	100.0	

The respondents were further from a range of industries and with a range of occupations. Their mean age was 40.75 from 22 to 67 years. The distribution of the age of the sample is provided in Table 3.2 below. It illustrates that the majority of the respondents are between the ages of 30 and 60.

Table 3.2: Descriptive statistics of respondents according to age

Age	
N	267
Mean	40.75
Median	40.00
Std. Deviation	7.734
Skewness	.434
Std. Error of Skewness	.149
Kurtosis	-.076
Std. Error of Kurtosis	.297

*Note: Data for 3 respondents were missing

Individuals with an educational level ranging from Grade 12 to a three year or more tertiary qualification were further selected for this study. Tredoux (2002) provides an indication of respondents for whom the OPP is suitable. Individuals with an educational level of Grade 12 are required as well as proficiency in English. Considering the socio-economic history of South Africa however, there is likely to be considerable differences in the educational standards and language proficiency between individuals from different socio-economic backgrounds (Tredoux, 2002). Considering the respondents are all functioning in senior management roles and are all in possession of a Grade 12 or higher educational level, it can be assumed that they are suitable candidates for completion of the OPP. Table 3.3 illustrates the educational distribution of the respondents by race and gender.

Table 3.3: Frequency distribution of educational status of respondents according to race and gender

	African	White	Total
Males			
Matric	2	2	4
Diploma	5	4	9
B.Degree	42	14	56
Honours	34	13	47
Masters	24	11	35
Doctorate	0	2	2
Not specified	2	0	2
Total	109	46	155
Females			
Matric	0	1	1
Diploma	3	2	5
B.Degree	18	6	24
Honours	16	4	20
Masters	21	2	23
Doctorate	0	2	2
Not specified	2	2	4
Total	60	19	79

Additional information was further collected by means of biographical information as requested on the OPP answer sheet as well as collateral sources of information. Table 3.4 presents the number of male and females included in the study.

Table 3.4: Frequency distribution of gender according to race

	African	Coloured	Indian	White	Total
Male	109	11	15	46	181
Female	60	2	8	19	89
Total	169	13	23	65	270

Table 3.5 further portrays the home language of the African and White respondents. The majority of the participants have an African language as their mother tongue. The African language group comprise of the following languages: Sepedi, Sesotho, Setswana,

siSwati, Tshivenda, Xitsonga, Ndebele, Xhosa and Zulu. For data analysis purposes, these languages have been collapsed as the individual language groups comprise too small percentage to make meaningful comparisons. This group will be referred to as the African language group.

Table 3.5: Frequency distribution of home language according to race and gender

Gender			Language			Total
			African languages	Afrikaans	English	
Male	Race	African	65	0	3	68
		Coloured	0	0	8	8
		Indian	0	0	9	9
		White	0	15	23	38
	Total		65	15	43	123
Female	Race	African	34	0	2	36
		Coloured	0	0	1	1
		Indian	0	0	3	3
		White	0	5	11	16
	Total		34	5	17	56

*Note: Based on the above table, approximately 23.5% of the respondents did not provide information regarding their home language.

3.4 Measuring instrument

For this investigation, the instrument used will be the OPP, a personality test used to evaluate individual behaviour preferences within the work context. It provides a detailed assessment of interpersonal style, thinking style and patterns of coping with stress. The test was originally developed in the UK and based on research conducted, was found to be particularly appropriate for use in personnel assessment (Psytech International, n.d.). The OPP was introduced in South Africa in 1995 and was officially submitted to the Psychometrics Committee of the Health Professions Council of South Africa in April 2001. Tredoux (2002) reports on the suitability of the OPP for respondents and suggests that a Grade 12 level of education as well as proficiency in English is necessary for effective completion of the OPP. However, Tredoux (2002) cautions that each situation

should be evaluated on its merits, when considering differences in educational and English standards in South Africa. The OPP is said to be suitable for use in various applications. Tredoux (2002, p.7) states that the OPP can be used for the following purposes:

- i) *For selection purposes for specific positions, of which the behaviour requirements are known*
- ii) *In counseling, including personal development, educational counseling, career choice counseling and counseling to improve relationships*
- iii) *For development in terms of behaviour competencies for jobs, team building, self-insight and self management*

As per legal requirements, the UK version of the OPP was adapted and validated before introducing it in South Africa as a valid and reliable test of personality. Research suggests that many are in favour of adapting and standardising well-researched international tests, such as the OPP. However, given the heterogeneity of the South African population, problems with the development of culturally appropriate tests are anticipated (Bedell et al., 1999). In revisiting the UK versions of the OPP, a few items were replaced and reworded in order to make the meaning of the item text clearer in terms of South Africa's requirements. Although only minor differences exist between the South African and UK versions, the OPP is supported by the UK Technical Manual. Tredoux (2002) notes that no items on the UK version of the OPP were added or removed and the scoring key remained the same.

The OPP includes 98 test items and measures nine different personality constructs in addition to a motivational distortion scale. It requires a response on a five-point likert scale and each of the nine constructs measured by the OPP is bipolar. The nine constructs that form the OPP can be summarised in Table 3.6.

**Table 3.6: Descriptions of the OPP constructs
(Psytech International, 2005, p.20)**

<p style="text-align: center;"><i>Detail-Conscious</i></p> <p>Deliberating, controlled, rigid, conscientious, enjoys attending to detail</p> <p>Low scores typically suggest a controlled approach, greatly respecting authority and the status quo.</p>	<p style="text-align: center;"><i>Flexible</i></p> <p>Spontaneous, flexible, dislikes detail, lacks self-discipline and control, disregards rules and obligations</p> <p>High scores are described as spontaneous, often displaying unplanned behaviour and lacking self control</p>
<p style="text-align: center;"><i>Genuine</i></p> <p>Base behaviour on own feelings and attitudes, forthright, honest and open, genuine and sincere, may lack tact and diplomacy</p> <p>Low scores are genuine and open in their dealings with others and are unable to hide their true feelings.</p>	<p style="text-align: center;"><i>Persuasive</i></p> <p>Behaviour is determined by the demands of the situation, diplomatic, manipulative, expedient, shrewd and calculating, sensitive to 'political' issues</p> <p>High scores are described as 'good actors' and are likely to be persuasive, acutely aware of the demands of the situation.</p>
<p style="text-align: center;"><i>Reserved</i></p> <p>Reserved, cool and introspective, prefers to work alone, enjoys own company, aloof and detached</p> <p>Low scores usually have little need for the company of others and will try to avoid jobs that require continually meeting new people.</p>	<p style="text-align: center;"><i>Gregarious</i></p> <p>Outgoing and sociable, lively and talkative, enjoy working with others, high need for affiliation</p> <p>High scores typically have a strong need for others' company. They may become tense and restless if they have to be on their own for long periods of time.</p>
<p style="text-align: center;"><i>Cynical</i></p> <p>Suspicious, cynical, sceptical, may distrust others, inclined to question others motives</p> <p>Low scores are characterised by suspiciousness and scepticism with a tendency to be cautious and guarded in their dealings with others.</p>	<p style="text-align: center;"><i>Trusting</i></p> <p>Takes people at face value, have faith in other's honesty, sometimes credulous, trusting, philanthropic</p> <p>High scores typically have an honest and trusting nature, believing that people are generally sincere and good-hearted.</p>
<p style="text-align: center;"><i>Optimistic</i></p> <p>Achieving and striving, believe their own actions determine outcomes, positive approach to setbacks, optimistic, believe they are in control of their own destiny</p> <p>Low scores have faith in their own ability and generally approach problems in a constructive and optimistic way.</p>	<p style="text-align: center;"><i>Pessimistic</i></p> <p>Resigned, prone to feelings of helplessness, fatalistic, inclined to pessimism, have little faith in their ability to determine events</p> <p>High scores tend to be pessimistic and may be inclined to bouts of depression, not believing that their actions will shape future events.</p>

<p style="text-align: center;">Emotional</p> <p>Prone to worry, moody, inclined to be anxious in social settings, easily take offence</p> <p>Low scores are prone to suffer from feelings of anxiety and self-doubt and may have difficulty coping under pressure.</p>	<p style="text-align: center;">Phlegmatic</p> <p>Self-assured, emotionally stable, socially confident, secure, resilient</p> <p>High scores have a mature outlook on life, are not easily upset and take most things in their stride.</p>
<p style="text-align: center;">Accommodating</p> <p>Empathic, people orientated, accepting, sensitive to other's feelings, avoids confrontation</p> <p>Low scores on this construct are typically indicative of a more democratic, participative style.</p>	<p style="text-align: center;">Assertive</p> <p>Dominant, task orientated, challenging, confrontative, unconcerned about others feelings</p> <p>A high level of assertiveness forms the basis of an authoritarian, task-orientated leadership style.</p>
<p style="text-align: center;">Composed</p> <p>Calm and composed, able to delegate, tolerant, keep work separate from home life, able to unwind and relax, able to distance themselves from work pressures</p> <p>Low scores typically dislike having to continually meet close deadlines and do not have an aggressive, competitive attitude towards work.</p>	<p style="text-align: center;">Contesting</p> <p>Ambitious and competitive, may take on too much work, work long hours, difficulty relaxing, impatient, prone to stress related illnesses</p> <p>High scores tend to be tense and competitive, having an ambitious and challenging approach to work.</p>
<p style="text-align: center;">Abstract</p> <p>Imaginative, creative and artistic, abstract and intellectual, aesthetically sensitive, have a theoretical orientation</p> <p>Low scores have a theoretical approach to problem solving and enjoy thinking a problem through particularly if they have the freedom to approach it in an innovative, radical way.</p>	<p style="text-align: center;">Pragmatic</p> <p>Down to earth and concrete, practical and realistic, pragmatic, not interested in artistic matters, more concerned with 'how than why'</p> <p>High scores are realistic and pragmatic in their approach to problems, with a tendency to approach problems in a 'black and white' way.</p>

Psytech International (n.d.) indicates that the personality constructs on the OPP have essentially been selected as a result of their relevance for occupational decision-making and because of vast research conducted confirming their validity. Some of the research includes the works of Guilford, Cattell, Kline, Eysenck, Thurstone, Maslow and Jung, to name but a few.

3.4.1 The psychometric properties of the OPP

Tredoux (2002) reports a list of norms available for the OPP and these include South African as well as international norms. Tredoux (2002) does however recommend the

use of South African norms. In interpreting the OPP, stanines are used. Table 3.7 provides an indication of the norms available for the OPP of which the majority has come from the South African Police Services.

Table 3.7: List of norm tables for the OPP

Norm Groups	
SA Afrikaans Police Applicants (original items)	SA Afrikaans Police Training Applicants (revised items)
SA Asian Police Applicants (original items)	SA Asian Police Training Applicants (revised items)
SA Black Police Trainee Applicants (original items)	SA Black Police Training Applicants (revised items)
SA Call Centre Applicants (original items)	SA Coloured Police Applicants (revised items)
SA Coloured Trainee Police Applicants (original items)	SA English Police Applicants (revised items)
SA English Police Applicants (original items)	SA Ndebele Police Applicants (revised items)
SA General Population frequency norm (original items)	SA Pedi Police Applicants (revised items)
SA General Population (original items)	SA Sotho Police Applicants (revised items)
SA Managers & Graduates (original items)	SA Tswana Police Applicants (revised items)
SA Ndebele Police Applicants (original items)	SA Venda Police Applicants (revised items)
SA Pedi Police Applicants (original items)	SA White Police Applicants (revised items)
SA Police Clerical Applicants (original items)	SA Xhosa Police Applicants (revised items)
SA Professional Candidates (original items)	SA Zulu Police Applicants (revised items)
SA Retail Staff (original items)	SA Tsonga Police Applicants (revised items)
SA Sales & Marketing (original items)	SA Police Applicants (revised items)
SA Sotho Applicants to SA Police (original items)	
SA Swazi Police Applicants (original items)	
SA Tsonga Police Applicants (original items)	
SA Tswana Police Applicants (original items)	
SA University Students all races (original items)	
SA Venda Police Applicants (original items)	
SA Xhosa Police Applicants (original items)	
SA Zulu Police Applicants (original items)	
SA White Police Trainee Applicants (original items)	
SA Mine Applicants (original items)	

Psytech International (n.d.) and Tredoux (2002) further provide detailed studies in terms of the OPP's reliability and validity, discussed in the subsequent sections. It should however be noted after a thorough search and review of literature was conducted, no independently conducted and published studies into the cross-cultural comparability of the OPP in South Africa could be located. Most of the data are reported in the test publisher's manual.

3.4.2 Reliability of the OPP

It can generally be anticipated that any psychometric test will yield the same result if administered on the same individual at two points in time (Kalane, 1998). Rosnow and Rosenthal (1999, p.439) define reliability as “the extent to which observations or measures is consistent or stable”. If different scores are obtained on the same person within a short time frame of the administration of the same test, questions regarding the reliability of that particular test is raised (Kalane, 1998). The statistic by which the reliability of a psychological test is determined is called the reliability coefficient. Research suggests that the magnitude of reliability coefficients differ, depending on what the test is being used for. Wolfaardt (2001) lists various values of reliability coefficients and states that a standardised test should have reliabilities between .80 and .90. Huysamen (cited in Wolfaardt, 2001) further suggest that reliability coefficients should be .85 or higher if measures are used for decisions about individuals and .65 or higher if decisions are made about groups. Anastasi (1982) is however of the opinion that for a test to have the psychometric quality of reliability, it should have a reliability coefficient of at least .69. All things considered, a reliability coefficient of .65 will be regarded as acceptable for the purposes of this study.

Based on international studies conducted by Psytech International (n.d.), the OPP appears to fall within the acceptable standards of reliability. All the OPP constructs were assessed to have reliability coefficients above .60 within the male and female groups, when internal consistency reliabilities were computed. Test-retest estimates of reliability were further conducted within a three month period. The results presented in Psytech International (n.d.) suggest that the individual's responses on the OPP remained relatively stable, with all coefficients above .70 and .80, although data for an undergraduate sample indicated less stability over a one month period than that of working adults over a period twice as long. Psytech International (n.d.) attributed this discrepancy to inconsistent test taking motivation and/or stability in the personality characteristics among this particular group.

Tredoux (2002) further provides detailed reliability studies conducted on the OPP. The type of reliability used for the OPP was the internal consistency or Coefficient Alpha, which is based on the consistency of responses to all items in the test. Internal consistency, according to Durrheim (1999, p.90), is established by “determining the degree to which each item in a scale correlates with each other item”. Cronbach’s coefficient alpha, a number that ranges from 0 (no internal consistency) to 1 (maximum internal consistency), is considered by Durrheim (1999) as the most frequent estimation.

Based on the information presented in Tredoux (2002), approximately 40 reliability studies were conducted on various groups. The majority of the reliability studies have been produced from the South African Police Services and the information presented provides an indication of the reliability coefficients for applicants pre-screened for English and applicants who were not pre-screened for English. Based on the results, internal consistency reliability of the OPP (mean alpha) differs for various groups, ranging from a mean alpha of .39 to .70.

For applicants to postgraduate business school studies, the mean alpha for the Black (African) applicants was .68, whilst the mean alpha for the White, Coloured and Asian applicants was .65. The highest reliability coefficients for this group were obtained on the Cynical-Trusting, Genuine-Persuasive and Composed-Contesting constructs, whilst the lower reliability coefficients for the African and White, Coloured and Asian groups came from the Motivational Distortion scale, with mean alpha’s of .45 and .31 respectively.

A combined sample from various smaller groups obtained a mean alpha of .63 for the African individuals, whilst the mean alpha for the White, Coloured and Asian individuals was .70. The highest reliability coefficients for this group were obtained on the Composed-Contesting construct, whilst the lower reliability coefficients came from the Accommodating-Assertive and Abstract-Pragmatic constructs for the African individuals.

For students at the University of Cape Town, the mean alpha for the African students was .64, whilst the mean alpha for the White, Coloured and Asian individuals was .70. The reliability coefficients for the White, Coloured and Asian students on the various constructs were all relatively high, with the Motivational Distortion scale obtaining the lowest mean alpha (.59). The African students obtained lower reliability coefficients on the Accommodating-Assertive, Cynical-Trusting and Genuine-Persuasive constructs. The highest reliability coefficients for the African students were obtained on the Detail Conscious-Flexible, Reserved-Gregarious and Optimistic-Pessimistic constructs.

For applicants to tele-sales positions, the mean alpha for the African applicants was .55, with the total group obtaining a mean alpha of .64. The African applicants obtained lower reliability coefficients on the Accommodating-Assertive, Detail Conscious-Flexible, Cynical-Trusting, Composed-Contesting and Abstract-Pragmatic constructs. The highest reliability coefficients for the African applicants were obtained on the Emotional-Phlegmatic construct.

Tredoux (2002) further reports on reliability studies conducted in the South African Police Services. Reliability studies were done on both the original items contained in the test as well as revised items. In general, it would appear that the reliability coefficients improved with the revised items. However, it is evident that applicants who were not pre-screened for English obtained lower reliabilities, whilst applicants whose home language is an African language further obtained much lower reliabilities. In general, it would appear that the White, Coloured and Asian applicants obtained higher reliability coefficients when pre-screened and when not pre-screened for English, whilst the African applicants obtained lower reliabilities than the White, Coloured and Asian applicants in both cases. Although the reliability coefficients of applicants who were pre-screened for English in fact increased, for some language groups the reliability coefficients did not increase much. The Pedi, Venda, Swazi and Ndebele language groups obtained the lowest reliability coefficients in general.

In addition, certain constructs on the OPP appear to be less reliable for various cultural groups. Across all groups, it appears that the Accommodating-Assertive, Detail Conscious-Flexible, Abstract-Pragmatic and to a certain degree, the Motivational Distortion scale, are less reliable constructs. The Emotional-Phlegmatic construct appears to be reliable across all cultural groups. Although the additional constructs differ in terms of their reliability across all cultural groups, in general, they appear to be adequately reliable.

Based on the above, one can deduce that pre-screening for English proficiency is an essential component. It generally appears that the race and language variables are important to consider when examining the reliability coefficients presented in Tredoux (2002).

3.4.3 Validity of the OPP

According to Wolfaardt (2001) the validity of a test determines what the test measures and how well it does so. He further states that validity essentially determines whether a psychological test is valid for a specific purpose, in other words, it either has a high or low validity for a specific purpose. Four ways of defining validity are recognised. These include content validity, construct validity, predictive validity and concurrent validity.

Construct validity of a test, according to Wolfaardt (2001) is the extent to which it measures the theoretical construct it is supposed to measure. Murphy and Davidshofer (1998) states that attributes such as mass, happiness or intelligence are referred to as constructs which assist in summarising a group of related occurrences or objects. Tests are thus designed to measure such psychological constructs, for example, Reserved-Gregarious and Optimism-Pessimism on the OPP. Some tests as suggested by Murphy and Davidshofer (1998) provide valid measures of essential constructs, whilst others display modest or no construct validity. In assessing construct validity, the stronger the match between the expected correlations and the actual correlations between test scores and behavioural measures, the stronger is the evidence of construct validity.

Predictive validity refers to the extent to which a test can predict the future behaviour of an individual. Wolfaardt (2001) suggests that as psychological tests are essentially used for decision-making, it is inherent in the concept of predictive validity. As such, predictive validity is established to determine whether a particular psychological test predicts future events that are logically related to the construct.

Based on research conducted by Psytech International (n.d.), construct and criterion validity of the OPP was confirmed. Some of the studies conducted suggest the following. The relationship between the OPP and the 16PF suggests adequate construct validity for most of the OPP dimensions, although this was to some degree moderated by the low reliability found in the 16PF form A (Psytech International, n.d.). The relationship between the OPP constructs and the 15FQ constructs suggests a significant amount of overlap between the two tests. All the constructs measured by the OPP was further established to be well predicted by the Occupational Personality Questionnaire (OPQ), with the exception of the Contesting and Pessimistic constructs. This was however attributed to the fact that these two constructs are not directly assessed by the OPQ (Psytech International, n.d.). The Jung Type Indicator (JTI) further correlated with the OPP constructs, whilst the relationship between the OPP and the NEO demonstrated that the OPP provides sufficient coverage of the Big Five personality constructs (Psytech International, n.d.). In terms of the criterion validity of the OPP, significant correlations with the OPP constructs and specific performance criteria were identified.

Tredoux (2002) further provides detailed information regarding validity studies of the OPP in South Africa. Construct and predictive validity were used for the OPP. The construct validity of the OPP was determined by means of product-moment correlations. The research suggests that the personality scales were intercorrelated with the constructs or traits that they are suppose to measure.

Tredoux (2002) suggests that the correlations found between the OPP and the 15FQ indicates evidence of their construct validity. High positive and high negative correlations were displayed on appropriate constructs and coincided with the definitions

of the constructs. Similarly, the relationship between the OPP and the 15FQ+ was established to provide adequate construct validity.

Correlations with the Big Five self ratings were further evident, with the constructs that were statistically significant reflecting relationships that are in line with the expectation according to the definitions of the constructs (Tredoux, 2002). A high score on Phlegmatic indicated low Neuroticism, whilst high scores on Gregarious suggested high Extraversion. The Conforming construct of the OPP further corresponded to a high score on Agreeableness, whilst the Conforming construct of the Big Five suggested a high score on the Trusting construct on the OPP. These correlations were thus assumed as evidence of the construct validity of the OPP.

Further evidence for the construct validity of the OPP and the Myers Briggs Type Indicator (MBTI) is provided. Tredoux (2002) reports that the more flexible, phlegmatic and abstract an individual is, the more likely they are to adopt an intuitive type. Feeling types on the MBTI was further correlated with low Assertiveness and low Gregariousness on the OPP, whilst Perceiving types were considered to have more flexibility and less pragmatism. Correlations with the Jung Type Indicator also support construct validity.

Studies were also conducted on the relationship between the OPP and the OPQ32n. Based on the information presented, it would appear that the OPP constructs correlates with some of the OPQ32n scales. Similarly, sufficient evidence for the construct validity of the OPP and the Vales and Motivational Inventory (VMI) as well as the Occupational Interest Profile (OIP) was established.

Predictive validity studies were further conducted and in most cases, it was established that the OPP constructs provided evidence of contributing to the prediction of specific performance criteria.

It is thus assumed that the OPP has relatively good levels of predictive and construct validity. These psychometric properties are thus considered applicable to the present sample, as is typically done in practice.

3.5 Procedure

All respondents in the study were required to complete the OPP as part of the assessment centre battery. Every respondent in the study was administered the OPP concurrently with the additional competency based exercises and were required to complete the OPP in paper-and-pencil format. Approximately 70 individuals were assessed from January 2005 to August 2005. This total did however not correspond with the number of candidates initially anticipated as the individuals to be assessed depended on the Public Service and was not in the control of the researcher. Consequently, as the respondents assessed in previous years completed the same assessments for similar purposes and was from a similar educational and occupational background, their results were included in order to increase the sample size. These remaining respondents were assessed between 2003 and 2004. The researcher was directly involved in the administration and scoring of all 270 respondents included in the present sample.

All tests were further completed in standardised conditions under the guidance of trained psychometrists and psychologists, as set out in Tredoux (2002) as well as the Health Professions Act. On completion of the assessment centre, the scoring of the OPP was done on Genesys software, as provided by Psytech (Pty) Ltd, within a controlled environment. Genesys is a software system capable of administering, scoring and producing a wide range of interpretative reports. Scoring done on the respondents' OPP questionnaires entails capturing the responses of the respondents onto the Genesys software. The scoring process is highly structured and objective. On identification of the respondents to be included in the study, the data was exported onto a Microsoft Excel spreadsheet for statistical analysis.

3.6 Methods and techniques

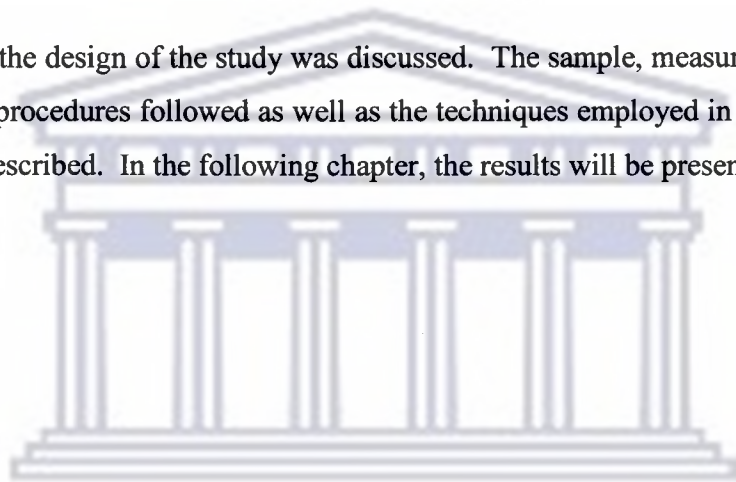
To test the hypotheses, a number of statistical techniques were employed to determine the comparability of the OPP when used cross-culturally. Thus, in the analysis of the data, the following techniques were used. Statistical analysis was done with the aid of the Statistical Package for the Social Sciences (SPSS).

- i) General statistics were calculated in terms of the significance of mean tests and standard deviations. The mean assists in providing a good summary of the average test score or performance of the respondents, whilst the standard deviation provides an index of the variability of the data around the mean value in a distribution (Rosnow & Rosenthal, 1998).
- ii) To provide a comparison between the racial groups as well as the gender variable on the different constructs of the OPP, the *t*-test was used. *t*-Tests are typically used to assess the means of two groups. Van de Vijver and Leung (1997) contend that the use of *t*-tests in cross-cultural research holds much value as a result of its simplicity, availability in computer software and robustness. In a *t*-test, the cultural group is typically the independent variable, whilst the item score forms the dependent variable (Van de Vijver & Leung, 1997).
- iii) Whilst *t*-tests are useful for comparisons between two groups, it is nonetheless limited to such situations. It is also possible that one would require information to be obtained from three, four or even five levels of an independent variable and in such instances, *t*-tests are rather limited and instead a statistical technique called analysis of variance (ANOVA) is used (Field, 2000). It is also concerned with testing the hypotheses about mean scores. As the language group comprise of three sub-samples, the process one-way ANOVA was applied.
- iv) The reliability of the OPP was further determined by means of reliability analysis. The internal consistency reliability of the OPP was specifically determined using Cronbach's coefficient alpha (Kalane, 1998). Huysamen

cited in Kalane (1998) states that Cronbach's coefficient alpha is based on all possible splits, including parallel form and split-half. Huysamen cited in Kalane (1998, p.49) further suggests that "the mean of all split half coefficients will provide a better estimate of the reliability of the test than any single split". Huysamen further notes that the parallel forms of reliability on the other hand give an "estimate of the correlation between the existing test and a hypothetical test made up of items similar to those in the existing test".

3.7 Conclusion

In this chapter, the design of the study was discussed. The sample, measuring instrument to be used, the procedures followed as well as the techniques employed in the analysis of the data were described. In the following chapter, the results will be presented.



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CHAPTER 4

RESULTS

In this chapter, the results in terms of the data collected and the statistical or data analytic methods used will be summarised. The Statistical Package for the Social Sciences (SPSS) Version 13 was used for the analysis.

4.1 Differences between males and females

To test for significant differences between males and females, *t*-tests for independent groups were used. Descriptive statistics in terms of the mean, standard deviation and standard error for the total test as well as the nine constructs and the motivational distortion scale of the OPP for the two groups are presented in Table 4.1.

The results of the independent sample *t*-test are further illustrated in Appendix A. Levene's test, tests the hypotheses if the variances in the two groups are equal. If $p < 0.05$ the homogeneity of variance assumption has been violated and the test statistics from the row labeled *equal variances not assumed* will be used. If, on the other hand, Levene's test is significant at $p > 0.05$, the homogeneity of variance assumption is plausible and the *t* value from the row labeled *equal variances assumed* is appropriate.

Overall, there were no significant differences between the mean of the males and the mean of the females in respect of the OPP constructs, as illustrated in Table 4.1 and Appendix A.

Table 4.1: Descriptive statistics of the OPP for males and females

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error
OPP	Male	181	298.3149	25.34397	1.88380
	Female	89	298.7753	24.13351	2.55815
Flexible	Male	181	21.4586	5.12236	.38074
	Female	89	22.5281	4.99111	.52906
Persuasive	Male	181	27.2652	4.29811	.31948
	Female	89	27.7416	4.05510	.42984
Gregarious	Male	181	31.5856	4.08107	.30334
	Female	89	30.7753	4.35043	.46114
Trusting	Male	181	36.2818	5.19649	.38625
	Female	89	37.0787	5.61699	.59540
Pessimistic	Male	181	30.2928	4.95058	.36797
	Female	89	30.4045	4.97886	.52776
Phlegmatic	Male	181	40.7293	5.90562	.43896
	Female	89	40.1011	6.44213	.68286
Assertive	Male	181	28.1547	4.39802	.32690
	Female	89	27.6292	4.00960	.42502
Contesting	Male	181	31.4309	6.43445	.47827
	Female	89	31.5843	5.51817	.58492
Motivational Distortion	Male	181	22.2818	2.87579	.21376
	Female	89	22.5618	2.82423	.29937
Pragmatic	Male	181	24.7072	3.76200	.27963
	Female	89	24.3034	3.91502	.41499

4.2 Reliability coefficients for male and female sub-samples

To test for the reliabilities for gender, Cronbach's coefficient alpha was further computed, used to calculate the internal consistency. Table 4.2 shows the reliability coefficients for the male and female respondents. Descriptive statistics for the reliability studies conducted for the male and female sub-samples can be found in Appendix B. A reliability coefficient of .65 will be regarded as acceptable for the purposes of this study.

Table 4.2: Reliability coefficients of the OPP for males and females

Cronbach's Alpha		
	Male N=181	Female N=89
OPP	0.840	0.822
Flexible	0.688	0.663
Persuasive	0.527	0.529
Gregarious	0.266	0.344
Trusting	0.660	0.703
Pessimistic	0.738	0.712
Phlegmatic	0.629	0.702
Assertive	0.499	0.372
Contesting	0.788	0.698
Pragmatic	0.479	0.498
Motivational Distortion	0.043	-0.087

Cronbach's coefficient alpha for the total test score is high for both groups. The highest reliabilities for the males were found on the Detail Conscious-Flexible, Cynical-Trusting, Optimistic-Pessimistic and the Composed-Contesting constructs. The highest reliabilities for the females were found on similar constructs as that of the male sub-sample, including the Emotional-Phlegmatic construct.

The lowest reliabilities for both groups were found on the Genuine-Persuasive, Reserved-Gregarious, Accommodating-Assertive and the Abstract-Pragmatic constructs. One can thus deduce that these constructs for the male and female respondents are not reliable. Particularly low reliabilities were found for the Motivational Distortion scale. For the female respondents, the value of Cronbach's coefficient alpha seems to be negative due to a negative average correlation among the items. The inter-item correlation matrix as well as the item total statistics for this scale is presented in Appendix C. In terms of the inter-correlation matrix, there are a number of items inter-correlating negatively with each other. Based on these reliability coefficients it appears that this scale is also not reliable for the male and female respondents.

4.3 Differences between language groups

To test for significant differences between the African, English and Afrikaans language groups, the statistical method, one-way ANOVA, was used. Table 4.3 shows the table of descriptive statistics from the one-way procedure. The results of Table 4.3 will be examined in more detail together with the results of Table 4.4, providing an indication of *between-groups* and *within-groups* effects and Table 4.5, which provides a comparison between the various language groups.



Table 4.3: Descriptive statistics of the OPP for the language groups

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
OPP	African languages	99	293.2323	28.22607	2.83683	287.6027	298.8619	207	360
	Afrikaans	20	303.45	20.85154	4.66255	293.6912	313.2088	268	336
	English	60	304.5	21.27105	2.74608	299.0051	309.9949	232	360
	Total	179	298.1508	25.79183	1.92777	294.3466	301.9551	207	360
Flexible	African languages	99	21.1717	5.29158	0.53182	20.1163	22.2271	12	36
	Afrikaans	20	24.55	4.38268	0.98	22.4988	26.6012	17	33
	English	60	24.1667	4.78049	0.61716	22.9317	25.4016	12	35
	Total	179	22.5531	5.23721	0.39145	21.7806	23.3255	12	36
Persuasive	African languages	99	28.3232	4.14736	0.41683	27.4961	29.1504	11	37
	Afrikaans	20	30.05	2.58488	0.578	28.8402	31.2598	26	36
	English	60	27.2833	3.65036	0.47126	26.3403	28.2263	19	38
	Total	179	28.1676	3.90834	0.29212	27.5911	28.7441	11	38
Gregarious	African languages	99	30.6162	4.90253	0.49272	29.6384	31.594	18	41
	Afrikaans	20	30.85	3.19992	0.71552	29.3524	32.3476	24	36
	English	60	31.6167	3.71936	0.48017	30.6559	32.5775	22	45
	Total	179	30.9777	4.373	0.32685	30.3326	31.6227	18	45
Trusting	African languages	99	34.9293	5.22407	0.52504	33.8874	35.9712	21	50
	Afrikaans	20	37	4.89898	1.09545	34.7072	39.2928	29	46
	English	60	38.25	4.89768	0.63229	36.9848	39.5152	26	47
	Total	179	36.2737	5.28385	0.39493	35.4944	37.0531	21	50
Pessimistic	African languages	99	29	5.06489	0.50904	27.9898	30.0102	16	40
	Afrikaans	20	30.9	4.10263	0.91738	28.9799	32.8201	24	40
	English	60	31.9333	4.22208	0.54507	30.8427	33.024	19	40
	Total	179	30.1955	4.86801	0.36385	29.4775	30.9135	16	40
Phlegmatic	African languages	99	38.8586	5.56778	0.55958	37.7481	39.9691	21	53
	Afrikaans	20	40.55	5.23626	1.17086	38.0994	43.0006	32	52
	English	60	40.6833	6.19046	0.79918	39.0842	42.2825	27	60
	Total	179	39.6592	5.78754	0.43258	38.8056	40.5129	21	60
Assertive	African languages	99	27.2222	4.49616	0.45188	26.3255	28.119	14	36
	Afrikaans	20	30.6	3.9921	0.89266	28.7316	32.4684	23	37
	English	60	28.5	4.40531	0.56872	27.362	29.638	16	38
	Total	179	28.0279	4.5214	0.33795	27.361	28.6948	14	38
Contesting	African languages	99	31.596	6.58836	0.66216	30.2819	32.91	14	46
	Afrikaans	20	27.85	5.84245	1.30641	25.1156	30.5844	18	40
	English	60	30.2	5.36404	0.69249	28.8143	31.5857	17	44
	Total	179	30.7095	6.2066	0.4639	29.794	31.625	14	46
Motivational Distortion	African languages	99	22.7071	2.92858	0.29433	22.123	23.2912	13	30
	Afrikaans	20	21.65	2.25424	0.50406	20.595	22.705	18	28
	English	60	22.7	2.97048	0.38349	21.9326	23.4674	17	31
	Total	179	22.5866	2.88098	0.21533	22.1617	23.0115	13	31
Pragmatic	African languages	99	24.8283	3.66461	0.36831	24.0974	25.5592	17	33
	Afrikaans	20	25.25	3.47737	0.77756	23.6225	26.8775	19	32
	English	60	25.2167	3.8183	0.49294	24.2303	26.203	17	36
	Total	179	25.0056	3.68187	0.2752	24.4625	25.5487	17	36

Table 4.4: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
OPP	Between Groups	5375.321	2	2687.66	4.185	0.017
	Within Groups	113033.607	176	642.236		
	Total	118408.927	178			
Flexible	Between Groups	424.882	2	212.441	8.388	0
	Within Groups	4457.364	176	25.326		
	Total	4882.246	178			
Persuasive	Between Groups	120.182	2	60.091	4.07	0.019
	Within Groups	2598.79	176	14.766		
	Total	2718.972	178			
Gregarious	Between Groups	37.763	2	18.882	0.987	0.375
	Within Groups	3366.147	176	19.126		
	Total	3403.911	178			
Trusting	Between Groups	423.832	2	211.916	8.205	0
	Within Groups	4545.755	176	25.828		
	Total	4969.587	178			
Pessimistic	Between Groups	332.623	2	166.312	7.533	0.001
	Within Groups	3885.533	176	22.077		
	Total	4218.156	178			
Phlegmatic	Between Groups	142.259	2	71.129	2.151	0.119
	Within Groups	5819.954	176	33.068		
	Total	5962.212	178			
Assertive	Between Groups	209.949	2	104.975	5.388	0.005
	Within Groups	3428.911	176	19.482		
	Total	3638.86	178			
Contesting	Between Groups	256.905	2	128.453	3.425	0.035
	Within Groups	6599.988	176	37.5		
	Total	6856.894	178			
Motivational Distortion	Between Groups	19.753	2	9.876	1.192	0.306
	Within Groups	1457.655	176	8.282		
	Total	1477.408	178			
Pragmatic	Between Groups	6.98	2	3.49	0.255	0.775
	Within Groups	2406.014	176	13.671		
	Total	2412.994	178			

Trusting	Scheffe	African languages	Afrikaans	-2.07071	1.24591	.254	-5.1465	1.0051
			English	-3.32071(*)	.83148	.000	-5.3734	-1.2680
		Afrikaans	African languages	2.07071	1.24591	.254	-1.0051	5.1465
			English	-1.25000	1.31220	.636	-4.4895	1.9895
		English	African languages	3.32071(*)	.83148	.000	1.2680	5.3734
			Afrikaans	1.25000	1.31220	.636	-1.9895	4.4895
Pessimistic	Scheffe	African languages	Afrikaans	-1.90000	1.15189	.259	-4.7437	.9437
			English	-2.93333(*)	.76873	.001	-4.8311	-1.0355
		Afrikaans	African languages	1.90000	1.15189	.259	-.9437	4.7437
			English	-1.03333	1.21317	.696	-4.0283	1.9617
		English	African languages	2.93333(*)	.76873	.001	1.0355	4.8311
			Afrikaans	1.03333	1.21317	.696	-1.9617	4.0283
Phlegmatic	Scheffe	African languages	Afrikaans	-1.69141	1.40976	.488	-5.1717	1.7889
			English	-1.82475	.94082	.156	-4.1474	.4979
		Afrikaans	African languages	1.69141	1.40976	.488	-1.7889	5.1717
			English	-.13333	1.48477	.996	-3.7988	3.5321
		English	African languages	1.82475	.94082	.156	-.4979	4.1474
			Afrikaans	.13333	1.48477	.996	-3.5321	3.7988
Assertive	Scheffe	African languages	Afrikaans	-3.37778(*)	1.08209	.009	-6.0492	-.7064
			English	-1.27778	.72215	.212	-3.0606	.5050
		Afrikaans	African languages	3.37778(*)	1.08209	.009	.7064	6.0492
			English	2.10000	1.13966	.186	-.7135	4.9135
		English	African languages	1.27778	.72215	.212	-.5050	3.0606
			Afrikaans	-2.10000	1.13966	.186	-4.9135	.7135
Contesting	Scheffe	African languages	Afrikaans	3.74596(*)	1.50126	.047	.0398	7.4522
			English	1.39596	1.00189	.381	-1.0774	3.8694
		Afrikaans	African languages	-3.74596(*)	1.50126	.047	-7.4522	-.0398
			English	-2.35000	1.58114	.334	-6.2534	1.5534
		English	African languages	-1.39596	1.00189	.381	-3.8694	1.0774
			Afrikaans	2.35000	1.58114	.334	-1.5534	6.2534
Motivational Distortion	Scheffe	African languages	Afrikaans	1.05707	.70552	.328	-.6847	2.7988
			English	.00707	.47084	1.000	-1.1553	1.1695
		Afrikaans	African languages	-1.05707	.70552	.328	-2.7988	.6847
			English	-1.05000	.74306	.371	-2.8844	.7844
		English	African languages	-.00707	.47084	1.000	-1.1695	1.1553
			Afrikaans	1.05000	.74306	.371	-.7844	2.8844

Pragmatic	Scheffe	African languages	Afrikaans	-.42172	.90643	.897	-2.6594	1.8160		
			English	-.38838	.60492	.814	-1.8818	1.1050		
		Afrikaans	African languages	.42172	.90643	.897	-1.8160	2.6594		
			English	.03333	.95466	.999	-2.3235	2.3901		
		English	African languages	.38838	.60492	.814	-1.1050	1.8818		
			Afrikaans	-.03333	.95466	.999	-2.3901	2.3235		
		* The mean difference is significant at the .05 level.								

For the OPP it was found that the mean of the African language group ($M=293.23$) was significantly lower than the mean of the English language group ($M=304.5$), with $F(2, 176) = 4.19, p < .05$. When considering the post hoc comparisons completed thereafter, it confirms that significant differences exist between the African language and English language groups ($p = .027$).

For the Detail Conscious-Flexible construct, it was found that the mean of the African language group ($M=21.17$) was significantly lower than the mean of the Afrikaans ($M=24.55$) and English language group ($M=24.17$), with $F(2, 176) = 8.39, p < .01$. When considering the post hoc comparisons completed thereafter, it confirms that significant differences exist between the African language and Afrikaans language groups ($p = .025$) and the African language and English language groups ($p = .002$).

For the Genuine-Persuasive construct, it was found that the mean of the English language group ($M=27.28$) was significantly lower than the mean of the Afrikaans language group ($M=30.05$), with $F(2, 176) = 4.07, p < .05$. When considering the post hoc comparisons completed thereafter, it confirms that significant differences exist between the Afrikaans and English language groups ($p = .022$).

For the Reserved-Gregarious construct, there were no significant differences between the mean of the African language ($M=30.62$), Afrikaans ($M=30.85$) and English language groups ($M=31.62$), with $F(2, 176) = .99, p > .05$. When considering the post hoc comparisons completed thereafter, it confirms that no significant differences exist between the language groups ($p > .05$).

For the Abstract-Pragmatic construct, there were no significant differences between the mean of the African language (M=24.83), Afrikaans (M=25.25) and English language groups (M=25.22), with $F(2, 176) = .255, p > .05$. When considering the post hoc comparisons completed thereafter, it confirms that no significant differences exist between the language groups ($p > .05$).

For the Motivational Distortion scale, there were no significant differences between the mean of the African language (M=22.71), Afrikaans (M=21.65) and English language groups (M=22.70), with $F(2, 176) = 1.192, p > .05$. When considering the post hoc comparisons completed thereafter, it confirms that no significant differences exist between the language groups ($p > .05$).

Based on the above, it is evident that the African language group obtained consistently lower means than the Afrikaans and English language groups, specifically on the Detail Conscious-Flexible, Cynical-Trusting, Optimistic-Pessimistic and the Accommodating-Assertive constructs. The Afrikaans language groups obtained lower means on the Composed-Contesting construct only, whilst the English language group obtained lower means on the Genuine-Persuasive construct. No significant differences were found on the Reserved-Gregarious, Emotional-Phlegmatic, Abstract-Pragmatic and the Motivational Distortion scales.

In terms of determining the reliability coefficients for the language sub-sample, not all respondents provided information regarding their home language. The total language group thus comprised too small percentage to provide meaningful comparisons. Consequently, reliability studies could not be carried out for this particular group.

4.4 Differences between African and White respondents

To test for significant differences between the African and White respondents, *t*-tests for independent groups were used. The descriptive statistics are presented in Table 4.6. The results of the independent sample *t*-test are further illustrated in Appendix D.

Table 4.6: Descriptive statistics of the OPP for the African and White respondents

	Race	N	Mean	Std. Deviation	Std. Error
OPP	African	169	295.8876	26.66870	2.05144
	White	65	302.8308	19.42419	2.40927
Flexible	African	169	20.5858	4.97913	.38301
	White	65	24.4769	4.82865	.59892
Persuasive	African	169	27.4911	4.37950	.33688
	White	65	27.8308	3.80201	.47158
Gregarious	African	169	31.4201	4.45291	.34253
	White	65	30.9385	3.11186	.38598
Trusting	African	169	35.5503	5.40493	.41576
	White	65	37.7231	5.02341	.62308
Pessimistic	African	169	29.5503	5.08606	.39124
	White	65	31.8769	3.97456	.49298
Phlegmatic	African	169	40.1006	5.78858	.44528
	White	65	41.2615	6.11933	.75901
Assertive	African	169	27.4201	4.28673	.32975
	White	65	29.3846	4.22675	.52426
Contesting	African	169	32.5562	6.27529	.48271
	White	65	28.6308	5.48170	.67992
Motivational Distortion	African	169	22.5917	2.85235	.21941
	White	65	21.9846	2.48428	.30814
Pragmatic	African	169	24.4024	3.87040	.29772
	White	65	24.8154	3.42734	.42511

For the OPP it was found that the mean of the African respondents ($M=295.89$) was significantly lower than the mean of the White respondents ($M=302.83$), with $t(159)=-2.194$, $p=.030$.

For the Detail Conscious-Flexible construct, it was found that the mean of the African respondents ($M=20.59$) was significantly lower than the mean of the White respondents ($M=24.48$), with $t(232)=-5.399, p<.01$.

For the Genuine-Persuasive construct, there were no significant differences between the mean of the African respondents ($M=27.49$) and the mean of the White respondents ($M=27.83$), with $t(232)=-.550, p=.583$.

For the Reserved-Gregarious construct, there were no significant differences between the mean of the African respondents ($M=31.42$) and the mean of the White respondents ($M=30.94$), with $t(165)=.933, p=.352$.

For the Cynical-Trusting construct, it was found that the mean of the African respondents ($M=35.55$) was significantly lower than the mean of the White respondents ($M=37.72$), with $t(232)=-2.808, p=.005$.

For the Optimistic-Pessimistic construct, it was found that the mean of the African respondents ($M=29.55$) was significantly lower than the mean of the White respondents ($M=31.88$), with $t(148)=-3.697, p<.01$.

For the Emotional-Phlegmatic construct, there were no significant differences between the mean of the African respondents ($M=40.10$) and the mean of the White respondents ($M=41.27$), with $t(232)=-1.352, p=.178$.

For the Accommodating-Assertive construct, it was found that the mean of the African respondents ($M=27.42$) was significantly lower than the mean of the White respondents ($M=29.39$), with $t(232)=-3.152, p=.002$.

For the Composed-Contesting construct, it was found that the mean of the African respondents ($M=32.56$) was significantly lower than the mean of the White respondents ($M=28.63$), with $t(232)=4.433, p<.01$.

For the Abstract-Pragmatic construct, there were no significant differences between the mean of the African respondents ($M=24.40$) and the mean of the White respondents ($M=24.82$), with $t(232)=-.754, p=.452$.

For the Motivational Distortion construct, there were no significant differences between the mean of the African respondents ($M=22.59$) and the mean of the White respondents ($M=21.98$), with $t(232)=1.509, p=.133$.

Based on the above, significant differences exist between the means of the African respondents and the means of the White respondents, specifically on the Detail Conscious-Flexible, Cynical-Trusting, Optimistic-Pessimistic, Accommodating-Assertive and the Composed-Contesting constructs. No significant differences were found on the Genuine-Persuasive, Reserved-Gregarious, Emotional-Phlegmatic, Abstract-Pragmatic and the Motivational Distortion scales.

Furthermore, when considering the demographics of the present sample, the most appropriate norms to use is the South African Managers and Graduate norms, as presented by Tredoux (2002). This norm group was tested for selection and development purposes by various South African consultancies and further comprised of African, Coloured, Indian and White individuals, all in possession of a tertiary qualification. Consequently, to test for significant differences between the African and White respondents of the present sample and the SA Managers and Graduates norms, t -tests for independent groups for this norm group was computed. The results are illustrated in Table 4.7.

Table 4.7: Descriptive statistics of the OPP for the African and White respondents and the SA Managers and Graduates norms

	Group	N	Mean	Standard Deviation	Variance	Mean Difference	t
Flexible	African	169	20.59	4.979	24.790	-5.91	-10.578**
	White	65	24.48	4.829	23.319	-2.02	-2.79**
	Norm Group	173	26.5	5.35	28.623		
Persuasive	African	169	28.37	4.287	18.378	1.25	2.45*
	White	65	28.08	3.946	15.571	.96	1.535
	Norm Group	173	27.12	5.12	26.214		
Gregarious	African	169	31.42	4.453	19.829	-3.03	-5.551**
	White	65	30.94	3.112	9.685	-3.51	-6.114**
	Norm Group	173	34.45	5.59	31.248		
Trusting	African	169	35.47	5.664	32.081	1.02	1.582
	White	65	38.18	5.318	28.281	3.73	4.588**
	Norm Group	173	34.45	6.25	39.063		
Pessimistic	African	169	29.55	5.086	25.867	12.39	24.139**
	White	65	31.88	3.975	15.801	14.72	24.759**
	Norm Group	173	17.16	4.37	19.097		
Phlegmatic	African	169	40.1	5.789	33.513	.27	.415
	White	65	41.26	6.119	37.442	1.43	1.598
	Norm Group	173	39.83	6.23	38.813		
Assertive	African	169	27.42	4.287	18.378	-5.42	-10.433**
	White	65	29.38	4.227	17.868	-3.46	-5.24**
	Norm Group	173	32.84	5.28	27.878		
Contesting	African	169	32.56	6.275	39.376	3.76	5.503**
	White	65	28.63	5.482	30.052	-.17	-.204
	Norm Group	173	28.8	6.36	40.450		
Motivational Distortion	African	169	22.59	2.852	8.134	-.18	-.485
	White	65	21.98	2.484	6.170	-.79	-1.838
	Norm Group	173	22.77	3.94	15.524		
Pragmatic	African	169	27.82	4.506	20.304	1.04	1.909
	White	65	28.02	3.793	14.387	1.24	1.965*
	Norm Group	173	26.78	5.53	30.581		

African respondents df = 340

White respondents df = 236

** t (two-tailed) significant, $p < .01$

* t (two-tailed) significant, $p < .05$

For the Detail Conscious-Flexible construct, it was found that the mean of the African respondents ($M=20.6$) differed significantly from the mean of the norm group ($M=26.5$), with $t(340)=-10.578, p < .01$. The mean of the White respondents ($M=24.48$) also differed significantly from the mean of the norm group, with $t(236)=-2.79, p < .01$.

For the Genuine-Persuasive construct, it was found that the mean of the African respondents ($M=28.37$) differed significantly from the mean of the norm group

($M=27.12$), with $t(340)=2.45$, $p<.05$. There were no significant differences between the mean of the White respondents ($M=28.08$) and the mean of the norm group.

For the Reserved-Gregarious construct, it was found that the mean of the African respondents ($M=31.42$) differed significantly from the mean of the norm group ($M=34.45$), with $t(340)=-5.551$, $p<.01$. The mean of the White respondents ($M=30.94$) also differed significantly from the mean of the norm group, with $t(236)=-6.114$, $p<.01$.

For the Cynical-Trusting construct, it was found that the mean of the White respondents ($M=38.18$) differed significantly from the mean of the norm group ($M=34.45$), with $t(236)=4.588$, $p<.01$. There were no significant differences between the mean of the African respondents ($M=35.47$) and the mean of the norm group.

For the Optimistic-Pessimistic construct, it was found that the mean of the African respondents ($M=29.55$) differed significantly from the mean of the norm group ($M=17.16$), with $t(340)=24.139$, $p<.01$. The mean of the White respondents ($M=31.88$) also differed significantly from the mean of the norm group, with $t(236)=24.759$, $p<.01$.

For the Emotional-Phlegmatic construct, there were no significant differences between the mean of the African ($M=40.1$) and White respondents ($M=41.26$) and the mean of the norm group ($M=39.83$).

For the Accommodating-Assertive construct, it was found that the mean of the African respondents ($M=27.42$) differed significantly from the mean of the norm group ($M=32.84$), with $t(340)=-10.433$, $p<.01$. The mean of the White respondents ($M=29.38$) also differed significantly from the mean of the norm group, with $t(236)=-5.24$, $p<.01$.

For the Composed-Contesting construct, it was found that the mean of the African respondents ($M=32.56$) differed significantly from the mean of the norm group ($M=28.8$), with $t(340)=5.503$, $p<.01$. There were no significant differences between the mean of the White respondents ($M=28.63$) and the mean of the norm group.

For the Abstract-Pragmatic construct, it was found that the mean of the White respondents ($M=28.02$) differed significantly from the mean of the norm group ($M=26.78$), with $t(236)=1.965$, $p<.05$. There were no significant differences between the mean of the African respondents ($M=27.82$) and the mean of the norm group.

For the Motivational Distortion scale, there were no significant differences between the mean of the African ($M=22.59$) and White respondents ($M=21.98$) and the mean of the norm group ($M=22.77$).

Based on the above results, it is evident that significant differences exist between the means of the African and White respondents of the present sample and the means of the norm group. Significant discrepancies were found on the Detail Conscious-Flexible, Reserved-Gregarious, Optimistic-Pessimistic and the Accommodating-Assertive constructs for both the African and White respondents. The African respondents further differed from the norm group on the Genuine-Persuasive and Composed-Contesting constructs, whilst the White respondents additionally differed from the norm group on the Cynical-Trusting and the Abstract-Pragmatic constructs. No significant differences were found on the Emotional-Phlegmatic construct and the Motivational Distortion scale.

4.5 Reliability coefficients for African and White respondents

Cronbach's coefficient alpha was further computed in order to test for the reliabilities of the total test as well as for each construct for the total sample and for the African and White sub-sample. The results are reflected in Table 4.8, whilst descriptive statistics for all the reliability studies conducted can be found in Appendix E.

Table 4.8: Reliability coefficients of the OPP for the total sample and the African and White respondents

Cronbach's Alpha			
	Total Sample N=270	African N=169	White N=65
OPP	0.833	0.855	0.745
Flexible	0.681	0.671	0.653
Persuasive	0.526	0.549	0.478
Gregarious	0.361	0.443	-0.032
Trusting	0.674	0.667	0.694
Pessimistic	0.727	0.714	0.701
Phlegmatic	0.654	0.605	0.684
Assertive	0.461	0.461	0.502
Contesting	0.761	0.778	0.696
Pragmatic	0.481	0.548	0.232
Motivational Distortion	-0.003	-0.024	-0.246

Cronbach's coefficient alpha for the OPP in general is high, with the African respondents obtaining slightly higher reliabilities than the White respondents for the total test. The highest reliabilities for the African respondents were found on the Detail Conscious-Flexible, Cynical-Trusting, Optimistic-Pessimistic and Composed-Contesting constructs. The highest reliabilities for the White respondents were found on similar constructs as that of the African sub-sample, including the Emotional-Phlegmatic construct.

The lowest reliabilities for both groups were found on the Genuine-Persuasive, Accommodating-Assertive and Abstract-Pragmatic constructs and of particular significance, the Reserved-Gregarious and Motivational Distortion scales. The inter-item correlation matrix as well as the item total statistics for these two scales is presented in Appendix F.

In terms of the Reserved-Gregarious construct, the White respondents obtained noticeably lower reliabilities of -.032. This value is negative due to a negative average correlation amongst the items. One can thus deduce that this construct for that specific sub-sample is not reliable. The reliability coefficient for the Motivational Distortion scale was also very low for the total sample as well as the African and White respondents. In terms of the inter-correlation matrix, there are a number of items inter-

correlating negatively with each other. Based on these reliability coefficients it appears that this scale is not reliable for the total sample.

4.6 Conclusion

In this chapter, the results of the study were discussed. The descriptive statistics were presented for the different sub-samples, followed by a comparison of the means of the African and White respondents and the relevant norm group. Discussions on the reliability studies were also presented.

As shown in the preceding discussion, the results showed that the gender variable did not have any significant influence on the scores obtained. Where the language groups are concerned, the African language group obtained lower means than the Afrikaans and English language groups in general. In terms of the race variable, significant differences between the African and White respondents in terms of their responses on the OPP were further evident. In addition, when comparing the means of the African and White respondents and the SA Managers and Graduates norm group, significant differences on many constructs of the OPP were detected. Where the reliability studies are concerned, problems with the Motivational Distortion scale for the total sample (including race and gender) as well as the Reserved-Gregarious scale specifically for the White respondents were found.

The results will be discussed in greater detail in the following chapter.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

The aim of this study is to determine whether the results of the total test score as well the nine personality constructs and the Motivational Distortion scale of the OPP are comparable within the Public Service. Essentially an attempt was made to provide information to the Public Service, making use of the OPP as part of their selection and development assessment processes, regarding the cross-cultural comparability of the OPP and its suitability for use in certain cultural groups. Consequently, this chapter will present a detailed discussion of the results, with respect to the hypotheses. The practical implications of the study for the Public Service will further be presented. Recommendations will subsequently be made, taking the results of the study into account.

5.1 Discussion of the results

To achieve the aims of the study, broad hypotheses were formulated for investigation. In this sub-section, the present findings will be linked to similar studies done on the OPP as well as other studies done on cross-cultural comparability in personality testing. There are however no independently conducted and published studies into the cross-cultural comparability of the OPP in South Africa that may be used for comparative purposes. Most of the data are reported in the test publisher's manual.

5.1.1 Hypothesis 1: Significant differences between males and females exist in terms of their results of the total test score on the OPP, within the Public Service.

To test hypothesis 1, *t*-tests for independent groups were used. The results showed that the gender variable did not have any significant influence on the scores obtained. Hypothesis 1 is thus rejected.

5.1.2 Hypothesis 2: Significant differences between males and females exist in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

The results showed that no significant differences between the means and standard deviations of the males and females were found on any of the constructs of the OPP. Hypothesis 2 is thus rejected.

Other studies on various personality tests also reveal similar conclusions. Ones and Anderson (2002) for example concluded that no large or even moderate differences were found on any of the three personality tests under their examination. They too found that the standard deviations of the male and females were relatively similar. Abrahams (1996) further found little evidence of differences in the means and standard deviations between males and females.

These findings do however differ from the studies by Psytech International (n.d.) on the OPP, using British data. They found mean and standard deviation differences between males and females. The largest difference between males and females was on the Abstract-Pragmatic construct, with males assessed to be more Pragmatic than females. Psytech International (n.d.) further observed differences between males and females, with females presenting as more composed, genuine, empathetic, emotional, trusting and pessimistic than males. There were no significant differences on the Detail Conscious-Flexible, Reserved-Gregarious and Motivational Distortion scales.

5.1.3 Hypothesis 3: Significant differences between respondents speaking English, Afrikaans and an African language as their home language exist in terms of their results of the total test score on the OPP, within the Public Service.

To test hypothesis 3, the statistical method, one-way ANOVA, was used. It was found that the mean of the African language group was significantly lower than the mean of the English language group. Hypothesis 3 is thus accepted.

5.1.4 Hypothesis 4: Significant differences between respondents speaking English, Afrikaans and an African language as their home language exist in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

The results showed that the African language group obtained lower means than the Afrikaans and English language groups on some of the constructs of the OPP. The African language group differed on the Detail Conscious-Flexible, Cynical-Trusting, Optimistic-Pessimistic and Accommodating-Assertive constructs. English speaking respondents obtained significantly lower means on the Genuine-Persuasive construct, whilst the Afrikaans language group obtained lower means on the Composed-Contesting construct. Hypothesis 4 is thus accepted.

5.1.5 Hypothesis 5: Significant differences between African and White respondents exist in terms of their results of the total test score on the OPP, within the Public Service.

To test hypothesis 5, *t*-tests for independent groups were used. It was found that the mean of the African respondents was significantly lower than the mean of the White respondents. Hypothesis 5 is thus accepted.

5.1.6 Hypothesis 6: Significant differences between African and White respondents exist in terms of their results on the nine personality constructs and the motivational distortion scale on the OPP, within the Public Service.

The results showed that significant differences between the means and large differences in terms of the standard deviations for the African and White respondents exists on the Detail Conscious-Flexible, Cynical-Trusting, Optimistic-Pessimistic, Accommodating-Assertive and the Composed-Contesting constructs. Hypothesis 6 is thus accepted.

When considering the language and race variables, other studies examining the impact of language and race on personality testing have concluded that these variables do in fact act as moderator variables in test performance. After testing approximately 7000 applicants applying for jobs in the South African Police Services, Meiring (2000) found significant differences between racial groups on the 16PF and attributed these significant differences to the fact that the black individuals did not adequately understand the test items and applied a different meaning to a test item. Similarly, Abrahams (2002) found that participants whose home language was not English or Afrikaans had more difficulty understanding many of the words on the 16PF. Meiring et al (2004) further found significant differences between various ethnic groups, when investigating bias in an adapted version of the 15FQ+. They concluded that noticeable differences were evident, specifically for the black groups. Abrahams (2002) contends that the race variable tends to have the greatest influence on test scores. The results of the present study are similar to that obtained by Abrahams (1996) and Abrahams and Mauer (1999) in that significant mean differences were found when different race and language groups are compared.

When comparing the means of the African and White respondents with the means of the SA Managers and Graduates norms, significant differences between the groups were found. The norm group is relatively small in size ($N=173$) with the Coloured and Asian sub-samples comprising only of 4 and 9 respondents respectively. The African and White respondents for this particular norm group comprise of 160 respondents. The fact that such a small sample has been used to establish the norm group presents serious concerns. Anastasi and Urbina (1997) describes the process of standardisation of a psychological test and suggest that norm groups should typically comprise relatively large, representative sample of the group of people for whom the test is designed for. Based on the composition of the norm group, it does not adequately represent a diverse society such as South Africa and specifically the present sample. Norms typically provide an indication of an individual's performance in relation to a specific group. Based on the results, it appears that performance in context of the norm group is not the same as that of the African and White respondents of the present sample. Consequently,

For the African respondents, six constructs on the OPP fell below the .65 cut-off score, whilst five constructs fell below the .65 cut-off score for the White respondents. Hypothesis 10 is thus accepted.

According to Tredoux (2002), Cronbach's coefficient alpha for various cultural groups ranges from .39 to .70, with the African respondents obtaining relatively lower reliabilities. In the present study, Cronbach's coefficient alpha for the total sample was .833. The present study further concluded that the highest reliabilities for the African and White respondents are the Detail Conscious-Flexible, Cynical-Trusting, Optimistic-Pessimistic, Emotional-Phlegmatic and the Composed-Contesting constructs, whilst the Genuine-Persuasive, Reserved-Gregarious, Accommodating-Assertive and Abstract-Pragmatic constructs and the Motivational Distortion scale, displayed lower reliabilities. Across all the groups presented in Tredoux (2002), the Emotional-Phlegmatic construct seems to present the highest reliabilities, whilst the Accommodating-Assertive, Detail Conscious-Flexible, Abstract-Pragmatic and to a certain degree, the Motivational Distortion scale, appear to be less reliable constructs.

Of particular significance, which warrants further investigation, is the very low reliability coefficients obtained on the Reserved-Gregarious construct for the White respondents and the Motivational Distortion scale on both the race and gender sub-samples. In terms of the Reserved-Gregarious construct, the White respondents obtained noticeably lower reliabilities of -.032. In terms of the male and female sub-samples, the Motivational Distortion scale obtained reliability coefficients of .043 and -.087 respectively. The Motivational Distortion scale in terms of the race variable further obtained reliability coefficients of -.003 for the total sample, -.024 for the African respondents and -.246 for the White respondents. It is not clear why these particular scales are so low. It seems that respondents answered the items rather inconsistently. Typically, Cronbach's alpha is a function of the number of items loading on a particular construct, the average intercorrelation amongst these items as well as the number of people within the sample, all of which could have impacted on these scores.

Finally, research suggests that factors which typically need to be considered as potential sources for item and/or test bias are amongst others, culture and language (De Beer, 2004). Tredoux (2002) reports that the OPP is a useful tool for assessing individual behaviour preferences within the work context and confirms its suitability for use in selection processes and for development purposes. Consequently, this personality test is used for these specific purposes within the Public Service. However, based on the results, one cannot rule out the possibility that the OPP does not reflect identifiable characteristics for all the cultural groups.

From an ethical perspective, it is important to keep in mind that ultimately, the psychological tests we use in fact contribute to making important decisions about the lives of other people. De Beer (2004) contends that it is important for test users to recognise that interests in psychological testing should inevitably remain with the quality of decisions made since it is at this level where individual's lives may be affected. Packman et al (2005) further suggests that significant differences in test scores do not necessarily mean adverse impact. Cook cited in Packman et al (2005) is of the opinion that the results of a personality test will typically result in adverse impact when an individual of a specific cultural group are less likely to be selected for employment opportunities. Ones and Anderson (2002) contend that differences in responses on personality tests are relevant to the extent that they influence selection outcomes within organisations. Based on the results obtained in this study, these contentions all illustrate the importance of using personality or any form of psychological testing as an aid in decision-making. It should never be used on its own for making decisions about placement or promotion. The consequences can be devastating, not only for the individual being tested but also for the organisation in terms of costly lawsuits.

From a legal perspective, it is thus important to take cognizance of the way in which personality tests are used and subsequent decisions are made in employment settings. Any form of assessment must be aligned with legal requirements. Abrahams (2002, p.60), suggests asking the following three critical questions when using a personality test in occupational related decision-making.

- i) *Has the test been scientifically proven to be valid and reliable?*
- ii) *Can it be fairly applied to all employees?*
- iii) *Is it not biased against any group?*

When considering the above, the suitability of the OPP for the various cultural groups included in the study and in effect for the Public Service is at this stage questionable and further research to determine why these discrepancies exist is essential.

5.3 Recommendations

Based on all the information presented in the preceding sections, the question of how one would proceed from here and what alternatives are available must be addressed.

In terms of the results of the present study, further research to assess why differences exist and the likely practical implications for the Public Service is recommended. As the present study was exploratory in nature, the amount of variance due to item bias, construct bias, measurement bias or other potential moderating variables, such as gender, race and language could not be determined. Furthermore, the fact that there seems to be “weak” items in the OPP, in relation to the Reserved-Gregarious construct for the White respondents and the Motivational Distortion scale for the African and White and male and female sub-samples is a matter of serious concern. It is thus recommended that all the items that are problematic be re-examined. Depending on the results, these items should be removed or substituted with others.

Furthermore, the structure of the norm group and its relation to the African and White respondents of the present sample must be investigated further. Depending on the outcome of the results, establishing separate norm groups for the Public Service is recommended.

In terms of the broader assessment context, the inception of the Employment Equity Act has called for the development of more culturally appropriate psychological tests. However, is it really possible to develop a completely “culture free” psychological test, considering that the South African society is characterised by numerous cultural groups and eleven official languages? Kalane (1998) in his study on the cross-cultural applicability for a Southern Sotho speaking population noted that the translation of some of the items were not effective and attributed this to amongst other things, the fact that Southern Sotho, in addition to many other languages, comprises of different dialects and vernacular, which additionally differ according to their geographical area. Consequently, Meiring et al (2004) notes that developing appropriate psychological tests in a multi-cultural and multi-lingual South African society is likely to be laden with problems. Bendix (2000) thus suggests that a great focus should not be placed on whether any form of assessment can be entirely free of any cultural bias, but attention should rather be placed on understanding and interpreting test results within the context of each individual’s unique background.

Notwithstanding the value of psychological testing in the workplace, possible discrimination issues are very pertinent, which is critical for organisations to consider. As recommended by Tredoux (2002), assessing an individual’s English proficiency can assist in determining its impact on performance in personality tests. Prinsloo and Ebersöhn (2002) also support testing an individual’s performance on a personality test according to their English proficiency. Whilst these are certainly valid recommendations, research suggest that language is however not the only variable impacting on test performance, but factors such as culture, education and socio economic status, amongst other things, are also ever-present. Van Der Merwe (1999) thus makes a valid point in which he suggests validating psychological tests for organisations in their own work environments. Considering the results of the present study in terms of the mean differences between the norm group and the African and White respondents of the present sample, this is an aspect that is certainly worth considering. Van Der Merwe (1999) further notes that validating test batteries for specific jobs could further enhance the fairness in assessment processes within organisations. He also recommends making

more use of competency-based exercises which are directly related to job content and inherent requirements. Saunders (2002) recommends the use of behaviour observation or other similar means of obtaining information about performance. She disputes the use of personality testing in any cross-cultural setting, where issues such as language or culture are likely to be prevalent. Considering the diversity of our society, this is likely to be the case in many South African organisations. Saunders (2002) does however not dispute the value of personality testing but rather its applicability in certain contexts.

5.4 Limitations

There are several limitations of the present study that require consideration. It should firstly be highlighted that Tredoux (2002) clearly provides the requirements for effective completion of the OPP, which includes a Grade 12 level of education as well as proficiency in English. A critical limitation of this study is thus that the respondents within the sample were not pre-screened for English, which may have negatively impacted on the value of the results. However, due to the nature and purpose of the assessment, screening for English proficiency was not always possible. An assumption was thus made that as the majority of the respondents are already functioning within senior management roles, English proficiency can be assumed. Evidently, language seems to have a significant impact on test performance.

An additional and obvious limitation is that the sample size was relatively small. Caution regarding the interpretation of the results is thus recommended. This is particularly true for any findings involving the White sample, whose sample size was very small ($N=65$). This small sample size eventually influences the analysis possibilities and the generalisability of the results.

In addition, these findings were based on the OPP personality test and cannot be generalised to other personality tests without repercussions.

5.5 Conclusion

The results of the present study has allowed for an estimate of possible cultural differences on the OPP used for personnel selection and for development purposes within the Public Service. Positive results included the lack of significant differences between the means of the males and females. Furthermore, there were minute differences between the reliability coefficients for the male and female as well as the African and White sub-samples. However, when considering the significant differences between means for the race and language groups, there is a possibility that cultural variables could have impacted on the scores on the OPP. Problems in terms of the reliability of the Reserved-Gregarious and Motivational Distortion scales were further identified, whilst concerns regarding the structure of the norm group and its significant difference to that of the African and White respondents of the present sample were raised.

Almost seven years has passed since the inception of the Employment Equity Act, which has since stimulated more research in the personality testing domain in South Africa. Goodstein and Lanyon (1999) notes that advances in the development of technology as well as the establishment of “sophisticated item-development procedures” has all led to an increase in the use of personality testing. However, based on the results of the present study, it is clear that much more research is needed in the psychological testing context in South Africa. The importance of this kind of research can surely not be ignored.

Although the sample size was relatively small, these findings may possibly provide valuable information in terms of whether or not the OPP can be considered as a cross-culturally comparable personality test within the Public Service, which may in turn provide assistance in determining the value of this test for making occupational related decisions.

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APPENDIX A

INDEPENDENT SAMPLE TEST FOR THE MALE AND FEMALE SUB-SAMPLES



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Independent Samples Test												
		Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference			
									Lower	Upper		
OPP	Equal variances assumed	.249	.618	-.143	268	.887	-.46036	3.23050	-6.82075	5.90003		
	Equal variances not assumed			-.145	183.008	.885	-.46036	3.17692	-6.72846	5.80774		
Flexible	Equal variances assumed	.001	.970	1.626	268	.105	-1.06953	.65763	-2.36430	.22525		
	Equal variances not assumed			1.641	179.251	.103	-1.06953	.65182	-2.35575	.21669		
Persuasive	Equal variances assumed	.507	.477	-.872	268	.384	-.47638	.54632	-1.55200	.59924		
	Equal variances not assumed			-.889	184.546	.375	-.47638	.53556	-1.53299	.58023		
Gregarious	Equal variances assumed	.207	.649	1.501	268	.135	.81035	.54005	-.25292	1.87363		
	Equal variances not assumed			1.468	165.485	.144	.81035	.55197	-.27946	1.90017		
Trusting	Equal variances assumed	1.345	.247	1.153	268	.250	-.79688	.69110	-2.15757	.56380		
	Equal variances not assumed			1.123	163.498	.263	-.79688	.70971	-2.19827	.60450		
Pessimistic	Equal variances assumed	.081	.776	-.174	268	.862	-.11168	.64212	-1.37593	1.15257		
	Equal variances not assumed			-.174	174.228	.862	-.11168	.64338	-1.38149	1.15814		

Phlegmatic	Equal variances assumed	4.224	.041	.797	268	.426	.62816	.78804	-.92339	2.17970
	Equal variances not assumed			.774	162.212	.440	.62816	.81178	-.97487	2.23118
Assertive	Equal variances assumed	1.266	.262	.950	268	.343	.52548	.55338	-.56403	1.61500
	Equal variances not assumed			.980	190.350	.328	.52548	.53619	-.53216	1.58313
Contesting	Equal variances assumed	2.056	.153	-.193	268	.847	-.15333	.79603	-1.72059	1.41393
	Equal variances not assumed			-.203	201.064	.839	-.15333	.75556	-1.64318	1.33652
Motivational Distortion	Equal variances assumed	.009	.924	-.757	268	.450	-.28003	.37013	-1.00876	.44871
	Equal variances not assumed			-.761	177.986	.448	-.28003	.36785	-1.00593	.44588
Pragmatic	Equal variances assumed	.244	.622	.818	268	.414	.40381	.49363	-.56808	1.37571
	Equal variances not assumed			.807	169.016	.421	.40381	.50041	-.58405	1.39167

APPENDIX B

RELIABILITY DESCRIPTIVE STATISTICS ACCORDING TO GENDER



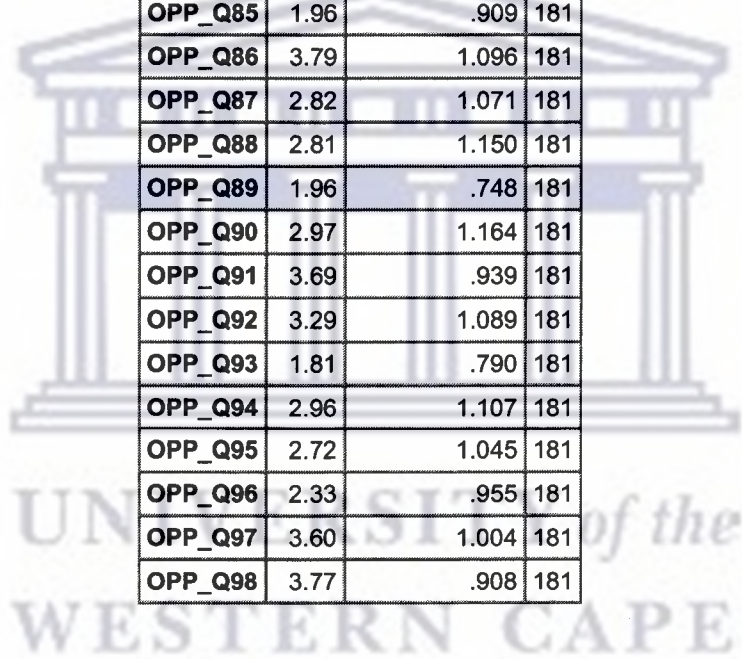
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DESCRIPTIVE STATISTICS FOR THE MALE SUB-SAMPLE

	Mean	Std. Deviation	N
OPP_Q1	1.75	.938	181
OPP_Q2	3.56	1.066	181
OPP_Q3	3.45	1.162	181
OPP_Q4	2.87	1.245	181
OPP_Q5	4.09	1.037	181
OPP_Q6	2.28	1.096	181
OPP_Q7	4.00	1.000	181
OPP_Q8	3.36	1.139	181
OPP_Q9	2.15	1.019	181
OPP_Q10	2.57	1.146	181
OPP_Q11	3.34	1.127	181
OPP_Q12	3.50	1.068	181
OPP_Q13	2.01	.952	181
OPP_Q14	2.82	1.091	181
OPP_Q15	2.84	1.101	181
OPP_Q16	3.90	1.041	181
OPP_Q17	3.41	1.164	181
OPP_Q18	3.70	1.131	181
OPP_Q19	3.19	1.105	181
OPP_Q20	2.88	1.056	181
OPP_Q21	3.46	1.088	181
OPP_Q22	4.41	.856	181
OPP_Q23	3.93	.961	181
OPP_Q24	2.31	1.072	181
OPP_Q25	2.46	1.218	181
OPP_Q26	3.32	1.089	181
OPP_Q27	3.30	.983	181
OPP_Q28	2.03	.881	181
OPP_Q29	3.73	1.105	181
OPP_Q30	3.09	1.332	181
OPP_Q31	2.78	1.088	181
OPP_Q32	4.02	1.030	181
OPP_Q33	2.66	1.244	181
OPP_Q34	3.79	.960	181

OPP_Q35	3.85	1.014	181
OPP_Q36	2.47	1.073	181
OPP_Q37	3.37	1.121	181
OPP_Q38	3.07	1.131	181
OPP_Q39	1.43	.643	181
OPP_Q40	2.07	.931	181
OPP_Q41	3.43	1.012	181
OPP_Q42	2.73	1.120	181
OPP_Q43	3.32	1.068	181
OPP_Q44	3.86	1.055	181
OPP_Q45	3.39	1.083	181
OPP_Q46	2.92	1.135	181
OPP_Q47	3.71	1.003	181
OPP_Q48	2.99	1.162	181
OPP_Q49	1.94	1.004	181
OPP_Q50	4.18	.902	181
OPP_Q51	2.04	.887	181
OPP_Q52	3.76	.947	181
OPP_Q53	2.70	1.165	181
OPP_Q54	2.08	.816	181
OPP_Q55	2.75	1.303	181
OPP_Q56	2.98	1.188	181
OPP_Q57	3.93	.882	181
OPP_Q58	2.62	1.132	181
OPP_Q59	3.55	1.056	181
OPP_Q60	3.10	1.121	181
OPP_Q61	2.86	1.192	181
OPP_Q62	3.39	1.113	181
OPP_Q63	2.64	1.120	181
OPP_Q64	3.63	1.179	181
OPP_Q65	1.94	.783	181
OPP_Q66	3.83	.862	181
OPP_Q67	3.57	1.081	181
OPP_Q68	3.14	1.174	181
OPP_Q69	3.16	1.055	181
OPP_Q70	2.79	1.054	181
OPP_Q71	3.24	1.052	181
OPP_Q72	3.40	1.037	181

OPP_Q73	2.15	.881	181
OPP_Q74	2.64	1.100	181
OPP_Q75	2.13	1.106	181
OPP_Q76	2.59	.943	181
OPP_Q77	3.57	.944	181
OPP_Q78	3.43	1.070	181
OPP_Q79	3.63	1.033	181
OPP_Q80	2.78	1.047	181
OPP_Q81	1.50	.672	181
OPP_Q82	3.48	1.003	181
OPP_Q83	3.73	1.134	181
OPP_Q84	3.41	1.059	181
OPP_Q85	1.96	.909	181
OPP_Q86	3.79	1.096	181
OPP_Q87	2.82	1.071	181
OPP_Q88	2.81	1.150	181
OPP_Q89	1.96	.748	181
OPP_Q90	2.97	1.164	181
OPP_Q91	3.69	.939	181
OPP_Q92	3.29	1.089	181
OPP_Q93	1.81	.790	181
OPP_Q94	2.96	1.107	181
OPP_Q95	2.72	1.045	181
OPP_Q96	2.33	.955	181
OPP_Q97	3.60	1.004	181
OPP_Q98	3.77	.908	181

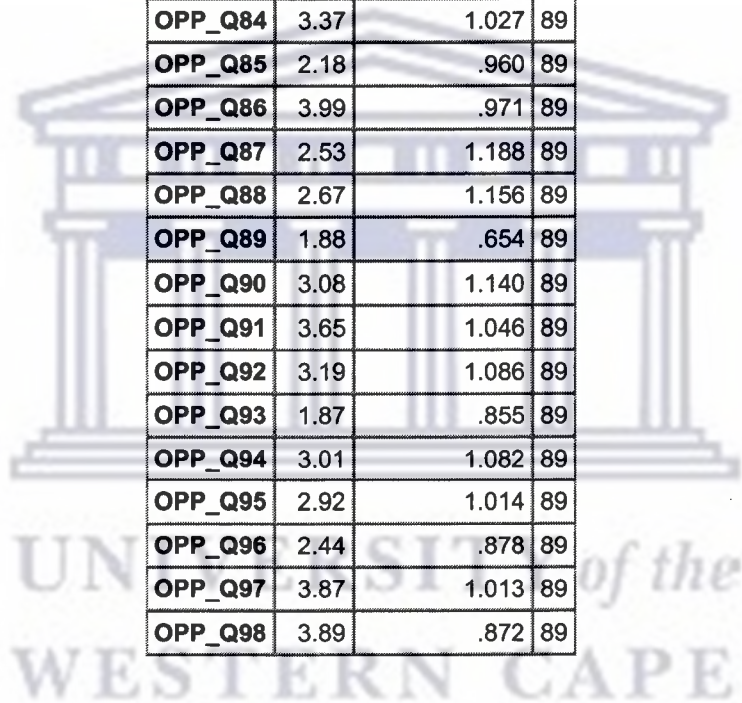


DESCRIPTIVE STATISTICS FOR THE FEMALE SUB-SAMPLE

	Mean	Std. Deviation	N
OPP_Q1	1.66	.797	89
OPP_Q2	3.45	1.118	89
OPP_Q3	2.73	1.126	89
OPP_Q4	3.17	1.281	89
OPP_Q5	3.87	1.160	89
OPP_Q6	2.39	1.083	89
OPP_Q7	4.19	.903	89
OPP_Q8	3.34	1.196	89
OPP_Q9	2.07	.975	89
OPP_Q10	2.37	1.142	89
OPP_Q11	3.56	1.128	89
OPP_Q12	3.93	1.009	89
OPP_Q13	2.33	1.126	89
OPP_Q14	2.76	1.158	89
OPP_Q15	2.63	1.142	89
OPP_Q16	3.75	1.048	89
OPP_Q17	3.29	1.189	89
OPP_Q18	3.34	1.261	89
OPP_Q19	3.08	1.189	89
OPP_Q20	2.66	1.044	89
OPP_Q21	3.78	.951	89
OPP_Q22	4.15	.873	89
OPP_Q23	3.80	1.079	89
OPP_Q24	2.30	1.081	89
OPP_Q25	2.60	1.194	89
OPP_Q26	3.48	1.067	89
OPP_Q27	3.03	1.016	89
OPP_Q28	1.80	.855	89
OPP_Q29	3.69	1.124	89
OPP_Q30	3.52	1.235	89
OPP_Q31	2.70	.970	89
OPP_Q32	3.89	1.005	89
OPP_Q33	2.56	1.187	89
OPP_Q34	3.76	.942	89

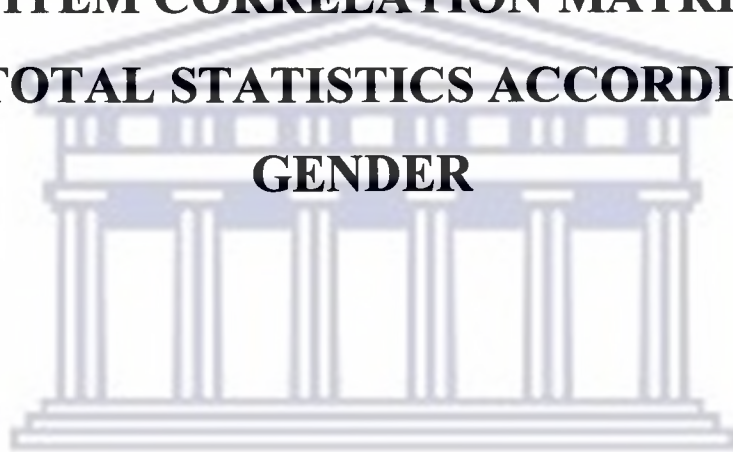
OPP_Q35	3.83	1.218	89
OPP_Q36	2.10	.954	89
OPP_Q37	3.55	1.023	89
OPP_Q38	2.97	1.247	89
OPP_Q39	1.54	.565	89
OPP_Q40	2.28	1.022	89
OPP_Q41	3.46	.954	89
OPP_Q42	3.01	1.220	89
OPP_Q43	3.02	1.128	89
OPP_Q44	3.78	1.156	89
OPP_Q45	3.63	.970	89
OPP_Q46	3.19	1.010	89
OPP_Q47	3.62	1.103	89
OPP_Q48	3.00	1.177	89
OPP_Q49	2.24	.989	89
OPP_Q50	4.12	.998	89
OPP_Q51	2.45	1.118	89
OPP_Q52	3.87	.842	89
OPP_Q53	2.49	1.159	89
OPP_Q54	2.22	.962	89
OPP_Q55	2.67	1.304	89
OPP_Q56	2.71	1.208	89
OPP_Q57	3.93	.863	89
OPP_Q58	2.42	.975	89
OPP_Q59	3.81	.890	89
OPP_Q60	3.31	1.072	89
OPP_Q61	2.66	1.206	89
OPP_Q62	3.38	1.123	89
OPP_Q63	2.54	1.088	89
OPP_Q64	3.61	1.258	89
OPP_Q65	1.98	.738	89
OPP_Q66	3.88	.902	89
OPP_Q67	3.51	1.046	89
OPP_Q68	3.09	1.145	89
OPP_Q69	3.25	1.100	89
OPP_Q70	2.73	.986	89
OPP_Q71	3.02	1.158	89
OPP_Q72	3.62	.983	89

OPP_Q73	2.35	.978	89
OPP_Q74	2.87	1.130	89
OPP_Q75	2.16	.976	89
OPP_Q76	2.48	1.046	89
OPP_Q77	3.51	.978	89
OPP_Q78	3.18	1.093	89
OPP_Q79	3.42	1.156	89
OPP_Q80	2.73	.997	89
OPP_Q81	1.70	.871	89
OPP_Q82	3.73	.794	89
OPP_Q83	4.03	.872	89
OPP_Q84	3.37	1.027	89
OPP_Q85	2.18	.960	89
OPP_Q86	3.99	.971	89
OPP_Q87	2.53	1.188	89
OPP_Q88	2.67	1.156	89
OPP_Q89	1.88	.654	89
OPP_Q90	3.08	1.140	89
OPP_Q91	3.65	1.046	89
OPP_Q92	3.19	1.086	89
OPP_Q93	1.87	.855	89
OPP_Q94	3.01	1.082	89
OPP_Q95	2.92	1.014	89
OPP_Q96	2.44	.878	89
OPP_Q97	3.87	1.013	89
OPP_Q98	3.89	.872	89



APPENDIX C

INTER ITEM CORRELATION MATRIX AND ITEM TOTAL STATISTICS ACCORDING TO GENDER



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INTER ITEM CORRELATION MATRIX FOR MALES ON THE MOTIVATIONAL DISTORTION SCALE

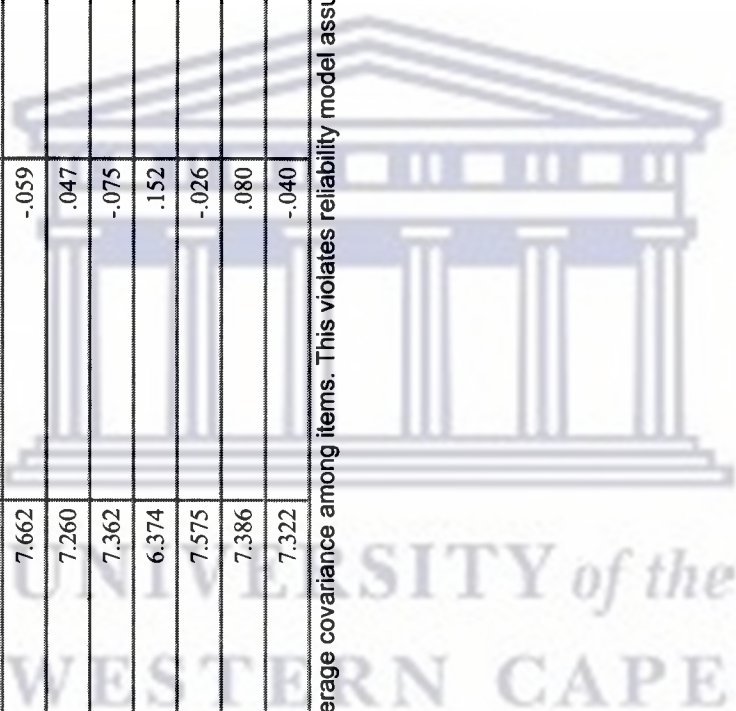
	OPP_Q14	OPP_Q34	OPP_Q51	OPP_Q64	OPP_Q80	OPP_Q85	OPP_Q89	OPP_Q92
OPP_Q14	1.000	.357	.106	-.211	.019	.234	-.097	-.134
OPP_Q34	.357	1.000	.135	-.236	-.185	.143	-.058	-.265
OPP_Q51	.106	.135	1.000	-.128	-.061	.140	.019	-.042
OPP_Q64	-.211	-.236	-.128	1.000	.212	-.200	.110	.223
OPP_Q80	.019	-.185	-.061	.212	1.000	-.114	.188	.281
OPP_Q85	.234	.143	.140	-.200	-.114	1.000	.047	-.247
OPP_Q89	-.097	-.058	.019	.110	.188	.047	1.000	-.006
OPP_Q92	-.134	-.265	-.042	.223	.281	-.247	-.006	1.000



ITEM TOTAL STATISTICS FOR MALES ON THE MOTIVATIONAL DISTORTION SCALE

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
OPP_Q14	19.46	6.639	.078	.197	-.022(a)
OPP_Q34	18.49	7.662	-.059	.209	.096
OPP_Q51	20.24	7.260	.047	.043	.014
OPP_Q64	18.65	7.362	-.075	.143	.126
OPP_Q80	19.50	6.374	.152	.161	-.089(a)
OPP_Q85	20.32	7.575	-.026	.132	.068
OPP_Q89	20.32	7.386	.080	.065	-.002(a)
OPP_Q92	18.99	7.322	-.040	.177	.088

a The value is negative due to a negative average covariance among items. This violates reliability model assumptions.



INTER ITEM CORRELATION MATRIX FOR FEMALES ON THE MOTIVATIONAL DISTORTION SCALE

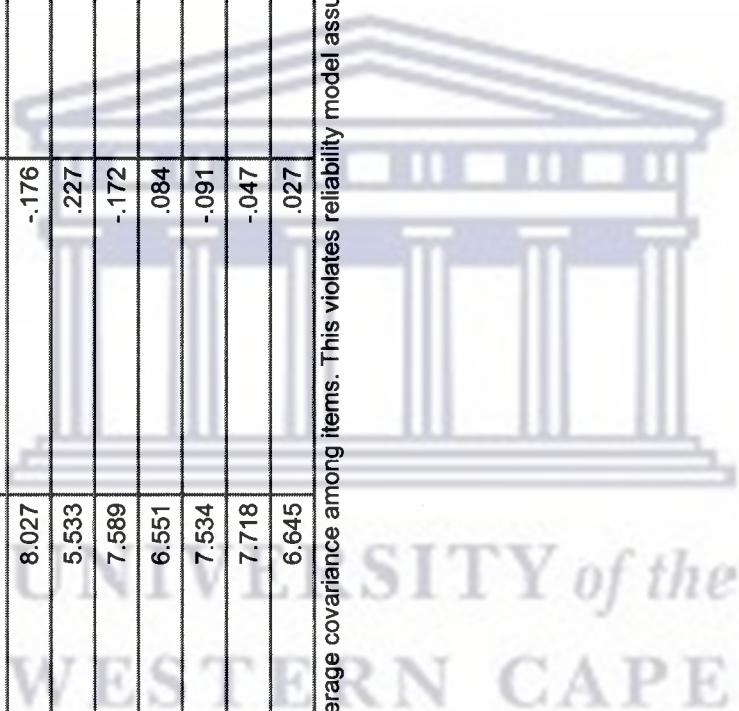
	OPP_Q14	OPP_Q34	OPP_Q51	OPP_Q64	OPP_Q80	OPP_Q85	OPP_Q89	OPP_Q92
OPP_Q14	1.000	.365	.188	-.423	-.233	.355	-.099	-.144
OPP_Q34	.365	1.000	.134	-.329	-.323	.286	-.214	-.433
OPP_Q51	.188	.134	1.000	-.067	.161	.019	.015	.078
OPP_Q64	-.423	-.329	-.067	1.000	.250	-.148	-.032	.289
OPP_Q80	-.233	-.323	.161	.250	1.000	-.269	.192	.394
OPP_Q85	.355	.286	.019	-.148	-.269	1.000	-.199	-.339
OPP_Q89	-.099	-.214	.015	-.032	.192	-.199	1.000	.194
OPP_Q92	-.144	-.433	.078	.289	.394	-.339	.194	1.000



ITEM TOTAL STATISTICS FOR FEMALES ON THE MOTIVATIONAL DISTORTION SCALE

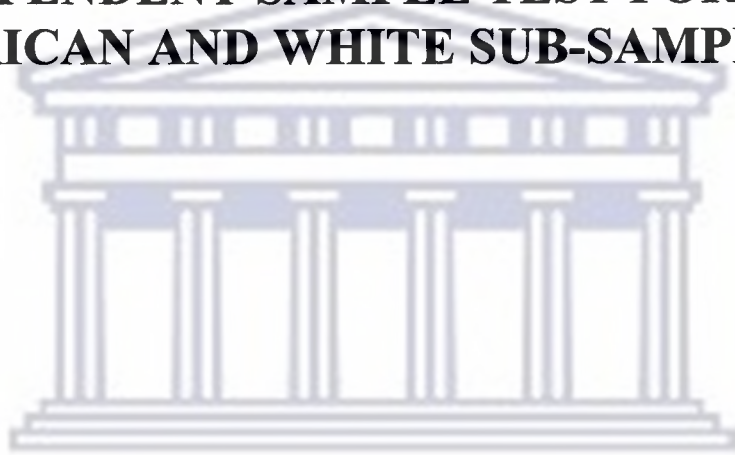
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
OPP_Q14	19.80	6.845	-.035	.335	-.068(a)
OPP_Q34	18.80	8.027	-.176	.331	.048
OPP_Q51	20.11	5.533	.227	.103	-.380(a)
OPP_Q64	18.96	7.589	-.172	.271	.090
OPP_Q80	19.83	6.551	.084	.254	-.185(a)
OPP_Q85	20.38	7.534	-.091	.236	-.020(a)
OPP_Q89	20.69	7.718	-.047	.102	-.066(a)
OPP_Q92	19.37	6.645	.027	.332	-.133(a)

a The value is negative due to a negative average covariance among items. This violates reliability model assumptions.



APPENDIX D

INDEPENDENT SAMPLE TEST FOR THE AFRICAN AND WHITE SUB-SAMPLES



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Independent Samples Test												
		Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference			
									Lower	Upper		
OPP	Equal variances assumed	8.714	.003	1.912	232	.057	-6.94320	3.63153	-14.09819	.21180		
	Equal variances not assumed			2.194	158.670	.030	-6.94320	3.16433	-13.19284	-.69355		
Flexible	Equal variances assumed	.044	.834	5.399	232	.000	-3.89112	.72072	-5.31111	-2.47114		
	Equal variances not assumed			5.473	119.441	.000	-3.89112	.71092	-5.29876	-2.48349		
Persuasive	Equal variances assumed	3.345	.069	-1.550	232	.583	-.33964	.61709	-1.55547	.87618		
	Equal variances not assumed			-1.586	132.813	.559	-.33964	.57955	-1.48599	.80670		
Gregarious	Equal variances assumed	7.049	.008	.800	232	.425	.48166	.60230	-.70502	1.66833		
	Equal variances not assumed			.933	165.416	.352	.48166	.51605	-.53724	1.50055		
Trusting	Equal variances assumed	.176	.675	2.808	232	.005	-2.17278	.77390	-3.69754	-.64802		
	Equal variances not assumed			2.901	124.294	.004	-2.17278	.74906	-3.65534	-.69022		
Pessimistic	Equal variances assumed	6.181	.014	3.317	232	.001	-2.32663	.70132	-3.70840	-.94485		
	Equal variances not assumed			3.697	147.686	.000	-2.32663	.62936	-3.57035	-1.08291		

Phlegmatic	Equal variances assumed	.125	.724	1.352	232	.178	-1.16095	.85844	-2.85228	.53039
	Equal variances not assumed			1.319	110.641	.190	-1.16095	.87998	-2.90475	.58285
Assertive	Equal variances assumed	.037	.847	3.152	232	.002	-1.96450	.62325	-3.19245	-.73654
	Equal variances not assumed			3.172	117.640	.002	-1.96450	.61934	-3.19100	-.73799
Contesting	Equal variances assumed	1.917	.168	4.433	232	.000	3.92544	.88545	2.18089	5.66999
	Equal variances not assumed			4.708	132.001	.000	3.92544	.83385	2.27601	5.57488
Motivational Distortion	Equal variances assumed	1.245	.266	1.509	232	.133	.60710	.40220	-.18533	1.39954
	Equal variances not assumed			1.605	132.387	.111	.60710	.37827	-.14114	1.35534
Pragmatic	Equal variances assumed	.957	.329	-.754	232	.452	-.41302	.54781	-1.49234	.66631
	Equal variances not assumed			-.796	130.242	.428	-.41302	.51900	-1.43977	.61374

APPENDIX E

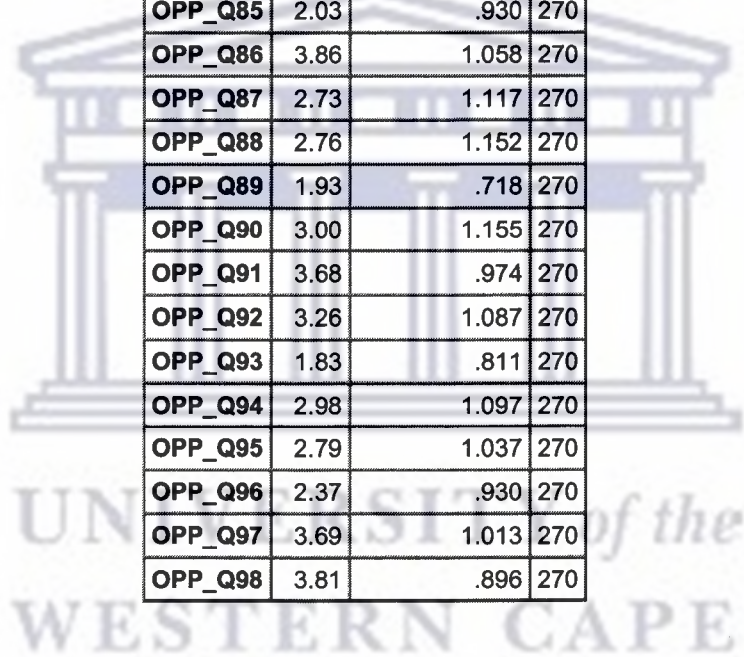
RELIABILITY DESCRIPTIVE STATISTICS ACCORDING TO RACE



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OPP_Q35	3.84	1.083	270
OPP_Q36	2.35	1.048	270
OPP_Q37	3.43	1.091	270
OPP_Q38	3.04	1.169	270
OPP_Q39	1.47	.619	270
OPP_Q40	2.14	.965	270
OPP_Q41	3.44	.991	270
OPP_Q42	2.82	1.159	270
OPP_Q43	3.22	1.095	270
OPP_Q44	3.83	1.088	270
OPP_Q45	3.47	1.051	270
OPP_Q46	3.01	1.101	270
OPP_Q47	3.68	1.036	270
OPP_Q48	3.00	1.165	270
OPP_Q49	2.04	1.007	270
OPP_Q50	4.16	.933	270
OPP_Q51	2.18	.986	270
OPP_Q52	3.79	.913	270
OPP_Q53	2.63	1.165	270
OPP_Q54	2.13	.868	270
OPP_Q55	2.73	1.302	270
OPP_Q56	2.89	1.199	270
OPP_Q57	3.93	.874	270
OPP_Q58	2.56	1.085	270
OPP_Q59	3.64	1.010	270
OPP_Q60	3.17	1.108	270
OPP_Q61	2.80	1.198	270
OPP_Q62	3.39	1.115	270
OPP_Q63	2.60	1.109	270
OPP_Q64	3.62	1.203	270
OPP_Q65	1.95	.767	270
OPP_Q66	3.84	.874	270
OPP_Q67	3.55	1.068	270
OPP_Q68	3.13	1.163	270
OPP_Q69	3.19	1.069	270
OPP_Q70	2.77	1.031	270
OPP_Q71	3.17	1.091	270
OPP_Q72	3.47	1.023	270

OPP_Q73	2.22	.917	270
OPP_Q74	2.71	1.113	270
OPP_Q75	2.14	1.063	270
OPP_Q76	2.55	.977	270
OPP_Q77	3.55	.954	270
OPP_Q78	3.34	1.082	270
OPP_Q79	3.56	1.078	270
OPP_Q80	2.76	1.029	270
OPP_Q81	1.56	.748	270
OPP_Q82	3.56	.946	270
OPP_Q83	3.83	1.062	270
OPP_Q84	3.40	1.047	270
OPP_Q85	2.03	.930	270
OPP_Q86	3.86	1.058	270
OPP_Q87	2.73	1.117	270
OPP_Q88	2.76	1.152	270
OPP_Q89	1.93	.718	270
OPP_Q90	3.00	1.155	270
OPP_Q91	3.68	.974	270
OPP_Q92	3.26	1.087	270
OPP_Q93	1.83	.811	270
OPP_Q94	2.98	1.097	270
OPP_Q95	2.79	1.037	270
OPP_Q96	2.37	.930	270
OPP_Q97	3.69	1.013	270
OPP_Q98	3.81	.896	270

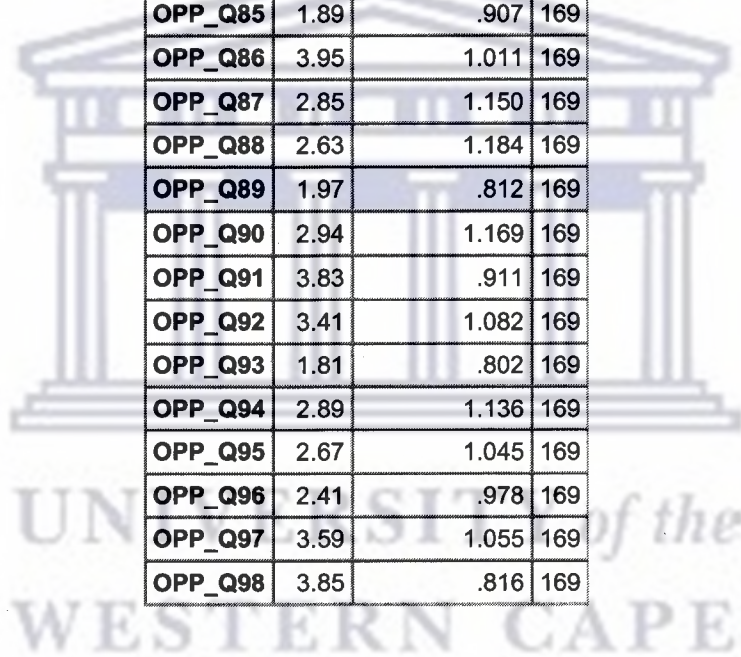


AFRICAN RESPONDENTS DESCRIPTIVE STATISTICS

	Mean	Std. Deviation	N
OPP_Q1	1.61	.853	169
OPP_Q2	3.56	1.122	169
OPP_Q3	2.98	1.144	169
OPP_Q4	2.75	1.254	169
OPP_Q5	3.92	1.165	169
OPP_Q6	2.18	1.111	169
OPP_Q7	4.07	.955	169
OPP_Q8	3.21	1.200	169
OPP_Q9	1.99	.967	169
OPP_Q10	2.60	1.181	169
OPP_Q11	3.50	1.150	169
OPP_Q12	3.60	1.070	169
OPP_Q13	2.05	1.070	169
OPP_Q14	2.89	1.071	169
OPP_Q15	2.60	1.125	169
OPP_Q16	3.85	1.047	169
OPP_Q17	3.42	1.168	169
OPP_Q18	3.52	1.191	169
OPP_Q19	2.97	1.115	169
OPP_Q20	2.76	1.061	169
OPP_Q21	3.54	1.029	169
OPP_Q22	4.41	.806	169
OPP_Q23	3.81	1.023	169
OPP_Q24	2.27	1.051	169
OPP_Q25	2.26	1.125	169
OPP_Q26	3.19	1.113	169
OPP_Q27	3.11	1.026	169
OPP_Q28	1.90	.792	169
OPP_Q29	3.67	1.127	169
OPP_Q30	3.21	1.375	169
OPP_Q31	2.69	1.075	169
OPP_Q32	3.95	1.022	169
OPP_Q33	2.76	1.221	169
OPP_Q34	3.76	.967	169

OPP_Q35	3.70	1.174	169
OPP_Q36	2.33	1.050	169
OPP_Q37	3.35	1.114	169
OPP_Q38	3.00	1.139	169
OPP_Q39	1.37	.564	169
OPP_Q40	2.09	.971	169
OPP_Q41	3.57	.911	169
OPP_Q42	2.87	1.158	169
OPP_Q43	3.30	1.138	169
OPP_Q44	3.67	1.142	169
OPP_Q45	3.54	1.063	169
OPP_Q46	2.91	1.135	169
OPP_Q47	3.56	1.051	169
OPP_Q48	2.70	1.164	169
OPP_Q49	1.95	1.005	169
OPP_Q50	4.08	.985	169
OPP_Q51	2.15	.968	169
OPP_Q52	3.88	.860	169
OPP_Q53	2.50	1.092	169
OPP_Q54	2.14	.908	169
OPP_Q55	2.69	1.337	169
OPP_Q56	3.14	1.185	169
OPP_Q57	3.93	.874	169
OPP_Q58	2.44	1.068	169
OPP_Q59	3.78	.998	169
OPP_Q60	3.32	1.093	169
OPP_Q61	2.85	1.234	169
OPP_Q62	3.30	1.159	169
OPP_Q63	2.75	1.117	169
OPP_Q64	3.72	1.216	169
OPP_Q65	1.89	.759	169
OPP_Q66	3.85	.939	169
OPP_Q67	3.63	1.022	169
OPP_Q68	3.01	1.175	169
OPP_Q69	3.15	1.095	169
OPP_Q70	2.69	1.024	169
OPP_Q71	3.13	1.126	169
OPP_Q72	3.60	1.031	169

OPP_Q73	2.30	.969	169
OPP_Q74	2.54	1.052	169
OPP_Q75	1.89	.948	169
OPP_Q76	2.79	1.019	169
OPP_Q77	3.57	.955	169
OPP_Q78	3.28	1.087	169
OPP_Q79	3.59	1.037	169
OPP_Q80	2.81	1.074	169
OPP_Q81	1.49	.788	169
OPP_Q82	3.55	.969	169
OPP_Q83	3.73	1.084	169
OPP_Q84	3.56	1.005	169
OPP_Q85	1.89	.907	169
OPP_Q86	3.95	1.011	169
OPP_Q87	2.85	1.150	169
OPP_Q88	2.63	1.184	169
OPP_Q89	1.97	.812	169
OPP_Q90	2.94	1.169	169
OPP_Q91	3.83	.911	169
OPP_Q92	3.41	1.082	169
OPP_Q93	1.81	.802	169
OPP_Q94	2.89	1.136	169
OPP_Q95	2.67	1.045	169
OPP_Q96	2.41	.978	169
OPP_Q97	3.59	1.055	169
OPP_Q98	3.85	.816	169

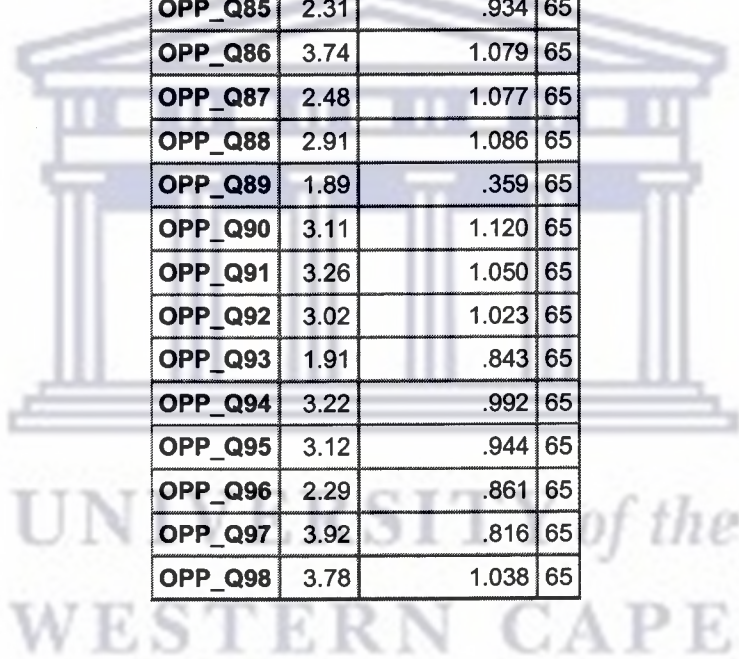


WHITE RESPONDENTS DESCRIPTIVE STATISTICS

	Mean	Std. Deviation	N
OPP_Q1	2.09	.996	65
OPP_Q2	3.54	.953	65
OPP_Q3	3.75	1.046	65
OPP_Q4	3.17	1.245	65
OPP_Q5	4.28	.761	65
OPP_Q6	2.51	.970	65
OPP_Q7	4.22	.944	65
OPP_Q8	3.68	1.002	65
OPP_Q9	2.32	.986	65
OPP_Q10	2.22	1.038	65
OPP_Q11	3.17	.993	65
OPP_Q12	3.46	1.032	65
OPP_Q13	2.28	.893	65
OPP_Q14	2.65	1.138	65
OPP_Q15	2.94	1.074	65
OPP_Q16	3.82	1.044	65
OPP_Q17	3.20	1.148	65
OPP_Q18	3.69	1.172	65
OPP_Q19	3.42	1.130	65
OPP_Q20	3.05	1.007	65
OPP_Q21	3.62	1.071	65
OPP_Q22	4.17	.928	65
OPP_Q23	3.92	1.005	65
OPP_Q24	2.38	1.114	65
OPP_Q25	3.05	1.217	65
OPP_Q26	3.63	.928	65
OPP_Q27	3.40	.965	65
OPP_Q28	1.98	1.023	65
OPP_Q29	3.82	.967	65
OPP_Q30	3.40	1.170	65
OPP_Q31	3.00	1.031	65
OPP_Q32	3.92	1.050	65
OPP_Q33	2.26	1.176	65
OPP_Q34	3.80	.795	65

OPP_Q35	4.18	.768	65
OPP_Q36	2.32	1.077	65
OPP_Q37	3.45	1.061	65
OPP_Q38	2.98	1.281	65
OPP_Q39	1.66	.713	65
OPP_Q40	2.29	1.011	65
OPP_Q41	3.25	1.031	65
OPP_Q42	2.62	1.182	65
OPP_Q43	3.03	1.000	65
OPP_Q44	4.26	.796	65
OPP_Q45	3.18	.998	65
OPP_Q46	3.08	.973	65
OPP_Q47	3.91	.843	65
OPP_Q48	3.49	.954	65
OPP_Q49	2.22	1.008	65
OPP_Q50	4.31	.705	65
OPP_Q51	2.37	1.054	65
OPP_Q52	3.72	.927	65
OPP_Q53	3.00	1.199	65
OPP_Q54	2.12	.781	65
OPP_Q55	2.91	1.259	65
OPP_Q56	2.43	1.045	65
OPP_Q57	3.78	.910	65
OPP_Q58	2.86	1.044	65
OPP_Q59	3.31	.999	65
OPP_Q60	2.91	1.027	65
OPP_Q61	2.69	1.060	65
OPP_Q62	3.46	1.032	65
OPP_Q63	2.32	1.062	65
OPP_Q64	3.23	1.170	65
OPP_Q65	2.12	.740	65
OPP_Q66	3.89	.773	65
OPP_Q67	3.20	1.107	65
OPP_Q68	3.42	1.088	65
OPP_Q69	3.32	.986	65
OPP_Q70	2.89	1.048	65
OPP_Q71	3.12	1.023	65
OPP_Q72	3.23	.996	65

OPP_Q73	2.15	.795	65
OPP_Q74	3.09	1.169	65
OPP_Q75	2.63	1.112	65
OPP_Q76	2.14	.726	65
OPP_Q77	3.49	.954	65
OPP_Q78	3.37	1.054	65
OPP_Q79	3.37	1.084	65
OPP_Q80	2.72	1.023	65
OPP_Q81	1.82	.705	65
OPP_Q82	3.43	.901	65
OPP_Q83	4.00	1.031	65
OPP_Q84	3.32	.970	65
OPP_Q85	2.31	.934	65
OPP_Q86	3.74	1.079	65
OPP_Q87	2.48	1.077	65
OPP_Q88	2.91	1.086	65
OPP_Q89	1.89	.359	65
OPP_Q90	3.11	1.120	65
OPP_Q91	3.26	1.050	65
OPP_Q92	3.02	1.023	65
OPP_Q93	1.91	.843	65
OPP_Q94	3.22	.992	65
OPP_Q95	3.12	.944	65
OPP_Q96	2.29	.861	65
OPP_Q97	3.92	.816	65
OPP_Q98	3.78	1.038	65



APPENDIX F

INTER ITEM CORRELATION MATRIX AND ITEM TOTAL STATISTICS ACCORDING TO RACE



**UNIVERSITY *of the*
WESTERN CAPE**

INTER ITEM CORRELATION MATRIX FOR THE WHITE RESPONDENTS ON THE RESERVED-GREGARIOUS

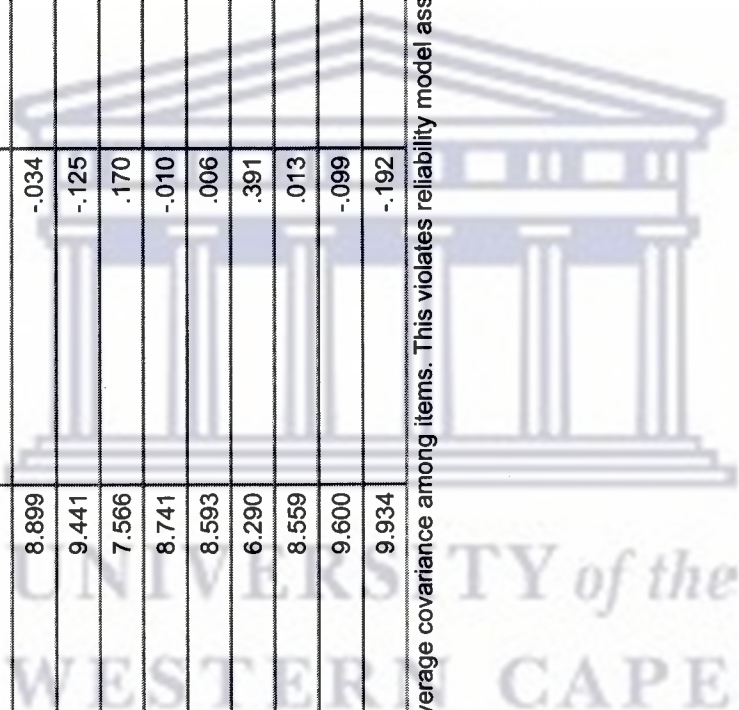
CONSTRUCT

	OPP_Q3	OPP_Q11	OPP_Q20	OPP_Q37	OPP_Q43	OPP_Q60	OPP_Q67	OPP_Q71	OPP_Q76	OPP_Q95
OPP_Q3	1.000	-.516	.293	-.223	-.157	-.152	-.038	-.249	.375	.221
OPP_Q11	-.516	1.000	-.070	.253	.184	.184	.182	.194	-.271	-.356
OPP_Q20	.293	-.070	1.000	-.166	-.203	-.207	-.107	-.370	.397	.191
OPP_Q37	-.223	.253	-.166	1.000	.016	.110	.442	.424	-.284	-.243
OPP_Q43	-.157	.184	-.203	.016	1.000	.368	.234	.027	-.329	-.302
OPP_Q60	-.152	.184	-.207	.110	.368	1.000	.113	.100	-.255	-.343
OPP_Q67	-.038	.182	-.107	.442	.234	.113	1.000	.171	-.054	-.009
OPP_Q71	-.249	.194	-.370	.424	.027	.100	.171	1.000	-.297	-.081
OPP_Q76	.375	-.271	.397	-.284	-.329	-.255	-.054	-.297	1.000	.453
OPP_Q95	.221	-.356	.191	-.243	-.302	-.343	-.009	-.081	.453	1.000

ITEM TOTAL STATISTICS FOR THE WHITE RESPONDENTS ON THE RESERVED-GREGARIOUS CONSTRUCT

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
OPP_Q3	27.18	9.809	-.186	.374	.108
OPP_Q11	27.77	8.899	-.034	.380	-.010(a)
OPP_Q20	27.89	9.441	-.125	.286	.058
OPP_Q37	27.49	7.566	.170	.413	-.189(a)
OPP_Q43	27.91	8.741	-.010	.293	-.029(a)
OPP_Q60	28.03	8.593	.006	.209	-.042(a)
OPP_Q67	27.74	6.290	.391	.315	-.438(a)
OPP_Q71	27.82	8.559	.013	.304	-.047(a)
OPP_Q76	28.80	9.600	-.099	.401	.019
OPP_Q95	27.82	9.934	-.192	.362	.098

a The value is negative due to a negative average covariance among items. This violates reliability model assumptions.



INTER ITEM CORRELATION MATRIX FOR THE TOTAL SAMPLE ON THE MOTIVATIONAL DISTORTION

SCALE

	OPP_Q14	OPP_Q34	OPP_Q51	OPP_Q64	OPP_Q80	OPP_Q85	OPP_Q89	OPP_Q92
OPP_Q14	1.000	.359	.130	-.286	-.064	.272	-.096	-.136
OPP_Q34	.359	1.000	.129	-.267	-.227	.189	-.103	-.318
OPP_Q51	.130	.129	1.000	-.103	.016	.111	.006	-.005
OPP_Q64	-.286	-.267	-.103	1.000	.225	-.181	.065	.246
OPP_Q80	-.064	-.227	.016	.225	1.000	-.167	.190	.318
OPP_Q85	.272	.189	.111	-.181	-.167	1.000	-.036	-.281
OPP_Q89	-.096	-.103	.006	.065	.190	-.036	1.000	.056
OPP_Q92	-.136	-.318	-.005	.246	.318	-.281	.056	1.000



ITEM TOTAL STATISTICS FOR THE TOTAL SAMPLE ON THE MOTIVATIONAL DISTORTION SCALE

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
OPP_Q14	19.57	6.707	.038	.215	-.042(a)
OPP_Q34	18.59	7.774	-.098	.236	.074
OPP_Q51	20.20	6.671	.102	.039	-.095(a)
OPP_Q64	18.75	7.429	-.109	.163	.109
OPP_Q80	19.61	6.432	.128	.170	-.126(a)
OPP_Q85	20.34	7.534	-.047	.149	.033
OPP_Q89	20.44	7.496	.038	.045	-.027(a)
OPP_Q92	19.11	7.106	-.022	.217	.017

a The value is negative due to a negative average covariance among items. This violates reliability model assumptions.

