

**THE CROSS-CULTURAL VALIDITY AND
COMPARABILITY OF THE SIXTEEN PERSONALITY
FACTOR QUESTIONNAIRE**

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**THE CROSS-CULTURAL VALIDITY AND
COMPARABILITY OF THE SIXTEEN PERSONALITY
FACTOR QUESTIONNAIRE**

by

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STUDENT NUMBER: 7870256

STATEMENT

I declare that this dissertation, "The cross-cultural validity and comparability of the Sixteen Personality Factor Questionnaire", is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.



Mr H. TACK

9 March 1999

DATE

SUMMARY

THE CROSS-CULTURAL VALIDITY AND COMPARABILITY OF THE SIXTEEN PERSONALITY FACTOR QUESTIONNAIRE

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DEGREE : MASTER OF ADMINISTRATION

SUBJECT : INDUSTRIAL PSYCHOLOGY

The focus of this study is the Sixteen Personality Factor Questionnaire, South African 1992 version (16 PF, SA92). This personality questionnaire was derived from the 16 PF which was developed in the United States and was adapted for South African conditions in 1992. The aim of this study is to determine whether the scores of the 16 PF, SA92 are cross-culturally valid and comparable in South Africa.

The sample consisted of White and African (male and female) applicants who applied for positions in a South African state department.

To achieve the aims outlined in the introductory chapter, construct comparability and item comparability research was conducted. Descriptive statistics were also calculated to indicate the performance of the various sub-samples (White, African, male and female).

The results indicated that the population variable as opposed to the gender variable had the greatest influence on the scores obtained. Problems existed with the construct and item comparability of the 16 PF, SA92 when the different population

groups were compared. Mean differences were also found on the majority of factors of the 16 PF, SA92 when the scores of the different population groups were compared.

The implications of using the 16 PF, SA92 were outlined and several assessment options were presented for users of the 16 PF, SA92.

KEY TERMS:

Cross-Cultural Psychology, Personality, Personality Assessment, Sixteen Personality Factor Questionnaire (SA92 Version), Population Group, Gender.

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CHAPTER 1

INTRODUCTION

The dissertation focuses on the cross-cultural validity and comparability of the Sixteen Personality Factor Questionnaire, South African 1992 version (16 PF, SA92) in terms of a respondent's population group and gender. This chapter focuses on the formulation of a problem statement and research questions based on the 16 PF, SA92. Based upon the aforementioned the aims of the research are then stated. Finally, the manner in which the chapters will be presented is introduced.

1.1 BACKGROUND AND MOTIVATION FOR THE RESEARCH

*Errors like straws;
upon the surface flow;
He who would search for pearls,
must dive below.*

John Dryden

The 16 PF is an objective paper-and-pencil questionnaire designed to measure personality attributes and behavioural style. This questionnaire was developed and standardised by Cattell for use in the United States in 1949 and eventually adapted for use in many other countries including South Africa. There have been results in favour of (Meredith, 1966; Tsijioka & Cattell, 1965; Zak, 1976) and against (Meredith, 1966; Vaughn & Cattell, 1976) the 16 PF when administered cross-culturally overseas. In South Africa, the 16 PF, SA92 was validated by Prinsloo and Van Eeden (1995) in a cultural context and they defined cultural groups on the basis of home language. A factor analysis was undertaken on the second-order factors and confirmed the original factors of the 16 PF. Abrahams' (1996) conducted cross-cultural research with the 16 PF, SA92 and found that the questionnaire cannot be administered cross-culturally.

Cattell, Eber and Tatsuoka (1992) have however cautioned that the questionnaire may not be sensitive in all instances to cross-cultural differences. They state further that although personality structure is essentially universal, differences do exist on source-trait and second-order levels. The implication is that Westerners could regard a term such as shy to imply withdrawal while in an African setting it could be understood as showing respect to an older person. The meaning of the term would therefore be vastly different between the Western and African cultures, indicating a different understanding of the questionnaire by different population groups. South Africa is no exception to world trends in this regard. The necessity for a personality questionnaire that can be applied to all the population groups in this country cannot be over-emphasised.

In South Africa the Human Sciences Research Council controls the distribution of four 16 PF forms (that is the different versions of the questionnaire). Forms A and B were the only two versions available in South Africa until 1992. These forms are used mainly for the purposes of selection and promotion. According to Professor J. Flowers (personal communication, 30 November 1998), limited research has been done by *inter alia* Palk (1983) and Williams concerning the application of Forms A and B and found that the forms were not very reliable for Africans. The drawback of these forms is that they were generally only standardised on White South African samples.

In 1992, because of limitations inherent to forms A and B, forms E and SA92 were developed. Form E was developed for persons who had attained an educational level of standard 4 to 7, the form therefore reflecting a more simplified format, language and vocabulary. Form SA92, which is the focus of this research, was also developed, with the norm group comprising all population groups in South Africa and with the aim of being cross-culturally applicable (Abrahams, 1996).

During 1992 the Human Sciences Research Council released the 16 PF, SA92 onto the South African market. Shortly after the questionnaire's release, many complaints were received from industry regarding the suitability of the questionnaire for the various culture groups. Critics indicated that African respondents only comprised

5,9% of the total standardised norm, while Whites constituted 86,2% of the standardised norm. The remaining 8% was filled by Coloureds and Asians. Certain population groups were therefore under represented, while the White grouping was over represented. This inevitably raises questions about the questionnaire's present cross-cultural comparability and further research on the cross-cultural use of the questionnaire is therefore warranted (Abrahams, 1994). Abrahams' call for further studies of the 16 PF, SA92 was one of the main considerations for undertaking this research. This dissertation is a comparative study whereby the results of Abrahams' research (1996) and this research are compared.

Following the gradual integration of previously disadvantaged people into the public and private sectors, and having been largely excluded from validation studies of scales such as the 16 PF, SA92, it is no wonder that the use of personality assessment has been regarded as culturally biased and discriminatory by Coloureds, Asian and African applicants in South Africa.

Despite the concern that most personality questionnaires, like most other assessments are not cross-culturally valid or reliable, only limited cross-cultural research has been undertaken in South Africa. This has resulted in further negative attitudes towards personality assessment and the government passing legislation prohibiting discrimination in this regard.

The above forms the background and motivation for this research, as personality assessment remains a controversial topic with reference to cross-cultural validity and comparability.

1.2 PROBLEM STATEMENT

The 16 PF, SA92 was developed to provide a standardised instrument for the measurement of personality of all culture groups in South Africa by means of the 16 personality factors.

South African research relating to the questionnaire's cross-cultural validity is restricted to the research of Prinsloo and Van Eeden (1995) in which they confirmed the cross-cultural comparability of the questionnaire, and also Abrahams' (1996) who found that the questionnaire cannot be applied cross-culturally. Further confirmatory research is necessary, as this questionnaire continues to be used in industry despite the possible legal implications which could result from individuals being unfairly discriminated against.

The researcher has consequently decided to undertake further cross-cultural research on the 16 PF, SA92 in South Africa, with specific reference to the responses of Whites and Africans, and the responses of the males and females in these two culture groups. Clarity with regards to the use of this questionnaire is needed as there are organisations applying the questionnaire upon the assumption that the instrument is culturally valid.

From the above discussion the following research questions are formulated:

- How cross-culturally valid is the 16 PF, SA92 using South African (White, African, male and female) samples?
- How cross-culturally comparable is the 16 PF, SA92 using South African (White, African, male and female) samples?

The researcher will attempt to provide empirical proof for the research study to thereby answer and support the problem statement.

1.3 AIMS

Based upon the above research questions, the following aims are formulated:

- To undertake a cross-cultural comparability study of the 16 PF, SA92 to thereby determine the suitability of the 16 PF, SA92 for the four sub-samples (White male, White female, African male and African female).
- To determine whether differences exist between the four sub-samples (White male, White female, African male and African female) in terms of their responses to the 16 PF, SA92.
- To determine whether the scales of the 16 PF, SA92 measure consistently for the four sub-samples (White male, White female, African male and African female).
- To determine the reasons for the differences in responses to the scales and items of the 16 PF, SA92.

1.4 CHAPTER DIVISIONS

In order to achieve the aims of the research the chapters will be presented in the following manner:

In Chapter 1, the background, rationale and aim of the dissertation have already been discussed.

In Chapter 2 cross-cultural psychology is conceptualised. Cross-cultural assessment is discussed in light of the limited research undertaken in South Africa. The future of cross-cultural psychology is also discussed.

In Chapter 3 the approaches to personality are conceptualised and the methods of determining personality are presented. The cross-cultural impact of the 16 PF, SA92 is discussed in view of the current legislation. An integration of the literature chapters (Chapters 2 and 3) is included at the end of Chapter 3.

Chapter 4 focuses on the design of the study. The samples involved in the study, the measuring instruments used, the procedures followed in gathering the data, and the techniques used in the analysis of the data are discussed.

In Chapter 5 the results of the study are discussed. The descriptive statistics are outlined, followed by discussions on the construct comparability and item comparability findings. The integration of the literature chapters (Chapters 2 and 3) and the empirical chapters (Chapters 4 and 5) is included at the end of Chapter 5.

In Chapter 6 the conclusions are formulated, limitations stated and recommendations presented on the continued usage of the 16 PF, SA92.

1.5 CHAPTER SUMMARY

The background to and the motivation for the research, problem statement, research questions, aims and chapter divisions were presented in this chapter.

In Chapter 2 cross-cultural psychology is conceptualised. Its relationship to cultural psychology, its influence on personality assessment and its future is discussed.

CHAPTER 2

CROSS-CULTURAL PSYCHOLOGY

2.1 INTRODUCTION

Chapter 2 represents the first phase in the literature review, namely, to conceptualise cross-cultural psychology within the psychological milieu. Thereafter the principles and history of cross-cultural psychology will be presented. The applicability of cross-cultural psychology in personality assessment will be emphasised, followed by an overview of the future trends in cross-cultural psychology.

Although still a young discipline, cross-cultural psychology holds much promise for increasing awareness and assumptions about human behaviour and also sensitivity to the role of cultural variables. Cross-cultural psychology will surely add to the profession's knowledge through comparisons of behaviour across different cultures (Marsella, Tharp & Ciborowski, 1979).

2.2 DEFINITIONS

There are various definitions of culture and cross-cultural psychology. These terms are defined for the purposes of this research.

2.2.1 Culture

Cross-cultural psychologists tend to take culture as a given, that is, as a packaged, unexamined variable (Whiting, 1976). In most instances, little attempt is made to determine what culture is in relation to cross-cultural psychology.

It is important, however, to understand that culture is a central concept in the field of cross-cultural psychology. Although culture has its own entity, it forms the foundation upon which cross-cultural research is built.

LeVine (1982) defines culture comprehensively as being:

An organised body of rules concerning the ways in which individuals in a population should communicate with one another, think about themselves and their environments, and behave toward one another and toward objects in their environments. The rules are not universally or constantly obeyed, but they are recognised by all and they ordinarily operate to limit the range of variation in patterns of communication, belief, value and social behaviour in the population.

Cultural psychology is a term central to social, industrial, developmental and other psychologies. Cultural psychology identifies an area of study which seeks to discover systematic relationships among cultural and behavioural variables (Berry, 1985).

Abrahams (1996, p 37) combines the definitions of two authors and has arrived at a succinct description of culture namely that "culture is a relatively organised system of meanings shared by a group of people".

Cultural categories are not limited to countries or ethnic groups and include groups that form for a purpose, these include gender groups, social classes linked to educational standards and occupations, religious groups and work organisations. The study of psychological processes across these categories is defined as cross-cultural psychology (Hofstede, 1991).

2.2.2 Cross-cultural psychology

Cross-cultural psychology is defined as:

“Cross-cultural psychology refers to the explanation of differences and sometimes similarities in the behaviour of people belonging to different cultures” (Malpass & Poortinga, 1986, p 17).

“Cross-cultural psychology is a study which involves the comparison of people from different cultures” (Bhagi & Sharma, 1992, p 175).

A more comprehensive description of cross-cultural psychology describes it as the study of a culture's effect on human behaviour. It is furthermore an empirical study of individuals of various groups with similar experiences which lead to predictable and significant similarities and differences in the behaviour of people (Brislin, Lonner & Thorndike, 1973; Pedersen, 1994).

Cross-cultural psychology is therefore comparative in nature. If an African psychologist studies motivation (need for achievement) in an African country, but defines it in terms of Western criteria, the study would be described as cross-cultural. This is especially so if urban and rural samples were included (Biesheuvel, 1987).

Although it is accepted that cross-cultural psychology is a consequence of cultural psychology, the two can be kept separate as the approaches are different. Whereas cross-cultural psychology has a clear methodology, cultural psychology is more clear in stating that psychology is incomplete unless humans are regarded as part of human systems (Price-Williams, 1979).

An American social psychologist attending the 1994 Congress of the International Association for Cross-Cultural Psychology not only admitted that the field is currently suffering from an identity crisis, but also acknowledged the magnitude of

the task that lies ahead and the enormous difficulty of doing research in this field (Bond & Smith, 1996).

Because of its open and transparent approach, cross-cultural awareness in South Africa has become prominent. Each population group is demanding to be treated fairly and not be discriminated against. This in effect reflects the goals of cross-cultural psychology, which seeks to ensure that all individuals or cultures are treated equally and fairly. An understanding of universal issues comes clearly to the fore when the goals of cross-cultural psychology are applied as the emphasis is not only on one's own cultural issues, but also to explore other cultures and create generalisations about human behaviour.

2.3 GOALS IN CROSS-CULTURAL PSYCHOLOGY

Prior to listing the goals, it is necessary to state what the focus of cross-cultural psychology is regarding the study of human behaviour under the influence of cultural conditions. There are three aspects of importance (Verster, 1987):

- Variations in human behaviour are the focus of interest.
- Differences in cultural context constitute a source of explanatory variables.
- It is comparative in nature and is executed in a systematic fashion.

Lijphart (cited in Verster, 1987) postulates that cross-cultural psychology is known by the fact that its method is comparative, rather than by its content or the type of populations addressed.

Goals for cross-cultural psychology, from a Western psychological point of view frequently seek to (Berry & Dasen, 1974; Lonner, 1997):

- Test our present (own) culture and laws against that of another culture.

- Explore other cultures, in order to discover psychological variations absent in one's own cultural experience.
- Generate greater universal generalisations about human behaviour. This is possible by comparing prior knowledge with more recent knowledge obtained from research into other cultures. This is important as there may be limits in the generability of the present psychological knowledge while in pursuit of the first goal. One may also discover new psychological phenomena that can be used in the development of a more general psychological theory.

These goals are comparative in nature, not only to assessment but also expanding our knowledge (discovering). The last goal really directs one to an understanding of universal issues (Berry & Dasen, 1974).

In order to implement these goals there are three aspects with which to comply (Berry & Dasen, 1974):

- Dimensional identity is required, that is when two behaviours fall on a single dimension. Perceptual similarities also need to be established. Only then can the perceptual differences between groups be interpreted.
- A minimum of three elements need to be used when comparing cross-culturally. Single pair comparative studies are not adequate for assessment. Many more elements should be selected where representation of all the cultures are necessary.
- A framework for making behavioural comparisons across cultures is necessary. For successful implementation of functional equivalence, conceptual equivalence and metric equivalence are needed.

In the developmental years of cross-cultural psychology, comparisons between race, culture, collectivity and individuality were commonplace. Cross-cultural

psychology has been based on these comparisons, and yet these comparisons have themselves been a source of many problems in the development of this field.

2.4 PRINCIPLES OF CROSS-CULTURAL PSYCHOLOGY

To understand the principles of cross-cultural psychology it is necessary to elaborate on the terms race, culture, collectivity and individuality.

2.4.1 Race and culture

During the 1940s and 1950s the two terms race and culture were defined and stated to be very different from one another.

Unfortunately the word race was often used as a racist term. This led to the perception of Whites being superior and Coloureds, Asians and Africans being inferior. These distinctions were often propagated and maintained by certain beliefs and religions. As is evident from South Africa's history, Coloureds, Asians and Africans could never reach the levels of complexity or achievement attained by Whites. It is clear that a hierarchical notion pervaded the early history of the subject. On each trait (that which describes behaviour), Africans were at the bottom of the continuum with Whites and Orientals at the "refined" top end (Price-Williams, 1979). Further investigations lacked racist bias, but assessment during the first four decades of this century did little to offset the racist pattern. The focus was on racism and not on cultural issues.

The cultural component had never been as evaluative and hierarchical as the race component. Culture has nonetheless also undergone tremendous change with concepts including "savages", underdeveloped people and traditional people. Instead of trying to understand the cultural process, the advice in later years was for individuals of that culture to attempt to apply their own standards. This was labelled as the "emic" approach where the micro-culture could be understood (Price-Williams, 1979).

Both the terms race and culture were initially used in a disparaging manner. As these terms evolved however, they were less frequently used in an evaluative form.

2.4.2 Collectivity and individuality

Triandus (1990) states that in every culture there are people who have individualist and collectivist tendencies, but the emphasis is toward individualism in the West and collectivism in the South and East. Triandus, Brislin and Hui (1988) realised the need for interaction between individualists and collectivists and recommended 46 aspects to improve interaction, specifically cross-cultural interaction, between the two groups.

The relationship of the individual to society is important, whether the person is individualistic or collective (Klineberg, 1980). The bonds that hold an individual to society are often diverse, complex or simple (Goldenweiser, 1968). Whatever the bond in South Africa, it is important that individualists (traditionally the Whites) and collectivists (traditionally the Africans) live in harmony, respecting one another's cultures.

Cross-cultural psychology finds itself in an unusual position. On the one hand it focuses on the individual and on the other hand it formulates laws which hold true for all individuals (personality assessment would serve as an apt example of the latter). Findings from assessments performed on a number of people should hold true for all individuals and human nature (Price-Williams, 1979).

The appreciation and understanding of differences, whether individualistic or collectivistic make cross-cultural harmony possible. It seems, however, that many of the misunderstandings of South African society originate from these differences, as is evidenced by the history of this country.

2.5 SOUTH AFRICAN CROSS-CULTURAL PSYCHOLOGY: A HISTORICAL PERSPECTIVE

The study of races during the late 19th century and the early 20th century had a significant influence on the directions of thought at the time. It was generally accepted by De Gobineau, Mary Kingsley and Kidd that the African was suffering from backward development (Retief, 1988).

Verster (1987) disagreed with Fick's work, stating that Africans were inferior to Whites. Biesheuvel (1943) also criticised Fick, stating that Africans were being assessed against Western norms. Biesheuvel's argument was that the scores of Africans and Whites on Western intelligence tests were not comparable.

The publication of Biesheuvel's (1943) book "The African Intelligence" was significant in that it considered cultural appropriateness during assessment. It also took into account the influence of cultural milieu, home environment in rural or urban areas, scholastic education, nutrition, attitudes, temporal factors and control group methodology (Biesheuvel, 1987).

A period followed where closer attention was paid to detail regarding cross-cultural research and assessment. This was possibly a result of the establishment of the National Institute of Personnel Research in the 1940s (Retief, 1988).

In the 1950s and 1960s, assessment development dominated the field of psychology as a result of the emphasis which psychologists placed on selection and placement. Until 1960 there were few cross-cultural contributions by African authors. This improved after 1960 from 3% to 11% and contributions have increased dramatically since then. According to Verster (1987) research in the 1970s and 1980s tended to address the process of acculturation and change, the problem of selection and placement in industry, the assessment of cognitive abilities, educational psychology and education adaptation.

Biesheuvel (1987) mentions that after analysing many journals, cross-cultural psychological research seems to be limited. Biesheuvel goes on to say that, in view of the plural society we live in with group differences, interface problems, cultural and political problems, it is unusual that psychologists have found so little to write about.

The re-evaluation of the role of psychology in South Africa is underway. Psychological assessment has to be valid for the entire South African population. Assessments were previously undertaken without this being properly assessed. In addition the relevance of psychology and psychological perspectives in solving social problems is in question. Psychologists may focus so narrowly on the local issues that the broader relevance suffers. The local focus should be on comparative validity and international trends. A broader or indigenous psychology can be developed which is favourable with respect to international cross-cultural research (Retief, 1988). It is in this context that the emic and etic approaches become relevant.

2.6 EMIC AND ETIC APPROACHES

The emic and etic approaches need to be elaborated on as they are central to the cross-cultural debate.

*** Emic approach**

The emic approach employs culture specific concepts for documenting behaviour in a culture, which are regarded as valid by members of that culture. French (1963) describes the emic approach as a structural one. This approach accepts that human behaviour is patterned, although the members of society may not be aware of the units of structure. The goal of the emic approach is to discover and describe the behavioural system by identifying the structural units and classes to which they belong.

* Etic approach

The etic approach uses concepts and ideas to identify aspects that are universal and common to all cultures. French (1963) postulates that the etic approach is an external one. Items are not seen in light of their systems, but rather to the criteria brought to bear on them.

An apt description of emic-etic approaches is given by Mundy-Castle (1983). The emic-etic aspect is conceptualised in the form of a continuum for emic to etic. A new born baby exhibits universal human properties. As the baby develops, it interacts with its culture and assumes a distinctive culturally based (emic) personality. At the same time however, it remains essentially human and therefore exhibits etic characteristics.

Berry's (1969, p 16) table typifies the emic-etic distinction, and is reproduced below:

Table 2.1

Emic-Etic distinction

Emic approach	Etic approach
Studies behaviour from within a system	Studies behaviour from a position outside the system
Examines only one culture	Examines many cultures, comparing them
Structure discovered by the analyst	Structure created by the analyst
Criteria are relative to internal characteristics	Criteria are considered absolute or universal

Berry (1969) presents this table without comment or illustration as though it were self-explanatory. While this may appear to be so, a major problem emerges which needs closer scrutiny.

While an etic approach allows for cross-cultural comparisons, this is not possible in an emic approach which is culture specific. Johoda (1980) mentions that an exclusive etic or emic approach is not a sound framework on which to base cross-cultural studies, as it creates divides. Johoda concludes that the debate surrounding emic-etic distinction can become very confusing when it comes to the postulated sequence of moving from etic via emic concepts. Perhaps in future a new way of transmuting emic into etic will be found.

Research that is undertaken from an emic or etic perspective must adhere to the principles of comparability and equivalence. It is important to maintain high standards so as not to lose credibility (validity and quality of research) between cultures, population groups, countries or internationally.

Cross-cultural psychology is in essence treading on unknown territory and it is for this reason that when doing research in this field, the principles of comparability and equivalence must be upheld.

2.7 COMPARABILITY AND EQUIVALENCE

The terms equivalence or comparability appear to be central in discussions of cross-cultural comparative research.

2.7.1 Comparability

The notion of comparison implies considering the extent of similarities. According to Retief (1988) it is necessary that in order for two phenomena to be compared, they have at least one feature in common, and yet not be identical. This implies that the phenomena should differ in respect of one or more features. Comparability is only established when this can be demonstrated (Retief, 1988).

In order to compare two phenomena, dimensional identity is used with some variation in the observed phenomena (for example comparing two groups of people

who differ in their psychological state). This often lies within the levels of analysis, at a structural or functional level. Dimensional identity is used by the adoption of universals or the empirical demonstration of cross-cultural equivalence in the data, from two or more samples. Universals are characteristics which are assumed to exist and to be common to all human beings, and can be employed as common dimensions along which a group or individual can vary (Retief, 1988).

2.7.2 Equivalence

Equivalence refers to the problem of whether, on the basis of measurements and observations, inferences in terms of some common psychological dimension can be made in different groups of subjects (Poortinga, 1983). Demonstration of the validity of categories with equivalence is not as simple as is the case with comparability.

According to Berry and Dasen (1974) there are basically three aspects that are essential when cultures are compared, namely, functional equivalence, conceptual equivalence and metric equivalence. Each of these terms are elaborated upon below:

○ Functional equivalence

Functional equivalence of behaviour exists where a behaviour or behaviour pattern has developed in response to a problem that is shared by two or more cultural groups. For example, the punctuality of individuals may be measured in terms of being at work on time. Functional equivalence must occur naturally and should not be created or manipulated.

○ Conceptual equivalence

Conceptual equivalence involves assuring that research instruments (tests and concepts) have identical meanings in the cultures being examined. This is not an easy task. The major problem in establishing conceptual equivalence is

having translation equivalence and there are two procedures to ensure this:

- Firstly, back translation to the original language by an interpreter. When the back-translated versions are identical, or nearly so, there is strong evidence for equivalence.
- Secondly, sentence construction. The use of simple sentences, repetition of nouns, avoidance of metaphor and colloquial expressions, and the avoidance of passive, hypothetical and subjunctive phrases should be employed. The use of these techniques will not always guarantee translation equivalence, but will increase the probability to solve the problem.

○ Metric equivalence

Metric equivalence is particularly important for personality assessment, especially when mean scores between cultures are to be compared. Differences between means are difficult to interpret because in different cultures valid items can have different endorsement rates. In order to establish metric equivalence in any two cultures, it is important that the statistical behaviour of the items in each culture be the same. This entails the comparison of item analysis and comparisons of each item with total scale score, item intercorrelations and factor analysis.

Only when comparability and equivalence are ensured, cross-cultural assessments should commence.

2.8 CROSS-CULTURAL ASSESSMENT

Where the assessment of personality is undertaken amongst different population groups, it is imperative that the various cultural aspects be taken into account.

2.8.1 Cultural differences in assessment

Differences in culture impact on the construction and application of personality questionnaires (Irvine, 1969). This is attributed to certain cultural groups having had more opportunities to develop specific skills (for example schooling up to matric) (Taylor, 1994; Spies-Wood, 1988).

Early debate proposed that genetics and environment had an influence on assessment results with Klineberg (1980) adding that a positive change in environment could result in a positive change in assessment results.

Anastasi (1988) argues that all human behaviour is affected by culture and since assessments are samples of behaviour, cultural differences will always be reflected in assessment performance. Even in the field of genetics, heredity and environmental factors operate together at all stages of human development.

Research indicates that assessment results of disadvantaged individuals are not comparable with those from advantaged communities (Shocket, 1994). Anastasi (1982) elaborates by stating that the longer an environmental condition (for example poor nutrition and low socio-economic status) has existed in an individual's lifetime, the more difficult it becomes to reverse those effects. In this regard Shocket (1994) states that, internationally, individuals from disadvantaged backgrounds typically do not perform well on aptitude and ability assessments.

Verster and Prinsloo (1986) note that the effects of improvement in socio-economic conditions, educational opportunities for cognitive development and acculturation on group differences in assessment scores, provide support for considering the influence of cultural differentials in psychological assessment.

Botha (1978) states that assessment instruments compiled overseas cannot be blindly used or validated on African samples. Most assessment instruments are

culture bound, with assessment content derived from a specific culture. When translated into another language, much of the content loses its meaning.

It should never be taken for granted that selection procedures are objectively neutral or free from cultural influence or bias. When an assessment instrument is used in another culture, problems of comparability, equivalence, translation and internal bias will result in the decrease of reliability and validity (Retief, 1988).

2.8.2 Approaches to cross-cultural assessment

All human behaviour, according to Anastasi (1988), is affected by culture. As a result of behaviour being sampled by questionnaires or tests, differences in culture will almost always be reflected in assessment performance. Anastasi continues by stating that culture invades practically all environmental aspects and it is therefore impractical to compile an assessment free from cultural influences.

As a result, psychologists' energies were directed at "culture-fair" assessments. The aim of these assessments was to decrease the verbal aspects of the assessments and increase the emphasis on visualisation, spatial reasoning and abstract reasoning, thereby minimising the differences. This was to the disappointment of researchers, however, as some of these "culture fair" assessments indicated greater differences between cultural and population groups (Arvey & Faley, 1992). The search for "culture fair" assessments therefore seems to have failed as some assessments show even greater differentials between cultural and racial groups and do not increase predictability (Arvey & Faley, 1992).

According to Wheeler (1993) the solution does not lie in assessment but rather in political, social and legal policies underlying the approaches to fairness. The ideal assessment instrument should aim at a precise, adequate and fair evaluation of true potential irrespective of culture, race or gender.

It is for this reason that continued cross-cultural research in the field of personality assessment is so important for South Africa's multi-cultural society.

2.8.3 Cross-cultural research on personality assessment in South Africa

Cross-cultural research on personality questionnaires in South Africa has been limited. To date there have been five reports of cross-cultural assessment in South Africa:

- * Boeyens and Taylor (1991) investigated the comparability of the scores between Whites and Africans by means of the South African Personality Questionnaire (SAPQ). Two White and two African samples were used and a number of statistical methods applied to analyse the data and to determine item and construct comparability. Little support was found for the construct comparability of scales in both White and one African group. Most questions failed to attain the no-bias or item-total correlation criteria (Abrahams, 1996).
- * Spence (1982) researched the characteristics of African guidance teachers using the SAPQ. Spence found the alpha co-efficient too low for Africans. Spence then removed the items with low validity co-efficient to obtain optimal reliability, but was not very successful. Spence found the assessment unsuitable for the African sample (Abrahams, 1996).
- * Six assessments (from the United States) measuring satisfaction, anxiety, escapist drinking and job tension were researched. White (1982) undertook an investigation of work stress amongst Whites and Africans working in South African mines. A number of item analyses were undertaken to improve the assessments, but the scale reliabilities remained at a low level (Abrahams, 1996).
- * Prinsloo and Van Eeden (1995) validated the 16 PF, SA92 in a cross-cultural context. The cultural groups were defined on the basis of their home language

and they only focussed on the second-order factors (Abrahams, 1996).

- * Then Abrahams found in 1996 that the 16 PF, SA92 does not measure what it is supposed to, and questioned whether it should continue to be used in South Africa with its multi-cultural population. Abrahams found that race played a major role in the responses to the 16 PF, SA92. For most of the factors, the results did not support the construct and item comparability when the population groups were compared. In addition, those individuals whose home language was not English experienced language and cultural problems with the questionnaire. A strong likelihood therefore exists that the questionnaire does not reflect identifiable characteristics of all the groups and the differences reflect serious forms of test score error. Abrahams (1996) concludes that in view of these findings the use of the 16 PF, SA92 in industry for employee selection is highly questionable.

Cross-cultural research in a culturally sensitive society such as South Africa is necessary, as such research acknowledges differences amongst cultures. Cross-cultural research in personality assessment has been hailed by many as a viable solution, while others view it with suspicion and hostility. These aspects become more apparent with the listing of advantages, accomplishments and problems of cross-cultural psychology.

2.9 ADVANTAGES, ACCOMPLISHMENTS AND PROBLEMS OF CROSS-CULTURAL PSYCHOLOGY

Cross-cultural psychology is such a diverse field that there are numerous advantages, accomplishments and problems that are experienced. A number of these are mentioned below.

2.9.1 Advantages

Gathering data from more than one culture is advantageous. Stodtbeck (cited in Brislin et al, 1973) suggested four ways in which researchers can profit from engaging in cross-cultural work:

- * The culture in which the individuals live can be regarded as experimental. A researcher gathering information in another culture can obtain experimental information unavailable in his or her own culture.
- * The differential incidence of a trait can be documented from trait to trait.
- * These studies can indicate behaviour patterns not present in one's own country or culture.
- * The researcher can test hypotheses against existing sets of data.

2.9.2. Accomplishments of cross-cultural psychology

The following are accomplishments of cross-cultural psychology:

- * The expanding literature on psychological reactions in African societies has probably given impetus to research on sub-cultures within Western society especially the United States (Doob, 1980).
- * Instead of using Western-type assessments in traditional societies, new assessments have been devised that fit non-Western cultures. Later, those same assessments, translated into Western languages have been administered to Western subjects (Doob, 1980).
- * With the translation of assessments many errors have been made and as a result are now more appreciated or even avoided. And yet, despite these

difficulties, there remains the hope of achieving cross-cultural translation and equivalence of assessment instruments (Doob, 1980).

2.9.3 Problems of cross-cultural psychology

The following problems apply in general:

- * Psychologists admit that research in foreign countries is more difficult since they are confronted with curiosity, suspicion or hostility from residents and academics. Permission to undertake research is usually not automatically granted and they may be deceived by residents and academics who gives them information which is not helpful (Doob, 1980).
- * Unusual terminology can become a problem. Examples of these are thematics, biosocial, emic and etic. This practise, however justifies the stereotypes of social science (Doob, 1980).
- * Regarding assessment, Retief (1988) mentions the following problems:
 - Assessment instruments, when used cross-culturally, attempt to achieve an interface between the assessment and assessed culture: The communicator tries to communicate across cultures. Where this fails, messages and meanings are distorted.
 - The problem of fairness is bound to exercise an influence in the transfer of assessments to different groups. An assessment which does not constitute an equivalent measurement scale across groups can lead to unfair decisions.
 - A personality assessment may be biased in a number of ways:
 - Items can be biased against individuals or groups.

- Parts of the assessment or the whole assessment can be biased.
- The sources of bias may range from translation procedures to motivational aspects.
- A theoretical form of bias exists which Retief (1988) refers to as a bias towards the finding of differences or similarities.
- Comparability can be problematic as it is a prerequisite for valid comparison obtained by adopting universals or by demonstrating the equivalence of psychological concepts and data across groups.

Although cross-cultural psychology is a field riddled with complexities it acknowledges and appreciates cultural differences which are an integral part of South African society. Cross-cultural awareness is in its infancy but appears to hold promise for South Africa.

2.10 THE FUTURE OF CROSS-CULTURAL PSYCHOLOGY

Triandis (1979) argues that too much of what psychologists need to know about cross-cultural psychology has originated from the United States. Much more research should be forthcoming from nations that have illiteracy problems, culturally diverse groups and individuals living in different ecologies.

The problems of social organisation and group functioning will increase where individuals have different cultural backgrounds. This is now evident in South Africa where people will have to negotiate and reach acceptable decisions. When war is not an option, negotiation is a viable route to follow (Triandis, 1979).

Studies of global public opinion will be evident. It will become an accepted technique in the resolution of many issues. To study attitudes and values cross-culturally and relate this to social change will be one of the major challenges facing psychologists (Triandis, 1979).

In matters of development, it is important to note which aspects of a culture can be maintained, and which should be changed to adapt to modernisation. The Japanese example is apt with a modern society maintaining many cultural elements (Triandis, 1979).

With the world fast becoming a global village, a well developed legal system with global jurisdiction will be necessary. As the world then develops, psychologists will have to counsel amongst others, individuals who find culture changes too swift, overcrowding a problem, the technological age overtaking them and old friendships not working due to some people being cross-culturally susceptible and others not (Triandis, 1979).

South Africa is faced with an ever increasing population, but the country's economic development may be prevented if the population increases too rapidly. Population psychology will therefore also become increasingly important and the relationship between population psychology and cross-cultural psychology is likely to become closer.

In conclusion, the future of cross-cultural psychology seems promising, as many of the problems the world faces today are so multi-dimensional and interconnected, that they cannot be solved from any unilateral or even bilateral approach. People must be prepared to accept and work with others whose ways of thinking, acting and communicating are quite different.

2.11 CHAPTER SUMMARY

In this chapter a literature review of cross-cultural psychology was presented.

The viewpoints on and definitions of cross-cultural psychology and culture psychology were analysed. Cross-cultural psychology's development was also presented, from the 1940s where race, culture, superiority and inferiority were prominent terms, to the 1990s where an appreciation of differences is all important in the global village. The future of cross-cultural psychology seems assured with many challenges awaiting the field.

Cross-cultural psychology, in terms of its importance in psychology and more specifically personality assessment will be the focus of Chapter 3.

CHAPTER 3

APPROACHES TO PERSONALITY AND THE ASSESSMENT OF PERSONALITY

3.1 INTRODUCTION

Chapter 3 represents the second phase of the literature review, namely, to conceptualise personality. This chapter will outline some of the viewpoints and aspects pertaining to personality traits, with special reference to Allport (1961) and Cattell (1965). These theorists emphasised traits whereby an individual's characteristic behaviour and thought could be determined.

The study of personality covers the largest field of psychology. It is a field which ranges from human development and change to social relations. Its extensiveness is attributed to the study of personality being nothing less than a study of the total person. One therefore cannot expect to find simple definitions of personality (Mischel, 1981).

3.2 DEFINITIONS OF PERSONALITY

The term personality is derived from the Latin word *persona*. *Persona* referred to a theatrical mask worn in Greek drama by Greek actors before the birth of Christ (Allport, 1945). The reason for wearing the *persona* was to project a false appearance, the role one plays in everyday life indicates a surface appearance and not what one really is (Feist, 1994).

The term personality has consequently broadened to such an extent for our everyday use that no one definition is all encompassing. Allport (1945) alone listed fifty distinct definitions. There seems to be almost as many definitions of personality

as there are people writing about it. Some of the definitions offered by leading writers in the field of personality are listed below.

- * "It is a person's unique pattern of traits" (Guilford, 1959, p 5).
- * "The dynamic organisation within the individual of those psychophysical systems that determine characteristic behaviour and thought" (Allport, 1961, p 28).
- * "The distinctive patterns of behaviour (including thoughts and emotions) that characterise each individual's adaption to the situations of life" (Mischel, 1976, p 2).
- * "The concept of personality explains stability in a person's behaviour over time and across situations (consistency) and behavioural differences amongst people reacting to the identical situation" (Weiten, 1995, p 472).

Key words from the definitions of personality described above are dynamic organisation, behaviour, traits, consistency and situations. These terms are acknowledged to be central in defining personality. But how can one go about studying personality and what are the specific structures for which we search? Allport (1961) and Cattell's (1965) answers to this is traits. The following section will refer to these two trait theorists and their theories regarding traits.

3.3 TRAIT THEORIES

Psychologists have developed different lists of basic traits and, as a result, different measurement strategies have been standardised to assess individual differences. It is necessary, however, to first define traits and what is meant by the term.

3.3.1 Definition of traits

A trait is based on common sense and observation of others. The objective is to notice consistencies and differences between persons. The idea of a trait grows out of everyday descriptions of people in such words as "clever", "pretty", "happy-go-lucky" and "anxious". Traits are defined by various researchers in the following way:

Eysenck (1953, p 10) describes a trait as a "co-variant set of behavioural acts". It appears thus as an organising principle which is deduced from the observed generality of behaviour.

Cattell (1965, p 375) views a trait in a similar way to Eysenck by describing it as "a unitary configuration in behaviour such that when one part is present in a certain degree, we can infer that a person will show the other parts to a certain degree".

Allport (1961, p 347) defines the trait as a "neuropsychic structure having the capacity to render many stimuli functionally equivalent, and to initiate and guide equivalent forms of adaptive and expressive behaviour".

Finally, personologists conceive of traits as (McAdams, 1994):

- Internal dispositions which are relatively stable over time and across situations. For example, if we are to conclude that President F.W. de Klerk was innovative with respect to South Africa's transition, there must be proof that he was consistently innovative in a variety of situations over time.
- Couched in opposites as, for example, friendliness versus unfriendliness. People are seen as situated along a continuum, with most in the middle and a fewer at the extremes.
- Additive and independent. A trait approach to an individual might suggest that he or she is "high" on assertiveness, "medium" in the trait of emotional stability

and “low” in the trait of introversion. The four traits combine as four independent “ingredients” in that individual’s personality. Mix them together in the appropriate amounts and you have a recipe for predicting consistency in behaviour and how this individual is different from other people.

- Broad individual differences in socio-emotional functioning. Traits are generalised behaviour in response to emotional tendencies. Personality traits are therefore distinguished from other variables that seem to be less socio-emotional and more cognitive in nature as in the case of values, attitudes and world views.

From the definitions described above it is evident that trait theorists come to quite varying conclusions about traits. What holds true though is that traits are expected to have predictive value for the behaviour of an individual. They provide a clear and straightforward explanation of people’s behavioural consistencies. Furthermore, traits allow the psychologist to compare one person with another.

There is little doubt though that each individual has a unique and distinctive personality. Just like a fingerprint it is a combination which will not occur again. Although psychologists agree that an individual is unique in some way or other, there is controversy over the implications of this fact for the study of personality. These are labelled the nomothetic and idiographic approaches to personality traits.

3.3.2 Approaches to personality traits

The degree to which trait theorists focus on similarities in personality versus emphasising the uniqueness of individuals varies. There are two main approaches:

3.3.2.1 Nomothetic approach

The nomothetic approach looks at the distribution of a trait across a population. It emphasises that the conceptual elements of a trait pertain to everyone’s

personalities. The nomothetic approach compares people with one another. Theorists such as Cattell et al (1992) and Eysenck (1953) who use factor analytic methods regard the nomothetic approach as more useful than the idiographic approach (Carver & Scheier, 1988).

3.3.2.2 Idiographic approach

The idiographic approach regards each individual as unique and maintains that this sense of uniqueness must not be lost. This approach is based upon the assumption that some traits can be possessed by one person only. Even if a trait is shared by two people, it may differ in importance for each to such an extent that they cannot meaningfully be compared to one another (Carver & Scheier, 1988). Allport (1961) emphasizes the importance of the idiographic approach.

The idiographic-nomothetic debate deals with how detailed our descriptions are, rather than the units (traits) used to describe personality. Traits in themselves are sufficient in describing what is unique about us. Idiographic psychologists object to nomothetic trait description because a limited number of trait dimensions cannot capture the complexity of the unique person. It is not reasonable to accept that a universal model of personality can fully describe a person (Johnson, 1997).

In the theories of Allport (1961) and Cattell (1965) that follow the idiographic and nomothetic approaches are clearly distinguished.

3.3.3 Trait theorists

Trait theorists do not assume that some people have traits and others not. Instead they propose that all people have traits, but that the degree to which a trait applies to a person varies and can be quantified. In other words one person can be friendlier than another, which would imply that the one person is quantified with a low score and the other person with a higher score (Feldman, 1992).

Allport (1961), who is arguably the “father” of the trait theory, identifies traits qualitatively. Cattell (1965), on the other hand, uses a quantitative approach to identify traits by using a factor analytic method. These trait theorists’ sets of traits are presented in further detail.

3.3.3.1 Gordon W. Allport

3.3.3.1.1 Introduction

Allport (1961, p 347) regarded a trait as the basic unit of study for personality and describes a trait as “a neuropsychic structure having the capacity to render many stimuli functionally equivalent, and to initiate and guide equivalent forms of adaptive and aggressive behaviour”. Allport believed that traits guide a person’s thoughts and behaviour in situations and found it necessary to classify traits.

3.3.3.1.2 Common traits and personal dispositions

In order to understand the personality of the individual, Allport made a definite distinction between common traits and personal dispositions.

*** Common traits**

Common traits are possessed in varying degrees by all people. Even though personality is regarded as unique, culture (for example, the South African culture) evokes roughly the same responses from many people. Comparing common traits to different people or groups is referred to as the nomothetic approach and can therefore provide no more than a rough estimation of any particular personality. Common traits involve comparisons between people rather than information about the personality of specific individuals (Carducci, 1998; Ewen, 1993).

* Personal dispositions

Personal dispositions are unique to an individual and determine a personal style of behaviour. The concept personal disposition explains the uniqueness of each individual person and the consistency of his or her behaviour. The idiographic approach to investigating the nature of the personality is recommended (Carducci, 1998; Ewen, 1993).

3.3.3.1.3 Uniqueness of the individual

Personal dispositions were used to account for the variation of behaviour from one individual to another. Allport (1961) uses the cardinal, central and secondary traits to explain the unique variation within the individual.

* Cardinal traits

These are people who have a passion so strong that it dominates their entire existence. It is very obvious and cannot be hidden by the person. According to Allport (1961), very few people have cardinal traits, but those who do are often labelled by that single characteristic. Because cardinal traits are individualistic and not shared, they often make their possessor famous. However, when such names are used to describe others as well, they become known as common traits (Feist, 1994).

* Central traits

While not many people exhibit cardinal traits, many have central traits. Central traits constitute a relatively small number of traits, which tend to be characteristic of an individual. These would typically be those characteristics which one would note when compiling a detailed letter of recommendation. The average person has from 5 to 10 central traits with the average of around 7.2 (Liebert & Spiegler, 1982).

* Secondary traits

Secondary traits affect behaviour in fewer situations and are not as apparent as central or cardinal traits. A preference for a toffee or a dislike of a particular type of car would be considered a secondary trait. They are not central to the personality but occur consistently (Feldman, 1992).

These three levels of traits (cardinal, central and secondary) are represented on a scale from the most appropriate to the least appropriate. Allport (cited in Feist, 1994) mentions that cardinal traits blend into central traits, which are less dominating, but still mark the person as unique. Central traits blend into secondary traits, which are less descriptive of the individual. However, one cannot say that one person's central traits are less intense than another person's central traits.

Evaluations of Allport's (1961) theory produce conflicting outcomes. On the one hand his theory of traits is seen as the most important one. While on the other hand it is severely criticised.

3.3.3.1.4 Evaluation of Allport's theory

* Strengths

- There is versatility in Allport's approach. Although Allport is a trait theorist he is also a personality theorist emphasising the uniqueness of the individual (Carducci, 1998).
- Allport's theory has had a profound influence on academics and psychologists in industry. His theories on motivation and the whole person have influenced recent developments in psychology (Meyer, Moore & Viljoen, 1989).

* Weaknesses

- Critics accuse Allport of building a theory around an invisible structure namely the trait. This makes formulating and testing the theory almost impossible (Carducci, 1998).
- Allport has also been criticized for the emphasis placed on studying the individual and then generalising aspects to the group (Carducci, 1998).

Despite its limitations as a useful theory, Allport's (1961) approach to personality is stimulating. He set a standard for clear thinking which future theorists can use. Following Allport's (1961) lead (having theorised traits), several psychologists, amongst them Raymond Cattell (1965) took on the challenge of identifying the basic traits that form the core of personality.

3.3.3.2 Raymond B. Cattell

3.3.3.2.1 Introduction

Cattell (1965) favours a "database" approach to defining the nature and operation of personality. He is not in favour of the qualitative approach to defining the nature of personality. Cattell bases his study on empirical observations, generates specific hypothesis and confirms or rejects them based on additional research.

Cattell's approach to traits differs from that of Allport in four ways (Ewen, 1998):

- * Source traits can be identified only quantitatively by factor analysis.
- * There is a clearer distinction between motivational and structural traits.
- * Only a few traits are regarded as unique, with many genuine common traits shared to varying degrees by different individuals.

- * The approach is more favourably disposed to the psychoanalytic theory.

To define personality, Cattell used three main sources of empirical data (Aiken, 1993; Carducci, 1998):

- * L-data, which is obtained from life history reports and records such as a diary.
- * T-data, obtained from performance on written (objective) or other tests. An example would be the recording of the number of times a person swore during an interview.
- * Q-data, obtained from self reports on written questionnaires or personality assessments.

Cattell (1965) is of the opinion that, no matter how these three data sources are combined, they are the data upon which you define the personality and predict the behaviour of a person. This behaviour is unique and is identifiable in terms of source and surface traits.

3.3.3.2.2 Source and surface traits

The uniqueness of each individual's personality can, according to Cattell (1965), be attributed to source and surface traits:

- * Source traits are underlying variables which are significant determinants of overt behaviour. Source traits are the building blocks of personality and can only be confirmed by factor analysis. These traits are explanatory and causal. There is also only a small number of source traits compared to the number of surface traits (Liebert & Spiegler, 1982).

- * Surface traits are products of the interaction between source traits. They are clusters of overt behaviour and are the most visible evidence of a trait. Surface

traits are controlled by underlying source traits and are primarily descriptive (Liebert & Spiegler, 1982).

In addition to the distinction made between source and surface traits, the depth of Cattell's (1965) reasoning of traits is evident in the way traits are categorised as being common or unique.

3.3.3.2.3 Common and unique traits

Cattell (1965) made a distinction between common and unique traits to account for the general nature of certain aspects of personality and the idiosyncratic nature of certain people's personalities:

- * Common traits are assumed to be possessed by all persons to a greater or lesser degree and are in line with Allport's (1961) view of common traits. Examples of such traits are intelligence and anxiety (Carducci, 1998).
- * Unique traits are specific to one person and can take on a peculiar interest. For example, this would represent a person who can watch several reruns of the movie Titanic (Carducci, 1998).

3.3.3.2.4 Ability, temperament and dynamic traits

The nature of personality is also reflected in ability, temperament and dynamic traits (Ewen, 1998):

- * Ability traits are concerned with the success of our actions, how we do, what we do and how well, such as being insightful or being creative in our daily lives.
- * Temperament traits reflect the manner of a person's behaviour, for example, aggressive or friendly.

- * Dynamic traits determine why we do what we do, for example motivation being instrumental in the action to achieve.

As in the case of Allport (1961), Cattell's (1965) trait theory has also been evaluated in terms of its strengths and weaknesses.

3.3.3.2.5 Evaluation of Cattell's theory

* Strengths

- Cattell is of the opinion that the most appropriate manner in which to determine the structural nature of personality is to use quantitative methods. This results in written proof (for example, a completed 16 PF answer sheet) that can be used, as opposed to a qualitative method, where the testee does not provide information of him or herself on paper.
- The statistical techniques used by Cattell allow him to study personality in a rigorous and scientific manner (Carducci, 1998).

* Limitations

Ewen (1998), Carducci (1998) and Aiken (1993) regard the following as limitations:

- The statistical methods Cattell uses to develop traits can be very complicated and technical.
- Cattell is criticised for placing emphasis on the group (the universal personality) while losing sight of the individual.
- The capacity of factor analysis to hypothesise and arrive at truths is highly

debatable. Researchers are even questioning whether Cattell has properly identified basic elements of personality.

- Cattell's unique constructs (and the naming of them) have not been widely accepted. Words such as praxernia and threctia are foreign to theorists and are not well liked. A combination of Cattell's complicated theory and the sometimes unknown words have made theorists very critical towards his work.

3.3.3.3 Criticisms and controversies surrounding the trait theory

The trait theory has not been universally accepted and has received its fair share of criticisms. A theory has more of an explanatory nature, while traits do not as they lack explanatory power (Ewen, 1998).

A prominent issue has been the question of cross-situational consistency of traits. Hartshorne and May (1928) questioned the cross-situational consistency of traits by demonstrating that children who cheat in tests will not necessarily cheat or lie in other circumstances. After much debate on the subject, Eysenck in 1972 concluded that the cross-situational consistency of trait theory was upheld (Sundberg, 1996).

Mischel (1968) attacked the trait theory regarding the degree to which people's behaviour is caused by personality versus situational factors. In a study a group of people were assessed over a period of several months and, contrary to Mischel's theory, there were strong indications of consistencies. In response, Mischel argued that even though critics have demonstrated consistency over time, they have not proven consistency over situations. The controversy regarding inconsistencies over situations has still to be resolved (Feldman, 1992; Sundberg, 1996).

Theorists concur on the significance of traits, behaviour and situations to guide behaviour. Theorists are driven by the need to precisely determine how the multiplicity of personal and situational influences combine and interact to get an individual to behave in one way rather than another (Ewen, 1998).

3.3.3.4 Conclusion

The use of traits to describe behaviour is extremely helpful to psychologists as they have predictive value for the behaviour of the individual. One is unfortunately left with little more than a label or description of behaviour. Traits are descriptive in nature but do not explain behaviour. Quantitative and qualitative methods should be used in all instances to accurately describe a personality.

3.4 ASSESSMENT OF PERSONALITY

Better to measure cloth ten times and cut it once than the other way around

Yiddish proverb

3.4.1 Introduction

Personality assessment should never be viewed in isolation. Over and above the initial determination of trait factors using for example, the 16 PF, SA92 questionnaire, social, cultural, organisational and national factors will always have a major influence on the need and format of the personality assessment (Matheny & Kern, 1994; Wheeler, 1993). Once a personality questionnaire has been compiled ongoing research is important, so as to make provision for changing influences.

3.4.2 Origin of personality assessment

In 1884, ratings by teachers and peers and direct observation of the person in social situations commenced in the United States. In the 1920s and 1930s psycho technicians assumed that what a person says she or he does reflects overt behaviour and that self-reports concerning traits provide a shortcut to the measurement of life outside the assessment. Scales to measure traits such as friendliness, extroversion, confidence, conservatism and dominance were often poorly defined (Mischel, 1996).

In the period between World Wars 1 and 2, it was assumed that mental traits exist as stable generalised structures. This prevented the early psycho-metricians from paying attention to the environmental determinants of behaviour. Instead, their attention was focussed on the standardisation of measurement conditions. Their concern with reliability overshadowed their interest in validity. Consequently, even though these inventories had considerable value at times, they did very little to reveal traits (Mischel, 1996).

In the 1940s the psychometricians were guided by, amongst others, the trait theorist Cattell to build homogeneous "pure" trait scales, through factor analysis (Mischel, 1996). Based on these trait theories. Prominent personality assessments such as the 16 PF, the Eysenck Personality Questionnaire and the NEO PI-R questionnaire have since been compiled to identify personality traits.

3.4.3 Definitions

Although the term personality is often used in a broad sense, personality assessment instruments are regarded as instruments for the measurement of emotional, motivational, interpersonal and attitudinal characteristics.

Since the 16 PF, SA92 is regarded as a personality inventory, and since this research is about the inventory, it is important to define the term personality inventory.

- "A personality inventory is a questionnaire or inventory of statements or questions about human behaviour, which the individual evaluates in terms of their applicability to themselves in a self-assessment response. This is usually in the form of True, False, or Cannot Say answers" (Heidenreich, 1968, p 125).
- "A personality inventory is a questionnaire put to a person with the intention that her or his answers will directly or indirectly reveal their personality" (Southerland, 1989, p 318).

A personality inventory can be regarded as the initial part of the selection process, while personality assessment can be regarded as the final part of the selection process upon which judgement is made. Usually both in terms of observation and questionnaires. The terms inventories and questionnaires are interchangeable. For example, Eysenck initially compiled the Eysenck Personality Inventory, which was later modified into the Eysenck Personality Questionnaire (Coleman, 1994).

As the focus of this research will be on quantitative assessment, this method of assessment will be discussed in the following paragraphs.

3.4.4 Types of personality assessment

There are three types of personality assessment instruments namely, personality questionnaires and inventories, projective assessments and objective assessments. These are discussed in further detail below.

3.4.4.1 Personality inventories and questionnaires

Personality inventories are personality assessment instruments that require individuals to answer questions about their behaviour. There are personality inventories that measure only one trait, while there are others that measure several dimensions of personality simultaneously (such as the 16 PF, SA92). Assessment instruments measuring single traits are used mostly for research. In clinical assessment, counselling and personnel work, psychologists rely more on multi trait inventories (Weiten, 1995).

3.4.4.2 Projective assessment instruments

Projective assessment instruments usually take an indirect approach to the assessment of personality. Individuals are forced to give meaning or order to ambiguous stimuli. Their responses will be projections or reflections of their feelings, attitudes, desires and needs. A variety of projective techniques exist. They may

require the subject to make associations to different stimuli, to construct stories, to complete sentences or to choose from a variety of stimuli which ones they like best or least (Liebert & Spiegler, 1982).

The following aspects are shared by all projective techniques (Liebert & Spiegler, 1982):

- The stimulus material is relatively unstructured and the subject has to pose some order.
- The purpose of the assessment instrument is not indicated to the applicant nor how the responses will be scored.
- There are no "right" or "wrong" answers.
- A true and significant aspect of the subject must be revealed.
- The scoring and interpretation is generally lengthy and subjective.

3.4.4.3 Objective assessment instruments

Objective assessment instruments are often called indirect assessment instruments as the subject is given a task that bears very little resemblance to the criterion behaviour under investigation. These assessments are categorised by the following features (Anastasi, 1982):

- Applicants are task orientated, rather than report orientated as in personality questionnaires. Subjects are required to perform an objective task rather than to describe habitual behaviour.
- The purpose of the assessment is disguised.

- Tasks set for applicants are structured. As opposed to the unstructured tasks provided in projective techniques.
- Many of the assessments are perceived as aptitude measures in which the applicant endeavours to give "correct" answers.

Many of these assessments are measures of cognitive styles referring to one's preferred modes of perceiving, remembering, thinking and problem solving. Although the problems with personality inventories, projective assessment and objective assessment cannot be eliminated entirely, these measurements have proven to be useful in personality assessment.

These three forms of personality assessment can further be classified into nomothetic and idiographic. The nomothetic approach focuses on variables (for example anxiety) common to individuals, while the idiographic approaches attempt to assess aspects (traits) specific to each individual. Although the classification cuts across the three types of personality assessments, in practice, personality inventories are more nomothetic, projective techniques idiographic and objective assessments have characteristics of both types (Kline, 1994).

The necessity to measure personality

From the earliest times individuals wanted to assess others, which required the obtaining of a sample of behaviour. For job selection purposes it would be to determine future behaviour, for example, to estimate an individual's performance on a job (Anastasi, 1982).

Industry and government require an estimation of a candidate's personality under certain conditions. This is why the identification of personality traits during selection has become so important.

As mentioned earlier there are in effect two main ways of determining personality, namely, qualitatively by means of observation or quantitatively by means of, for example, a 16 PF questionnaire. Weiten (1995) indicates, however, that assessment instruments are more thorough and precise than casual observations, but are also only as accurate as the information provided by the respondents.

To be useful, a personality instrument must be reliable and valid in measuring the aspects of human behaviour that it was designed to measure.

3.4.5 Reliability and validity

To improve their ability to predict, personality psychologists have developed a number of assessment techniques, amongst others, the personality questionnaire. For these instruments to be useful they must be both reliable and valid.

3.4.5.1 Reliability

Reliability means being consistent. Anastasi(1988) refers to reliability as the consistency of scores by the same applicants who are re-assessed with the same assessment instrument on different occasions, or with different sets of equivalent items, or under different assessment conditions. As there are several types of consistency, reliability will remain ambiguous unless properly defined. The two most important types are internal consistency and consistency over time (Coleman, 1994; Janis, Mahl, Kagan & Holt, 1969) and are discussed below:

- Internal consistency. An assessment instrument is reliable if all of its components measure the same trait. Internal consistency is usually measured by using the Cronbach's Alpha reliability co-efficient which reflects a higher consistency as it approaches 1. Generally, a reliability co-efficient of 0,70 and higher indicates acceptable interval consistency for a specific set of items (DeVillis, 1991).

- Consistency over time. A test is reliable if it yields the same result when it is repeated over time. Test re-test reliability, which is an index of test stability, is measured by a correlation between the two sets of scores. Generally, a coefficient of 0,70 and above indicates acceptable internal stability (DeVillis, 1991).

3.4.5.2 Validity

A questionnaire is valid when it measures what it claims to measure. With regards to selection, validity is seen as the extent to which the identified and measured predictor samples of behaviour overlap with performance domains valued by the organisation. Validity is a characteristic of the inferences made from the assessment information rather than a characteristic of the assessment procedure (Cronbach, 1970).

The process of drawing inferences from assessment scores is not a simple process, especially when consideration is given to interrelated effects of technical, legislative and practical issues. Casio (1991, p 149) mentions that within the context of personnel selection, the old views of validity being "the extent to which the procedure actually measures what it is designed to measure", is inadequate as it suggests that a procedure has only one validity, which is determined by only one study. To indicate that a personality assessment instrument is not valid is difficult and it is necessary to explain how this is done.

- Content Validity. The content validity of an assessment refers to the "degree to which a assessment measures what it is supposed to measure judged on the appropriateness of the content" (Bartram,1990, p 77). In other words, it refers to the degree to which the scale or assessment covers the area being studied and is not confounded with other materials. Content validity is, therefore, basically a matter of judgement; each item must be judged for its presumed relevance to the property being measured.

- Face validity is necessary to increase the co-operation of applicants. Face validity pertains to whether the assessment “Looks valid” to the examinees who take it, the administrative personnel and other observers. Where assessment content appears irrelevant, the result will be poor co-operation (Feshbach & Weiner, 1992; Kline, 1994). Face validity can often be improved by simply reformulating assessment items. The face validity of assessments should always be checked in its final form (Anastasi, 1982).

 - Concurrent validity is investigated by comparing the assessment scores of a large representative sample from the relevant population with indices of criterion status obtained at approximately the same time as the assessment scores (Huysamen, 1990). This could be done by determining how well an assessment distinguishes between groups that are different in terms of the criterion.

 - Predictive validity refers to the form of criterion-related validity that is an index of the degree to which an assessment score predicts some criterion measure (Cohen, 1988). Predictive validity therefore refers to the accuracy with which an assessment predicts future behaviour. An assessment centre, to predict performance in a more senior position would serve as an example.

 - Construct validity is most important to theoretically based research. The individual investigating an assessment’s construct validity must formulate hypotheses about the expected behaviour of high and low scores on the assessment (White & Spiesman, 1982). From these hypotheses will rise a theory about the nature of the construct the assessment was designed to measure. Cohen (1988) states that where the assessment is a valid measure of the construct, the high and low scores will react as predicted by the theory.
- Construct validity of an assessment may originate from several sources, for example, from other assessments or measures designed to assess the same or a similar construct (Cohen, 1988).

Clear numerical scores are obtained from personality questionnaires and it is for that reason that their reliability and validity can be demonstrated. However, even when an assessment instrument is valid there are aspects which can have an influence on its effectiveness and discredit the selection process. Two such aspects are bias and fairness (Cole, 1981).

3.4.6 Bias and fairness

Bias and fairness, terms which are often regarded as synonyms, have been the centre of much debate and controversy in the field of psychology. Each has however a distinct meaning in terms of the implications for the use of psychological measurement.

3.4.6.1 Bias

"An assessment is biased when the criterion score predicted from the common regression line is consistently too high or too low for members of a subgroup" (Cleary & Hilton, 1968, p 115). Cleary and Hilton take equality of the test-criterion regression lines as a condition for the comparability of assessment scores across subgroups. A more recent statistical description of bias was that of Reynolds (1982, p 199), who described it as "a constant or systematic error, as opposed to chance or random error, in the estimation of some value".

Messick (1975) deals with two types of bias, namely, those emanating from internal properties (intrinsic bias) of the assessment and those resulting from predictive properties of the assessment (predictive bias).

*** Intrinsic bias**

With intrinsic bias the technical and scientific aspects are identified which have bearing on the assessment's properties (Cole, 1981). Verster (1985) mentions that bias is present in a psychological assessment when scores are differentially and

systematically influenced by aspects not relevant to the construct being assessed. Consequently, this can affect inter-individual and inter-group differences in assessment scores positively or negatively as bias in this sense can manifest at item or total test score level. When an item is biased the implication is that influences other than ability or psychological construct come into play (Verster, 1985).

What seems to complicate the issue is that bias can be generated from many sources such as language, anxiety, assessment environment and many other factors (Verster, 1985). When detecting bias regarding the psychometric aspects of the assessment, the item response and latent trait theories are usually used. As the score on the latent trait is held constant, and the probability of a right answer on an item differs from group to group, the item is said to be biased.

* **Predictive bias**

This form of bias requires an evaluation of the potential consequences of assessment in terms of social values (social policy) and ethical values (validity issues). Cole (1981) emphasised that these are two separate issues. The validity of assessment bias is limited in answering questions relating to the desirability of alternative social policies. Bias relating to the appropriateness of the assessment in terms of social policy is what has been referred to as the aspect of "fairness". This is where the decision rule for selecting one person over another is used (Verster, 1985). Irrespective of whether a valid selection measure accurately discriminates high and low probabilities of success at work, the question still needs to be asked whether the measure discriminates fairly or unfairly. An issue receiving much debate is the importance of job performance along with assessment performance, because unfair discrimination can be rife where inferior assessment performance of a group is associated with inferior job performance by the very same group (Casio, 1991). Despite the validity of the assessment instrument, unfair discrimination can lead to biased decisions. South Africa has a multitude of cultures and it is imperative that the assessment is cross-culturally applicable to ensure that there is no bias and that fairness in this regard prevails.

○ **Cultural factors in South Africa**

The following are cultural factors said to contribute to assessment bias in South Africa (Schaap, 1994):

- Socio-economic disadvantage. Unfamiliarity with assessments leads to increased levels of stress, which could negatively affect results.
- Certain cultural and socio-economically deprived groups do not share Western competitiveness. Assessment scores may reflect an underestimation of the person's abilities.
- Some cultural groups are not familiar with English or Afrikaans. This may negatively impact on the results. Familiarity with the language in which the assessment is conducted contributes to the effectiveness of the assessment.
- An underestimation of a person's abilities may occur where the person is unfamiliar with assessment terms due to cultural background.

○ **Assessment practices in South Africa**

The following practices contribute to assessment bias (Schaap, 1994):

- Only one third of test users are said to use different norms for different groups.
- Only one third of industries that utilise psychological assessments have trained their staff to use these assessments.
- Some industries apply the assessments incorrectly and base their decisions on only a few assessment scores.

- Insufficient validity studies by the smaller firms have a negative effect on the basis on which assessment results are interpreted.

The government and other interested parties realised prior to 1993 that legislation in this regard is necessary to prevent unfair discrimination in the workplace and subsequently promulgated some guidelines in this regard.

○ **Guidelines in avoiding unfair labour practice**

To prevent unfair discrimination in South Africa, certain guidelines have been incorporated in to the Bill of Rights. The issue of equality has consequently been incorporated in to the Constitution (Constitution of the Republic of South Africa, 1993, pp 8 - 10):

- 8.(1) Every person shall have the right to equality before the law and to equal protection of the law.
- 8.(2) No person shall be unfairly discriminated against, directly or indirectly, and, without derogating from the generality of this provision, on one or more of the following grounds in particular: race, gender, sex, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture or language.
- 8.(3)(a) This section shall not preclude measures designed to achieve the adequate protection and advancement of persons or groups or categories of persons disadvantaged by unfair discrimination, in order to enable their full and equal enjoyment of all rights and freedoms.

- 8.(4) Prima facia proof of discrimination on any of the grounds specified in sub-section (2) shall be presumed to be sufficient proof of unfair discrimination as contemplated in that subsection, until the contrary is established.

All individuals using assessment instruments or other formal or informal instruments are required to adhere to these guidelines. When selection procedures in government and private institutions result in higher rejection rates for previously disadvantaged groups, these institutions will have to account for the validity of the procedure in terms of its utility for the jobs in question.

Wingrove (1993) concludes by stating that in the case of bias not being removed, individuals will be negatively influenced by the assessment and a true reflection of the person's ability will not be obtained.

3.4.6.2 Fairness

Fairness concerns the use of assessment scores after they have been obtained. It is to be distinguished from bias which refers to influences during assessment. Fairness is important for those managers involved with personnel selection as it has to do with the elements of decision rule or the model used to select one candidate over the other. For the purposes of personality assessment the definition of fairness has been expanded upon.

○ Definitions of fairness

The definition of fairness is still being fiercely debated. Ledvinka (1979) has defined fair assessment in terms of a number of models:

*** Regression model**

When two groups are assessed and the prediction errors sum to zero for both groups, assessment is fair. Where different regression lines and co-efficients

for the two groups are indicated, this implies that the assessment has different meanings for different groups and is indicative of the most severe bias.

* Constant ratio model

When the selection ratio is proportional to the success ratio across the two groups, the assessment is fair. The negative side of this is that the achievement of one group may be overestimated and another underestimated, so that individuals from one group benefit to the detriment of individuals from another group.

* Conditional probability model

Assessment is fair when successful candidates have the same probability of selection in both groups. A negative aspect regarding the model is that the conditional probability of selection if success is a given, excludes the conditional probability of rejection if failure is a given. The maximisation of both conditional probabilities is seen as desirable and therefore requires a specific value specification for the relative sizes of the two alternative approaches. A predictor cut-off point resulting in the increase of one will also result in the decrease of the other.

* Culture free model

When selection ratios are equal between the two groups, then the assessment is fair. It is actually a quota model with a group's quota proportion set equal to the proportion of applicants that belong to the group.

* Quota model

This is when the proportion of selected applicants belonging to each group equals the group's quota proportion. Separate regression comparisons are

used to select persons with the highest expected criterion achievement from each group. This model is regarded as fair because society is represented proportionately in the subgroups. The average criteria score for the groups as a whole is lower.

Specialists will have to become more familiar with the underlying ethical and moral issues associated with fairness. Lourens (1984) mentions that the various conceptions of fairness can be placed into two main categories:

- Remedial assumptions where employment practices are required to compensate for past practices.
- Merit assumptions where individual differences are emphasised and require that each applicant have employment opportunities in relation to job-related qualifications.

Lourens (1984) is stating in effect that fairness deals with social and moral issues. Lourens (1984) further states that apart from the fact that fairness is essential for moral reasons, it will also have a direct or indirect effect on public relations, industrial relations and labour turnover. As in the case of bias, standards or guidelines have had to be compiled in the United States and in South Africa to ensure that fairness prevails.

○ **Standards for fairness**

The American Psychological Association (cited in Schaap, 1994) has determined the following standards for fairness:

- * Information regarding the validity and reliability of the assessment should be evaluated in relation to the planned use of the assessment instrument.
- * In the instance of the assessment instrument being altered (format, language,

content, instructions, applications), it should again be validated or a rationale provided if validation is not deemed necessary.

- * If the assessment is intended for uses other than that for which it was validated, the assessment user must validate the assessment instrument accordingly or provide proof of validation particulars.
- * The relevance of an assessment instrument regarding an evaluation and decision-making process should be clearly described. The assessment results should not be used to justify an evaluation, recommendation or decision made on another basis.
- * Assessment instrument users should as far as possible consider unforeseen negative consequences and should avoid actions leading thereto.
- * Only qualified persons should take responsibility for the use of an assessment instrument.
- * Assessment instrument users should continually verify whether changes in the assessment population, aims of the assessment process or available techniques do not render the current procedure inappropriate.
- * Where cut-off points for selection and classification are used, the technical analysis should be provided in a manual or report.
- * Respondents with certain characteristics (language and cultural background) which are out of the assessment user's field of experience, should not be evaluated by the assessment user.
- * Poor performance is not necessarily an indication of the individual's ability of interpretation and alternative explanations should be sought.

- * If the assessment instrument is only used for screening purposes, the assessment should not be used for classification or decision-making before proof of reliability and validity has been provided.

- * The assessment instrument user should not apply the interpreted results before the manual of the assessment instrument has been consulted for validity of the interpretation of the planned assessment as well as of the particular target group.

In South Africa, the ethical code to ensure fairness is stipulated in general terms in the Code of Professional Conduct of the Health Professions Council of South Africa (previously the South African Medical and Dental Council) and the Professional Board for Psychology (1974, p ix) in respect of psychology: "As employees or employers, psychologists must not engage in or condone practises that are inhumane or that result in illegal or unjustifiable actions. Such practises include, but are not limited to those based on considerations of sex, race, religion or national origin in hiring, promotion or training".

Since all population groups in South Africa are now competing for positions, the comparison of assessment scores has become problematic. As a result, personnel practitioners and psychologists in particular will have to focus their attention on the ethical obligation to ensure that fair and valid selection measures are used for all population groups (Marais, 1988).

The opinions of individuals concerning personality assessment vary considerably from being negative towards an assessment instrument to being positively inclined towards the instrument. Researchers have identified a number of disadvantages or advantages of personality assessment.

3.4.7 Disadvantages (and concerns) and advantages of personality assessments

3.4.7.1 Disadvantages

A number of problems are experienced with personality assessment instruments and are briefly outlined below (Kline, 1994):

- * Long items are unanswerable.
- * There are some tendencies which affect an individual's responses. Firstly, acquiescence is the tendency to agree with an item regardless of content. The better assessment instruments minimize this by halving the items keyed negatively, so that if a candidate answers "yes" to many of the items, a high score will not be registered. Secondly, social desirability is the tendency to respond to an item according to how socially desirable it is.

Lewis (1994) raises the following concerns regarding assessment instruments:

- * It is an invasion of the individual's right to privacy.
- * Content and applications of personality instruments, including the social consequences of relying on scores to make decisions about people.
- * It has been claimed that personality instruments are unfair to disadvantaged groups. The results are frequently misused and they promote a narrow and rigid classification of people according to so-called static characteristics.

3.4.7.2 Advantages

There are strong arguments in favour of personality questionnaires, namely, their reliability, validity and standardisation. In general, personality inventories are

easy to administer and score. They are also highly reliable and have good norms.

A valid and reliable personality assessment used in the right place and time for the right reasons can contribute to the success of human resource development.

3.4.8 Problems related to cross-cultural assessment in South Africa

Biesheuvel (1952) stated that traditional cultures are in a state of disintegration or re-adjustment as a result of Western culture being adopted by Africans. The South African nation like many other African societies is striving for stability and equilibrium.

In South Africa, the African population is heterogenous, comprising different languages, environments and cultures. Taylor (1994) found assessment results in general to be strongly influenced by these group and cultural differences. Botha (1978) states that assessment instruments meant for White groups overseas cannot be validated on African samples, since most assessment instruments are culture bound with assessment content derived from a specific culture. When translated, this content loses much of its meaning.

Administering an assessment instrument also involves abstraction, thereby moving away from everyday life situations. An assessment (testing) attitude is one that has to be learned (Retief, 1988). Taking into account the many years of educational disruption in South Africa (between the years 1976 and 1994) and the high levels of illiteracy, this assessment attitude is underdeveloped in many communities.

While many problems still face personality assessment in South Africa, psychological evaluation is so deeply ingrained in our education, personnel selection, and administration of civil and criminal justice systems, that the South African community will probably continue to insist on assessment where it is needed (Moerdyk, 1995).

3.4.9 The future of personality assessment

According to Cognad (1995) the following trends are likely to occur in the field of assessment and the development of assessment instruments:

- * The design of tasks closer in nature to the life experiences of the individual.
- * Focus on measurement of learned capacities that characterise adult thinking.
- * Focus on competence.
- * Design of assessment instruments that are more process orientated, in order to increase their applicability for clinical, diagnostic and educational purposes.
- * Adaption of measurements to reflect dominant values within a particular cultural context due to the unlikelihood of developing a culture-free assessment instrument.
- * Increased use of computer technology.
- * Increased awareness that assessment must be beneficial to the testee and the institution requiring it.
- * Psychologists usually supervise psychometricians or psychotechnicians. For this reason, simplifying assessment methods are necessary. With the interpretation remaining complex, this will directly maximise the time of the more qualified psychologist.

The convergence hypothesis suggests that as societies industrialise in future, they will inevitably be pulled towards similarity. Impetus will be given to a cross-cultural, homogeneous mode of behaviour with global technology and industrialisation.

The tasks of cross-cultural evaluation will therefore be embedded in emerging similarities and also the uniqueness of the world's people (Brislin, 1994).

Personality assessment will in future have a pivotal role to play in South African society. However, as assessment instruments can be misused, it is important that the applicability of the instruments should regularly be questioned and monitored to ensure optimum utility of the assessment instrument involved.

The next section will review and integrate the two literature chapters (i.e. Chapters 2 and 3).

3.5 INTEGRATION OF THE LITERATURE CHAPTERS

In this section an attempt will be made to integrate and focus on the theoretical relationships between cross-cultural psychology, the approaches to, and the assessment of personality.

In Chapter 2 it was explained that cross-cultural psychology addressed the fact that all cultures should be considered when it comes to personality assessment. Not acknowledging cultural issues (Whites, Coloureds, Asians and Africans) during the compilation of an assessment instrument will result in serious bias and fairness issues.

For research to be successful in personality assessment, the principles of comparability and equivalence need to be followed to ensure fairness and non-bias. In light of current political trends, it is inevitable that psychology in South Africa will move towards cross-cultural sensitivity.

Cross-cultural psychology further emphasises mutual respect and harmony amongst cultures. There is a constant striving to have cultural aspects regarded as valid by members of a culture (emic approach) and to acknowledge that there are aspects that are universal or common to all cultures (etic approach).

In Chapter 3 personality traits and their usage in personality assessment were discussed. Two distinct trait approaches were presented. The idiographic approach regards the individual as unique, while the nomothetic approach focuses on the distribution of traits across a population.

With this in mind personality assessment cannot afford to be biased and therefore items must not discriminate between population groups. Personality assessment should be regarded as fair by the different cultures. In other words, the assessment instrument should be able to be applied to individuals from all population groups without one group feeling that they are subordinate or superior to another group. The appreciation of differences rather than discrimination between groups has become an important issue in assessment. To prevent unfair discrimination, governments in many countries, including South Africa, have found it necessary to pass legislation in this regard.

Cross-cultural psychology is applied on two levels. Firstly, the micro-level representing the emic and the idiographic approach, and secondly on the macro level representing the etic and the nomothetic approach. When cross-cultural research of personality assessments is undertaken, cognisance must be taken of the fact that fairness must always prevail and this can be ensured by focussing on both the micro and macro-levels of cross-cultural psychology.

A challenge awaits psychologists in this country to compile a personality assessment instrument applicable to the broad South African community.

3.6 CHAPTER SUMMARY

What is evident from this chapter is that personality in most cases is impossible to assess without making reference to personality traits (that which determines one's characteristic behaviour and thought). Allport (1961) originated trait theory, and Cattell (1965) refined the theory through factor analysis.

Personality assessment is one of the methods used to identify personality traits. Personality assessment has become engrained in South African society, being used extensively in schools, industry and government departments. Personnel practitioners and psychologists must therefore ensure that assessments are culturally valid, reliable, not biased and fair in light of the guidelines stated in the new Constitution (to prevent unfair discrimination).

Chapter 4 will focus on the research design, the hypotheses, the samples involved in the study, the measuring instrument used (16 PF, SA92), the procedures followed in gathering the data, and the techniques used in the analysis of the data.

CHAPTER 4

RESEARCH DESIGN

The focus of this chapter will be on the design of the study. It includes the formulation of the hypotheses, discussion of the sample, the measuring instrument used, procedures followed in gathering the data and techniques used in the analysis of the data. The scoring of assessment results in this study were done quantitatively, while the interpretations of the data were done qualitatively.

This is a comparative study which replicates Abrahams' (1996) research design. The hypotheses are also similar to Abrahams' hypotheses. No alternative hypotheses are stated.

4.1 HYPOTHESES

The following four hypotheses are formulated for investigation:

Hypothesis 1:

There are no mean (raw) score differences between the four different sub-samples namely White male, White female, African male and African female in terms of the first-order and second-order factors of the 16 PF, SA92.

Hypothesis 2:

The 16 PF, SA92 does not have lower reliabilities for the four sub-samples (White males, White females, African males and African females) when compared to the norm group.

Hypothesis 3:

The items on the 16 PF, SA92 do not correlate with what the assessment instrument is measuring (namely the 16 personality factors) for applicants from the four sub-samples (White males, White females, African males and African females).

Hypothesis 4:

There are no differences between the four sub-samples (White males, White females, African males and African females) in terms of their responses on the 160 items to the 16 PF, SA92.

4.2 SAMPLE

The sample consisted of White and African applicants, both male and female, from Gauteng province, who were applying for various positions in a South African state department. The data were collected over the period 1995 to 1997 and the convenience sample consisted of 1328 applicants. All applicants had matriculated and had a mean age of 22 (range 18 to 56 years) and could speak English or Afrikaans. For the majority of Africans however, English or Afrikaans was not their home language, but rather a second language. The home languages spoken per population group are shown in Table 4.1.

An attempt was made to gather sufficient data from an adequate number of applicants representative of each population and gender grouping. Sufficient data were obtained for both population groups. In the case of gender, however, data could only be collected from 90 African and 222 White females. Although a larger sample may have been preferable, it was still large enough to comply with the requirements of the research design. The characteristics of the sample are shown in Table 4.1.

Table 4.1

Research participants according to population group, gender and language

	White				African			
	Population group totals	Eng speaking	Afr speaking	African speaking	Population group totals	Eng speaking	Afr speaking	African speaking
Male	495	444	51	0	521	0	0	518
Female	222	203	19	0	90	0	0	90
TOTAL	717	647	70	0	611	0	0	608

* Three African participants abstained from indicating their home language.

As can be seen in Table 4.1, all White applicants had English or Afrikaans as their home language, and were thus assessed in their home language. In contrast none of the African applicants spoke English or Afrikaans at home, and were thus all assessed in their secondary language (all African applicants completed the assessment in English).

4.3 MEASURING INSTRUMENT

A personality questionnaire, the 16 PF, SA92, was used for this research. The questionnaire was completed in the available English and Afrikaans versions. The biographical data requested on the questionnaire was adequate for the purposes of this research.

4.3.1 The 16 Personality Factor Questionnaire

Cattell (1965) set out to identify and measure the basic dimensions of normal personality by using the 16 PF. The questionnaire comprising the first-order and second-order personality scales will now be discussed in further detail.

4.3.1.1 Aim of the questionnaire

Cattell, Eber and Tatsuoka (1992) describe the aim of the 16 PF as designed to make information available about an individual's standing on 16 primary personality factors, covered by existing research on the total human personality sphere. The 16 PF, in addition to the 16 primary personality factors also covers, some 8 derivatives as second stratum, higher-order, broader secondary factors.

Cattell et al. (1992, p 13) further describe the 16 PF as "...not a questionnaire composed of arbitrary scales but one which consists of scales carefully oriented and groomed to basic concepts of human personality structure research". This will become clearer in the following section.

4.3.1.2 Description of questionnaire

The 16 PF was developed by Raymond Cattell in 1949 through factor analysis of items that were designed to measure personality traits. Traits are believed to be inherent, underlying one's behaviour (Spangenberg, 1990).

The 16 PF consists of 16 questionnaire scales designed to obtain information about an individual on the majority of personality aspects. The questionnaire covers 16 primary source traits (first-order scales) and 8 secondary source traits (second-order scales) thereby providing data to be interpreted by a psychologist about the individual's broad personality functioning. The 16 PF has undergone five revisions since its original publication and has been adapted for South African use (Plug, Meyer, Louw & Gouws, 1992).

The 16 PF was developed for people 18 years and older as a set of primary factor scales according to which several personality factors and behaviour can be predicted. These factor scales are bipolar, having two interpretable ends which negatively correlate with one another. An example of these poles is "reserved" versus "outgoing" (Van der Walt, 1997). According to Scheffler (1991) the 16 PF originated

during a period when empirical data bases and mathematical models of personality structures were used to develop measuring instruments.

According to Prinsloo (1992, pp 7-8) the 16 factors of the 16 PF can be described as follows:

Table 4.2

The 16 factors of the 16 PF questionnaire

FACTOR	DESCRIPTION OF LOW SCORE	DESCRIPTION OF HIGH SCORE
A	Reserved, detached, critical, cool	Outgoing, warmhearted, easygoing, participating
B	Concrete-thinking, less intelligent	Abstract-thinking
C	Affected by feelings, emotionally labile, easily upset, lower ego strength	Emotionally stable, calm, faces reality, higher ego strength
E	Humble, obedient, easily led, docile, submissive	Assertive, independent, aggressive, stubborn, dominant
F	Sober, serious, taciturn	Enthusiastic, heedless, happy-go-lucky, carefree
G	Opportunistic, disregards rules or obligations, lower superego strength	Conscientious, persisting, moralistic, staid, higher superego strength
H	Shy, timid, restrained, sensitive to threats	Venturesome, socially bold, uninhibited, spontaneous
I	Tough-minded, self-reliant, realistic, having no illusions	Tender-minded, dependent, overprotected, sensitive
L	Trusting, adaptable, free of jealousy, easy to get on with	Suspicious, sceptical, hard to fool
M	Practical, careful, conventional, regulated by external realities, proper	Imaginative, absent-minded, wrapped up in inner urgencies, careless of practical matters
N	Forthright, natural, unpretentious, sentimental, artless	Shrewd, calculating, worldly, insightful

FACTOR	DESCRIPTION OF LOW SCORE	DESCRIPTION OF HIGH SCORE
O	Placid, self-assured, confident, serene, unperturbed, self-sufficient	Apprehensive, self-reproaching, depressive, worrying, guilt-prone
Q ₁	Conservative, respecting established ideas, tolerant of tradition	Experimenting, critical, liberal, analytical, free-thinking, radical
Q ₂	Group dependant, "a joiner" and sound follower	Self-sufficient, resourceful, prefers own decisions
Q ₃	Casual, careless of protocol, undisciplined, follows own urges, low self sentiment	Controlled, socially precise, self disciplined, compulsive, strong will-power, strong self-sentiment
Q ₄	Relaxed, tranquil, torpid, unfrustrated, low ergic tension	Tense, driven, overwrought, irritable, high ergic tension

4.3.1.3 Application of the 16 PF

Prinsloo (1992) indicates that the following applications of the 16 PF are possible:

- Vocational guidance. On the basis of a profile on the 16 PF and results of other measuring instruments, such as intelligence tests, aptitude tests and interest inventories, individuals can be given vocational guidance.
- Assessment instrument in Industry. Industry and the labour market can use the 16 PF as an assessment instrument to aid in the recruitment, selection and placement of personnel. In addition, it can be used to identify individuals for training courses, leadership positions and promotions or to diagnose problems that could interfere with job performance.
- Counselling. The 16 PF can provide meaningful information when personal assistance is needed, for example, in marriage and family therapy.
- Clinical milieu. The 16 PF can be used in a clinical environment where serious psychosis and personality disorders have been identified.

Academic and research applications. Taljaard (1988) mentions that, because the 16 PF measures the most important dimensions of personality and since personality plays such an important role in our everyday lives, it is an appropriate instrument to be used for personality research purposes.

4.3.1.4 Interpreting the 16 PF

The scores of the 16 PF allow behaviour to be described in terms of 16 primary source traits (first order-scales) and secondary source traits (second-order scales). These scales are discussed in more detail below.

4.3.1.4.1 First-order factors

Table 4.3 provides a detailed description of the first-order factors (Cattell et al, 1992, pp 80 - 107):

Table 4.3

First-order factors of the 16 PF

Description of low scores (Sten 1 to 3)	Description of high scores (Sten 8 to 10)
Factor A: Warmth	
Sizothymia, A -	Affectothymia, A+
Critical, stands by his own ideas	Good natured, easygoing
Cool, aloof	Ready to cooperate, likes to participate
Precise, objective	Softhearted, casual
Distrustful, sceptical	Trustful
Rigid	Adaptable, careless, "goes along"
Cold	Warmhearted
Prone to sulk	Laughs readily

Description of low scores (Sten 1 to 3)	Description of high scores (Sten 8 to 10)
Factor B: Intelligence	
Low intelligence, B-	High intelligence, B+
Low mental capacity	High general mental capacity
Unable to handle abstract problems	Insightful, fast learning, intellectually adaptable
Apt to be less well organised	Inclined to have more intellectual interests
Poorer judgement	Showing better judgement
Of lower morale	Of higher morale
Quitting	Persevering
Factor C: Ego strength	
Emotional instability or ego weakness, C-	Emotional stability, C+
Gets emotional when frustrated	Emotionally matured
Changeable in attitudes and interests	Stable, constant in interests
Easily perturbed	Calm
Evasive of responsibilities, tending to give up	Does not let emotional needs obscure realities of a situation, adjusts to facts
Worrying	Unruffled
Gets into fights and problem situations	Shows restraints in avoiding difficulties
Factor E: Dominance	
Submissiveness, E-	Dominance or ascendance, E+
Submissive	Assertive
Dependant	Independent-minded
Considerate, diplomatic	Stern, hostile
Expressive	Solemn
Conventional, conforming	Unconventional, rebellious
Easily upset by authority	Headstrong
Humble	Administration demanding

Description of low scores (Sten 1 to 3)	Description of high scores (Sten 8 to 10)
Factor F: Impulsivity	
Desurgency, F-	Surgency, F+
Silent, introspective	Talkative
Full of cares	Cheerful
Concerned, reflective	Happy-go-lucky
Incommunicative, sticks to inner values	Frank, expressive, reflects the group
Slow, cautious	Quick and alert
Factor G: Conformity	
Low superego strength or lack of acceptance of group moral standards, G-	Superego strength or character, G+
Quitting, fickle	Persevering, determined
Frivolous	Responsible
Self-indulgent	Emotionally disciplined
Slack, indolent	Constantly ordered
Undependable	Conscientious, dominated by sense of duty
Disregards obligations to people	Concerned about moral standards and rules
Factor H: Boldness	
Threctia, H-	Parmia, H+
Shy, withdrawn	Adventurous, likes meeting people
Retiring in face of the opposite sex	Active, overt interest in opposite sex
Emotionally cautious	Responsive, genial
Apt to be bitter	Friendly
Restrained, rule bound	Impulsive
Restricted interest	Emotional and artistic interest
Careful, considerate, quick to see dangers	Carefree, does not see danger signals
Factor I: Emotional sensitivity	
Harría, I-	Premσία, I+
Unsentimental, expects little	Fidgety, expecting affection and attention

Description of low scores (Sten 1 to 3)	Description of high scores (Sten 8 to 10)
Self-reliant, taking responsibility	Clinging, insecure, seeking help
Hard, (to the point of cynicism)	Kindly, gentle, indulgent, to self and to others
Few artistic responses (but not lacking taste)	Artistic, fastidious, affected, theatrical
Unaffected by fancies	Imaginative in inner life and conversation
Acts on practical, logical evidence	Acts on sensitive intuition
Keeps to the point	Attention seeking, flighty
Does not dwell on physical disabilities	Hypochondriacal, anxious about self
Factor L: Suspicious	
Alaxia, L-	Protension, L+
Accepts personal unimportance	Jealous
Pliant to change	Dogmatic
Unsuspecting of hostility	Suspicious of interference
Ready to forget difficulties	Dwelling upon frustrations
Understanding and permissive, tolerant	Tyrannical
Lax over correcting people	Demands people accept responsibility over error
Conciliatory	Irritable
Factor M : Imagination	
Praxernia, —	Autia, M+
Alert to practical needs	Absorbed in ideas
Concerned with immediate interest and issues	Interest in art, theory, basic beliefs
Prosaic, avoids anything far-fetched	Imaginatively enthralled by inner creations
Guided by objective realities, dependable in practical judgement	Fanciful, easily seduced from practical judgement
Earnest, concerned or worried but steady	Generally enthused, but occasional hysterical swings of "giving-up"
Factor N: Shrewdness	
Naivete, —	Shrewdness, N+
Genuine, but socially clumsy	Polished, socially aware

Description of low scores (Sten 1 to 3)	Description of high scores (Sten 8 to 10)
Has vague and injudicious mind	Has exact, calculating mind
Gregarious, gets warmly and emotionally involved	Emotionally detached and disciplined
Spontaneous, natural	Artful
Has simple tastes	Aesthetically fastidious
Lacking self- insight	Insightful regarding self
Unskilled in analysing motives	Insightful regarding others
Content with what comes	Ambitious possibly insecure
Has blind trust in human nature	Smart, "cut corners"
Factor O: Guilt proneness	
Untroubled adequacy, 0-	Guilt proneness, 0+
Self-confident	Worrying, anxious
Cheerful, resilient	Depressed, cries easily
Impenitent, placid	Easily touched, overcome by moods
Expedient, insensitive to people's approval or disapproval	Strong sense of obligation, sensitive to people's approval and disapproval
Does not care	Scrupulous, fussy
Rudely vigorous	Hypochondriacal and inadequate
No fears	Phobic symptoms
Given to simple action	Lonely, brooding
Factor Q₁ : Radicalism	
Conservatism of temperament, Q₁-	Radicalism, Q₁+
Conservative, respecting, established ideas, tolerant of traditional difficulties	Experimenting, liberal, analytical, free-thinking

Factor Q₂: Self-sufficiency	
Group dependency, Q₂ -	Self-sufficiency, Q₂ +
Socially group dependent, a "Joiner" and sound follower	Self-sufficient, resourceful, prefers own decisions
Factor Q₃: Ability to bind desire	
Low self-sentiment integration, Q₃ -	High strength of self-sentiment, Q₃ +
Uncontrolled, lax, follows own urges, careless of social rules	Controlled, exacting, will power, socially precise, compulsive, following self-image
Factor Q₄: Free floating anxiety	
Low ergic tension, Q₄ -	High ergic tension, Q₄ +
Relaxed, tranquil, torpid, unfrustrated, composed	Tense, frustrated, driven, overwrought, fretful

4.3.1.4.2 Second-order factors of the 16 PF

After Cattell determined the first 16 first-order factors he conducted further factor analysis of the correlations and extracted eight second-order factors. The five largest thereof are reflected in the 16 PF namely, extroversion, anxiety, cortertia, independence and sociopathy (Cattell et al, 1992). Smit (1991) indicates that the second-order factors can be regarded as being much broader than the first-order factors in that they summarise the relationships between the primary factors of the 16 PF. The following information was obtained from Cattell et al (1992) and Smit (1990) who comprehensively discuss the second-order factors of the 16 PF.

■ **Factor I: Introversion versus Extroversion**

An applicant with a low score in this factor is shy, withdrawn, inhibited and self-sufficient in his or her social environment. A low score in this factor can either indicate a favourable or an unfavourable result, depending on the situation or environment in which the person has to function.

High scores in this factor might indicate an extrovert, outgoing and uninhibited person who relates well to others.

Factor 1 is scored as follows:

$$QI = A + E + F + H + (11 - Q_2)$$

5

Where QI indicates extroversion and A warmth, E temperament, F impulsivity, H boldness and Q_2 self-sufficiency.

■ **Factor II: Low Anxiety versus High Anxiety**

A low score in this factor is a general indication of a person with an active lifestyle who has the ability to achieve important goals in life. However, a very low anxiety score can also indicate that the person is not motivated to accept challenges.

A high anxiety level does not necessarily imply neurosis (as the anxiety can be linked to a specific situation), but it does suggest adaption problems. A person with high anxiety will usually experience problems with the demands placed on him or her in daily life.

Factor II is scored as follows:

$$QII = (11 - C) + L + O + (11 - Q_3) + 4$$

5

Where QII indicates anxiety and C ego strength, L suspicious, O guilt proneness and Q_3 ability to bind desire.

■ **Factor III: Pathemia versus Cortertia**

A low score is an indication of an emotionally sensitive person who seems to approach problems with feeling rather than thinking about it.

A high score on this factor is an indication of an alert and observant person who is ready to address problems in a rational and objective manner.

Factor III is scored as follows:

$$\frac{Q_{III} = (11-C) + I + M + O + (11-Q_3) + Q_4}{6}$$

Where Q_{III} indicates emotional sensitivity and C ego strength, I emotional sensitivity, M imagination, O guilt proneness, Q₃ ability to bind desire and Q₄ free floating anxiety.

■ **Factor IV: Subduedness versus Independence**

A low score points towards a subordinate type of person who is group dependent and has a need for the support of other people. This person's behaviour is consequently oriented towards the people who give this support.

A high score is indicative of the inclination to be aggressive, independent and reckless.

This factor is scored as follows:

$$\frac{Q_{IV} = (E + (11-G) + M + Q_1 + Q_2)}{5}$$

Where QIV indicates independence and E temperament, G conformity, M imagination, Q₁ radicalism and Q₂ self-sufficiency.

■ **Factor V: Sociopathy versus Compulsivity**

A low score indicates a person who is opportunistic and candid in contrast to a high score which shows a person who is inclined to have self-control, is conscientious and sharp.

A high score on this factor is an indication of self-control, conscientiousness and acuteness.

Factor V is scored as follows:

$$QV = (G + N + Q_3)$$

3

Where QV indicates Socio pathy and G conformity, N shrewdness and Q₃ the ability to bind desire.

■ **MD-Scale**

The motivational distortion scale (abbreviated as the MD-scale) was included in the assessment results. The MD-scale is used to identify situations where the respondent consciously or unconsciously tries to place him or herself in a more favourable light.

A method was developed to correct such distortions which minimises their effects. Corrections are done on the primary scores and thereby a more valid or accurate assumption can be made of the person's functioning.

4.3.1.5 Evaluation of the 16 PF

The 16 PF is widely used in many countries. The questionnaire has continued to grow in terms of reliability and validity since its release in 1949. It has retained its original dimensions despite its refinement and the inception of other parallel forms (Cattell et al., 1970).

The 16 PF has received both positive and negative reviews in numerous scientific journals and books.

4.3.1.5.1 Negative reviews

Contradictory to Cattell's claim that the 16 PF covers the total personality, systematic analysis of the factors have indicated that the questionnaire covers only a small part of personality; primarily the clinical dimensions (Smit, 1991).

The 16 PF is an exhausting and lengthy questionnaire and it is therefore not surprising that investigators have concluded that fewer dimensions should be considered in determining the structure of personality. Nevertheless, to discard factors or items would hinder the interpretation of the last few primary factors which have considerable diagnostic value (Boyle, 1990).

Zuckerman (1985) reviewed the 16 PF after other researchers had stated that the questionnaire could be used in a harmful way towards applicants and that the utility of the instrument as a whole still needed to be demonstrated. Zuckerman concluded that an assessment instrument such as the Eysenck Personality questionnaire was probably better to use, as the secondary factors have a firmer foundation in theory and laboratory research.

4.3.1.5.2 Positive reviews

Werner (1976, p 234) has the following statement regarding the 16 PF:

The 16 PF is unique amongst personality inventories in that it is but one part of an assessment program designed to explore relationships within the multi-variate theoretical framework. Along with the High School Personality Questionnaire and other factorial inventories, it is squarely embedded in a general theory of personality structure.

The consistency of the 16 PF's results was also confirmed by McArdle's (1984) research, as well as Byravan and Ramaniah (1995) where the retest reliabilities over a two week period was 0,80.

4.3.1.5.3 Concluding remarks regarding the evaluation of the 16PF

Boyle states (1990) that the reliability of the 16 PF can be improved by administering additional forms of the instrument. Cattell et al (1992) have also recommended that more than one form be administered wherever possible. A combination of parallel forms increases reliability as the number of items administered doubles. Boyle concludes by stating that the 16 PF allows for the broadest, most extensive measurement of normal and abnormal personality currently possible. Accordingly, the 16 PF is highly recommended for the quantitative and qualitative measurement of personality traits.

Despite these mixed views, the 16 PF continues to be widely used as a personality instrument. There are several forms or versions of the 16 PF available in South Africa. These forms are discussed in further detail below.

4.3.1.6 The 16 PF in South Africa

The Human Sciences Research Council supplies a number of 16 PF forms in South Africa. The different 16 PF forms will briefly be described (Abrahams, 1996; Prinsloo, 1992):

- Form A and Form B

These two forms were compiled for adults with a standard 10 or equivalent qualification. Both forms comprise 187 items, have been adapted for South African use, and are available in English and Afrikaans. The local norms were only standardised on the White population.

- Form C and Form D

Neither of these forms has been adapted or standardised for South African use. Both forms have 105 items and are suitable for application in industrial settings due to their simplified language and smaller number of items.

- Form E

This form was adapted and standardised for South African use. The form comprises 128 items and its language usage, vocabulary and format have been simplified for individuals who are over the age of 18 years and have a formal qualification of standard 4 to standard 9.

- Clinical Analysis Questionnaire

This form was developed for detecting pathological patterns in individuals. It has been neither adapted nor standardised for South African conditions.

- High School Personality questionnaire (HSPQ) and the Children's Personality Questionnaire (CPQ)

These two questionnaires have been adapted and standardised in South Africa. The same principles are used in the two questionnaires and they are respectively suitable for children in the age groups 13 to 18 years and 8 to 13 years.

- SA92 version.

As the 16 PF, SA92 is the focus of this research, the questionnaire will be discussed in more detail in the following section.

4.3.1.6.1 The 16 Personality Factor Questionnaire, SA92 Version

Abrahams' (1996) states that all the items that were used in the 16 PF, SA92 are also to be found in the original 16 PF questionnaire (which originates from the United States) thereby implying that the rationale, concept and background of the 16 PF was accepted and was implemented in South Africa without any alterations. In effect this would mean that the scores of the 16 PF, as discussed in this chapter, are equally applicable to the South African version. This would probably pose problems as the cross-cultural equivalence of the scale had not been adequately researched.

The release of the 16 PF, SA92 during 1992 by the Human Sciences Research Council was considered necessary for the following reasons (Abrahams, 1996):

- During the standardisation of Form A and Form B, gender and ethnic bias were not determined.
- The population groups Coloureds, Asians and Africans were excluded from the norm groups of Form A and Form B.

- Poor items needed to be eliminated by means of item analysis. This would in turn increase the reliability co-efficients.
- The low reliability co-efficients found in Form A and Form B were of concern.

For the standardisation of the 16 PF, SA92 questionnaire, the norm group included the various population groups, namely Whites, Africans, Coloureds and Asians as defined in the now outdated Population Registration Act (No 30 of 1950). The data was analysed to determine if group differences existed and to establish the reliability and validity co-efficients of the assessment (Prinsloo, 1992). The results of these studies and those on item comparability across population and gender groups are reported below.

◆ **Group Differences**

Prinsloo (1992) investigated group differences across population and gender. He concluded that the differences observed across population groups were not significant enough to warrant separate norms. However, statistical differences emerged when gender scores were compared. Norms were thus provided for the total sample as well as separate norms for males and females. Abrahams' (1996) findings are discussed below:

* **Population Group**

Abrahams' (1996) research on the 16 PF, SA92 yielded the following results. Differences ($p < 0,0001$) between the means of the various population groups were obtained on the majority of first-order factors. The White group obtained higher mean scores than the African group on Factors A, B, C, F, and I. Whites scored lower than Africans on Factors G, L, and O.

Differences were found on all the second-order factors. For Extroversion, the Whites obtained a higher score than the Africans. For Anxiety, Emotional Sensitivity,

Tough Poise and Compulsivity the Africans obtained higher mean scores than the Whites (Abrahams, 1996).

It is clear from the preceding paragraphs regarding population groups, that on the majority of factors (10 first-order and all the second-order factors), large differences in terms of standard deviations and means were found. These differences suggest that the 16 PF, SA92 is not an acceptable cross-cultural measuring instrument (Abrahams, 1996). The possibility could however be that the traits could have been different for a start to social and genetic determination.

* **Gender**

Abrahams (1996) found gender differences in means on only three factors, namely Factors O, I and N of the first-order factors. Females obtained higher scores on Factors O and I, and men scored higher on Factor N (although the standard deviations were all similar).

Regarding the second-order factors, females scored higher than males on Emotional Sensitivity and lower on Tough Poise (with similar standard deviations).

◆ **Reliability**

Prinsloo (1992) used the Kuder-Richardson co-efficient (KR-8) to assess internal consistency which is indicated for each first-order factor and the MD-scale in Table 4.4. In order to estimate reliabilities for the second-order factors, Mosier's formula was used (refer to Tables 4.4 and 4.5). The figures in these tables indicate internal consistency levels that are generally higher for the 16 PF, SA92 than for Forms A and B of the 16 PF (Prinsloo, 1992).

Table 4.4

Reliability co-efficients (KR-8) for first-order factors (adapted from Abrahams, 1996, pp 220 - 224 & Prinsloo, 1992, pp 28 - 30)

Factor	Prinsloo			Abrahams			
	Gen. Pop	Female	Male	White	African	Female	Male
A	0,74	0,75	0,71	0,64	0,31	0,55	0,49
B	0,61	0,58	0,63	0,50	0,34	0,39	0,49
C	0,75	0,76	0,74	0,71	0,26	0,68	0,66
E	0,66	0,69	0,63	0,59	0,43	0,57	0,53
F	0,73	0,76	0,70	0,69	0,29	0,63	0,64
G	0,70	0,75	0,67	0,70	0,41	0,60	0,55
H	0,82	0,84	0,79	0,80	0,56	0,75	0,72
I	0,68	0,60	0,57	0,62	0,35	0,44	0,46
L	0,59	0,62	0,55	0,50	0,32	0,49	0,43
M	0,60	0,64	0,55	0,56	0,02	0,42	0,37
N	0,51	0,48	0,53	0,47	0,22	0,34	0,37
O	0,76	0,78	0,73	0,76	0,25	0,68	0,62
Q ₁	0,62	0,65	0,58	0,58	0,30	0,47	0,49
Q ₂	0,63	0,65	0,59	0,66	0,63	0,63	0,61
Q ₃	0,74	0,75	0,72	0,71	0,56	0,65	0,63
Q ₄	0,73	0,74	0,70	0,66	0,46	0,61	0,54
MD	0,72	0,72	0,70	0,50	0,32	0,45	0,31
N	6922	3488	3400	249*	253*	583*	400*

* Frequencies were deducted from Abrahams' (1996, pp 119-120) reporting of the sample size.

Table 4.5

Reliability co-efficients (using Mosier's formula) for second-order factors (Prinsloo, 1992)

Second-Order Factors	Co-efficient
QI Extroversion	0,88
QII Anxiety	0,90

Second-Order Factors	Co-efficient
QIII Emotional Sensitivity (C, I, M, O, Q ₃ and Q ₄)	0,89
QIII Tough Poise (A, I, M,)	0,74
QIV Independence	0,80
QVIII Compulsivity	0,79

Prinsloo (1992) mentions that the results in Table 4.4 were compared with the co-efficients found in Form A. A number of factors (namely Factors A, B, E, F, H, I, L, and MD-scale) indicated an improvement of between 10% and 20% in the 16 PF, SA92. No meaningful improvement was indicated by Factor Q₂. The other factors showed improvements of between 34% and 66%. High reliability co-efficients were also found for the second-order factors (refer Table 4.5).

The reliability co-efficients for the first-order Factors found by Abrahams (1996) for males and females are presented in Table 4.4. The results indicate that the reliabilities for males were somewhat lower than for females in the majority of instances. For both samples, the highest reliabilities were found for factor H (males 0,72; females 0,75) and the lowest for factor N (males 0,37; females 0,34). Seven of the factors for the female participants had scores lower than 0,50, while the males had eight factors that score less than 0,50 (Abrahams, 1996).

Prinsloo (1992) found that the highest reliability co-efficient for the males was Factor H (0,79) and the lowest was Factor N (0,53). Female participants scored the highest for Factor H (0,84) and the lowest for Factor N (0,48).

For the total sample, Abrahams (1996) found that six of the factors (16 first-order factors and MD-scale) had co-efficients smaller than 0,50. The Whites obtained the lowest reliability co-efficient for Factor N, and the highest for Factor H. The African group obtained the lowest reliabilities. With 14 (82,35%) of the factors having co-efficients lower than 0,50 and five showed co-efficients lower than 0,30. For the African group Factor Q₂ had the highest co-efficient at 0,63 and Factor M the lowest at 0,02 (Abrahams, 1996).

The reliability co-efficients found by Abrahams (1996) for Africans are much lower than the norms reported by Prinsloo (1992). The results for the White participants are the closest to the values reported for the norm group (Abrahams, 1996).

◆ **Validity**

Aspects regarding the validity of the 16 PF in the United States are well documented in Prinsloo's (1992) manual. For the second-order factors of the 16 PF, SA92 a factor analysis was undertaken and the results revealed the same factor structure as found in the Forms A and B of the South African version. The factor structures of the sub-samples gender and population group were essentially the same. When considering the second-order factors, the same factor structure was consistently extracted. Extroversion did not however yield the same strong factor loadings for Africans as for Whites, and this is attributed to differences in culture.

Abrahams (1996) followed the following steps to determine validity:

- * A factor analysis was done, where the number of factors that had to be extracted was specified;
- * The factor matrix was rotated using the varimax procedure;
- * A pattern matrix was then drawn up in which those items that were expected to load on a particular factor were specified as 0,9, and those that were not expected to load were specified as 0,0; and
- * The empirical data was then made to match the target matrix as closely as possible using an orthogonal rotation.

Abrahams' (1996) found that obvious differences emerged when the target matrices were inspected. For the combined group, 59 items (36,87%) loaded as expected. For the African grouping, 52 items (32,5%) loaded as expected. For the

White grouping the largest number of items (53,13%) loaded in the expected way. It is clear from the data that the Whites showed the best fit while the Africans had the poorest fit to the original factor structure of the 16 PF. As the measure of sampling adequacy was acceptable for the combined group, it was expected that the results would match the theoretical model. This however was not the case. The results of Abrahams' showed that there were a number of items for which the loadings on those factors, on which they ought to have loaded, were negligible. The measure of sampling adequacy for the African sub-sample indicated that it was unlikely that a satisfactory factor solution would be found.

◆ **Item Comparability**

Item bias research was undertaken by Prinsloo (1992) regarding the population and gender groups. Regarding gender, only three items indicated slight differences between males and females and it was regarded as acceptable. In comparing the population groups Prinsloo found that 24 of the 160 items (15%) indicated slight differences. This was however not considered large enough to view the assessment instrument as biased. Prinsloo concludes by stating that the questionnaire measures the same constructs, structured in the same way, in a valid, reliable and unbiased fashion amongst testees from any relevant subgroup.

Abrahams (1994) indicated that she is not in agreement with the conclusion made by Prinsloo (1992) and cites the following reasons:

The composition of Prinsloo's norm group was not representative of the population. The White population group was over represented while the African group was under represented. The statistics indicate that 82,2% of the norm group consisted of Whites, 5,9% were Africans, 7,3% were Coloureds and 0,6% were Asians. The census statistics made available by the Central Statistical Services (1993) indicates that the South African population comprises of 15,8% Whites, 70,6% Africans, 10,5% Coloureds, and 3,1% Asians. The differences found for the four population groups in the second-order factors were attributed to the socialisation process. When the size of the

African group is taken into consideration then these results must be questioned and are open to criticism.

- This questionnaire was developed for cultural groups in the United States. Consequently, the constructs will probably have different meanings for people of other countries and cultures.

Abrahams (1996) decided to use the original Chi-squared test to determine whether differences existed in the way participants responded to the individual items. The Chi-squared statistic, with the level of rejection for the null hypothesis set at $p < 0.0001$, was used. The differences ($p < 0.0001$) between population groups and genders are as follows (Abrahams, 1996):

- Factor A (Warmth)

For this factor, 75% of the items show differences when the sample was divided according to population group. Differences were found regarding the following items:

Population group: 1, 2, 33, 34, 66, 129.

Gender: 66

- Factor B (Intelligence)

The largest number of differences were found in the population sub-samples where 44% of the items showed differences. The following items indicated differences regarding population group: 35, 36, 68, 100. There were no differences found regarding the gender groups.

- Factor C (Ego strength)

Differences between population groups were found on the following items (66,7% of the items in this factor): 5, 38, 69, 102, 133. No differences were found for the gender groups.

- Factor E (Dominance)

The sub-samples divided on the basis of population group indicated differences on the following items (54,5% of the items in this factor): 39, 71, 103, 134, 135, 136. No differences were found for the gender groups.

- Factor F (Impulsivity)

Differences between population groups were found on 50% of these items in this factor: 9, 10, 42, 73. No differences were found for the gender groups.

- Factor G (Conformity)

The sub-samples divided on the basis of population group showed differences on the following items (70% of the items in this factor): 12, 43, 75, 76, 107, 138, 139. No differences were found for the gender groups.

- Factor H (Boldness)

The sub-samples divided on the basis of population group showed differences on the following items (37,5% of the items in this factor): 13, 14, 77. No differences were found for the gender groups.

- Factor I (Emotional sensitivity)

Differences between the population and gender groups were found on the following items:

Population group (81,81% of the items in this factor): 15, 46, 48, 78, 79, 110, 111, 142, 143.

Gender (72,72% of the items in this factor): 16, 46, 48, 78, 79, 110, 142, 143.

- Factor L (Suspiciousness)

The sub-samples, divided on the basis of population group, showed differences on the following items (58,3% of the items in this factor): 18, 50, 81, 112, 113, 144, 145. No differences were found for the gender groups.

- Factor M (Imagination)

The sub-samples, divided on the basis of population group, showed differences on the following items (58,3% of the items in this factor): 19, 20, 52, 83, 84, 116, 147. No differences were found for the gender groups.

- Factor N (Shrewdness)

Differences were found between population and gender groups on the following items:

Population group (33,33% of the items in this factor): 85, 86, 87, 150.

Gender (8,33% of the items in this factor): 53.

- Factor O (Guilt proneness)

Differences were found between population and gender groups on the following items:

Population group (44,44% of the items in this factor): 25, 57, 88, 152.

Gender (11,11% of the items in this factor): 88.

- Factor Q₁ (Rebelliousness)

The sub-samples, divided on the basis of population group, showed differences on the following items (40% of the items in this factor): 27, 59, 90, 122, 154. No differences were found for the gender groups.

- Factor Q₂ (Self-sufficiency)

Differences were found between population and gender groups on the following items:

Population group (60% of the items in this factor): 28, 29, 61, 92, 155, 156.

Gender (10% of the items in this factor): 155.

- Factor Q₃ (Ability to bind desire)

The sub-samples, divided on the basis of population group, showed differences on the following items (50% of the items in this factor): 62, 93, 126, 158, 159. No differences were found for the gender groups.

- Factor Q₄ (Free floating anxiety)

The sub-samples, divided on the basis of population group, showed differences on the following items (55% of the items in this factor): 31, 95, 96, 128, 160. No differences were found for the gender groups.

- MD (Motivational distortion)

The sub-samples, divided on the basis of population group, showed differences on the following items (80% of the items in this factor): 12, 31, 62, 93, 126, 139, 159, 160. No differences were found for the gender groups.

It is evident that the greatest influence on the responses to items is the population group variable. Population differences were found for the majority of items for all factors, except for factors B, H, N, O, and Q₁.

■ **Summary of results**

It is clear from Abrahams' (1996) statistics that population and gender groupings have an influence on the comparability of both items and constructs of the 16 PF, SA92.

Abrahams' (1996) results show that population grouping has a great influence on the manner in which items were dealt with. For the different population groups the same factor structure was not found by means of factor analysis. Results of the factor rotation procedure based on the combined sample was inadequate, even though the measures of sampling adequacy were acceptable. The loadings for a considerable number of items were so small as to be negligible. The results of the African grouping displayed the same trend while results for the Whites were substantially better. Item comparability results indicated differences for the majority of items. Differences were found for twelve of the factors (greater than or equal to 50% of the items per factor), excluding Factors B, H, N, O and Q₁.

With reference to gender, Abrahams' (1996) results of the 16 PF, SA92 show that this variable did not have an influence on the scores. Item comparability results indicated that no differences were found for most of the items per factor. Differences were found on Factor I only, where more than 50% of the items for this factor indicated statistical differences.

The results of the population groups and gender groups were on the whole not up to standard, which does not instill confidence in the 16 PF, SA92. One would have expected better item comparability results for the two population groups (White and African) as the questionnaire claims to be culturally fair.

With these results in mind, one cannot but wonder why the industry is so committed to the 16 PF and 16 PF, SA92. The following section provides an indication of the usage of the two questionnaires in industry.

4.3.2 Industry's usage of the 16 PF and 16 PF, SA92

Rademeyer (1995) found, in her study of the frequency distribution of measuring instruments and other assessment techniques used by 106 companies (trade and industry) in South Africa, that the 16 PF (Form A and Form B) was regularly used in 48 (45%) of these companies. The 16 PF was the most frequently used measuring instrument in these companies. The Structured-Objective Rorschach Test was its closest rival with 25 (23,5%) of the 106 companies using the instrument. The 16 PF, SA92 on the other hand was only used by 6 (or 5,6%) of these companies, suggesting that it was not a very popular instrument. According to C.H. Prinsloo (personal communication, 30 November 1998), the 16 PF, SA 92's low usage can be attributed to the fact that the instrument was only available in a computer scoreable version since 1992 and that there were no manual scoring keys for the questionnaire for a period of six years.

4.4 PROCEDURES FOLLOWED TO OBTAIN A SAMPLE

The data for the current study were obtained from applicants who applied for a position in a South African state department between the years 1995 and 1997. Applicants were selected on their results obtained from a battery of assessments (including the 16 PF, SA92) and an interview. The process was administered by psychologists and psychometrists.

4.5 METHODS AND TECHNIQUES

To test the hypotheses, a number of statistical techniques, using the Statistical Package for the Social Sciences (SPSS, 1993), were employed to determine the validity of the 16 PF, SA92 when applied cross-culturally. In the analysis of data the following techniques were used:

- * The calculation of the Kuder-Richardson (KR-8) co-efficient to determine the internal consistency for the 16 scales for the four sub-samples of interest, namely, White male, White female, African male and African female. The aim here was to indicate the reliability co-efficients for each of the four sub-samples.
- * The calculation of corrected item-total correlations to determine the suitability of the items in terms of the four sub-samples of interest, namely, White male, White female, African male and African female.
- * One way ANOVAs were used to determine whether mean differences existed among the four sub-samples (White male, White female, African male and African female) on the first-order and second-order factors of the 16 PF, SA92. The Scheffe test for multiple comparisons between mean scores was also used in order to indicate which sub-samples differed from one another.

4.6 CHAPTER SUMMARY

This chapter focussed on the design of the study. Different hypotheses were stated, the sample was discussed and the 16 PF, SA92 measuring instrument was described. The procedures regarding the gathering of the data and the techniques used for the research of the data were also described.

Chapter 5 will focus on the results of the research. Descriptive statistics for the four sub-samples will be given, followed by the results of the statistical techniques.

Construct comparability statistics will be presented in terms of reliabilities, item-total correlations and differences between the four sub-samples. This will be done in terms of the 16 PF, SA92, the MD-scale and all the items of the questionnaire.

CHAPTER 5

RESULTS

The aim of this chapter is to discuss the results which were obtained from the statistical processing. The descriptive statistics will be presented, followed by the discussions on construct and item comparability findings.

5.1 DESCRIPTIVE STATISTICS

Hypothesis 1 referred to the means of the four sub-samples namely White males, White females, African males and African females in terms of the first-order and second-order factors of the 16 PF, SA92. One way analysis of variance was used, in which the significance level for the rejection of the null hypothesis was set at $p < 0,0001$. The Scheffe test for multiple comparisons (sign. $F < 0,01$) was used in conjunction with one way analysis of variance in order to determine which sub-samples differed from one another. The means, standard deviations and differences of the first-order and second-order factors for the four sub-samples are presented in Table 5.1. The Motivational Distortion (MD-scale) is also indicated.

Table 5.1

Means, standard deviations and differences for the four sub-samples namely White males, White females, African males and African females on the 16 PF. SA92

Factor	White				African				F	p	Scheffe 0,01
	Male		Female		Male		Female				
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
A	8,65	4,06	10,76	3,74	8,34	3,05	8,75	2,91	25,43	0,0000	WF>WM,AM,AF
B	8,53	1,67	8,38	1,66	6,62	1,68	6,34	1,72	141,96	0,0000	WF,WM>AM,AF
C	13,46	3,76	13,75	3,53	9,31	3,31	9,18	2,87	163,05	0,0000	WM,WF>AM,AF
E	12,94	3,84	12,61	4,00	12,23	3,49	12,19	3,88	3,33	0,0190	NO DIFF
F	11,51	3,25	11,79	2,98	8,52	2,79	8,86	2,51	113,64	0,0000	WM,WF>AM,AF
G	14,65	3,72	15,52	3,39	14,13	2,59	14,43	2,70	10,00	0,0000	WF>AM
H	11,18	4,11	11,37	4,29	11,01	3,30	10,89	3,33	0,63	0,5940	NO DIFF
I	8,77	3,70	13,28	3,59	9,12	3,12	10,37	3,54	97,27	0,0000	WF>WM,AM,AF
L	9,30	4,15	8,23	3,98	11,9	3,66	11,56	4,00	64,50	0,0000	AM,AF>WM,WF
M	10,56	3,62	10,78	3,79	12,10	3,07	12,52	2,87	23,02	0,0000	AM,AF>WM,WF
N	17,81	3,52	17,89	3,25	17,78	3,21	17,92	3,17	,09	0,9680	NO DIFF
O	4,82	3,72	5,40	3,77	7,39	2,97	7,77	2,97	58,48	0,0000	AM,AF>WM,WF
Q ₁	11,49	3,78	10,54	3,91	12,80	3,10	12,93	3,25	27,29	0,0000	AM,AF>WM,WF
Q ₂	7,29	4,21	6,91	4,06	5,31	3,64	5,08	3,98	25,81	0,0000	WM,WF>AM,AF
Q ₃	14,81	3,23	15,23	2,71	13,89	2,96	13,05	3,08	15,90	0,0000	WM,WF>AM,AF
Q ₄	5,29	3,71	5,44	3,64	5,62	3,07	6,43	3,34	3,12	0,0250	NO DIFF
MD	6,86	1,17	6,92	1,02	6,57	1,09	6,55	1,07	8,50	0,0000	WM,WF>AM
Extra	9,60	2,70	10,12	2,67	9,16	1,97	9,32	2,10	8,99	0,0000	WF>AM
Anx	2,63	2,92	2,42	2,69	4,75	2,16	5,02	2,02	84,46	0,0000	AM,AF>WM,WF
Emot	3,86	2,59	4,65	2,33	5,51	1,84	6,07	1,84	56,56	0,0000	AM,AF,WF>WM
Indep	7,73	2,26	7,26	2,26	7,86	1,50	7,86	1,38	7,71	0,0020	AM>FM
Comp	15,75	2,65	16,21	2,30	15,27	2,09	15,27	2,12	9,75	0,0000	WF>AM
T.POI	1,67	2,35	0,61	2,36	1,15	1,87	,46	1,76	60,91	0,0000	WM>AM,AF>WF

Scheffe accepted on 0,01

N = 1325

WM = White male
WF = White female

White male: N = 495
White female: N = 222

AM = African male
AF = African female

African male: N = 518
African female: N = 90

Hypothesis 1: There are no mean (raw) score differences between the four different sub-samples namely White male, White female, African male and African female in terms of the first-order and second-order factors of the 16 PF, SA92.

The results in Table 5.1, demonstrate that differences were obtained on the majority of the first-order and second-order factors as indicated by the analysis of variance as well as the Scheffe test for multiple comparisons. Differences between the four sub-samples were obtained on 12 first-order factors and 4 second-order factors as well as the MD-scale and the T.POI score. Broadly, the following differences are noted:

- White males and White females scored higher than African males and African females on Factors B, C, F, Q₂, Q₃ and the MD-scale.
- African males and African females scored higher than White males and White females on Factors L, M, O, Q₁, Anxiety and Emotional Sensitivity.
- White females scored higher than White males, African males and African females on Factors A and I.

At face value these scores mean that Africans are more suspicious, imaginative, apprehensive, critical, anxious and emotionally sensitive than their White counterparts.

Whites obtained higher scores than Africans on factors B, C, F, Q₂, Q₃ and MD-scales. This suggests that Whites are more abstract thinking, emotionally stable, enthusiastic, self-sufficient, controlled and often attempt to paint a complimentary picture of themselves.

These differences in the factor means indicate that the 16 PF, SA92 is a less than appropriate measure for cross-cultural use in South Africa. Hypothesis 1 is therefore rejected. Because there are mean (raw) score differences, these differences can be attributed to either problems experienced with the measuring instrument or differences between the sub-samples in the magnitude of the construct or trait from the outset.

5.2 CONSTRUCT COMPARABILITY

The following statistical analysis were performed to determine construct comparability:

- Reliabilities of the first-order factors for the 16 PF, SA92 were calculated for the four sub-samples (White males, White females, African males and African females).
- Corrected item total correlations were calculated for the four sub-samples (White males, White females, African males and African females).

5.2.1 Reliabilities

Hypothesis 2 entails the calculation of the reliability co-efficients (Kuder-Richardson: KR-8) for the various sub-samples.

Hypothesis 2: The 16 PF, SA92 does not have lower reliabilities for the four sub-samples (White males, White females, African males and African females) when compared to the norm group.

Table 5.2 indicates the reliabilities for the first-order factors and the MD-scale for the four sub-samples. The reliability co-efficients for the four sub-samples will be discussed in further detail.

- The African sub-samples had the lowest reliabilities. Fourteen of the first-order factors for African males indicated co-efficients lower than 0,50; and 12 of the first-order factors for African females indicated co-efficients lower than 0,50. The highest reliability co-efficient for African males was 0,54 (Factor Q₂), while for African females the highest reliability co-efficient was 0,63 (Factor Q₂). The lowest reliability co-efficient for African males was 0,09 (Factor M), while for African females the lowest reliability co-efficient was 0,16 (Factor F). For both African males and African females the reliability co-efficients for the MD-scale were below 0,50 (0,02 for African males and 0,13 for African females).

The White sub-samples had higher reliabilities. Four first-order factors for White males indicated co-efficients lower than 0,50; and four of the first-order factors for White females indicated co-efficients lower than 0,50. The highest reliability co-efficient for the White males was 0,76 (Factor H) while for White females the highest reliability co-efficient was 0,79 (Factor H). The lowest reliability co-efficient for White males was 0,30 (Factors B and M) while for White females the lowest reliability co-efficient was 0,24 (Factor B). For both White males and females the reliability co-efficients for the MD-scale were below 0,50 (0,14 for White males and 0,10 for White females).

Comparing the results to Prinsloo's (1992) reliability co-efficients for the norm group, it is clear that the scores are much lower than for the norm group. The above findings are similar to Abrahams' (1996) finding of generally poor reliability co-efficients (below 0,70) (DeVellis, 1991). Hypothesis 2 is therefore rejected. The 16 PF, SA92 does have lower reliabilities for the four sub-samples in comparison to the norm group.

Table 5.2

Reliability co-efficients for the four sub-samples

Factor	White		African	
	Male	Female	Male	Female
A	0,64	0,60	0,35	0,21
B	0,30	0,24	0,23	0,26
C	0,70	0,65	0,43	0,22
E	0,52	0,54	0,33	0,49
F	0,59	0,53	0,34	0,16
G	0,60	0,50	0,19	0,32
H	0,76	0,79	0,52	0,54
I	0,48	0,44	0,25	0,38
L	0,54	0,51	0,35	0,43
M	0,30	0,34	0,09	0,55

Factor	White		African	
	Male	Female	Male	Female
N	0,39	0,27	0,30	0,29
O	0,69	0,68	0,30	0,27
Q₁	0,51	0,53	0,31	0,36
Q₂	0,62	0,59	0,54	0,63
Q₃	0,69	0,55	0,48	0,51
Q₄	0,66	0,63	0,48	0,51
MD	0,14	0,10	0,02	0,13

White male: N = 489
White female: N = 218

African male: N = 510
African female: N = 90

N = 1307

5.2.2 Corrected item-total correlations

Hypothesis 3 refers to the correlation between the items and factors to which they belong. Corrected item-total correlations were calculated to test the hypothesis. Corrected item-total correlations determine the degree to which an item correlates with all the other items in a factor (DeVillis, 1991). The item is superior if the correlation is closer to 1,00. Any item that correlates low (a cut-off point of less than 0,30 was used) was regarded as poor.

Hypothesis 3: The items on the 16 PF, SA92 do not correlate with what the questionnaire is measuring (namely the 16 personality factors) for applicants from the four sub-samples, namely White males, White females, African males and African females.

Table 5.3

Items that failed to attain (< 0,03) item-total correlations for the four different sub-samples

Factor	White		African	
	Male	Female	Male	Female
A	1, 33	2, 33, 65, 66	1, 2, 33, 34, 66, 65, 97, 129	1, 2, 33, 34, 65, 66, 97, 129
B	3, 4, 35, 36, 67, 68, 98, 99, 100, 130, 131, 132	3, 68, 98, 132, 4, 36, 99, 100, 35, 67, 130, 131	3, 4, 35, 36, 67, 68, 98, 99, 100, 130, 131, 132	3, 4, 35, 36, 67, 68, 98, 99, 100, 130, 131, 132
C	37	5, 37, 69, 102	5, 6, 37, 38, 69, 70, 101, 102, 133	5, 6, 37, 38, 69, 70, 102, 101, 133
E	7, 8, 39, 40, 72, 103, 104, 134, 135, 136	7, 8, 40, 72, 103, 104, 134, 135, 136	7, 8, 39, 40, 71, 72, 103, 104, 134, 135, 136	7, 8, 39, 71, 72, 103, 104, 134, 135, 136
F	42, 73, 74, 137	10, 41, 42, 73, 74	9, 10, 41, 42, 73, 74, 105, 137	9, 10, 41, 42, 73, 74, 105, 137
G	11, 43, 106, 107, 138, 139	11, 12, 43, 44, 76, 106, 107, 138, 139	11, 12, 43, 44, 75, 76, 106, 107, 138, 139	11, 12, 43, 44, 75, 76, 106, 107, 138, 139
H	-	-	13, 14, 45, 77, 108, 109, 140	13, 45, 108, 109, 140
I	15, 16, 46, 47, 48, 78, 79, 110, 111, 142, 143	15, 16, 46, 47, 48, 78, 79, 110, 111, 142, 143	15, 16, 46, 47, 48, 78, 79, 110, 111, 142, 143	15, 16, 46, 47, 48, 78, 79, 110, 111, 142, 143
L	17, 18, 49, 50, 80, 82, 114, 144, 145	17, 18, 49, 50, 80, 81, 82, 112, 114, 144, 145	17, 18, 49, 50, 80, 81, 82, 112, 113, 114, 144, 145	17, 18, 49, 50, 80, 81, 82, 112, 113, 114, 144, 145
M	19, 20, 21, 51, 52, 83, 84, 115, 116, 146, 148	19, 20, 21, 51, 52, 83, 84, 115, 116, 146, 147, 148	19, 20, 21, 51, 52, 83, 84, 115, 116, 146, 147, 148	19, 20, 21, 51, 52, 83, 84, 115, 116, 146, 147, 148
N	22, 23, 53, 54, 55, 85, 86, 87, 117, 118, 149, 150	22, 23, 53, 54, 55, 85, 86, 87, 117, 118, 149, 150	22, 23, 53, 54, 55, 85, 86, 87, 117, 118, 149, 150	22, 23, 53, 54, 55, 86, 87, 117, 118, 149, 150
O	152	57, 119	24, 25, 56, 57, 88, 119, 120, 151, 152	24, 25, 56, 57, 88, 119, 120, 151, 152
Q ₁	26, 27, 58, 59, 89, 90, 121, 122, 153, 154	26, 27, 58, 59, 90, 89, 121, 153, 154	26, 27, 58, 59, 89, 90, 121, 122, 153, 154	26, 27, 58, 59, 89, 90, 121, 122, 153

Factor	White		African	
	Male	Female	Male	Female
Q ₂	28, 29, 123, 156	28, 29, 60, 61, 123, 155, 156	28, 29, 61, 91, 123, 124, 155, 159	29, 60, 61
Q ₃	-	30, 62, 93, 94, 158, 159	30, 62, 93, 94, 125, 126, 157, 158, 159	30, 62, 93, 125, 126, 158, 157
Q ₄	31, 95, 127	31, 95	31, 32, 63, 64, 95, 96, 127, 128, 160	31, 32, 63, 64, 96, 127, 128, 160
MD	12, 31, 62, 64, 93, 125, 126, 159, 160	12, 31, 62, 64, 93, 125, 126, 139, 159, 160	12, 31, 62, 64, 93, 125, 126, 139, 159, 160	12, 31, 62, 64, 93, 125, 126, 139, 159, 160

Table 5.3 reflects the items that failed to attain acceptable item-total correlations for the four sub-samples. The results for the four sub-samples are reported as follows:

- White males

Factors B, N, M, and I performed worst, with 11 or 12 of the items on each factor failing to obtain acceptable item-total correlations. More than half of the items (105 or 65,6%) had values below 0,30. Only the items of Factors H and Q₃ obtained acceptable item-total correlations. The MD-scale performed worst, with 9 (90%) of the 10 items failing to obtain acceptable item-total correlations.

- White females

Factors B, N, M, I and L performed the worst, with 11 or 12 of the items on each factor failing to obtain acceptable item-total correlations. More than three quarters of the items (125 or 78,1%) had values below 0,30. Only the items of Factor H obtained acceptable item-total correlations. The MD-scale performed the worst, with all 10 items failing to obtain acceptable item-total correlations.

- African males

Factors B, N, M, I, L and E performed worst, with 11 or 12 of the items on each factor failing to obtain acceptable item-total correlations. Almost all of the items (155

or 96,8%) had values below 0,30. No factors obtained acceptable item-total correlations. The MD-scale performed worst, with all 10 items failing to obtain acceptable item-total correlations.

- African females

Factors B, N, M, I, and L performed worst, with 11 or 12 of the items on each factor failing to obtain acceptable item-total correlations. Almost all of the items (154 or 96,2%) had values below 0,30. No factors obtained acceptable item-total correlations. The MD-scale performed worst, with all 10 items failing to obtain acceptable item-total correlations.

The results in Table 5.3 show that the item-total correlations for the four sub-samples were generally very weak. Most of the items failed to attain valid ($<0,30$) item-total correlations.

The number of items in this study that failed to reach acceptable item-total correlations were greater than in comparison with Abraham's (1996) and Prinsloo's (1992) research. Prinsloo found that 9% of items in the norm group did not reach acceptable levels. Abrahams' also found better levels of item-total correlations than in the current study, namely 7,5% for Whites, 18,13% for Africans, 11,8% for males and 7,5% for females. The MD-scale indicated that 30% of the items had values lower than 0,30 (Abrahams 1996). Hypothesis 3 can therefore not be rejected. The items on the 16 PF do not correlate with what the questionnaire is measuring for the four sub-samples.

5.3 Item comparability

Hypothesis 4 was tested by applying the Chi-squared statistic with the level of rejection for the null hypothesis set at $p < 0.0001$. The Chi-square measured the differences between the four sub-samples in terms of their responses on the 160 items to the 16 PF, SA92.

Hypothesis 4: There are no differences between the four sub-samples (White males, White females, African males and African females) in terms of their responses on the 160 items to the 16 PF, SA92.

Differences ($p < 0.0001$) are reflected in Tables 5.4 to 5.20 for the different sub-samples (population group and gender) responded to the items on the 16 PF, SA92.

1) Factor A

For this factor, 87,5% of the items indicated differences in the sub-samples. Differences were found on the following items: 1, 2, 33, 34, 97 and 129. The Chi-square results for Factor A are presented in Table 5.4.

Table 5.4

Differences of responses to items for Factor A

Items	Four sub-samples	
	χ^2	P
1	37,022	0,0000
2	99,620	0,0000
33	91,444	0,0000
34	198,754	0,0000
65	16,331	0,0120
66	98,519	0,0000
97	35,944	0,0000
129	51,792	0,0000

df = 6 for all comparisons

2) Factor B

For this factor, 66,6% of the items indicated differences. Differences were found on the following items: 3, 35, 36, 67, 68, 100, 130 and 132. The Chi-square results for Factor B are presented in Table 5.5.

Table 5.5

Differences of responses to items for Factor B

Items	Four sub-samples	
	χ^2	p
3	68,887	0,0000
4	7,614	0,0550
36	54,310	0,0000
67	26,588	0,0000
68	69,559	0,0000
98	10,548	0,0140
99	4,046	0,2570
100	91,850	0,0000
130	29,752	0,0000
131	1,122	0,7720
132	122,654	0,0000

df = 6 for all comparisons

3) Factor C

For this factor, 77,7% of the items indicated differences. Differences were found on the following items: 5, 6, 37, 38, 69, 70 and 102. The Chi-square results for Factor C are presented in Table 5.6.

Table 5.6

Differences of responses to items for Factor C

Items	Four sub-samples	
	χ^2	p
5	252,026	0,0000
6	26,951	0,0000
37	223,453	0,0000
38	148,701	0,0000
69	145,133	0,0000
70	112,838	0,0000
101	15,844	0,0150
102	339,057	0,0000
133	10,590	0,1020

df = 6 for all comparisons

4) Factor E

For this factor, 63,6% of the items indicated differences. Differences were found on the following items: 8, 39, 40, 103, 134, 135 and 136. The Chi-square results for Factor E are presented in Table 5.7.

Table 5.7

Differences of responses to items for Factor E

Items	Four sub-samples	
	χ^2	p
7	10,997	0,0880
8	64,749	0,0000
39	38,736	0,0000

Items	Four sub-samples	
	χ^2	p
40	30,136	0,0000
71	4,068	0,6670
72	17,940	0,0060
103	38,507	0,0000
104	2,051	0,9150
134	151,573	0,0000
135	35,726	0,0000
136	188,747	0,0000

$df = 6$ for all comparisons

5) Factor F

For this factor, 87,5% of the items indicated differences. Differences were found on the following items: 9, 10, 41, 42, 73, 105 and 137. The Chi-square results for Factor F are presented in Table 5.8.

Table 5.8

Differences of responses to items for Factor F

Items	Four sub-samples	
	χ^2	p
9	150,091	0,0000
10	412,108	0,0000
41	37,248	0,0000
42	303,326	0,0000
73	181,388	0,0000
74	11,708	0,0690
105	48,346	0,0000
137	28,559	0,0000

$df = 6$ for all comparisons

6) Factor G

For this factor, 60% of the items indicated differences. Differences were found on the following items: 44, 75, 76, 106, 107 and 138. The Chi-square results for Factor G are presented in Table 5.9.

Table 5.9

Differences of responses to items for Factor G

Items	Four sub-samples	
	χ^2	p
11	23,159	0,0010
12	4,640	0,5910
43	13,324	0,0380
44	263,490	0,0000
75	295,411	0,0000
76	67,487	0,0000
106	28,560	0,0000
138	59,631	0,0000
139	9,022	0,1720

df = 6 for all comparisons

7) Factor H

For this factor, none of the items indicated differences. The Chi-square results for Factor H are presented in Table 5.10.

Table 5.10

Differences of responses to items for Factor H

Item	Four sub-samples	
	χ^2	p
13	15,079	0,0200
14	17,037	0,0090
45	11,673	0,0700
77	13,836	0,0320
108	2,294	0,8910
109	14,906	0,0210
140	12,677	0,0480
141	4,982	0,5460

df = 6 for all comparisons

8) Factor I

For this factor, 90,9% of the items indicated differences. Differences were found on the following items: 16, 46, 47, 48, 78, 79, 110, 111, 142 and 143. The Chi-square results for Factor I are presented in Table 5.11.

Table 5.11

Differences of responses to items for Factor I

Items	Four sub-samples	
	χ^2	p
15	20,740	0,0020
16	261,614	0,0000
46	30,488	0,0000
47	179,921	0,0000

Items	Four sub-samples	
	χ^2	p
48	103,723	0,0000
78	84,373	0,0000
79	70,222	0,0000
110	239,194	0,0000
111	102,436	0,0000
142	249,390	0,0000
143	35,144	0,0000

$df = 6$ for all comparisons

9) Factor L

For this factor, 58,3% of the items indicated differences. Differences were found on the following items: 18, 49, 50, 112, 113, 144 and 145. The Chi-square results for Factor L are presented in Table 5.12.

Table 5.12

Differences of responses to items for Factor L

Items	Four sub-samples	
	χ^2	p
17	14,115	0,0280
18	57,025	0,0000
49	72,732	0,0000
50	105,154	0,0000
80	15,355	0,0180
82	14,294	0,0270
112	222,016	0,0000
113	32,967	0,0000
114	19,881	0,0030
144	114,599	0,0000
145	151,040	0,0000

$df = 6$ for all comparisons

10) Factor M

For this factor, 75% of the items indicated differences. Differences were found on the following items: 19, 20, 21, 52, 83, 84, 116, 147, and 148. The Chi-square results for Factor M are presented in Table 5.13.

Table 5.13

Differences of responses to items for Factor M

Items	Four sub-samples	
	χ^2	p
19	110,950	0,0000
20	63,588	0,0000
21	40,804	0,0000
51	4,611	0,5950
52	47,552	0,0000
83	197,765	0,0000
84	157,198	0,0000
115	11,876	0,0650
116	46,936	0,0000
146	13,962	0,0300
147	143,840	0,0000
148	84,039	0,0000

df = 6 for all comparisons

11) Factor N

For this factor, 50% of the items indicated differences. Differences were found on the following items: 54, 55, 86, 87, 149 and 150. The Chi-square results for Factor N are presented in Table 5.14.

Table 5.14

Differences of responses to items for Factor N

Items	Four sub-samples	
	X ²	p
22	19,425	0,0040
23	10,589	0,1020
53	7,134	0,3090
54	35,587	0,0000
55	97,426	0,0000
85	19,877	0,0030
86	62,829	0,0000
87	85,021	0,0000
117	11,755	0,0680
118	17,502	0,0080
149	40,584	0,0000
150	93,342	0,0000

df = 6 for all comparisons

12) Factor O

For this factor, 77,7% of the items indicated differences. Differences were found on the following items: 24, 25, 57, 88, 119, 151 and 152. The Chi-square results for Factor O are presented in Table 5.15.

Table 5.15

Differences of responses to items for Factor O

Items	Four sub-samples	
	X ²	p
24	75,914	0,0000
25	73,388	0,0000

Items	Four sub-samples	
	χ^2	p
56	12,439	0,0530
57	102,086	0,0000
88	112,184	0,0000
119	57,724	0,0000
120	4,088	0,6650
151	24,954	0,0000
152	152,801	0,0000

df = 6 for all comparisons

13) Factor Q₁

For this factor, 60% of the items indicated differences. Differences were found on the following items: 27, 58, 90, 121, 153 and 154. The Chi-square results for Factor Q₁ are presented in Table 5.16.

Table 5.16

Differences of responses to items for Factor Q₁

Items	Four sub-samples	
	χ^2	p
26	19,705	0,0030
27	261,416	0,0000
58	29,205	0,0000
59	20,090	0,0030
89	10,558	0,1030
90	74,074	0,0000
121	41,621	0,0000
122	11,915	0,0640

Items	Four sub-samples	
	χ^2	p
153	30,480	0,0000
154	121,347	0,0000

$df = 6$ for all comparisons

14) Factor Q_2

For this factor, 70% of the items indicated differences. Differences were found on the following items: 28, 61, 91, 92, 123, 155 and 156. The Chi-square results for Factor Q_2 are presented in Table 5.17.

Table 5.17

Differences of responses to items for Factor Q_2

Items	Four sub-samples	
	χ^2	p
28	155,680	0,0000
29	15,402	0,0170
60	8,833	0,1830
61	131,249	0,0000
91	30,243	0,0000
92	34,595	0,0000
123	34,028	0,0000
124	19,587	0,0030
155	76,686	0,0000
156	85,254	0,0000

$df = 6$ for all comparisons

15) Factor Q₃

For this factor, 80% of the items indicated differences. Differences were found on the following items: 30, 62, 125, 126, 157, 158, and 159. The Chi-square results for Factor Q₃ are presented in Table 5.18.

Table 5.18

Differences of responses to items for Factor Q₃

Items	Four sub-samples	
	χ^2	p
30	36,198	0,0000
62	138,563	0,0000
93	6,022	0,4210
94	12,300	0,0560
97	35,944	0,0000
125	38,791	0,0000
126	30,889	0,0000
157	47,558	0,0000
158	80,953	0,0000
159	28,336	0,0000

df = 6 for all comparisons

16) Factor Q₄

For this factor, 88,8% of the items indicated differences. Differences were found on the following items: 31, 32, 63, 95, 96, 127, 128 and 160. The Chi-square results for Factor Q₄ are presented in Table 5.19.

Table 5.19

Differences of responses to items for Factor Q₄

Items	Four sub-samples	
	χ^2	p
31	366,913	0,0000
32	72,151	0,0000
63	75,540	0,0000
64	5,821	0,4440
95	29,459	0,0000
96	67,296	0,0000
127	51,960	0,0000
128	69,691	0,0000
160	167,919	0,0000

df = 6 for all comparisons

17) MD-scale

For this factor, 60% of the items indicated differences. Differences were found on the following items: 31, 62, 125, 126, 159 and 160. The Chi-square results for MD-scale are presented in Table 5.20.

Table 5.20

Differences of responses to items for MD-scale

Items	Four sub-samples	
	χ^2	p
12	4,640	0,5910
31	366,913	0,0000
62	138,56	0,0000
64	5,821	0,4440

Items	Four sub-samples	
	χ^2	p
93	6,022	0,4210
125	38,791	0,0000
126	30,889	0,0000
139	9,022	0,1720
159	28,336	0,0000
160	167,919	0,0000

df = 6 for all comparisons

It is clear from the above tables that differences were found on the majority of items per factor. Differences were found for (67,8%) of items per factor, except for Factor H. Hypothesis 4 is therefore rejected. There are differences between the four sub-samples (White males, White females, African males and African females) in terms of their responses on the 160 items to the 16 PF, SA92.

5.4 SUMMARY OF EMPIRICAL RESULTS

In the preceding paragraphs and tables it is evident that the four sub-samples have a definite influence on the comparability of both items and constructs. In the following section these results will be discussed in terms of the sub-samples.

Large differences in means and standard deviations were found on the majority of factors. When the sub-samples were compared with one another the results suggested that Africans tended to be more reserved and concrete-thinking, less intelligent, affected by feelings, serious, opportunistic and tough-minded.

For all sub-samples the reliability co-efficients were unacceptably low on most of the factors. For African males there were only two co-efficients (Factors H and Q₂) greater than 0,50. Although the White sub-samples' reliability co-efficients were closer than African sub-sample to the co-efficients reported for the norm group, the reliability co-efficients were still unacceptably low.

The results of the item analysis indicated that for the African female sub-sample, 96,2% of the items failed to obtain satisfactory item total correlations. This figure was 96,8% for the African male sub-sample, 78,1% for the White female sub-sample, and 65,6% for the White male sub-sample. These results indicate the general weakness of the item-total correlations for all four sub-samples.

The item comparability results indicated differences for the majority of items. Significant differences were found for 15 of the factors (more than or equal to 50% of the items per factor), excluding Factor H.

5.5 INTEGRATION OF LITERATURE CHAPTERS AND EMPIRICAL STUDY

Through the empirical study, information was obtained regarding cross-cultural issues and their influence on personality assessment. In this regard, the following aspects of comparability can be noted.

The item analysis indicated that the majority of the items failed to attain item-total correlations. The MD-scale performed badly with at least nine of the ten items (for the four sub-samples) failing to obtain acceptable item-total correlations. This could indicate a problem with validity, as applicants who are seeking for a job may be attempting to paint too complimentary a picture of themselves. The high MD-scale for the four sub-samples would invalidate assessment results.

Reliability analysis indicated that, in general, the White population group responded more consistently, as indicated by the higher, although generally still unacceptably low (<0,70), reliabilities. This was also confirmed by Abrahams (1996). This finding might indicate that certain factors are more relevant to Whites (emic in nature). This might be explained by the fact that the original 16 PF (from which the 16 PF, SA92 originated) was standardised on a predominantly White sample, hence the slightly better reliability for the White group in this research. The factors of the 16 PF, SA92 do not seem to reflect

aspects that are universal or common to other cultures (etic in nature), as the reliability coefficients for the African population group were mostly unacceptably low.

No cross-cultural comparability or metric equivalence was found as indicated by the mean differences in scores of the four sub-samples. With these results, bias seems to be prevalent. The results of White applicants can appear to be "better" than those of Africans. Retief (1988) cautions against items that may be biased against individuals or groups. With the African population group performing so poorly, the source of bias may also be attributed to the translation procedures followed (Abrahams, 1996).

The above results reinforce that personality questionnaires compiled in Western countries need to be thoroughly standardised for local conditions with locally developed norms prior to application. In the social and political environment that South Africa presently finds itself, this aspect becomes non-negotiable.

This research indicates that the 16 PF, SA92 is not suitable as a personality assessment instrument and should not be used for selection purposes in the South African environment. This was also confirmed by Abrahams (1996).

5.6 CHAPTER SUMMARY

In this chapter the empirical results were presented in tabular form and discussed. The chapter commenced by presenting the descriptive statistics for the four sub-samples. This was followed by item comparability findings. The integration of the literature chapters and the empirical study indicated that the 16 PF, SA92 is an assessment instrument that is not valid or comparable across cultures in South Africa.

In Chapter 6, conclusions regarding the literature and empirical studies are made. Limitations of the study (literature and empirical study) are also indicated. Recommendations are then made for a suitable personality assessment instrument to be used, replacing the 16 PF, SA92, followed by a conclusion of the chapter.

CHAPTER 6

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

This chapter draws a conclusion on the research, discusses its limitations and makes recommendations on the continued usage of the 16 PF, SA92 or alternative assessment methods.

6.1 CONCLUSIONS

Conclusions will be formulated in terms of the literature review (Chapter 2 and Chapter 3) and the empirical study (Chapter 4 and Chapter 5). Conclusions will also be formulated in terms of the correlation between the findings of the literature survey and empirical study.

6.1.1 Conclusion: Literature review

In Chapter 2 cross-cultural psychology was conceptualised through clarifying the difference between cultural psychology and cross-cultural psychology. Furthermore, cross-cultural psychology's influence on personality assessment and its future were discussed. It can be concluded that when an assessment instrument is compiled, the different cultures' values should be taken into account. Personality assessment instruments must, especially in a country such as South Africa with its many diverse cultures, be cross-culturally administrable. As it is a political imperative to be culturally aware in South Africa (and in most other Westernised parts of the world), the future of cross-cultural psychology seems assured.

Chapter 3 focussed on the approaches to and the assessment of personality. The terms personality and personality assessment were conceptualised. Specific emphasis was placed on personality traits as part of personality assessment and how they are used to determine human behaviour.

It can be concluded that it is necessary to identify personality traits both quantitatively and qualitatively for a more complete selection process. Although Cattell et al. (1992) mention that traits are universal to all people, cross-cultural application of the 16 PF has indicated the contrary in some cultures.

The literature reviews were integrated by focussing on the relationship between cross-cultural psychology and its approaches to personality and the assessment thereof. What is evident from the literature research is that there is a continual striving for fairness in personality assessment, where each individual is treated equally. In other words, no individual or culture group is regarded as superior to other. At present besides the 16 PF, SA92, only the South African Personality Questionnaire (which is no longer favourably used) has been standardised on a cross-cultural South African sample. Psychologists in this country are challenged to compile a personality instrument applicable to the broad South African community.

6.1.2 Conclusion: Empirical study

For the purposes of this research, the cross-cultural validity and comparability of the 16 PF, SA92 was undertaken. Descriptive statistics were used to determine the effectiveness of the 16 PF, SA92 questionnaire for each of the different sub-samples (White males, White females, African males and African females).

The means and standard deviations for the first-order and second-order factors were calculated for the four sub-samples. One way analysis of variance was used and the significance level for the rejection of the null hypothesis was set at $p < 0,0001$. In conjunction with one way analysis of variance, the Scheffe test for multiple comparisons between mean scores was used to give an indication of significant difference between the four sub-samples. The significance level for the rejection of the null hypothesis was set at $F < 0,01$.

The following procedures were followed to determine the internal consistency of the 16 scales for the four sub-samples, as well as the suitability of the items in terms of the four sub-samples:

- Reliabilities of the 16 PF, SA92 for the four sub-samples (Kuder- Richardson KR-8).
- Corrected item-total correlations between the items and factors to which they belong for the responses of the four sub-samples.

In order to determine item comparability, the Chi-squared statistic was used to compare the responses from the four sub-samples (White male, White female, African male and African female). The results indicated that the four sub-samples generally differed from one another in terms of construct and item comparability. This aspect will be discussed in further detail.

Differences between means were found on most of the factors. These scores indicate that Africans tend to be less intelligent, more concrete thinking, more affected by feelings, more serious, suspicious, absent minded, depressive, radical, group dependent, casual and careless, anxiety driven and more emotionally sensitive than Whites. Conversely Whites tend to be more enthusiastic, self-sufficient, controlled, less anxious and less emotional (rational and objective), more trusting, practical, self-assured and conservative. The above mentioned findings were largely confirmed by the findings of Abrahams (1996) using the 16 PF, SA92.

In this study reliability co-efficients for Africans on 14 of the first-order factors were very low. Only Factors H and Q₂ that had co-efficients greater than 0,5. For African males and African females together, 10 out of the 32 reliability co-efficients were lower than 0,30.

Whites obtained higher reliability co-efficients and were closest to the norm group's co-efficients, with only one of the co-efficients lower than 0,3 (Factor B).

For African sub-samples, most of the items did not obtain acceptable item-total correlations (96,8 % for the African males, and 96,2% for the African females). The item-total correlations for Whites (65,% for White males and 78,1% for White females) were closer to the scores reported by the norm group, although the results of this study indicate that most of the items failed to obtain significant item-total correlations.

Item comparability results indicated that differences were obtained on the majority of items per factor. Differences were obtained (more than or equal to 50% of the items per factor) for the majority of factors, with Factor H being the only exception.

6.1.3 Conclusions in terms of the literature review and the empirical study

The conclusion of the literature review is that an identified theoretical relationship exists between culture and the assessment of personality. The empirical study provided statistical evidence of this relationship.

These research results suggest that there are problems with the items of the 16 PF, SA92. These items do not measure consistently when the questionnaire is applied cross-culturally.

These discrepancies in scores between the different cultures in this research, imply that personality assessment instruments standardised on Western (or White only) cultures cannot be applied cross-culturally in South Africa. The validity and comparability problems that result are too many. This research indicates that even the standards set for Whites may be problematic.

The 16 PF, SA92, then, is not cross-culturally suitable. This finding may also apply to the other personality assessment instruments distributed by the Human Sciences Research Council. Assessments from Europe and the United States need to be standardised on South African samples (White, Coloured, Asians and Africans). Failure

to implement such changes implies an ethical contravention by the suppliers of assessment material, psychologists and personnel practitioners.

6.2 LIMITATIONS

In this section, limitations will be discussed for both the literature and empirical studies. Although precautions were taken to ensure the effective planning and execution of the research design and research methods, limitations existed. The most important limitations will be discussed below.

6.2.1 Limitations: Literature study

Very little literature (especially for personality assessment) on cross-cultural research within the South African context is available. The research done by the Human Sciences Research Council was extremely valuable though.

Much of the South African research done in this field before 1994 seemed to be politically biased. Population groups, other than White, were not sufficiently represented as part of norm groups with the implication that the relevant assessment was not cross-culturally valid.

Literature from Europe, Britain and the United States on cross-cultural research cannot be applied blindly within a South African context without proper research, as the situation in South Africa is unique.

6.2.2 Limitations: Empirical study

This research was based on a convenience sample of White and African people. No Coloured or Asian people were included. A more representative sample is necessary in order to draw conclusions about the South African population as a whole.

Evidence is fairly inconclusive to suggest that the questionnaire is totally bias and not fair. It is therefore suggested that more sophisticated differential item research instruments are used to reach conclusive evidence of the 16 PF, SA92 being bias or not.

There is presently no personality assessment instrument in South Africa which has truly been adapted for our multi-cultural society. The following alternatives to the 16 PF, SA92 are recommended.

6.3 RECOMMENDATIONS

The 16 PF, SA92 questionnaire is evidently not suitable for the South African multi-cultural society as highlighted by this study and the research of Abrahams (1996). This is especially true if one realises that this questionnaire was developed and validated with its roots in a Westernised society, thereby ignoring the African cultural environment.

An internal investigation by this department in 1995 found that 83% of a group of 252 applicants had a MD-scale of seven or higher. As a result of these high levels of motivational distortion and due to problems regarding cross-cultural validity, the 16 PF, SA92 was discontinued for selection purposes at this department since the latter half of 1997. A health questionnaire developed by the department is currently in use as an interim measure. The department is not, however, satisfied with the health questionnaire as it can easily be manipulated. It continues to be used only because there is no other viable or available options.

It is imperative that selection, which examines personality and aspects of pathology in a quantitative manner (questionnaires or tests), continues within this state department. The department has to contend with many applications for entry-level posts, posts of a more senior nature and for specialised posts. It is not viable to personally interview the considerable number of candidates who apply for posts in this department.

Consequently, consideration has to be given to alternatives to the 16 PF, SA92 which could be used to measure personality and to identify possible pathology. Abrahams (1996) lists three alternatives to the 16 PF, SA92:

- * The 16 PF, SA92 could be translated into the eleven official languages of South Africa. This is, however, a costly and time consuming process. The assessment must also demonstrate that the same constructs are being measured when different cultural groups are compared.
- * The 16 PF, SA92 could be discontinued and new tests constructed on the South African population. One must ensure that the words and items are understood in all the cultures and it is therefore imperative to develop a personality assessment in the home language of the people who will be using the assessment.
- * Work related variables could be used to assess individuals in the workplace. A competency-based assessment focuses on job-related criteria. This method of selection is currently widely used by South African companies.

The decision of measuring quantitatively or qualitatively needs also to be made. These two options are briefly referred to below:

- * With a quantitative measurement an individual indicates preferences or dislikes. A quantitative measure provides something substantive (such as the answer sheet of the 16 PF, SA92) which assists in upholding decisions. The consequentness of information is also assured. An example would be that the testee complete the questionnaire in a 30 minute period.
- * Qualitative measurement on the other hand is reliant upon an observer for the information. This could prove to be risky as the observer could fail to obtain precisely the same information with every interview. When observing, the cues obtained are interpreted from the observer's viewpoint and could be biased. It is also

very difficult to ensure that each interview is restricted to 20 minutes. The amount of time needed to obtain information from an applicant invariably differs.

The option eventually decided upon that would be best for this department was quantitative assessment. This differs from Abrahams' (1996) options as this department believes that well-known assessments that have been tried and tested over many years are the most viable option.

An overview of personality assessment instruments (quantitative methods) that could possibly replace the 16 PF, SA92 are listed below.

6.3.1 Minnesota Multi phasic Personality Inventory - 2 (MMPI-2)

The MMPI was initially developed to assist research users in assigning psycho diagnostic labels to their patients and subjects. The restandardised MMPI-2 has been developed to retain the valuable features of the previous assessment while addressing some contemporary concerns. The MMPI-2 is made up of 567 items while the original has 550 items (Duckworth & LeVitt, 1994; Greene, 1991).

The MMPI was the most widely used personality assessment instrument in the world. The MMPI-2 may also become widely used, although at present clinicians prefer the original assessment instrument. The MMPI-2 is useful in agencies such as psychiatric hospitals, mental health clinics and college counselling centres, and is also widely employed in personality research. Psychologists are the primary users but psychiatrists, psychiatric social workers and psychiatric nurses can also use it (Duckworth & LeVitt, 1994).

Reliability data is generally good, with median split-half reliability co-efficients of the standard scales in the 0,70s. Test-retest reliabilities range from 0,50 to into the 0,90s with a median in the 0,80s (Gregory, 1992).

Criticism of the MMPI is that the norm group is heavily weighted with professional people. Forty five percent of the normative students are college graduates.

Cross-cultural differences were found between the two groups Asian-Americans and Anglo-Americans (Reh, 1990). According to Butcher and Pancheri (1976), however, populations with similar cultural backgrounds to the United States are likely to have slight or no differences in assessment results.

Finally, Dahlstrom, Lacher and Dahlstrom (1986) postulate that very little distortion or bias has been evident when the MMPI was used for African-Americans, providing evidence that the MMPI is cross-culturally valid in the United States.

As the MMPI-2 is more widely used its potential for accurate assessment may be realised.

6.3.2 NEO Personality Inventory Revised (NEO PI-R)

The NEO PI-R provides measures of five major domains of normal adult personality namely, Neuroticism, Extroversion, Openness, Agreeableness and Conscientiousness. The NEO PI-R was developed from the NEO PI by Costa and McCrae. The NEO PI-R Form 5 consists of 240 items answered on a five-point scale and is appropriate for men and women 17 years of age or older. The NEO PI-R can be administered to normal individuals and those affected by physical and psychological disorders (Tinsley, 1994).

The NEO PI-R can be administered to individuals or groups and administration by professionals is not necessary. Applications of the inventory include counselling psychology, clinical psychology, health psychology, industrial or organisational psychology, psychiatry and other research in general. Interpretation of the NEO PI-R requires professional training in psychological testing and measurement (Tinsley, 1994).

Internal consistency and test-retest reliabilities have been noted. The internal consistency reliability of the domain scores ranged from 0,86 (for Agreeableness) to 0,92 (for Neuroticism). The reliabilities for the 30 facet scores range from a low of 0,56 (Tender Mindedness) to a high of 0,81 (Depression) with a median of 0,71. By domain, the median reliabilities of the facet scales are 0,76 for Neuroticism, 0,73 for Extroversion, 0,71 for Openness, 0,70 for Agreeableness and 0,67 for Conscientiousness (Tinsley, 1994).

The NEO PI-R is one of the better personality instruments. It is easy to complete, self administering and brief enough to be included in a battery with other tests or questionnaires.

Costa and McCrae (1992) have undertaken three investigations of the NEO PI-R's factor structure. Analysis has been performed on the items facet scores and on the sub-samples of men, women, Whites, non-Whites, young adults and older adults in the United States. These results yielded support for this model and its cross-cultural applicability in the United States.

6.3.3 Eysenck Personality Questionnaire (EPQ)

The EPQ measures three major factors of personality: Psychoticism, Extroversion and Neuroticism. It contains 90 items, answered yes or no, formatted as a second-person questionnaire (Rogers, 1995).

The EPQ's reliabilities for one-month test-retest correlations is 0,78, 0,89, 0,86 and 0,84 for all of the scales and the construct validity of the EPQ is good (Rogers, 1995). The technical quality of the EPQ is also good and compares favourably with most other personality inventories. The questionnaire is applicable to the age group of 16 years and older (Rogers, 1995). Validity is the strength of the EPQ and the validity scales of the EPQ are the best supported when compared to any of the other personality measures (Kline, 1993).

The questionnaire's main flow, which mainly affects personnel selection, is however criticised by Kline (1993). He suggests that the factors are too broad and that more detail is required for proper discriminations necessary for personnel selection.

Cross-cultural comparative studies done on the EPQ, in many different countries, found that the evidence for intergroup differences on the EPQ are far more open to doubt than was suggested (Bijnen, Van der Net & Poortinga, 1986). From this research it was deduced that there is sufficient reason to question the cross-cultural validity of the EPQ.

Research was also undertaken by Hanin, Eysenck and Barrett (1991) where the Russian EPQ was administered to Russian subjects. Means and standard deviations were calculated for the norm groups (Russians and the English) as well as males and females. The results (factor analysis) indicated that gender differences were comparable and that factor analysis indicated similar factor structures for the two groups.

6.3.4 16 PF fifth edition

Research on the fifth edition of the 16 PF in the United States began in 1988. It was decided that the 16 PF would be revised by selecting and updating the best items from the previous five 16 PF forms (Forms A, B, C, D and CAQ). All items were selected to meet specific criteria. These included updated and simplified language, increased item scale correlations or loadings, avoidance of content which could lead to disability, gender or race bias, cross-cultural translatability and the avoidance of undesirable content (Cattell & Cattell, 1995).

The 16 PF fifth edition has 185 items grouped in 16 trait scales and one validity scale. Twenty-four percent of the 185 items are new items of which 27% of the items involved significant changes, whereas minor changes were made in 27% of the items, leaving 22% of the original items intact (Byravan & Ramanaiah, 1995).

Among a sample of undergraduate and graduate students ($n = 1340$), Cronbach alpha co-efficients ranged from 0,68 to 0,87 with a median of 0,77, and retest reliabilities over a two week period with another sample of undergraduate and graduate students ($n = 204$) ranged from 0,67 to 0,87 with a median of 0,80 (Byravan & Ramaniah, 1995).

The results of the factor patterns on the first and second-order factors lend strong support for its continuity with earlier versions. Russel and Karol (1993) focussed on the psychological meaning of the traits through validity studies and found them consistent with previous editions of the 16 PF (76% of the new items were derived from existing forms of the 16 PF).

6.4 CONCLUSION TO RECOMMENDATIONS

It is evident from these four personality assessments (MMPI-2, NEO PI-R, EPQ and the 16 PF fifth edition) that they all have high reliabilities, are popular assessments and have been applied cross-culturally, in the United States. The assessment instruments suggested as the alternatives to the 16 PF, SA92 can only be appreciated in the event of their reliability co-efficients remaining as high as they presently are, when applied cross-culturally in South Africa. There is not always consensus, however, regarding the cross-cultural comparabilities of the assessments. What appears to compound the issue, is that once comparability is found on these assessments, another researcher finds reason to dispute it. The cross-cultural standardisation of these assessments has also not yet materialised in South Africa. On the positive side, researchers have the right to give critique in the spirit of improving a questionnaire on a continual basis.

According to C.H. Prinsloo (personal communication, 6 November 1998) the Human Sciences Research Council is in the process of developing a 16 PF fifth edition questionnaire which will be cross-culturally applicable in South Africa. This questionnaire will be available for use towards the latter end of 1999.

6.5 CONCLUSION

Taking the results of this research and Abrahams' (1996) findings into account, it can be stated without hesitation that psychologists and personnel practitioners using the 16 PF, SA92 or any other assessment instrument should not base their decisions on the outcome of an applicant's assessment instrument results but also qualitative assessment. This is irrespective of the person's population group whether White, Coloured, Asian or African.

Population group results that differ so much from one another are of great concern. They raise the issue of the 16 PF, SA92 being biased and unfair amongst population groups.

A major responsibility now rests on the shoulders of psychologists and personnel practitioners to ensure that the morals and ethics of fairness are followed as stipulated in the Code of Professional Conduct of the Health Professions Council of South Africa (South African Medical and Dental Council) and the Professional Board of Psychology (1974, p ix) this implies in respect of psychology, that whether "employees or employers, psychologists must not engage in or condone practises that are inhumane or that result in illegal or unjustifiable actions. Such practises include, but are not limited to, those based on considerations of sex, race, religion or national origin in hiring, promotion or training".

Failure to adhere to these ethical codes of practice may lead to legal proceedings. These will be difficult to defend in the light of past discrimination (i.e. sex, race, gender, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture or language).

An important challenge awaits the Human Sciences Research Council and for that matter the whole research community in South Africa to develop a personality questionnaire which is cross-culturally applicable. This country is in great need of a personality questionnaire that can be applied in a multi-cultural society. It is with this in mind that the 16 PF fifth edition is eagerly awaited.

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