

**PSYCHOMETRIC PROPERTIES OF A VENDA VERSION OF THE SIXTEEN  
PERSONALITY FACTOR QUESTIONNAIRE (16PF) FIFTH EDITION**

by

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**DECLARATION**

I declare that “**Psychometric properties of a Venda version of the Sixteen Personality Factor Questionnaire (16PF5) Fifth Edition**” is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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**Date**

## **ABSTRACT**

A Venda version of the South African Sixteen Personality Factor Questionnaire Fifth Edition (16PF5) was developed using forward and back translation methods. This version was administered to a sample of 85 Venda speaking subjects. Subjects ranged in age from 18 to 30 years old. Item analysis was done and a qualitative analysis of the reasons why items were not successful was done for each scale. Reasons identified included translation errors, problems in understanding the vocabulary and idiomatic language used, the use of the negative form and possible differences in the manifestation of constructs. Given the large number of items to be excluded, only general trends were indicated as to avoid over interpretation. These trends need to be considered when changing or replacing items. The results of this study can be regarded as a first step in developing a Venda version of the 16PF5.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 INTRODUCTION

Personality testing is concerned with the affective or the non-intellectual aspects of behaviour. In general, personality refers to significant and long lasting characteristics within an individual that exert a strong influence on behaviour. According to Ewen (1988) there is as yet no single universally accepted definition of personality. Though there are many definitions of personality, Hjelle and Ziegler (1976) identify some important features of the different definitions of personality. Most definitions depict personality as some kind of hypothetical internal structure or organization. Behaviour is seen as being organized and integrated by personality. The need to understand the meaning of individual differences is also stressed. Each person is distinctive to some extent and behaviour differences exist between individuals. It is through the study of personality that the relevant differences among persons become clear. Aside from these common characteristics, personality definitions differ substantially. In fact, definitions of personality depend upon the underlying theory of personality. To understand what a theorist means by the term "personality," his or her theory must be examined in detail. For instance, theorists who emphasize the measurement of personality in their theories come up with definitions that stress the predictive utility of their measurements. Cattell for example, defined personality as "that which permits a prediction of what a person will do in a given situation" (Cattell, 1965, p.25). A comprehensive definition given by Meyer, Moore and Viljoen (1997, p.12) states that: "personality is the constantly changing but nevertheless relatively stable organization of all physical, psychological and spiritual characteristics of the individual which determine his or her behaviour in interaction within the context in which the individual finds himself or herself." Both definitions and theories of personality aim to account for the inconsistencies, similarities and differences in individual behaviour across situation and time.

Personality tests refer to measures of such characteristics as emotional states, interpersonal relations, motivation, interests and attitudes (Anastasi, 1990). There are different techniques used to assess personality. Ross (1992) distinguishes between three categories of assessment techniques i.e. self-report methods, projective methods and interview methods. The underlying assumption of **self-report methods** is that subjects are aware of their own behaviour, know themselves and are able to make valid assessments of themselves in terms of test items. Individuals whose personalities are being assessed by a self-report method are asked a series of questions that have to do with what kind of people they are and they have to respond in terms of statements that best describe them. These tests do not have correct or incorrect answers. Gregory (1996) describes self-report methods as a structured approach to personality assessment. It is structured in the sense that highly specific rules are followed in the administration, scoring, and interpretation of the tests. Hjelle and Ziegler (1992) comment that self-report inventories are more widely used than any other form of personality assessment because standardization of scoring procedures minimizes the risk of personal bias by the person scoring the test.

**Projective tests of personality** are designed to assist the clinical psychologist in diagnosing the nature and severity of a person's emotional disturbance (Schultz & Schultz, 1998). The term projective test is used to describe a category of tests for studying personality with unstructured stimuli. In a projective test the examinee encounters vague, ambiguous stimuli and responds with his or her own constructions. Projective testing is vested in psychoanalytic theory and its postulation of unconscious aspects of personality (Gregory, 1996). The central assumption of projective testing is that responses to the test represent projections from the innermost unconscious mental processes of the examinee. Ross (1992) points out that these methods are not as standardized in terms of administration, scoring and interpretation. The interpretation of projective methods is complex as it requires a good deal of subjective judgement on the part of the examiner; responses are coded and scoring is a detailed procedure (Liebert & Spiegler, 1978).

The **interview** is a verbal interaction in which a researcher obtains information, relevant to a specific research aim, in speaking with a subject. The interaction can be

face to face or it may be conducted by other means, such as the telephone (Maddi, 1992). Ross (1992) distinguishes between structured and unstructured interviews. In structured interviews, questions are carefully worded and presented in a prescribed order whereas in the unstructured interview, questions are phrased in such a way that they allow the person considerable latitude in responding. Gregory (1996) mentions the employment interview as one part of the evaluation process, but most administrators regard it as the crucial make or break component of hiring. As noted by Ross (1992) interview methods make it possible to pursue unexpected and unusual topics that might not be touched upon by the questions of a standardized test. The interview also enables the examiner to observe the interviewed person's behaviour and his or her reactions to the various questions, and topics. These observations might later contribute to the conclusions drawn from the interview. The reliability and validity of the interview as an assessment method are questioned by Maddi (1996), but Gregory (1996) points out that recent studies using carefully structured interviews, including situational interviews, provide a more positive picture of interview validity.

Gregory (1996) also discusses **behavioural assessment** as a structured approach available for assessing the antecedents and consequences of behaviour. These include checklists, rating scales and structured observations. Behavioural methods share a common assumption that behaviour is best understood in terms of clearly defined characteristics such as frequency, duration, antecedents, and consequences of behaviour. These methods tend to be highly pragmatic in that they are usually interwoven with treatment approaches.

Personality tests are used in a variety of settings such as educational, occupational and clinical. These tests provide information that can be used to predict future behaviours (Ross, 1992) and as such are used for screening, classification, promotion, placement or with regard to adjustment problems. Commerce and industry demand applicants who among others have the abilities to get on with their colleagues, fit into the particular work patterns of their jobs and stay in their job for considerable periods of time (Palk, 1983). In clinical situations personality test scores have been found to show trends among people with various psychiatric disorders and with various

emotional difficulties (Schuerger, 1992). Schools and academic institutions are among the largest test users. They use personality tests as part of the process of diagnosing reasons for academic failure and the educational and vocational counseling of school and college students. Educational and vocational counseling counters use personality tests as part of a battery of tests with students who have emotional problems, career choice difficulties and those who need guidance in as far as study methods are concerned. Personality tests are also used in the selection of applications for professional and other special programs (Prinsloo, 1992).

Various personality tests are currently being used in South Africa, among them the different forms of the Sixteen-Personality Factor Questionnaire (16PF). The 16PF is a self-report inventory, which measures source traits of the normal personality as identified by Raymond Cattell (Cattell, Eber & Tatsuoka, 1970). This study aims at looking at the psychometric properties of the translated Venda version of the American 16PF Fifth Edition (16PF5).

## 1.2 THE SIXTEEN PERSONALITY FACTOR QUESTIONNAIRE

The 16PF is a self-report personality inventory based on Cattell's trait or factor theory (Cattell et al., 1970). A trait is any relatively enduring way in which one individual differs from another (Guilford, 1959). Cattell refined existing methods of factor analysis to help reveal the basic traits of personality. Central to Cattell's theory is the distinction between source traits and surface traits. Cattell referred to the more obvious aspects of personality as surface traits. These would typically emerge in the first stages of factor analysis when individual test items are correlated with each other. Anyone can observe surface traits and recognise that they are correlated without the aid of tests or complicated statistical analysis. Ross (1992) mentions that we all know someone who is friendly, cheerful, generous, and talkative, who loves loud music. In Cattell's view, source traits, in contrast are basic underlying structures which Cattell viewed as constituting the building blocks of personality. Hjelle and Ziegler (1992) comment that source traits exist at a "deeper" level of the personality and are some of the causes of behaviour in diverse domains over an extended period of time. After extensive factor analytic research, Cattell et al. (1970) concluded that approximately

16 source traits constitute the underlying structures of personality. These factors are best known in connection with a scale that measures them, namely the 16PF. The 16PF was developed by Cattell in 1949 in America (Cattell et al., 1970).

Cattell viewed personality as that which permits us to predict what a person will do in a given situation. Since its initial publication, the American version of the 16PF has undergone four revisions (1956; 1962; 1968; 1992). The latest that began in 1988 resulted in the release of the 16PF5. This form was released in 1994 by the Institute for Personality and Ability Testing (IPAT) in the United States of America (Cattell & Cattell, 1995). This new edition is based on extensive research with the goal of updating and improving item content, standardizing on a current American population sample, and generally refining the test. The overall plan for the revision was to select and update the best items from the five current forms of the 16PF and to combine these items to create one improved form.

Cattell and Cattell (1995) list the following criteria according to which items were selected:

- (a) updated and simplified language
- (b) increased items, scale correlation or loading
- (c) avoidance of content that might lead to gender, race or disability bias
- (d) cross-cultural translatability
- (e) avoidance of strongly socially undesirable content or content that might be considered unacceptable in a personnel selection setting.

The development process is discussed in the 16PF5 technical manual published by IPAT in 1994 (Conn & Rieke, 1994). As discussed earlier, the 16PF is a widely used test of personality that is currently available in five separate forms i.e. forms A, B, C, D and E. These forms contain from 105 to 187 items and differ mainly in reading level (from third-grade to seventh-grade level). Form A and Form B have 187 items and are meant for adults with a formal educational level of at least standard 10 or an equivalent qualification. Both forms are available in South Africa and local norms have been established for both. Form C and Form D have 105 items and are suitable for certain applications in industry on account of their simplified language usage and

smaller number of items. Neither has been standardized on South African samples. Form E contains 128 items and the language used, the vocabulary and the format have been simplified in order to make it suitable for use by persons 18 years and older, who have reached a formal educational level of standard 4 to standard 9. The Human Sciences Research Council (HSRC) experimented with the American edition of the 16PF (Form E) and based on this the South African version of 1980 was developed (Prinsloo, 1992).

Prinsloo (1992) indicated the following uses of the 16PF:

- (a) Career counseling may be given to individuals, based on the scores of the 16PF. Like in all personality assessment, the 16PF questionnaire cannot be used alone as the predictor of behaviour; for greater effectiveness, the results of the 16PF can be coupled with the results of other tests such as interest inventories and intelligence tests. The 16PF can also be used at universities to assist students in career choices, to diagnose possible reasons for study problems and to select and accept students into university programmes. The 16PF together with other tests like an English proficiency questionnaire and some sections of the Academic Aptitude Test (AAT) are used for the selection of students for different study programmes, for example nursing and educational programmes (Landman, telephonic interview, 11 January 2000).
- (b) In industry, the results may be used for assessing individuals when recruitment, selection, placement, and promotion take place. They may also be used for the diagnosis of individual problems that might hamper productivity at work.
- (c) In counseling the scores may be used to aid marital and family therapy.
- (d) It may be applied in clinical contexts to identify personality disorders.
- (e) It may be useful in research and academic settings as it can be used as a basis when developing new instruments and by postgraduate students when for example investigating generalisability of the norms and when investigating the validity and the reliability of the instrument across cultures.

The latest South African version of the 16PF, namely the 16PF, SA92 has been standardized for different population groups (Prinsloo, 1992). Van Eeden and Prinsloo (1997) conducted a study to determine the fairness of this version for various groups and some culture and gender specific trends were found that should be taken into account when interpreting results for the 16PF, SA92.

Abrahams (1996) also investigated whether the scores of the 16PF, SA92 are comparable in cross-cultural setting. This study was conducted with the aim of looking at influences like age, language, socio-economic status and gender. The findings showed that serious problems existed as far as the comparability of the items across groups was concerned and participants whose home language was neither English nor Afrikaans reported to be experiencing problems in understanding some of the words in the test. Abrahams (1996) concluded that the 16PF, SA92 is unsuitable for use in South Africa with its multicultural society. One of the recommendations given by Abrahams was the option of translating the test into the home language of the target population, and then to conduct a thorough analysis. However, this is bound to be an expensive exercise as there are eleven official languages in South Africa. She suggested that it might be more cost effective to focus on those languages with the largest number of users.

- v A feasibility study was conducted on the American 16PF5 by Van Eeden, Taylor and Du Toit (1996) to study differential item functioning and the factor structure for different cultural groups in South Africa. It was concluded that the African language group might not understand some of the words and phrases being used or that this group might attach a different meaning to some words/phrases. The results of this study paved the way for the study conducted by Prinsloo et al. (1998). He suggested the replacement and/or rephrasing of problematic words and sentences. The HSRC is at present busy investigating the factor structure and readability of the South African English version of the 16PF5 based on the original American version. Where bilingual assessment is used, norms groups that have similar levels of education, home language proficiency, and proficiency in the language of the test will probably provide the best comparison standard (Foxcroft, 1997).

### 1.3 STATEMENT OF THE RESEARCH PROBLEM

The Employment Equity Act no. 55 of 1998, p.8, states that:

“Psychometric testing and other similar assessment of an employee are prohibited unless the test or assessment being used:

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

South Africa comprises a socially diverse society and the wide implications of cultural dynamics for personality and ability evaluations warrant research into the fairness of using psychometric tests for various groups and the cross-cultural comparability of psychological test results. Anti-test lobbyists argue that available tests are not appropriate for different cultures and lead to discriminatory practice. On the other hand, Taylor and Boeyens (1991) state that testing can serve a useful purpose in the multicultural South African society. “Past apartheid policies impacted negatively on test development and use in South Africa in that separate tests were designed for different racial categories, with the result that few tests are available that have been designed and standardized for all South Africans” (Professional Board for Psychology, 1999, p.1). As the apartheid system crumbles, test populations become progressively more multicultural. According to Taylor and Boeyens (1991) most tests were created and standardized in the days when test populations were made up of a single group. If combined groups were used, it was very difficult to compare the scores across cultures. Not surprisingly, questions are increasingly being asked as to the comparability of test scores across cultures. Where similar but separate tests have been constructed for the various population and language groups, different norms for different groups make comparisons across groups difficult. According to Abrahams (1996) tests must be locally validated and cannot be transferred from one context to the other without adequate adaptation to comply with local circumstances. Nzimande (1995) comments that more reliable, valid and fair tests are needed in South Africa because very often promotion and selection decisions are made on the basis of tests. Test users should select tests that have been developed in a way that attempt to make it as fair as possible for test-takers of different races, gender, and ethnic background

(Foxcroft, 1997). An instrument should furthermore have basic psychometric integrity (i.e. validity and reliability) for the populations in which it is used in order to minimize problems of cross-cultural assessment (Retief, 1992).

In a society that is striving to redress the wrongs of the past, like South Africa, affirmative action policies sometimes result in affirmative assessment (Foxcroft, 1997). For example norms for black pupils, students and job applicants are adjusted upwards to enable them to compete on an equal footing with whites for jobs and educational and training opportunities. Test users and developers need to guard against affirmative action policies not impacting on the ethical use of the test. Policy makers need to be made aware that affirmative assessment cannot and should not be used to redress the imbalances of the past.

There are many suggestions made (Abrahams, 1996; Foxcroft, 1997; Taylor & Boeyens, 1991) offering solutions to the problems with psychometric testing in South Africa. In view of the fact that many groups in South Africa are at various stages of westernisation, and given the linguistic diversity of its peoples, the development of culturally relevant tests will not only be slow and costly, but probably represents an unattainable goal. One suggestion is to use internationally recognized and well-researched tests for the westernised and educated individuals. Where translation is seen as a solution, care must be taken to ensure that the item content is as free as possible from cultural bias. In developing a new South African personality assessment instrument, the meaning attached to psychological constructs by all cultures should be taken into account. The variation in the systems of meaning that different cultures use to ascribe meaning to events may affect test results. Responses to personality tests could be influenced by the variations in attributed meaning as there are no correct or incorrect answers (Retief, 1992). Poortinga (1983) for example mentions differences in responding to items related to social desirability. A certain group may be less willing to admit having certain feelings than the other, and that kind of response appears to be culturally related and influenced by values and norms. Poortinga believes that the larger the cultural distance between the cultures concerned the greater the variation in meaning.

Culture, as defined by Ralston (1995, p.715) "is a collective programming of the mind that distinguishes the members of one category of people from those of another, it is the mindset or mental framework resulting from shared values, beliefs, symbols and social ideals." Culture influences thought either directly, through the socialisation of the individual within a culture, or indirectly, as the individual learns the language of a culture. Therefore when learning a language, an individual's thought processes may be subconsciously influenced by the culture of that language (Roper, 1992). Consequently, when an individual responds to an instrument that assesses values, that individual's reported values might be influenced by the language and related culture in which the instrument was written. Thus, when bilinguals respond to comparable information presented in different languages, they may shift their responses in the direction of the culture of the language of presentation (Prieto, 1992). Based on research by Ralston (1995) on the effect of language on the responses of bilingual subjects, it was concluded that individuals respond in a manner, perhaps even a mindset, that is consistent with the culture of the language in which they are responding. Researchers who do not use native language instruments might therefore be losing valuable cross-cultural information.

Researchers (Abrahams & Mauer, 1999; Retief, 1992; van Eeden et al., 1996) refer to the fact that the use of English remains a problem in cross-cultural testing. African language speakers being tested in English might not understand some of the words and phrases being used or they might attach a different meaning to some words/phrases. Black pupils who do not usually answer tests in their mother tongue, might experience problems because they only use English at school and at home they use their mother tongue (Owen, 1992). The language problem is even worse in more rural and disadvantaged areas where people rarely use English. In the case of cognitive or aptitude tests, performance could be lowered because of language and not because of ability factors if a test is administered to a person in a language other than his home language. Language is therefore a potential source of bias for black pupils who complete a test in English (Foxcroft, 1997; Nell, 1999; Owen, 1991, 1992; van Eeden & Visser, 1992). It should however be kept in mind that some pupils who speak Afrikaans or an indigenous language at home have opted to be educated in English from Grade 1 (Nell, 1994). For African language speakers, English is used as a

medium of instruction from Grade 5 onwards, though their English proficiency is not comparable to that of mother tongue English speakers when they have completed their schooling. Consequently, it has been proposed that in the case of individuals with 10 or more years of formal education it may be feasible to establish norms for groups that are relatively homogeneous in terms of education level and proficiency in either English or Afrikaans.

Translation and adaptation of questionnaires from one language to another has been suggested as a solution to cross-cultural testing by various authors (Ben Porath, Almagor & Telegen, 1995; Bontempo, 1993; Bracken & Barona, 1991; Brislin, 1970; Geisinger, 1994; Hambleton, 1994; Hambleton & Kanjee, 1995; Prieto, 1992; Sperber, Devellis & Boetelecke, 1994; Van Ede, 1996). However, translation of all tests into the 11 official languages of South Africa will be an extensive and costly process (Abrahams, 1996; Nell, 1997; Prinsloo et al., 1998). The goal of the translation process is to achieve the most exact rendering of the test that would also convey the intended meaning of the original versions (Ellis, 1989). Hambleton (1994) mentions that instrument developers or publishers should:

- (a) Ensure that items are equivalent between the different language versions of the instrument.
- (b) Provide information on the evaluation of the validity and the reliability of the translated version.
- (c) Provide evidence that item content and stimulus material are familiar to all intended populations.
- (d) Provide empirical information regarding cultural bias, test and item bias.

#### **1.4 THE OBJECTIVE OF THIS STUDY**

IPAT granted permission to the HSRC to adopt (or to translate) and standardise the American version of the 16PF5 for South African use. The American version has been adapted for local use and research is being conducted by the HSRC on the function of the questionnaire for different groups. The test is being administered in English and the role of English proficiency in test performance is also studied. As

suggested, translation is also considered as an option and the objective of this study is to investigate the functioning of a Venda version of the South African 16PF5.

## **1.5 ORGANISATION OF THE STUDY**

Theories of personality and the theoretical basis of personality assessment are discussed in chapter 2. Research findings on translation and cross-cultural studies are discussed in chapter 3. The development and characteristics of the 16PF5, the translation of the questionnaire, and the research design are discussed in chapter 4. In chapter 5 the reliability of the Venda version is discussed. In the concluding chapter, chapter 6, a summary and conclusions based on this study are given.

## CHAPTER 2

### THEORETICAL FRAMEWORK

#### 2.1 INTRODUCTION

Of all the problems that have faced human beings since recorded history, perhaps the most confusing has been the understanding of our own nature (Liebert & Spiegler, 1978). Human beings behave in complex ways and vast differences among us have made it difficult to identify what we share in common. It is even more complicated when we include people of other cultures; here we can find great diversity in values, aspirations, life styles, etcetera. To gain insight into the problems of diversity and similarity, psychology is committed to researching and understanding the complexity of human behaviour and of human nature itself (Ross, 1992). The objective of psychological research is to explain why people behave in the way they do and to use this knowledge in helping them to live more satisfying lives.

The term "personality" has several different meanings. Personality psychology is a discipline that seeks to establish better ways of understanding people through the use of various research strategies (Gatchel & Mears, 1982). Another distinguishing feature of personality psychology according to Ewen (1988) is its emphasis on assessment methods to study, understand and predict behaviour and to make valid decisions about individuals. Among the methods used are interviewing, administering psychological tests, observing and monitoring behaviour, measuring psychological responses and analysing biographical responses and personal documents. Personality psychology is that area of psychology that strives to find answers to questions such as the following:

- (a) Which elements are essential to describing the structure of personality?
- (b) In which respects are people similar and how do they differ?
- (c) How does the human personality function?
- (d) Why does a person behaves as he or she does?
- (e) How does personality develop and how does individuality arise?
- (f) Why is there consistency in behaviour in the individual?

Although psychologists recognise that there are similarities in the ways in which people behave, their primary concern is to explain why and how people differ from one another, while showing consistency in individual behaviour (Hjelle & Ziegler, 1992).

## **2.2 DEFINITIONS OF PERSONALITY**

Within the field of psychology, there is no single generally agreed-upon definition of the term, personality (Enos, 1998). There may be as many different definitions of the concept of personality as there are theorists who have tried to define it. Gordon Allport listed as many as fifty different definitions of personality and this suggests that personality is a complex phenomenon for which there are no simple explanations (Moller, 1995).

What follows is an overview of the various meanings of the term "personality" offered by recognised theorists in the field. Definitions of personality vary in accordance with the different approaches to personality (Meyer et al., 1997). Psychoanalytic theory emphasises the role of the unconscious in the description of personality. It is somewhat surprising that Freud as the founder of psychoanalytic theory did not give a clear definition of the term "personality". Since for Freud personality is synonymous with the psyche (mind), his theory is a theory of psychology in general. According to Freud the vast majority of mental activity is unconscious. Behaviour is motivated by biological energy or instincts. According to Freud biological energy that is transformed into psychic energy is the basic cause in terms of which all behaviour can be explained. He described personality as made up of three aspects of the psyche, i.e. the id, the ego, and the superego. Much of Freud's personality theory deals with these three aspects and their interrelationship.

Psychoanalytic theory also emphasises early experience in the description of personality. According to Jung the roots of personality go back before the birth of the individual through past generations, way back to the dawn of human kind's origin on earth. From his theory of personality, Jung proposed the existence of a collective unconscious that housed primordial images he called archetypes (Burger, 1993). The

collective unconscious contains material each of us inherited from past generations and is basically the same for all people.

Jung described personality as archetypes or an innate psychic predisposition that leads people to the world in certain ways. For Jung each person becomes separated from the collective through individuation. Jung used the term individuation to describe the lifelong process by which all aspects of the personality not enables the person to attain self-actualisation. The concept of personal unconscious followed from this. He identified two basic attitudes of personality i.e. introversion and extraversion. Introversion refers to the dominant tendency is to channel psychic energy inward. Introverts tend to focus their attention on their inner worlds; they are introspective and withdrawn socially. For other people the dominant tendency is to focus psychic energy outward. This is called extraversion and is characterised by an outgoing active style and an interest in people and the external world (Rychlak, 1981).

Later psychoanalytic theorists refer to the influence of social factors on personality. Horney's description of personality emphasises neurosis as a result of disturbed interpersonal relationships especially with the parents during childhood, rather than from instinctual or libidinal drive. Parents who respond to the child's needs in such pathogenic behaviours as domination, overprotection, overindulgence, negligence, etcetera lead to the child developing feelings of insecurity, a sense of being loved in an unfriendly way, and basic anxiety.

A comprehensive definition based on the psychoanalytic approach is that by Fromm who defined personality as " the totality of inherited and acquired psychic qualities which are characteristic of one individual and which make the individual unique" (Potkay & Allen, 1986, p. 135). Sullivan emphasised the role of anxiety that comes from interpersonal experiences (Burger, 1993). According to him, the images we have of ourselves are of particular importance. Sullivan defined personality as " the relatively enduring patterns of recurrent interpersonal situations which characterise a human life" (Potkay & Allen, 1986, p. 120).

Skinner based his work on the behaviouristic approach and he described personality as behaviours learned on the basis of reward and punishment. According to Skinner human behaviour follows certain basic laws, or principles of learning. It is merely a result of the chaining together of a number of stimulus-response sequences. Bandura expanded the learning theory to include social learning. People can learn new complex behaviour patterns through the observation of others. According to Bandura, there is a continuous reciprocal interaction between the cognitive, behavioural and environmental determinants in the social learning process (Rychlak, 1981).

Rogers described personality in terms of "self", as the core of personality. We all need to find out what our real self is, to become that person, and to accept and value ourselves for the person we are. According to Rogers, we are all to receive positive regard from others. Congruent people function at the highest level, open to experience and not defensive, view people and things accurately, get along well with others and have a high level of self-esteem. Rogers saw human nature as positive and good (Bergh, 1992).

Based on the humanistic tradition, Maslow's description of personality sees individuals as motivated by a hierarchy of needs. According to Maslow human needs have different orders of priorities. He organised human needs in the form of a pyramid, with the most elemental physiological needs at the bottom (Byrne & Kelly, 1981; Rychlak, 1981). At the bottom of the pyramid are the physiological needs (hunger, thirst, and sex), safety needs (feel secure and safe, out of danger), belongingness and love needs (to affiliate with others, be accepted and belong), esteem needs (to achieve, be competent, and gain approval and recognition), cognitive needs (to know and understand), aesthetic needs (symmetry, order of beauty) and at the top of the pyramid we find self-actualisation needs (fulfillment and realisation of one's potential). Once the individual's basic needs are met, that individual can strive to fulfil the need for self-actualisation.

The trait approach assumes we can identify individual differences in behaviours that are relatively stable across situations and over time (Burger, 1993). Trait theories usually are not concerned with any one person's behaviour but rather with describing

behaviour typical of people at certain points along a trait continuum. Allport, a trait theorist, defined personality as "the dynamic organisation within the individual, those psychophysical systems that determine his characteristic behaviour and thought" (Allport, 1968, p.48). In defining the term personality, other theorists emphasised the measurement of personality in their theories and not surprisingly came up with definitions that stress the predictive utility of their measurements. For example, Raymond Cattell, a prominent theorist with this orientation, defined personality as "that which makes it possible to predict what a person will do in a given situation" (Cattell, 1965, p.25). Theorists with a deterministic genetic orientation often chose a definition that emphasises the psychological process within the person. For example, Hans Eysenck defined personality as "the more or less stable and permanent organisation of a person's temperament, intellect and physique which determines his unique adaptation to the environment"(Eysenck, 1970, p.2). The major concept of trait theories is that human behaviour can be organised by labeling and classifying observable personality characteristics. Trait theories propose continuous dimensions, such as intelligence or warmth that vary in quality and degree. Traits describe what is consistent about a person's behaviour in different situations and times. A trait is a general action tendency; people are assumed to possess traits in varying degrees (Burger, 1993).

Recent research provides fairly consistent evidence that human personality is structured along five basic dimensions. Costa and McCrae conclude that personality can be defined in terms of five similar traits: Introversiion-Extraversiion, Neuroticism, Agreeableness, Conscioussness and Openness to experience. The "Big Five" traits describe aspects of personality that are remarkably consistent, especially among adults (Ewen, 1998). The five factors tend to show up not only when researchers factor analyse subject responses on self-report trait inventories but also when researchers examine the traits, when people describe their friends, and when teachers describes their students (Peterson, 1992).

Although the definitions of personality are so diverse, we can summarise them as follows:

- (a) Most definitions refer to personality as the characteristic structure, combination and organisation of the behavioural patterns, thoughts and emotions which makes every human being unique (Liebert & Spiegler, 1978; Meyer et al., 1997; Moller, 1995).
- (b) Personality refers to the dynamic nature of man as well as to his tendency to react fairly consistently or predictably in a variety of situations over time (Maddi, 1996; Meyer, Moore & Viljoen, 1992).
- (c) Some definitions regard personality as the product of the interaction between certain constitutional factors and certain environmental influences (Moller, 1995).

Aside from these common themes, personality definitions differ substantially from theorist to theorist. To understand what a particular theorist means by the term "personality" the theory must be examined in considerable detail. Definitions of personality are not necessarily true or false, but are more or less useful to psychologists in pursuing research, in explaining irregularities in human behaviour, and in communicating their conclusions (Hjelle & Ziegler, 1992).

Meyer et al. (1997, p.12) give a general definition of the term personality which states that "personality is the constantly changing but nevertheless relatively stable organisation of all physical, psychological and spiritual characteristics of the individual which determine his or her behaviour in interaction with the context in which the individual finds himself or herself". Another general definition is that by Schultz and Schultz (1998, p. 30) who define personality as "the individual's unique way of making sense out of life experience".

## **2.3 PERSONALITY THEORIES**

The categorization of Liebert and Spiegler (1978) of personality is used namely, psychoanalytic, behaviouristic, humanistic, phenomenological and existentialistic, trait and type approaches. The theories developed by these approaches serve as the

origins of personality testing (Gregory, 1996) and a number of authors refer to these approaches in their discussion on personality (Aiken, 1996; Hjelle & Ziegler, 1992; Moller, 1995; Ryckman, 1989; Ward & Maloney, 1976).

### **2.3.1 Psychoanalytic approach**

The psychoanalytic approach is regarded as one of the first formal personality approaches, even though it was not a result of academic or experimental psychology, but had its origin in the medical and clinical tradition (Moller, 1995). Sigmund Freud (1856-1939), a physician, is regarded as the father of psychoanalysis (Liebert & Spiegler, 1978). Freud was influenced by doctor Joseph Breuer's studies of using hypnosis to treat hysteria. Freud's observations together with Breuer's treatment of hysteria, resulted in the publication of studies on hysteria in 1895, which marked the beginning of psychoanalysis as a theoretical category (Peterson, 1992).

The psychoanalytic approach is based on the philosophy of determinism, which holds that a given psychological phenomenon is determined by specific internal factors (Maddi, 1996). Belonging to the depth psychology of thought, psychoanalysts see "behaviour as being determined by forces within a person of which he or she is mostly, unaware" (Meyer et al., 1997, p. 55). It emphasises the importance of intrapsychic events (i.e. events within the mind). Psychoanalytic theorists emphasise instincts as the primary motivating forces of personality (Ryckman, 1989). This approach furthermore places a great emphasis on the importance of early experience. Theorists suggest that many of the early social and personal experiences of the child become the models for later personality (Liebert & Spiegler, 1978). Psychoanalytic perspectives cover the positions of Freud, Jung, Adler, Horney, Fromm and Erickson.

As the founder of psychoanalytic theory, Freud saw the cause of behaviour as mainly unconscious and considered the unconscious to be of greater value than conscious experience in understanding man (Samuel, 1981). The unconscious is in particular the source of all repressed contents, in other words previous experiences that have already been forgotten. Freud believed that dreams reveal an individual's intra psychic processes such as wishes and inner conflicts (Gregory, 1996). For Freud, the errors

made in speech, writing and reading, presumably reveal something about the person's "inner" thoughts or "real" intent. Examples in which the unconscious ideas are obvious include substituting "play-body" for "playboy."

Freud described personality according to three dimensions, namely the id, ego and superego (Moller, 1995). The id represents the biological aspect of personality, the ego the psychophysical aspect and the superego the social aspect. These are not parts of personality in a physical sense, nor do they have any specific, physical location in the person. Rather they are psychic-inner psychological processes or systems of the mind that organize mental life and interact with one another in a dynamic way through continuous activity, changes, and influences on personality. The id, which operates on the pleasure principle wants immediate gratification of instinctual needs. The ego, which operates on the reality principle tries to find acceptable ways to gratify the id. The superego represents parental and societal values. According to Freud when an id instinct seeks satisfaction in a way that conflicts with the person's conscience or moral values, the superego reacts with anxiety and guilt feelings (Ewen, 1998). If the ego cannot cope with the conflict any longer, and because the person cannot endure anxiety for long, he develops defense mechanisms in order to reduce the anxiety.

Freud mentioned the sex instinct as the most important of the life instincts for the development of personality. The energy force underlying the sexual instinct is called libido or libidinal energy. Libido is that portion of psychic energy that seeks its gratification from purely sexual activities. Freud's description of personality also shows the importance of early life experience (Peterson, 1992). According to Freud, there are five stages of psychosexual development. Each stage is characterised by a particular erotogenic zone that serves as the primary sources of pleasure. Freud described a progression of psychosexual stages (Burger, 1993) that are successive patterns of satisfying instinctual biological urges through stimulation of different areas of the body and different times of life. According to Freud, the oral stage is from birth through the first year of life. During this stage an infant experiences gratification primarily through stimulation of the mouth. A baby does not only takes nourishment orally, but also makes contact with the environment by mouthing and sucking on

objects, toys and finger. The anal stage follows at about age 2, when a child experiences pleasure in eliminating or retaining feces. Society demands toilet training, and the child must learn to control and suppress anal stimulation (Burger, 1993). From about ages 3 to 5, the phallic stage approaches where a child explores and stimulates his or her body, discovering the pleasure associated with the penis or clitoris. During this stage, a child develops unconscious feelings of possessive love towards the opposite sex parent, and must resolve feelings of conflict and anxiety by identifying more closely with the same sex parent (Brody, 1981).

By about age 6, a child begins formal schooling and begins to pay more attention to friends and peers than to parents and family. During this latency stage, unconscious association of pleasure with bodily stimulation is less obvious, while the child concentrates on learning and competence. From about age 12 or 13 through part or all of adolescence stage, the fifth phase of psychosexual development begins in which sexual relations with a partner are associated with greatest gratification. According to Freud, either too much stimulation or too much frustration at any of the early psychosexual stages leads to fixation i.e. inability to progress normally to the next stage of development (Rychlak, 1981).

Freud believed everybody's behaviour is motivated by the same instincts, and the ego and the superego have a regulatory function in all people (Moller, 1995). The only difference is in the nature of the ego and superego, because they are formed by experience. The ego and superego will differ between individuals and will not play the same regulatory role with regard to instincts in all people. Freud's views of the environmental influences on personality find expression in his theory on the childhood years. Freud viewed personality as motivated by sexual instincts or libido and he explained the constitutional factors in terms of biologically determined stages through which the child develops (Gatchel & Mears, 1982).

Freud expanded his theory by arguing that human motivation is powered by biological, psychic energy found within each individual. Each person was assumed to have inborn drives that were created by bodily organs and could be expressed in many ways. He originally postulated two basic drives, namely, life drive (eros) and the

death drive (thanatos). The life drives serve to preserve life and they function in a constructive manner. The life drives can further be differentiated into ego drives and sexual drives (Burger, 1993). Freud used the term libido to identify the source of energy for sexual urges. Freud described Thanatos as a negative force that drives people toward aggressive and destructive behaviours. These forces within the individual are in conflict with the norms of the society. A person has sexual and aggressive drives which demand continual satisfaction and which are socially destructive, and on the other hand there are the moral prescriptions of society whose purpose it is to protect society by controlling these drives (Meyer et al., 1997). Freud identified satisfaction as sexual. He defined "sexual" very generally to encompass any pleasurable feeling associated with stimulation of the erogenous zones, whether or not the satisfaction is directed towards genital sex. Freud also mentioned the defense mechanisms. Defense mechanisms are ways the ego uses to protect the person against anxiety and threat (Ewen, 1998; Moller, 1995). By using these mechanisms, a person can maintain a favourable self-image and sustain an acceptable social image. When these forces are out of balance, however, people often become anxiety-ridden. In Freudian theory, anxiety is an intense emotional response triggered when a repressed conflict is about to emerge into consciousness. The defense mechanisms (Burger, 1993) are characterised by two attributes, firstly they involve a distortion of reality and, secondly, they function on an unconscious level. Freud described different types of defense mechanisms that serve to counteract anxiety. The following are some examples:

### **Repression**

This defense mechanism (Moller, 1995) refers to pushing painful or dangerous thoughts out of consciousness, keeping them unconscious because they are impermissible or unacceptable. This is considered to be the most basic of the defense mechanisms.

### **Denial**

Denial is used when the anxiety becomes serious and cannot be escaped or eliminated any more. This mechanism protects a person from unpleasant reality by refusing to perceive its meaning (Peterson, 1992).

## **Regression**

Regression refers to a partial or total return to the behaviour of an early stage of development, for example, when a 3 year old child who has stopped sucking his or her thumb begins doing so again. According to Freud, regression is closely related to fixation and comes about for the same reasons. In fact, Freud holds that anyone who regresses will regress to the stage at which he or she is previously fixated (Meyer et al., 1997).

## **Displacement**

Displacement functions by finding a substitute for the object that society's moral codes forbid and using the substitute object to derive satisfaction (Brody, 1972). Displacement occurs as early as the first year of life, for example, when the child sucks his or her thumb or dummy instead of the mother's breast, but it is also employed by adults when for example, a man who is angry with his boss takes out his anger on his wife and children.

Among the psychoanalytic theorists was Carl Jung, a Swiss physician who split with Freud for both personal and intellectual reasons. He used the term libido to refer to physical as well as psychic energy. Psychic energy or life energy is specifically the energy of the personality (Peterson, 1992). Both physical and psychic energy are generated internally by the metabolic process and there are mutual interactions between psychic and physiological energy. Just as the body absorbs food and transforms it into energy, so people's physiological experiences are digested and converted into psychic energy (Ewen, 1998).

Jung believed that personality development is a dynamic process that takes place throughout life (Hjelle & Ziegler, 1992). He saw the psyche as a complex network of systems interacting with each other. Jung believed that psychic energy flowed continuously from one system to another, in constant striving for harmony. The three primarily interdependent systems of psyche differentiated by Jung are the ego, the personal unconscious and the collective unconscious (Moller, 1995). For Jung, the ego was the conscious part of the psyche and it is described as the bonding force in

the psyche that includes functions such as perception, thoughts, feelings and memory. The ego as the conscious level of personality was secondary to two unconscious systems of the psyche in terms of its influence on thoughts and behaviour.

Jung described the personal unconscious as contents that are stored. These contents can be easily recalled, which means that there is a constant flow of the information between the ego and the personal unconscious. The personal unconscious includes sensory impressions that are too weak to be perceived consciously. It may also include contents that have been forgotten or repressed probably due to their unpleasantness (Ewen, 1998). The collective unconscious consists of the latent memories that have been captured through generations and are thus common denominators of all people. Jung described the collective unconscious as the psychological residue of human evolutionary development. All people share common characteristics in spite of their uniqueness and variety because they belong to the human species. An example of this is that all people create communities with people sharing the same emotions although the expressions thereof may differ and everyone uses language and symbols to communicate.

Jung thus hypothesised two levels of unconscious that influence personality i.e. the personal and collective levels. Each layer has its own type of content (complexes versus archetypes) and each has its own mode of transmission (acquired experience versus heredity preexistence). Archetype in the collective unconscious represents universal experiences of our ancient human ancestors, and need to be wisely needed and accepted. Each person becomes separated from the collective individual, the direction of which is self-realisation (Moller, 1995; Potkay & Allen, 1986).

According to Jung, each personality may be divided into one of various psychotypes in terms of two concepts, namely attitudes and functions. The two basic attitudes in Jung's typology are extraversion and introversion. He described extraversion as an outgoing, candid and accommodating nature that adapts easily to a given situation. Introversion on the other hand implies a hesitant, reflective, retiring nature that keeps itself to itself, shrinks from objects and prefers to hide behind mistrustful actions. Every personality has both introvert and extrovert characteristics (Potkay & Allen,

1986). Jung also assumed that each person has a specific way in which he observes his world and assigns meaning to each experience. He distinguished four such functions: sensing, thinking, feeling and intuiting. Jung referred to thinking and feeling as rational functions because they involved evaluation. Sensation and intuition on the other hand involve passively recording, but not interpreting experience. Jung called these irrational functions (Liebert & Spiegel, 1978).

Although they did not reject Freud's idea of an instinctive basis of personality, Neo-Freudians i.e. Erickson, Adler, Horney and Fromm placed greater emphasis on the influence of social factors in the development and motivation of personality (Hjelle & Ziegler, 1992). A common aspect of these theorists is that they stress unconscious motives and the interplay between people's thoughts and feelings.

### **2.3.2 Behaviouristic approach**

The behavioural perspective holds that many of the behaviours that makes up personality are learned (Gregory, 1996; Hjelle & Ziegler, 1992; Liebert & Spiegel, 1978). Through learning we acquire knowledge, language, attitudes, values, manual skills, fears, personality traits and self-insight. The behaviourists believe that behaviour is purely a reaction to an environmental stimulus because all behaviour develops as a result of conditioning or learning induced by the environment. Watson, one of the founders of the behaviouristic approach, emphasised the need for psychology to concern itself with the overt actions of people and animals instead of unobservable mental events (Peterson, 1992). Watson arrived at the conclusion that psychology can be a science only if it discards such vague concepts as consciousness and introspection and focuses on externally observable behaviour which can be experimentally manipulated (Moller, 1995). Behaviour is defined as a mere response to a stimulus and this is known as the stimulus-response model (S-R) of behaviour.

According to another influential behaviourist, Skinner, human behaviour follows certain basic laws, or principles, of learning. Behaviour is the result of the chaining together of a number of stimulus-response sequences. Based on the assumption that behaviour is learned, behaviorists were primarily interested in behaviour and

principles of learning. Behaviourists believed that "personality is a series of habitual actions or the repertoire of responses which a person has learned in a particular environment" (Moller, 1995, p.106). The emphasis is thus on learning. For them behaviour is modified primarily in accordance with principles of learning rather than through heredity and biological determination (Meyer et al., 1997). Differences between people are ascribed to the fact that individuals acquire different behaviour. Human behaviour is a product of the person's environment, in which heredity plays a minor role (Moller, 1995).

Based on views of the learning process, one can distinguish between: classical conditioning and operant conditioning. Classical conditioning involves reflex (or involuntary) behaviour. In classical conditioning, the animal or person learns to make a response to some previously neutral stimulus (i.e. a stimulus that originally did not bring forth a particular response) which has been paired repeatedly with an unconditioned stimulus. An unconditioned stimulus is one that automatically bring an unconditioned response (Byrne & Kelly, 1981). At the time where the neutral stimulus alone bring forth the response, the neutral stimulus becomes known as the conditioned stimulus and the response becomes known as the conditioned responses (Peterson, 1992). In operant conditioning, an organism emits a response known as an operant. When a response is rewarded, it is likely to be repeated. Responses that are not rewarded or are punished are likely to be suppressed. Classical conditioning is a simple form of learning which was demonstrated for the first time by Pavlov (Pervin, 1970). Pavlov showed that if food and a sound stimulus were presented simultaneously to dogs, the sound stimulus alone would eventually elicit the salivation that could initially only be elicited by the food. The salivation following the sound stimulus is known as a conditioned response or learned response (Hjelle & Ziegler, 1992; Maddi, 1996; Meyer et al., 1997; Moller, 1995; Peterson, 1992). Classical conditioning is important because it can be used to explain how certain behaviour patterns or aspect of personality are developed (Samuel, 1981).

According to Skinner behaviour is lawfully determined, predictable, and environmentally controlled (Moller, 1995). He stated that the fundamental principles underlying human behaviour are most readily discerned by studying lower organisms. Skinner supported operant conditioning. He was concerned chiefly with the way behaviour affects the environment to produce consequences and the way a favourable consequence, or reinforcement, works to increase the probability of a behaviour occurring again. Skinner regarded the reinforcement or reward that accompanies or follows a response as the most important reason for the development of new behaviour, i.e. operant conditioning (Moller, 1995; Ryckman, 1989). There are two basic kinds of reinforcements: positive and negative reinforcement. Positive reinforcements are rewards that increase the probability of a response when they are added to a situation. Negative reinforcement are unpleasant stimuli that increase the probability of a response when they are removed from a situation. Positive or negative reinforcement increases the probability of a response recurring. If a person (or animal) is placed in a new situation in which he cannot rely on earlier experiences to meet his needs, he will probably make a number of attempts to achieve the desired reaction (trial and error). An example of such reactions is the starved rat that is placed in an experimental chamber (commonly referred to as the Skinner box). If the rat succeeds in pressing a certain lever, a piece of food falls into a dish. At first the rat shows a number of trial and error reactions. When the desired response is emitted, then the stimulus or reward follows (Chaplin & Krawieg, 1960; Maddi, 1996; McMartin, 1995; Moller, 1995).

Another important contribution was that of Albert Bandura with his emphasis on social learning. According to Bandura self-efficacy plays a central role in social learning. Bandura referred to self- efficacy as the individuals' ability to regulate their own behaviour, particularly their personal judgement of "how well one can execute courses of action required to deal with prospective situations" (Meyer et al., 1997, p.345). Bandura argued that there is continuous interaction between the cognitive, behavioural and environmental determinants in the social learning process (Moller, 1995). Both Skinner and Bandura emphasised environment as the determinants of behaviour (Wiggins et al., 1976) but Bandura placed more stress on self-efficacy while Skinner put more emphasis on learning. According to Bandura, man's behaviour

is not determined only by external stimuli. The role of man's cognitive abilities in the learning process should also be acknowledged. For Bandura self-regulating processes play a central role in social learning.

Julian Rotter is also a prominent social learning theorist of personality. He emphasized the role of motivational and cognitive factors in explaining behaviour in the context of social situations (Hjelle & Ziegler, 1992). The main focus of Rotter's social theory is the prediction of human behaviour in relatively specific situations. In order to predict how a person will behave, Rotter believed that four major variables and their interaction must be carefully analyzed. These variables include behaviour potential, expectancy, reinforcement value, and the psychological situation. The key to predicting what a person will do in a given situation lies in understanding the behaviour potential. Expectancy refers to the subjectively held probability that a certain reinforcement will occur as a result of a specific behaviour (Ross, 1992). Reinforcement value is the degree to which we prefer one reinforcement to another if the likelihood of obtaining each were equal. The final variable employed by Rotter to predict behaviour is the psychological situation as it is viewed from the perspective of the individual. Rotter emphasized the influential role of situational contexts and their powerful impact on human behaviour. Rotter proposed the following formula:

$$\text{Behaviour potential} = \text{Expectancy} + \text{Reinforcement value}$$

This equation tells us that two variables need to be considered when predicting the likelihood of a given behaviour in a particular situation: expectancy and reinforcement value (Hjelle & Ziegler, 1992). Rotter used this formula to predict behaviour in the day-to-day situations that people encounter. Another construct in Rotter's social learning theory is locus of control or the generalized expectancy about the degree to which people control reinforcement in their lives (Potkay & Allen, 1986).

### 2.3.3 Humanistic approach

The existentialist school in psychology is closely related to the phenomenology movement (Burger, 1993). Both schools originated in philosophy. Soren Kierkegaard is considered to be the founder of existentialism (Gregory, 1996). Kierkegaard was concerned with the existence of man (the problem of existence). Kierkegaard writings, that hardly received recognition during his lifetime, were discovered and studied after his death. Kierkegaard wanted to understand the meaning and destiny of his own human existence. His thinking focused on man, not as a phenomenon such as an animal or an object, but as the human being that he is (Runes,1972). He was concerned with his own personal struggle to achieve peace with himself in the face of the question of original self-existence (Rychlak, 1981). He believed that man has the responsibility to take up his individuality and not to become one of the masses because, within the equalising existence everybody is somebody else.

According to Kierkegaard existence is a tense relationship between two poles of human existence (Runes,1972). These two poles are body and soul, or also factuality and potentiality. He regarded these two poles as two perspectives or viewpoints on human existence and not as two things or substances within man. The body is the factual of human existence, and as such it is limited or bounded. On the other hand, soul is the aspect of human existence that indicates unlimited possibilities to be actualised (Meyer et al., 1997). It continually wants to become that existence which it can be. This existence or process of self-transcendence cannot be determined by the mere structuring of the environment.

The growing awareness of self as a factuality and the potentiality which he can become is also accompanied by anxiety, according to Kierkegaard (Moller, 1995). Anxiety is the risk involved when the self has to make its own decisions, thus placing its responsible existence on the line. In this sense anxiety belongs to the sphere of inner freedom, the sphere of existential dialectics, or existence. Anxiety is thus an ambivalent experience that stimulates human existence and motivates personality. According to Kierkegaard, man tries to escape from this existence anxiety, the fear of one's own freedom and therefore prefers to subject himself to the masses or to

individuals who are prepared to take over the responsibility for his existence (Runes, 1972). Existential anxiety is not a negative or a threat to the actualisation of our existence, it actually has a positive function. It pulls existence out of the ordinary, out of the pseudo-security of mass existence.

From the above discussion on Soren Kierkegaard, it is clear that existentialism is primarily concerned with human existence. The uniquely existing human being is continually attempting to actualise himself in a threatening world, but the accompanying risk and the existential anxiety cause him to back off. He is no longer prepared to actualise his potentialities in an independent manner, and so he derives himself of the most important aspect that motivates his personality, namely self-transcendence (Liebert & Spiegler, 1978). The word 'exist' was used by Kierkegaard with the meaning of standing out, to become or to rise up.

Phenomenological theories of personality emphasise the importance of immediate, personal, subjective experience as a determinant of behaviour. Some of the theoretical positions under this title have been given other labels such as humanistic theories, existential theories, construct theories, self-theories, and fulfillment theories (Ross, 1992). Nonetheless, these approaches share a common focus on the person's subjective experience, personal worldview, and self-concept as the major factors of behaviour. Edmund Husserl invented a complex philosophy of phenomenology that was concerned with the description of pure mental phenomena. Husserl's approach was heavily introspective and nearly inscrutable. Kierkegaard's contributions to existentialism can be seen as more approachable. Existentialism is the literary and philosophical movement concerned with the meaning of life and an individual's freedom to choose personal goals (Gregory, 1996).

The phenomenology and existential schools were European in origin and began taking shape in the late nineteenth and early twentieth centuries. During the 1930s, the movement was a broad, philosophically orientated school of thought which not only had a great impact on psychology, but also on other scientific fields such as philosophy, anthropology, sociology, political sciences and religion (Moller, 1995). It was during this period that these two movements became a single movement and it is

referred to as the existential-phenomenological movement. The driving force behind the existential-phenomenological movement was a counter reaction to positivistic thought and the impact of World War I and II on people in Europe. Positivism adhered to the methods, data and results of natural sciences. Acquisition of knowledge is seen as only obtained in an empirical manner, using positive facts. Any knowledge obtained in a different manner has no validity and no reliability, and is regarded as speculative and subjective and dismissed as fantasy (Burger, 1993). As the father of this approach, Husserl wanted to give the human being with his own meaningful experiences of the world, his rightful place, because it is specifically through man and his conscious activities that knowledge of the world is created (Meyer et al., 1997). According to Husserl man constitutes meaning in his dealing with the world. The original experience in which man makes contact with his world is an event, which is a premise for any scientific study, and he therefore made it his goal to highlight the original experience of man as a meaning-creating event. In order to achieve the above-mentioned goal, Husserl developed his own scientific methodology, which he called phenomenological reduction (Moller, 1995). Using his phenomenological reduction, Husserl attempted to bring himself into that area of human experience where knowledge (meaning) originates, that area where man originally makes contact with his world. This is what Husserl meant when he called us “back to the basic issue”. By the basic issue he meant the phenomena in our experience as they originally appeared in man’s consciousness. Husserl defined the term phenomenon as “that which it is within itself” (Moller, 1995, p.179).

Husserl further explained the important structure of our consciousness, namely functioning or active intentionality (Brody, 1981). In Husserl’s opinion, functioning-intentionality is the key activity of our consciousness. According to him, if man is not subjectively present, neither can there be a functioning intentional human being (Burger, 1993). Man and his world imply each other reciprocally.

With his concept of intentionality, Husserl made use of the most important breakthrough in respect of the relationship between man and his world. Apart from the functioning-intentionality structure, he added another structure called the horizon structure that mainly concerns the phenomenon. According to Husserl, a single

phenomenon can be seen as separate or isolated from its phenomenal field. This view is closely related to that of the Gestalt psychologists, who believe that the background gives meaning to the figure. In fact, Husserl explained the concept of world in terms of his view of horizon structure: the world shows itself to man in different forms or horizon structures, depending on man's perspective at that moment (Moller, 1995). The world is not something outside man, but it is man's world, towards which man is orientated as a functioning-intentionality.

Husserl offered an answer to the materialistic philosophers. Materialistic philosophers maintain that there is nothing but matter and all the things that we call life, soul, consciousness, psyche and mind do not form an independent reality, but are in one way or another the result of material process (Meyer et al., 1997). Husserl reacted to these philosophers by reinstating man's subjectivity by highlighting his active intentionality and by showing that human process of knowing is a unique affair. He said that, because man attaches meaning to his world, he manifests this uniqueness and individuality. According to Burger (1993), Husserl's phenomenology had an important influence in the third force in psychology.

The humanistic psychology originated in America during the late fifties in reaction to psychoanalytic theory (Meyer et al., 1997). Humanistic theorists referred to existence as a continuing process of being alive as a human (Maddi, 1996). According to this principle humans are unique beings with qualities that distinguish them from lifeless objects like stones and trees, and also from animals. In contrast to the emphasis Freud gave to the role of unconscious processes, the humanistic theorists concentrated on the individual's conscious experiencing and his or her evaluation of it. They also acknowledged the person's active participation in determining his or her own behaviour, his or her inherent inclination towards actualising creative-ability. They emphasised the role of the person as a 'free agent' who determines his or her own behaviour, while at the same time acknowledging the importance of genetic and environmental factors (Moller, 1995). The humanistic theories of personality emphasize the importance of immediate, personal, subjective experience as a determinant of behaviour (Meyer et al., 1997; Pervin, 1970). The term "self" is emphasized and the "self" is viewed as the experiencing agent at the center of

personality (Maddi, 1996). Humanistic psychologists did not hesitate to introduce notions such as choice and will, because these ideas explain why some people actualise their potential, whereas others do not (Hjelle & Ziegler, 1978).

Humanistic psychology rejects the notion that a person is either a product of hereditary or environmental factors (Pervin, 1990). The belief is that each person carves out his or her own destiny. Since there are no cause or effect relationships in human behaviour, the individual has complete freedom of choice, and each person alone is responsible for his or her existence (Pervin, 1970). Another important emphasis in humanistic psychology is the conceptualisation of human nature as positive. Human nature is seen as basically good. Destructive behaviour is attributed to bad environmental influences rather than to any inherent disposition. There is the possibility that individuals will make wrong choices and that the environment will exert a negative influence that will deter them from actualising their potential.

People are seen as constantly in flux, always "becoming," meaning inherently unpredictable (Peterson, 1992, p.229). A person is never static; he or she is always in the process of becoming something different. People who refuse to "become" have refused to grow, they have denied themselves the full possibilities of human existence. Humanistically speaking this is tragedy and distortion of what the human being can be, since this process of becoming, or self-actualisation is seen as inherent to human nature (Hjelle & Ziegler, 1976).

Prominent theorists in humanistic theory are Maslow and Rogers. Maslow saw man as a psychophysical organism and used the concepts of man and organism interchangeably. By psychophysical he meant that the organism has the inherent potential to function as an integrated, uniquely organised whole. Maslow believed that the person's inner nature, capacities, potentialities, talents, and creative impulses determine behaviour. The individual is seen as less dependent on rewards or approval from others (Samuel, 1981). Maslow's theory emphasizes the uniqueness of the person and the potential for self-direction and enhanced functioning. Man is always actively involved in attaching meaning to his environment and setting goals and if the environment and society do not have a restrictive influence on the person, the chances

are that the psychophysical organisms will act in a self-actualising manner (Moller, 1995). From his discussion of man's hierarchy of needs, follows the importance of environmental factors for the satisfaction of the basic needs. Maslow concluded that self-actualizing people perceived the world around them correctly and efficiently. These people have a good perception of reality. Maslow furthermore viewed man as inherently good, worthy of respect and with positive potentialities to actualise.

Rogers views personality "in terms of self, an organized, permanent subjectively perceived entity which is at the very heart of all experience" (Hjelle & Ziegler, 1976, p.4). He emphasized the idea that a person's behaviour can be understood only in terms of his or her subjective perceptions and cognition of reality (Ewen, 1998). According to Rogers people have the freedom to make free choices and to play an active role in shaping their lives. People strive to make the most of their potential, to have a self- concept that is positive and consistent with their experience (Moller, 1995). According to Rogers consciousness is the keystone of personality development. He used the term consciousness as awareness of one's environment and one's psychophysical state (Peterson, 1992). Awareness is that part of experience we symbolise, usually in words. Rogers also viewed man as inherently good, or at least neutral.

Rogers's personality theory shows strong phenomenological traits, and he viewed the active intentionality of man in the same light as Husserl. He regarded the inner experience and the phenomenological field of man as unique (Liebert & Spiegler, 1978). In his therapeutic approach he showed particular respect for the way in which man attributes meaning to his world. Rogers had a high regard for man's dignity and uniqueness. He also developed a person-centered therapy with which he attempted to make man aware of his uniqueness, his individuality and unique conscious experiences. According to Rogers, once man realises that he is unique, he begins to experience himself as an independent individual who can give his own life direction and meaning. He focused attention on man's subjective experiences and man has a central place in his personality theory. From the above it is therefore obvious why Rogers is referred to as a phenomenologist and why his personality theory has links with the basic ideas of Husserl.

As mentioned earlier, the humanistic movement made use of the phenomenological method in order to understand man in his totality. Rogers regarded this method as an essential foundation of our experience (Moller, 1995). The same orientation is used in Carl Rogers's empathetic approach to man. Liebert and Spiegler (1978) comment that personality psychologists such as Carl Rogers, Rollo May, Gordon Allport, Abraham Maslow and Victor Frankl concentrate mainly on constructs, which characterise the adult person. In their theoretical speculation on personality, most of these psychologists indicate those potentialities that characterise the adult personality. In this sense they have made a great contribution by indicating how man should live so that mentally healthy communities can be formed, a goal which Rogers, already in his eighties, was still striving to achieve in practice. Rogers believed that, by leading the individual person towards a fully functioning personality, a communal world can be formed which moves away from the violent horrors of World War I and II (Moller, 1995). This is one of the reasons why the existential-phenomenological psychologists objected so strongly to positivist psychology which relativised man to a manipulated object unable to deal with its world in a meaningful manner.

#### **2.3.4 Trait theories**

One of the oldest theories of describing personality involves dividing people into distinct categories and classifying them according to one type or another (Papalia & Olds, 1990). In our daily lives we continually group people into a small number of categories according to some distinguishing features. These features may include college class, major course, sex, race, and qualities such as honesty, or shyness. Some personality theorists grouped people according to their personality types (Byrne & Kelley, 1981). For example, Jung's introverts and extroverts are types. Sheldon one of the prominent type theorists believed that there was a strong relationship between people's body types, or somatotypes, and personalities. Somatotypes are descriptive categories that classify a personality pattern according to physical characteristics. Sheldon described three types of physical physique: the endomorph (fat, soft, round), mesomorphic (muscular, rectangular, strong), or ectomorphic (thin, long, fragile). According to Sheldon, endomorphic men were likely to be relaxed, lovers of food and sociable. Mesomorphs were physical people, filled with energy, courage, and

assertive tendencies. Ectomorphics were likely to be brainy, artistic, and introverted, they would rather think about life than consume it or act upon it. Sheldon's theory have been questioned on methodological grounds because it has been proven to be of little value in predicting an individual's behaviour (Ewen, 1998).

The practice of identifying personality traits is about as old as the type approach to personality. Labeling and classifying the many personality characteristics we observe may help us organise human behaviour. Type theory presumes that there are separate, discontinuous categories into which people fit. In contrast, trait theories propose continuous dimensions, such as intelligence or warmth that vary in quality and degree.

Gregory (1996, p.505) defines a trait as "any relatively enduring way in which individuals differ from another". Sometimes "types" and "traits" are used as summary labels for observed differences in behaviour. According to this approach, traits and types determine and explain a good deal about individual differences (Mc Martin, 1995; Pervin, 1990). Gordon Allport is regarded as the father of trait theory as he was the first person to describe human beings as being composed of a number of traits. Allport started searching for traits by listing 17 953 words in the English dictionary that describe personality (Ward & Maloney, 1976). Allport regarded the trait as the most valid unit of analysis for understanding and studying personality. In his explanation, traits are the predisposition to respond in an equivalent manner to various kinds of stimuli (Liebert & Spiegler, 1978). The explanation of an individual's uniqueness is seen as the paramount goal of psychology and traits account for a person's behavioural consistency over time and across situations.

According to Allport personal traits have a psychological existence within the individual, and accordingly every trait is unique. Allport also referred to common traits as those comparable aspects of individual persons (similar personal traits). Common traits include any characteristic shared by several people within a given culture. The logic for assuming the existence of common traits is that members of a culture are subject to similar evolutionary and social influences, therefore, they develop roughly comparable modes of adjustment.

Allport viewed personality as the dynamic organisation of those internal psychophysical systems that determine a person's characteristic behaviour and thought. There is a relationship between different parts of personality structure and personality is seen as dynamic. He used the term psychophysical in order to show that personality is not exclusively physical or exclusively psychological (Moller, 1995). Within the individual, personality is real, it is, "what a person really is" (Hjelle & Ziegler, 1976, p.206). Allport's theory can be regarded as personalistic because he insisted that the individual as a structured entity is the fundamental subject of psychological investigation and that the individual must be studied as a whole (Meyer et al., 1997). For this reason too, his theory can also be described as a study of the individual.

Allport's factor analytic work influenced Raymond Cattell. His commitment to constructing a scientific model of behaviour is guided by a goal to discover (by the means of factor analysis) the basic traits of personality. He believed, as did Allport, that traits constitute the core structure of personality and are responsible for what a person will do in a given situation (Gatchel & Mears, 1982; Meyer et al., 1997). Cattell distinguished between common and unique traits. For Cattell, traits did not have any real physical or mental status, and as such, can be inferred only from the precise measurement of overt behaviour. His theory seeks to explain the complicated link between the personality system and the sociocultural matrix of the functional organism (Ryckman, 1989). Cattell is convinced that personality theory must take into account the multiple traits that comprise the personality and the extent to which these traits influence behaviour.

He gave a formula for personality, namely  $R = F(S, P)$  where R is the nature and magnitude of a person's behavioural response, i.e. what he says, thinks or does, S is the stimulus situation in which he is placed, and P is the nature of his personality. Cattell believed that the use of mathematical language forces the theorists to be as precise and exhaustive as possible when defining terms (Cattell, 1965; Hjelle & Ziegler, 1992).

For many years Cattell focused on identifying the basic personality traits through factor analysis (Cattell, 1965). Factor analysis is concerned with the isolation and identification of a limited number of variables, or factors, that underlie a larger group of observed interrelated variables (Ryckman, 1989). Ryckman (1989, p.273) gives a description of factor analysis as a "statistical technique designed to yield the intercorrelations between a number of variables." Factor analysis attempts to account for these intercorrelations in terms of underlying factors, usually fewer in number than the original number of variables.

Cattell made use of two forms of factor analysis, described as the R technique and the P technique. The R technique usually involves giving large groups of subjects a variety of personality tests, then intercorrelating their scores. Once the intercorrelations have been determined, further factor analytic computations are employed to derive a factor matrix. Here the investigator starts with a large number of surface variables (surface traits) and seeks to reduce them to a few common source factors (source traits) that can be used to predict the variation in the original surface variable measures (Maddi, 1996; Peterson, 1992; Ross, 1992). Surface traits are observable behaviours that appear to be clustered together and are in fact controlled by an underlying source trait. Source traits are underlying structures that constitute the core or basic building blocks of personality. Cattell referred to the more obvious aspects of personality as surface traits. Surface traits would typically emerge in the first stages of factor analysis when individual test items were correlated with each other (Peterson, 1992). Source traits are stable and constant sources of behaviour. Source traits are therefore less visible than surface traits but are more important in accounting for behaviour. The R technique allows the investigator to assess the existence of common traits in large populations.

The P technique is designed to discover the unique trait structure of the person. It involves repeatedly testing a given individual by using a large number of personality dimensions on a number of different occasions (Liebert & Spiegler, 1978). Thus the attempt is made to correlate the surface traits within one person and to discover via factor analysis his or her unique underlying traits. Using these techniques, Cattell also assessed the process of change in an individual's motivation.

Another major figure in factor analytic studies of personality is Hans Eysenck. Eysenck believed that measurement is fundamental to personality psychology (Peterson, 1992). According to Eysenck (1995) personality consists of two basic type dimensions, which had later led to the development of a self-report measure based on these dimensions. Eysenck labeled these dimensions: introversion-extraversion and neuroticism-stability (a factor sometimes called instability-stability). Accordingly, it is possible to separate people into four groups, each being a combination of low or high on one type dimension, together with low or high on the other dimension. Eysenck mentioned that both type dimensions are normally distributed and continuous and thus allow for a wide range of individual differences (Hjelle & Ziegler, 1992). According to Eysenck these two dimensions are presumed to be biologically and genetically based (Gregory, 1996). The dimensions furthermore assume numerous specific traits. For example, a moderately extraverted person who was also moderately unstable might be characterized by these traits: aggressive, excitable, and changeable (Eysenck, 1995). An extremely introverted person who was also midway on the stable-unstable dimension might be viewed as unstable, quiet, passive and careful.

The five-factor model was proposed by Norman in 1963 but has achieved real popularity only within the last 20 years (Maddi, 1996). The researchers Paul Costa, and Robert McCrae have attempted to explore the implications of the five-factor model for personality theory. Although they still need to do a great amount of conceptualisation to have a bona fide personality theory, they have made enough of a start to be included here, on the assumption that we are seeing a new generation of personological thinking (Peterson, 1992). McCrae and Costa (1994) started from the assumption that there are five source traits represented in people namely, neuroticism (anxiety, anger, depression) extroversion (warm, assertiveness), openness to experience (fantasy, aesthetics, feelings), agreeableness (trust, straight forwardness, altruism), and conscientiousness (competence, order, dutifulness). They agreed with Eysenck that extraversion-introversion (Factor i ) and neuroticism, or low emotional stability (Factor iv), are two major traits identified in virtually every large-scale investigation of personality. McMartin (1995) states that research indicates that the traits of agreeableness-disagreeableness (Factor ii), conscientiousness-irresponsibility

(Factor iii), and openness to experience (Factor v) are three other important ways of describing differences among people.

Three of the Big 5 traits have been shown to be related to stress and coping. The first trait is extraversion-introversion. Extraverts typically report that they feel good about themselves and life in general to a greater extent than do introverts (Maddi, 1996; McCrae & Costa, 1989; McCrae & John, 1992). From the study done by McCrae and Costa (1986) extroverts are more likely to deal with the stress by engaging in positive thinking, taking rational actions, and finding satisfaction in other areas of their lives. The second trait of the Big 5 shown to be related to stress and coping is neuroticism or emotional instability (Factor M). These people frequently feel fearful, sad, angry, or guilty. Such an individual tends to exhibit the low emotional stability associated with the trait of neuroticism (Larsen & Ketelaar, 1991). The third trait of the Big 5 related to stress and coping is openness to experience. People scoring high on this trait are described as creative, imaginative, curious, and having broad interests (McMartin, 1995). Low scorers are described as down to earth, conforming, traditional, and having few interests. From their findings McCrae and Costa (1986) conclude that adults who scored high on this trait handled the stress in their lives by trying to find humour in the situation, low scorers coped by simply putting their faith in God or other people.

Rolland, Parker and Stumpf (1998) and Piedmont and HoChae (1997) discuss the development of tests based on the five-factor model of personality. The dimensions of neuroticism, extraversion, and openness are seen to provide a useful set of constructs for evaluating the personality of an individual. Goldberg (1990) further states that the dimensions of the five-factor model represent constructs in a variety of societies that can be used for understanding culture specific phenomena (Saklofske & Zeidner, 1995). The model used by McCrae and Costa is to an extent similar to Roger's model of inherent potentialities (Maddi, 1992).

## **2.4 THE DEVELOPMENT OF DIFFERENT TYPES OF PERSONALITY QUESTIONNAIRES**

As seen, personality is difficult to define. One can distinguish two fundamental features of this vague construct. First, each person is consistent to some extent; we have coherent traits and action patterns that arise repeatedly. Second, each person is distinctive to some extent; behaviour differences exist between individuals (Gregory, 1996). Psychologists and laypersons alike evoke the concept of personality to make sense out of the behaviour and expressed feelings of others. The notion of personality is used to explain behavioural differences between persons and to understand the behavioural consistency within each individual. In addition to understanding personality, psychologists also seek to measure it. Hundreds of personality instruments are available for this purpose. In order to measure personality we must first know what it is that we want to measure. According to Gregory (1996) personality tests are inseparable from ability tests because, for example, certain personality dimensions such as openness to experience probably correlate positively with intelligence. Some true-false personality inventories, for example, Cattell's 16PF, incorporate an intelligence factor. The origin of personality tests is in the theories of personality.

### **2.4.1 Projective techniques**

Freud's theory of psychological functioning has the concept of the unconscious as its foundation (Rychlak, 1981). He believed that the unconscious was the reservoir of instinctual drives and a storehouse of thoughts and wishes that would be unacceptable to our conscious self. Freud's concept of the unconscious formed the bases of psychological testing early in this century. From psychoanalytic theory, an entire family of projective techniques emerged, including inkblot tests, word association approaches, sentence-completion techniques, and story telling techniques. Each of these methods were based on the assumption that unconscious motives could be derived from an examinee's responses to ambiguous and unstructured stimuli. In fact Rorschach likened his inkblot test to an X-ray of the unconscious mind.

Freud's views on the structure of the mind and the operation of defense mechanisms also influenced psychological testing and assessment. As mentioned earlier Freud divided the mind into three structures: the id, the ego, and the super ego. Because the ego has the difficult task of acting as mediator between the id, the superego and external reality, the ego uses defense mechanisms to help carry out its work. The function of the defense mechanisms is to help the ego reduce anxiety created by the conflicting demands of id, superego, and external reality. Although Freud introduced the concept of defense mechanisms, Loevinger introduced a sentence-completion technique for measuring ego development that is based, indirectly, on the analysis of defense mechanisms (Gregory, 1996).

In the field of psychological measurement, Freud's theory gave some impetus to the development of projective techniques. Projective techniques can be divided according to the "task" or "content" of the tests and include: association to inkblots or words, completion of sentences or stories, construction of stories or sequences, arrangement/selection of pictures or verbal choices, and expression with drawings or play. The psychoanalytic approach to personality places an emphasis on unconscious factors in the determination of behaviour (Liebert & Spiegler, 1978). Since the individual is not directly aware of these factors, indirect methods of assessment are necessary to uncover the unconscious determinants of behaviour. According to Gregory (1996) the central assumption of projective testing is that responses to the test represent projections from the innermost unconscious mental processes of the examinee. In other words, personal interpretation of ambiguous stimuli must necessarily reflect the unconscious needs, motives, and conflicts of the examinee. Examples of projective techniques are the Rorschach Inkblots and the Thematic Apperception Test (Gregory 1996; Liebert & Spiegler, 1978; Peterson, 1992; Samuel, 1981).

#### **2.4. 1.1 The Rorschach inkblots**

The basic premise of the Rorschach Inkblots is that individual responses reveal personality characteristics as readily as do dreams and slips of the tongue (Hjelle & Ziegler, 1978). The Rorschach Inkblots was developed by Hermann Rorschach (1984-

1922) in the early 1900s (Gregory, 1996). The Rorschach Inkblots technique consists of ten inkblots, five of which have some colour and five of which are in black or grey and white. The blots are printed and centered on pieces of white cardboard. The Rorschach is suited to persons age five and up, but is most commonly used with adults. The Rorschach is usually administered to a subject individually, and the administration is divided into two basic phases. In the first phase called the performance phase, the examiner records what the subject relates about each blot. The second phase of the administration, begins when the subject has finished responding to all ten inkblots. Ross (1992) and Samuel (1981) call this phase an inquiry phase where the examiner reminds the subject of each of his or her responses and inquires both where and how the subject saw each response. Scoring and interpreting responses to the Rorschach are scored for five major characteristics:

- (a) Location: where on the card the concept was seen
- (b) Determinant: the qualities of the blot that led to the formation of the concept.
- (c) Popularity - originality: the frequency with which subjects give particular responses in general.
- (d) Content: the subject matter of the concept.
- (e) Form-level: how accurately the concept is seen and how closely the concept fits the blot.

While scoring the Rorschach is a detailed procedure, interpretation is even more complex. Most often the responses are subjected to a formal analysis in which the way they arrived at is examined. Example of scoring and interpretation of the Rorschach Inkblots is as follows:

Scoring characteristic	Example of scoring category	Sample responses	Examples of Interpretations
Location	Whole	Entire blot used for concept	Ability to organize and integrate material
	Small usual detail	Small part which is easily marked off from the rest of the blot	Need to be exact and accurate
Determinant	Form	The outline looks like a bear a flying hawk	Degree of emotional control level of ego functioning
Popularity-originality	Popular	Response which many people give	Need to be conventional
	Original	Response which few people give and which fits blot well	superior intelligence
Content	Animal figures	Looks like a house cat	Passivity and dependence
	Human figures	It's a man or a woman	problem with sexual identity
Form-level	High form-level	Concept fits blot well	High intellectual functioning
	Low form-level	Concept is a poor match to blot	Contact with reality tenuous

Interpretations would be made only if the type of response occurred a number of times (Liebert & Spiegler, 1978). The Rorschach has been used to derive a psychiatric diagnosis, estimate prognosis for psychotherapy, obtain an index of primary process thinking, predict suicide, and formulate complex personality structure as mentioned by Peterson (1992).

#### 2.4.1.2 The Thematic Apperception Test (TAT)

This technique involves the construction of stories about pictures that are open to a variety of interpretations. The TAT was developed by Morgan and Murray at the Harvard Psychological clinic (Samuel, 1981). According to Gregory (1996) the test was designed to assess constructs such as need elements that are central to Murray's

personality theory. Murray believed that unconscious needs and pressures play a role in the life of the individual (Ross, 1992). Murray is similar to Freud in the belief that projective tests would help in revealing individuals unconscious personality dynamics and to Jung who believed that projective tests can be used to uncover emotionally charged thoughts and fears. Examples of needs include the needs for achievement, affiliation, and dominance. In contrast, pressure refers to the power of environmental events to influence a person.

The TAT materials consist of 30 pictures that portray a variety of subject matters and themes in black and white drawings and photographs; one card is blank. Most of the cards depict one or more persons engaged in ambiguous activities (Anastasi, 1990; Gregory, 1996; Liebert & Spiegler, 1978). Some cards are used for adult males (M), adult females (F), boys (B), girls (G), or some combination (e.g. BM). In administering the TAT, the examiner asks the examinee to make up a story appropriate to a picture. The story should describe what the people in the picture are currently thinking and doing, what led up to the scene depicted, and what the outcome will be (Samuel, 1981). Murray suggested that salient traits, the needs, the environmental forces, and outcomes must be taken into account when scoring the content of the TAT. Aiken (1996) mentions that literature on the administration, scoring, and interpretation of the TAT is complicated and intensive.

#### **2.4.2 Self-report inventories**

Behavioural and social theories have their origins in laboratory studies on operant learning and classical conditioning. A fundamental assumption of all behavioural theorists is that many of the behaviours that make up personality are learned. To understand personality we must know the learning history of the individual. Behaviour theorists also believe that the environment is of supreme importance in shaping and maintaining behaviour (Brody, 1981; Rychlak, 1981). Social learning theorists accepted Skinner's idea that external reinforcement is an important determinant of behaviour. But they also maintained that cognition has a critical influence on our actions. Bandura proposed that perceived self-efficacy is a central mechanism in human action and he developed an instrument for the assessment of

self-efficacy expectancies. Self-efficacy is a personal judgement of how well one can execute courses of action required to deal with prospective situations.

Rotter popularised the view that our expectation about future outcomes are the primary determinants of behaviour. Based on his social learning views, Rotter developed the Internal-External (I-E) Scale, a measure of internal versus external locus of control (Burger, 1993). The construct of locus of control refers to the perceptions that individuals have about the source of things that happen to them. In particular, the I-E Scale seeks to assess the examinee's generalised expectancies for internal versus external control of reinforcement. The purpose of the I-E Scale is to determine the extent to which the examinee believes that reinforcement is contingent upon his/her behaviour (internal locus of control) as opposed to the outside world (external locus of control).

The phenomenological approach of Husserl and the existentialism of Kierkegaard influenced humanistic theorists such as Carl Rogers who contributed with his personality theory known as self-theory. Rogers also helped shape a small part of psychological testing by popularizing the Q-technique. The Q-technique is a procedure for studying changes in the self-concept, a key element in Rogers' self-theory (Ewen, 1988). The technique was developed by Stephenson in 1953 but a series of studies by Rogers and his colleagues served to popularise this measurement approach. Also known as a Q-Sort the Q-technique is a generalised procedure that is useful for studying changes in self-concept.

As described earlier a trait is any relatively enduring way in which one individual differs from another. Psychologists developed the concept of trait from the ways people describe other people in everyday life. As language evolved, people found words to portray the consistencies and differences they encountered in their daily interactions with others. We use trait names to describe consistencies within individuals and also differences between them. Trait conceptions of personality have been enormously popular throughout the history of psychological testing.

The Meyers- Briggs Type Indicator (MBTI) is a forced-choice, self-report inventory that attempts to classify persons according to an adaptation of Carl Jung's theory of personality types. The instrument is available in a 166-item version (Form F) and a 126-item version (Form G). We will discuss Form F here, since it is the most widely used (Gregory, 1996). The MBTI is scored on four theoretically independent dimensions: Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling, Judging-Perceptive. Although scores on each bipolar dimension are continuous, it is common practice to summarize an examinee's scores in a typological manner. For example, an examinee might score more toward Extraversion, Intuition, Feeling, and Perceptive, and thereby obtain a summary type of EFNP. Such a profile would suggest the following personality characteristics: a greater relatedness to the outer world of people and things than to the inner world of ideas (E) and the others.

Cattell and most other researchers who have used factor-analytic techniques believe that natural, unitary structures in personality underlie the various names and behaviours that have traditionally been examined (Liebert & Spiegler, 1978). Through the work of prominent figures like Cattell, Eysenck and recently Costa and McCrae many self-reports inventories have been developed (Gregory, 1996). Cattell's factor analytic work resulted in 16 to 20 bipolar trait-dimensions. Eysenck's trait dimensional approach contracted dozens of traits into two overriding dimensions. From Goldberg and others, all trait approaches have been synthesised by proposing a five-factor model of personality (McMartin, 1995). Among the self-reports developed by traits theorists are the Eysenck Personality Questionnaire, the Sixteen Personality Factor Questionnaire and the NEO Personality Inventory Revised.

#### **2.4.2.1 The Sixteen Personality Factor Questionnaire (16PF)**

From the previous discussion we see that Cattell's factor analysis led him to identify the underlying structure of the various aspects of personality (Maddi, 1996; Peterson, 1992). He referred to the innumerable differences that can be observed among people as surface traits (Gregory, 1996); language gives us the total domain of surface traits. Surface traits would typically emerge in the first stages of factor analysis when individual test items are correlated with each other. Cattell draws his data from three

basic sources: life record data (L-data), self-rating questionnaire data (Q-data), and objective test data (OT-data). The first L-data, involves the measurement of behaviour in actual, real situations such as school performance or interactions with peers (Hjelle & Ziegler, 1992). Such data may also include trait ratings provided by people who know the person well in real-life settings (e.g. co-worker). Q-data in contrast, refers to the person's self-ratings about his or her behaviour, feelings, or thoughts. Such information reflects the person's introspection and self-observations. Finally, OT-data are derived from the creation of special situations in which the person's performance on certain tasks may be objectively scored. The definition characteristic here according to Cattell, is that the person is placed in a miniature situation and responds without being aware of the dimensions on which he or she is being evaluated (Cattell & Cattell, 1995).

From Allport's list of trait names, Cattell eliminated synonyms and obscure traits and was left with 171 surface traits (Pervin, 1990; Peterson, 1992). Inter-correlations and factor analysis of these ratings were followed by ratings of 208 people on a shortened list of variables. Factor analysis of the latter ratings led Cattell to identify what he described as "the primary source traits of personality" (Maddi, 1996, p.328). In a series of studies, Cattell determined that 16 personality factors or source traits are needed to explain the structure of test responses, hence the name for his instrument. The 16PF yields a total of 20 indices or attributes of personality. In addition to the 16 basic scales, four-second order indices of personality are computed from weighted linear sums of the previous 16 indices. The end results of Cattell's work were the identification of 20 underlying personality factors or traits. After factor analysis of the response of thousands of persons, Cattell founded that 16 of the original 20 personality traits were independently confirmed (Gregory, 1996). These 16 source traits have been incorporated into the Sixteen Personality Factor Questionnaire.

At present there are six forms of the test available for use in the USA. Two of the forms (A and B) have already been adapted and standardised for South African use (Van Zyl, 1996). Two new forms of the 16PF that have been standardised for use in South Africa are Form E and Form SA92. The 16PF was originally designed as a set

of primary or elementary factor scales by means of which various other personality traits and behaviour patterns can be predicted (Cattell, 1965).

IPAT revised the 16PF with the intention to select and update the best items from the five current forms of the 16PF and the Clinical Analysis Questionnaire and to combine these with new items to create one new form (Conn & Rieke, 1994). The general view is that the 16PF5 is better than the previous editions regarding the content and grouping of items. The questionnaire is easy to understand. In the 16PF5, all b response choices (to personality items) appear as a question mark thus providing a uniform response choice which covers several different reasons for not selecting either the a or c alternative. Previous 16PF editions contained a variety of response choices that testees sometimes found ambiguous.

As the name indicates, this questionnaire by Cattell involves 16 personality factors. Prior to the Fifth Edition, the scales did not have actual names, instead, a letter was designated to each scale, and high and low scores on each scale were described by appropriate adjectives. These adjectives along with the Fifth Edition item content and validation results were considered in the development of scale names. Most of the scale names reflect adjectives used in earlier editions. Some exceptions exist, however, for example, the adjectives of suspicious and distrustful that had previously described Factor L were seen as less socially acceptable than its new name of Vigilance. For Factor M, the name of Abstractedness was chosen since none of its former descriptors alone (imaginative, absent-minded, and impractical) comprehensively reflected a higher scorer's orientation to internal mental process and ideas (Larsen & Ketelaar, 1991).

Detail on what the questionnaire measures and why it is believed that these traits are being measured is discussed in Chapter 4 (Bergh, 1992; Cattell, 1965; Cattell et al., 1970; Conn & Rieke, 1994; Gregory, 1996; Van Eeden & Prinsloo, 1997). Behaviour associated with these traits is mostly based on overseas research, as local studies in this regard are not widely published.

### 2.4.2.2 Eysenck Personality Questionnaire (EPQ)

Several models of personality structure view traits as biologically based and temperamental dimensions of individual differences. After exploratory factor analyses Eysenck isolated three major dimensions of personality: Psychoticism (P), Extroversion (E), and Neuroticism (N). The EPQ consists of scales to measure these dimensions and also incorporates a Lie (L) scale to assess the validity of an examinee's responses (Gregory 1996; Hamilton, 1995; Pervin, 1990; Sweetland & Keyser, 1991). The introversion-extroversion dimension describes the degree to which a person is extraverted or introverted. Emotionally stable-unstable indicate a person who is emotionally stable, easy going, whilst at the opposite end of the dimension, it indicates someone who is very 'touchy' easily worried etc. Psychoticism is related strongly and negatively to Agreeableness, and moderately negatively to Conscientiousness and moderately to measures of Openness to Experience. Eysenck has argued that these dimensions are seen to be underpinned by physiological factors (Hamilton, 1995).

Eysenck's trait dimensions theory resulted in the development of a personality inventory (the EPQ) named after its inventor (Eysenck, 1995). The purpose of this questionnaire is to measure the personality dimensions of extroversion, emotionality, and tough mindedness (Psychoticism in extreme cases). The questionnaire can be used for clinical diagnosis, educational guidance, occupational counseling, personnel selection and placement, and market research (Sweetland & Keyser, 1991). Gregory (1996) and Sweetland and Keyser (1991) give brief descriptions of the EPQ. The EPQ contains 90 items and is a paper and pencil test with Yes or No answers. It measures three important dimensions of personality: Extroversion-introversion (21 items), Neuroticism-stability (23 items), and Psychoticism (25 items). The falsification scale consists of 21 items. The questionnaire deals with normal behaviours that become pathological only in extreme cases hence use of the term "tough-mindedness" is suggested for non-pathological cases. Scores are provided for E-Extroversion, N-Neuroticism or emotionality, P-Psychoticism or tough-mindedness, and L-Lie, which assess the validity of an examinee's responses.

### 2.4.2.3 Neo Personality Inventory-Revised (NEO-PI-R)

Gregory (1996) and Sweetland and Keyser (1991) describe the NEO-PI-R. Costa and McCrae have developed two personality tests based upon the five-factor model (McCrae & Costa, 1987). The NEO Personality Inventory-Revised (NEO-PI-R) was developed after factor-analytic research with clinical and normal adult populations (Costa & McCrae, 1992). The NEO-PI-R is available in two paralleled forms consisting of 240 items rated on a five-point dimension. An additional three items are used to check for validity. A shorter version, the NEO Five-Factor Inventory (NEO-FFI) is also available. Form S is for self-reports, whereas Form R is for outside observers (e.g. the spouse of a client). The item format consists of five-point ratings, strongly disagree, disagree, neutral, agree, and strongly agree. The items assess emotional, interpersonal, experiential, attitudinal, and motivational variables.

The five-factor model proposes a modern synthesis of approaches in terms of five dimensions of personality:

- (a) neuroticism
- (b) extraversion
- (c) openness
- (d) agreeableness
- (e) conscientiousness

Support for the five-factor approach comes from several sources, including factor analysis of traits in terms of language and the analysis of personality from an evolutionary perspective (Gregory, 1996). According to Peterson (1992) the Big Five is related to other attempts to organize individual differences. The five dimensions listed above are independent of each other, which means that someone who falls on the extreme end of one of these may be high, middle, or low with respect to any of the others.

## **2.5 THE VENDA VERSION OF THE 16PF5**

As indicated earlier, Cattell's research has influenced almost every issue relevant to personality theory structure, development, motivation, psychopathology and psychological health. Furthermore, Cattell impressed researchers by the effort to construct a theory based on a precise measurement technique. Wiggins (1984), a supporter of Cattell's theory, commented that Cattell's theory has generated more empirical research than any other theory of personality. The Psychological Assessment Instrument Development (PAID) Division or Programme, functioning as part of the Unit for Psychological Assessment Technology (UPAT) at the HSRC, has the responsibility to explore ways in which to make available the best technology possible for the assessment of personality variables in South Africa (Prinsloo et al., 1998). One of the personality instruments considered is the 16PF because it is seen as the best instrument for the assessment of personality variables. The use of different forms of the 16PF together with research done on this instrument resulted in the release of a new, improved edition of the test (the 1994 Fifth Edition) by IPAT. As indicated in chapter 1, this newly released questionnaire (the 16PF5) was translated into Venda and the functioning of this version determined. Item analysis was done on each of the 16 primary traits, the reliability of these traits was determined, and based on these results, validity analyses were considered.

## **2.6 SUMMARY**

The psychology of personality is concerned with understanding the total person, giving consideration to individual differences and similarities between people. To gain insight into the diversity problems, psychological research tried to define the term "personality". Several meanings of the term were given according to the emphasis of different school of thoughts but commonality is found in different definitions. For example, most definitions emphasise instincts, unconscious, dynamic nature, environmental, etcetera. Theoretical approaches differ according to different schools of thoughts, for instance, psychoanalytic theory places emphasis on instinctive biological energy as a source of all human behaviour. Psychoanalytic theorists share the assumptions that inner forces shape personality and motivate

behaviour. Mental and behavioural reactions are seen to be caused by earlier experience. The behaviouristic theories viewed behaviour as caused by combined environmental stimuli and reinforcements. They believed that the environment and / or styles of thinking shape personality. The humanistic theories focus on the concept of an individual's lifelong process of striving to realise his or her potential. For the humanistic theories personality is driven by self-actualization. Trait theorists believed that human behaviour can be organized by labelling and classifying observable personality characteristics while Type theorists believed that personality can be classified into a limited number of groups or types.

Different theories have led to the development of personality tests. Personality tests can be divided into self-report inventories and projective tests. Examples of projective tests are the Rorschach inkblot test, the Thematic Apperception Test, drawing tests, sentence completion tests. The examples of self-report inventories discussed are the Meyers-Briggs Types Indicator, the Sixteen Personality Factor Questionnaire, Eysenck Personality Questionnaire and the NEO Personality Inventory-Revised. According to Cattell the 16PF measures the following factors or traits: Warmth, Intelligence, Emotional Stability, Dominance, Impulsivity, Conformity, Boldness, Sensitivity, Suspiciousness, Imagination, Shrewdness, Insecurity, Radicalism, Self-sufficiency, Self-discipline and Tension. The second order factors are Extraversion, Anxiety, Tough Poise and Independence. Different studies provide proof of the validity and reliability of the 16PF. The functioning of the Venda version of the 16PF5 was determined in the present study.

## CHAPTER 3

### LITERATURE REVIEW

#### 3.1 INTRODUCTION

Psychological tests provide useful information about individuals in a quick and objective way. The test results help in the workplace and in clinical settings. Despite the current resistance towards psychological tests, tests are widely used in South Africa (Foxcroft, 1997; Nell, 1994). In a heterogeneous society like South Africa it is questionable whether psychological tests can be developed that would be suitable for all subgroups. During the 1940's and 1950's evaluation in South Africa focused on the educability and trainability of black South Africans (Bedell, Van Eeden & Van Staden, 2000). It was noticed that cultural differences influence testing outcomes, and attempts to create "culture-free" tests were not successful. Following this period, development, standardisation and adaptation of existing tests dominated interest. There was no attempt to assess abilities and traits in a culturally relevant framework. However, in the 70s and 80s there was recognition that culture has an impact in the testing domain, and that it is not possible to remove culture from the testing situation. Culture as Retief (1988) puts it, affects behaviour and consequently the psychological constructs being measured, and it was beginning to be seen as a crucial moderator of test performance.

As indicated earlier, it is common practice in South Africa to adapt and standardise international tests locally. An advantage of using international tests is that it can be determined whether the constructs measured by the tests (personality tests in particular) are common to cultures (universal) or specific to one or a few cultures. A disadvantage of using international tests is that the content assessed on tests can differ in importance across cultures or languages. At this point in time available tests include for example, those designed for one population group and with norms for that group, those designed for one group but with norms for different groups and those designed and normed for different groups simultaneously. The present situation is that few tests are available that have been standardised for all South Africans

(Foxcroft, 1997). This means that comparability of test performance across groups can be difficult.

There is increasing pressure on test developers and test users to guard against the potential misuse of psychological tests, and the need to adapt and develop culturally appropriate measures (e.g. the draft policy of the Professional Board of Psychology on the classification of psychometric measuring devices, instruments, methods and techniques, June, 1999). In addition, the employment equity bill states that only psychological tests that have been proven to be scientifically valid and reliable and that are not biased against any groups may be used.

Future research should focus on the reliability and validity of current tests for different groups, bias studies, the comparability of results across groups on current tests, and the development of new tests suitable for different groups (this could include translation and adaptation of available tests). Foxcroft (1997) supports the idea of adaptation of existing tests and the development of culturally appropriate norms but also points out the difficulties in adapting and translating tests in a culturally and linguistically diverse society such as South Africa. The present study focuses on the adaptation of the 16PF5 for cross-cultural use.

## **3.2 SOUTH AFRICAN CROSS-CULTURAL STUDIES**

The focus of this chapter will be on research on cognitive tests and personality questionnaires, the influence of language and issues related to translation, and research on translated personality questionnaires.

### **3.2.1 Research on cognitive tests**

In his study with the Junior Aptitude Tests (JAT), Owen (1989) found the test to be reliable for Whites and Indians but the reliability coefficients for Blacks did not meet criteria. Reliability was firstly determined and the author found that the reliability coefficients for the verbal scales for the first three groups were acceptable (ranging between 0,453 to 0,942).

Owen (1991) reports on whether the JAT measures the same psychological constructs for various population groups. A sample of Std 7 pupils was tested. To determine whether the 10 subtests of the JAT measure the same factors for White, Coloured, Indian and Black testees, exploratory factor analysis was done. The intercorrelations between the subtests were calculated separately for each population group and the factor structures determined. Factor 1 had high loadings with respect to Spatial 2-D and 3-D for all four groups. Moderate loadings were also found for the White, Coloured and Indian pupils for Mechanical Insight and the two reasoning tests, namely Classification and Reasoning. The highest loadings were shown by the 2-D and 3-D tests and Factor 1 could be identified as a Spatial factor. The Memory Paragraph test and Memory Symbol test loaded on Factor 2 for three of the four population groups (excluding Coloured) identifying it as a Memory factor. However, this factor also contained elements that differed among the four groups, for example the fact that Number Ability and Comparison loaded for the White, Coloured and Black groups but not for the Indian group. Factor 3 displayed loadings in the case of all four population groups for Reasoning and Synonyms. Both tests involve language and this factor could be identified as a Verbal factor. In this study, Owen found coefficients of congruence of 0,90 and higher when comparing the factor loadings of the Whites and those of the other three population groups thus providing some support for factorial similarity that is, the same factors were measured in the four population groups. Owen concluded that the JAT to a large extent measured the same constructs in all four-population groups (i.e. White, Coloured, Black and Indian). Based on the results of an exploratory factor analysis, the assumption that the JAT is unbiased for Coloured, Indian and Black pupils as far as construct validity is concerned seemed to be justified.

Owen also did confirmatory factor analyses to test factorial similarity using the factor structure of the White sample to specify the model. A good fit was obtained for none of the groups, but the model could be regarded as a reasonable fit and similarities were found in the constructs being measured for the various groups (White, Coloured, Black and Indians). Owen studied the format and content of subtests that functioned differently and found language to be a potential source of bias in the case of the Black pupils (who were tested in English). Constructs involving language are probably less

well defined in the Black group than in the other three groups. Owen concluded that the absence of bias in construct validity does not exclude the possibility of biased items systematically underestimating the ability of a group as the result of language or other factors.

Taylor and Radford (1986) used the Reading Comprehension Test and the Blox Test to investigate the relationship between test results and the academic performance of black and white Technicon students in South Africa. They found that predictive bias existed as the regression line for both predictors for whites were below that for blacks.

Claassen and Cudeck (1985) investigated the structural equivalence of the New South African Group Test (NSAGT) Intermediate Form G in Afrikaans and English for two language groups (i.e. Afrikaans speaking and English speaking groups). The covariance matrices of the six subtests i.e. Number series, Word pairs, Figure analogies, Verbal reasoning, Pattern completion and Word analogies were compared for a group of 319 Afrikaans speaking students and a group of 171 English speaking students. Although the covariance matrices differed significantly, similarity in factor structure for the two groups was found for progressively stringent tests of factorial invariance. From this study they concluded that the NSAGT might be regarded as equivalent as far as internal structure is concerned. The authors also investigated the factor structure of the NSAGT for White Afrikaans, White English, Brown Afrikaans and Brown English speaking groups (Claassen & Cudeck, 1985). They reported that the G factor or general intellectual ability was considered to be the most important source of individual differences in IQ scores, regardless of which population group was being tested. Although the test had similar structures for different population groups, factorial invariance across the groups did not exist. It was recommended that these findings should be kept in mind when comparing results on the test across different groups.

The NGSAT was replaced and Claassen (1990) investigated the construct validity of the new test, the General Scholastic Aptitude Test (GSAT) Intermediate for various sub-populations, namely Brown Afrikaans speaking, Brown English speaking, White Afrikaans speaking and White English speaking. (Note that the reliability for the

groups discussed here was found to be higher than 0,90 for both non-verbal and verbal scores). A verbal and a non-verbal factor could be distinguished for all groups but as these were highly intercorrelated, a one-factor structure was used in a simultaneous factor analysis performed on the seven subtests. All loadings were high and varied from 0,682 for Figure analogies for the Brown English speaking group to 0,878 for Number problems for the White Afrikaans speaking group. For all groups the subtests Verbal reasoning and Number problems had the highest loadings and ranged from 0,799 to 0,878. This probably indicates these tests to be better estimates of g or general reasoning. Claassen found considerable differences in the factor structures of the two Brown groups and the two Afrikaans speaking groups. These differences were attributed to the general level of achievement of the groups and could be interpreted against the background of differences between the experiential and ecological contexts in which the members of these sub-populations function. Level of achievement also seemed to influence predictive validity as seen in the differences in regression lines. Claassen concluded that the test measures scholastic ability (or developed cognitive ability) for all groups but that this could not be extrapolated to intellectual ability for the majority of Brown Afrikaans speaking children.

Claassen and Schepers (1990) investigated the degree to which attitudinal, motivational and environmental variables could explain the variance in GSAT Intermediate scores between population groups. The authors used the Kuder-Richardson 8 to determine the reliability of the GSAT for White Afrikaans, White English, Coloured Afrikaans, Coloured English and Indian English speaking groups. These were the only groups for which either Afrikaans or English was the mother tongue of everyone. The reliability coefficient of all groups was  $> .90$  for the non-verbal and verbal scales. With regard to the analysis of co-variance the authors concluded that differences in GSAT scores found between population groups could to a large extent be explained by socio economic status. The results of this study showed SES (rather than attitudinal and motivational factors) could explain a large part of the variance.

Van Eeden and Visser (1992) investigated the validity of the SSAIS-R for Coloured, White and Indian pupils. Intercorrelations between the raw scores of the tests of the SSAIS-R were determined for each age group of the three population groups. In most cases the correlations were highly significant which is indicative of a common underlying factor, although all the tests also exhibited specific variance. Principal factor analyses were performed and factor loadings on the first unrotated factor were found for the age groups of the various population groups. The subtest loadings varied between 0,211 and 0,836 for the Coloured pupils and from 0,253 to 0,815 and 0,278 to 0,797 for the White and Indian pupils respectively. A two factor structure (presumably representing a verbal and a non-verbal factor) was specified for further analysis. Four of the six tests with verbal item contents, namely Test 1: Vocabulary, Test 2: Comprehension, Test 3: Similarities and Test 5: Story Memory, had common loadings on the first factor. In the case of Test 4: Number Problems, the test loaded mainly on the second factor for Coloured pupils and on both factors for the White and Indian pupils. In most cases the factor loadings of Test 4 on the two factors corresponded closely and were not particularly high. With nonverbal item content, four of the six tests, namely, Test 6: Pattern Completion, Test 7: Block Design, Test 8: Missing Parts, and Test 9: Form Board, loaded mainly on the second factor. Test 8 had substantial loadings on the verbal factor in the case of Indian pupils especially, whereas Test 9 showed no significant loadings for some age groups. The loading for Test 10 (Memory for Digits), Test 11 (Coding) and Test 12 (Picture Arrangement) could not be interpreted meaningfully. It was concluded from the commonalities that Test 9, 10, 11 and 12 showed more specific variance than the other tests. Coefficients of congruence were calculated between the factor loadings of the groups. A high degree of factorial similarity was found in terms of general intelligence but some differences were observed for the verbal and non-verbal factors.

Concurrent and predictive validity were furthermore determined. Correlations with teacher ratings of language ability and of general intellectual level were highly significant for all population groups. With regard to the prediction of examination marks, results were not altogether convincing in the case of groups that had less exposure to the western culture. The authors concluded that the construct and criterion related validity that was demonstrated for the SSAIS-R implies that it may be used in

an educational setting to differentiate between pupils in schools run by the relevant education departments. It has also been established that the SSAIS-R is valid for the norm group in which the education departments are proportionally represented. Although the SSAIS-R can be regarded as reliable and valid for the different groups, some variations in factor structure and with regard to predictive validity were found and should be taken into consideration when making comparisons across groups (Van Eeden & Visser, 1992).

Based on the fact that SES explained variance in the scores in the SSAIS-R, two norm groups were formed. In the one, the population groups were proportionally represented. In the other, only non-environmentally deprived children were included (Van Eeden & Visser, 1992). The reliability of the subtests and the composite scales was determined for different age groups in these norm groups using KR8, KR21 & Mosier's formula. The coefficients were mostly acceptable with most of the values for the verbal, the non-verbal and the full scales being  $\geq ,90$ .

### **3.2.2 Research on personality questionnaires**

Taylor and Boeyens (1991) did an exploratory study on the comparability of the scores of Blacks and Whites on the South African Personality Questionnaire (SAPQ). In order to meet the requirement for multimethod-multisample strategy of comparability evaluation, two samples each were drawn from the Black and White populations. The first Black sample comprised Zulu speakers who were at the time in their first year at Mangosotho Technicon in Durban. The second Black sample was drawn from the files of the Educational Information Center (EIC) in Johannesburg, which perform a vocational guidance service. Both White samples were made up of first-year students at the University of Stellenbosch; one sample comprised Afrikaans speakers and the other English speakers. The Spearman index revealed the matrices of the EIC for the Afrikaans and English samples to be more similar to one another than to the Mangosotho sample. Coefficient alpha reliabilities were calculated for the five scales of the SAPQ. These were acceptable with the exception of two of the scales that had unacceptable values (below 0,7) for the Black samples. Exploratory and Confirmatory factor analyses showed modest support for the construct comparability

in three of the groups (excluding the Mangosotho sample). However, based on a bias analysis the authors concluded that the SAPQ scores do not have the same meaning in black and white groups and the questionnaire is not suitable for cross-cultural application.

Retief (1992) replied to Taylor and Boeyens's (1991) investigation of the cross-cultural utility of the SAPQ. Retief agreed that the SAPQ is so flawed that it is largely unsuitable for cross-cultural application but he argued that certain important variables operate in the domain of cross-cultural personality assessment, necessitating a different interpretation of traditional concepts relating to bias and item comparability. On the issues relating to bias and item incomparability, Bedell et al., (2000) comment that since personality test items deal with the interpretation of social situations and events, subjects can be expected to differ in terms of the meanings they ascribe to such items, and such meanings are not necessarily quantifiable.

Forms A and B of the 16PF are suitable for people with standard 10. Although norms are available for African language groups, there was a need for an instrument suitable for lower levels of education. The HSRC experimented with the American edition of the 16PF (Form E) during the 1970s. The result that they obtained was the South African version of 1977 and 1980. In 1987 the experimental versions were revised further and replaced by the 1987 experimental version that can be used for people with standard 4 to 9. (Note that all versions of the 16PF in South Africa requires proficiency in English or Afrikaans). During revision the following aspects were given special attention:

- (a) The arrangement of the items in a format that would be simple to read and to complete;
- (b) The replacement of the manually scored answer sheet scored by the computer so that the test would be scored more effectively and completed protocols be included in data sets more readily and more often with a view to updating norms;
- (c) The readability and linguistic level of the questionnaire;
- (d) The equivalence of the Afrikaans and English versions of the questionnaire, and;

- (e) The removal of typically American activities, terminology and expressions.

Data was collected from organisations or individuals who volunteered to become involved in the project. The sample comprised of bus drivers, government employees, electricians and unskilled labourers. Owing to the serious need that was identified in industry, it was decided to standardise the experimental test of 1987. The results that were obtained from analyses based on the first 475 protocols available from the 1987 study, are contained in a publication entitled Norms, means, standard deviations and reliability coefficients for the Sixteen Personality Factor Questionnaire (Form E), (Prinsloo, 1992).

For the 16PF, SA92 version, the Kuder-Richardson 8 coefficient was used to calculate the degree of internal consistency. Test-retest reliability coefficients for the factors ranged from 0,150 to 0,712. If the K-R 8 value is below 0,450 or 0,500, it is recommended that less weight be allocated to the specific scale point. The SA92 of the 16PF has a far smaller number of items per factor than Form A and the reliability coefficients are better. The SA92 can therefore be used to great advantage decisions (e.g. with regard to selection) depend more heavily on the given scores of an individual on a particular scale. Test users are reminded that they have to decide about the acceptable size of reliability coefficients in accordance with the aim of each particular application of the test.

Factor analyses yielded approximately the same structure as encountered in the existing forms of the 16PF, especially Form A of the South African version. No significant differences were found between the factor loadings of the persons from different subgroups (i.e. those divided according to sex, home language and population group). In the interpretation of the second-order factors, factor loadings of 0,3 and higher were seen as an indication of primary factors that loaded on the second-order factors. The results of this study can be regarded as confirmation of the fact that the adapted SA92 essentially corresponds with the known Cattell contents as far as construct validity and content validity are concerned. Prinsloo concluded that the second-order factors reveal sufficient independence to have psychological value as

separate scores that can be interpreted in a meaningful way. The data also confirm the construct validity and the content validity of SA92 of the 16PF.

The 16PF, SA92 was used by Van Eeden and Prinsloo (1997) to investigate its fairness in a multicultural context. A sample of 637 applicants for posts in a South African financial institution was used. This included applications for administrative as well as specialist posts. A distinction was made between individuals tested in their first language (Afrikaans or English) and those who indicated that their home language is an African language but who were tested in English. Gender was also used as classification factor. The reliability coefficients of the primary factors were calculated with the Kuder-Richardson Formula 8. These coefficients ranged from 0,36 (Factor M) to 0,78 (Factor H) for the total group and from 0,35 (Factor M) to 0,71 (Factor H) for the African language group. Multivariate analysis of variance (MANOVA) with multiple comparisons by means of univariate analyses of variance (ANOVAs) was used to compare the profiles of means of the raw scores of the 16 primary factors and the MD scale for various subgroups. The results of the MANOVA when comparing individuals tested in their first language (Afrikaans or English) and African language speakers who were tested in English indicate that there was a highly significant overall difference between the profiles of means for the two groups ( $p < 0,001$ ). The results of the ANOVAs showed that Factors A, E, H, M, N, Q4, and MD did not differ significantly. However, the norm group of the test include different population groups and when using these norms to obtain standard scores, the differences in standard scores were mostly not substantial (with the exception of Factors F, C and Q2).

Intercorrelations between the raw scores of the 16 primary factors were calculated for the total sample and for the various subgroups. Factor analyses were performed to determine the factor structure underlying the intercorrelation matrices. Fairly consistent patterns for the language groups were found in Extraversion, Anxiety and Independence (confirmed by coefficients of congruence) while Compulsivity could not be extracted for the Afrikaans/English group and Emotional sensitivity for the African language group. The authors concluded that although there did not seem to be

a need for specific norms, some cultural and gender-specific trends should be considered when interpreting the results on the 16PF, SA92.

Abrahams (1996) and Abrahams and Mauer (1999) report on using the Sixteen Personality Factor Questionnaire (16PF, SA92) to compare the responses of different population groups to the items of the test and to explore some reasons for the observed differences. The research participants were chosen from the psychology and industrial psychology departments of the following universities: University of Pretoria, University of Western Cape, University of Durban-Westville and University of Natal. Two complementary approaches were used in the investigation, namely a quantitative and also a qualitative one. To determine whether differences existed between response patterns of the populations in the quantitative study, Chi-squares were computed to analyse the frequencies with which members of each group endorsed each response category of each item of the 16PF. Significant differences between White and Black respondents were found. The authors also found the reliability not to be acceptable for all respondent groups and concluded that the test should not be used cross-culturally.

For the qualitative study straightforward frequency tables and summaries of the responses were used. The author classified the differences in the way items were understood as mores, situational and experiential factors, cultural beliefs and social desirability responses. The authors concluded that the findings have demonstrated that there should be serious concern on the part of the users of the 16PF, SA92, especially when seen against the background of the legislation dealing with labour matters.

A feasibility study was done on the 16PF5 to determine its reliability and validity for different cultural groups in South Africa (Van Eeden et al., 1996). The authors regarded their study as exploratory and suggested the same study to be repeated with a larger sample for final conclusions about the functioning of the 16PF5 in South Africa. The sample consisted of three groups: group 1 comprised English and Afrikaans speaking testees, group 2 included African language speakers from the private sector similar to group 1 regarding age and educational qualification and occupation, and group 3 was an African language group from the public sector.

Multivariate analysis of variance (MANOVA) with multiple comparisons by means of univariate analyses of variance (ANOVA) was used to compare the profiles of the means of the 17 scales for various subgroups. A highly significant overall difference between the profiles of the means was found for the three groups. The reliability coefficients of the primary factors were calculated with the Kuder-Richardson Formula 8. In the case of group 1 the coefficients were relatively high and in the same order as those for the American version of the test. The coefficients were in most cases lower for group 2 than for group 1 with the coefficients for factors B, C, I, Q1 and Q3 below 0,60. More than half of the coefficients for group 3 were below 0,60 indicating that the items were probably not appropriate for this group. Factor analyses were performed to determine the factor structure underlying the intercorrelation matrices. Factorial similarity was found when the factor structures of group 1 and 2 were compared with that of the American norm group. Factorial similarity was also tested by means of confirmatory factor analysis and the results did not indicate a good fit for any of the groups.

Following this study Prinsloo et al.(1998) studied the measurement equivalence as well as the effect of language proficiency on personality profiles in the current standardisation of the South African English version of the 16PF5. The sample comprised first-year students enrolling at the Rand Afrikaans University (RAU) at the beginning of 1997. The sample comprised young students who shared cultural origins, who had English or Afrikaans, and in some cases, an African language, as a mother tongue, and who could complete the English questionnaires fairly easily. An attempt was made to apply techniques similar (or recommended) by the research team responsible for the exploratory phase of this project. Prinsloo concluded that the English version as slightly amended for South Africa, is valid in terms of its constructs and does not show any great extent of differential item functioning in terms of sub-groups based on gender and home language. He suggested the expansion of the sample to include a larger African language group and to explore the extent to which an English proficiency test could be applied to determine when problems in terms of differential item functioning and equivalence are experienced.

### 3.3 THE INFLUENCE OF LANGUAGE AND ISSUES RELATED TO TRANSLATIONS

Nell (1997) asserts that language proficiency, cultural background, extent of urbanization, socio-economic level of the home environment, highest standard passed and quality of education as well as test-wiseness, are important moderators of test performance. Of these, language and the number of years of formal education have been identified as being the most important. In the case of Black pupils, tests are often not answered in their mother tongue, a problem which is even more serious in rural areas if people rarely use English (Owen, 1991).

In the case of cognitive or aptitude tests, test results could reflect language ability if the test is administered to a person in a language other than his home language (Foxcroft, 1997; Nell, 1997; Owen, 1991; 1992). As indicated earlier, research findings show that test performance could be lowered because of language and not necessarily because of ability factors if a test is administered to a person in a non-native language. Owen (1991) reports that language was a potential source of test bias for pupils who completed an aptitude test in English. In the case of personality tests, Retief (1988, 1992) argues that different interpretation of certain concepts in the personality questionnaire could result in bias and item incomparability. It was mentioned by Foxcroft (1997) that language is a problem even in schools that historically have catered for black pupils. Pupils do not receive all their education in an African language; from Grade 5 onwards they are taught in English. It would, however, be erroneous to conclude that the English- language development of Black pupils is generally comparable to that of mother tongue English-speakers once they have completed their schooling. Owen (1991) argues that although Black pupils are taught in English from Grade 5 onwards, their language skills are probably not sufficiently developed to compete with those of their White counterparts. Thus fair testing practice in South Africa requires that language proficiency of the testee for the language in which the test will be administered needs to be established before testing.

Van Eeden et al. (1996) also express concern that the African language group might not understand some of the words and phrases being used or that the group might

attach a different meaning to some words or phrases on the 16PF5. They suggest that if the 16PF5 is standardised in English in South Africa, only people with a formal level of education of at least standard 10 should be included in the norm group to ensure they have a good comprehension of the language used in the items.

Owen (1991) states that the successful construction of common psychometric tests for various population group in South African is one of the major challenges to be met before the turn of the century. A number of authors suggest that the translation of questionnaires into African languages should be considered (Abrahams, 1996; Foxcroft, 1997; Van Eeden at al., 1996). Although a number of tests have been translated into African languages, there are practical problems with this procedure such as the large number of official languages and the availability of test administrators who can speak the respective languages (Van den Berg, 1985). Practitioners furthermore report problems with regard to different dialects spoken in different areas and a difference in performance between urban and rural individuals tested in their mother tongue. The fact that many black pupils are educated in their mother tongue as well as English, means that the decision whether to translate a test or not should be based on information about the effect of respondents' understanding of the language of testing on their performance (Foxcroft, 1997). Consideration of the effect of English proficiency on test results is consequently one of the main concerns in the current South African standardisation of the Wechsler Adult Intelligence Scale III (WAIS III) and the 16PF5. When translation is sought as a solution to language problems, Nell's (1994, p.107) assertion which states that: "the language in which the test is administered may make a range of concepts available to a non-native speaker of that language that are inaccessible in the speaker's home language, or, conversely, the translated version of a Western test may deny the testee access to the language medium through which he or she has acquired most of his or her knowledge and experience" must be taken into consideration. According to Abrahams (1996) and Van Eeden and Prinsloo (1997) there is no quick solution in choosing and using psychological tests in the new South Africa. It is suggested that validity studies be done on existing personality tests, efforts be made to develop unbiased tests, and fairness in the use and interpretation of test results should be strived towards.

The problem of the language in which the test is being administered is not only found in South Africa. Overseas researcher also pointed out language problems when they examine the influence of language on the responses to psychological questionnaires. It is suggested that the language in which an instrument is administered may produce responses that can affect the results of a cross-cultural study.

### **3.3.1 Translation procedures**

Translation of psychological tests from one language to another was recommended as one of the solutions to language problems in multi-cultural assessment (Hambleton, 1993, 1994; Hambleton & Kanjee, 1995; Van de Vijver & Poortinga, 1997). Geisinger (1994) prefers the term adaptation because he believes that adaptation of assessment instruments for the target populations is required when the new target population with which the assessment device is used differs in terms of culture or cultural background, country and language. By the term adaptation, Geisinger means that cultural issues as well as linguistic issues relevant for different cultural groups should be taken into consideration.

Hambleton and Kanjee (1995) gave reasons for translating or adapting psychological and educational tests as follows:

- (a) To facilitate comparative studies across nations, and ethnic and cultural groups both on an international as well as a national level. Such comparison can be conducted in an attempt to identify possible cultural influences on the development of psychological tests.
- (b) To enhance fairness in assessment by allowing persons to be assessed in the language of their choice.
- (c) To reduce costs and save time in developing new instruments. This is true in situations where there is a lack of resources for assessment development, and assessment expertise.

According to Hulin (1987) translation of psychological questionnaires permits research on latent psychological traits and constructs among members of different cultures. To achieve the goals mentioned above high fidelity in translations from the

source to the target languages are required. Though translation of psychological questionnaires from source language to target language is suggested as a solution to language problems, problems of translation are many and call for special techniques (Bracken & Barona, 1991).

In order to achieve better quality of translation, two basic methods of translation are used in the educational and psychological literature, namely **forward translation** and **backward translation**. These methods are recommended as the best known and most popular (Brislin, 1970; Retief, 1988).

**Forward translation** (or forward adaptation designs) means that the source version of the test is translated into the target language by several translators working individually or in small groups working independently (Hambleton, 1994). Then the translators come together and work out a combined translation that best represent their views. An advantage of this is the use of multiple translators, insuring that shortcomings of a particular translator do not dominate the process. Sometimes a new group of translators organises the available translations into what they believe to be the best single translation by having translators just look the items over, check the characteristics of the items against a checklist of item characteristics that may introduce item non-equivalence, or by having them attempt to answer both versions of the item before comparing them for errors. Problems are to find translators, who are equally familiar, with both language and cultures, use of insightful guesses and translators not thinking about items in the same way as the monolinguals. In a variation of this design another group of bilingual translators evaluate the equivalence of the source and target language versions. Changes are then made if necessary. In another variation one or more samples of target examinees answer the target version of the test and are then questioned by judges about the meaning of their responses. This should correspond with that of the source language examinees. Forward translation has considerable merit and must certainly be a part of any test adaptation process (Hambleton & Kanjee, 1995).

With **back-translation** (or back-adaptation designs) a bilingual person (or persons) translates the source instrument into the target group's language. Another translator

(or translators), who has no prior knowledge of the original test, translates the translated instrument back into the original source language (Hulin, 1987). This translation is then checked by the researcher, who need not be bilingual, against the original instrument for grammatical structure, comparability of concepts, level of word complexity and overall similarity in meaning, wording and format. Advantages are that this person need not be familiar with the target language and it might be possible for monolinguals to check the translated version of the test and make the necessary changes before it is back translated. Disadvantages are that the evaluation of equivalence is carried out in the source language only and that errors made during the original translation might also be made during the back-translation.

**Decentring:** The back translation procedure can be repeated for several rounds, as different bilinguals work with the efforts of their predecessors: moving back and forth between languages in this way is the basis of decentring, since no one language is the “centre” of attention i.e. the source and target language versions are then equally important and open to modification. The concepts that have the same meaning in both cultures will survive as opposed to those that can only be expressed in one language.

### **3.3.2 Selection of translators**

Translators should be expert in both the language of the source instrument and the language into which the instrument is translated. They should also be qualified and experienced in both cultures. Being bilingual, however, does not mean that someone can translate all subject matter equally well. Domain knowledge is also necessary for translating the subtleties and nuances of the subject matter when translating. If the translators do not have knowledge of the subject matter, they should be familiarised with it. Translators should furthermore have technical knowledge of the principles involved in developing measuring instruments and in writing items (or receive some training in test construction). To solve the problem of translators not having these skills, a team approach is the solution. This allows translators to compare and discuss their work, which improves the quality of the translations. Specialist knowledge of the various domains is also more readily available.

### 3.4 RESEARCH ON TRANSLATED PERSONALITY QUESTIONNAIRES

Various personality questionnaires have been translated into different languages using both forward and backward translation methods. These are primarily overseas studies. Hosokawa and Ohyama (1993) translated the English version of the short-form Eysenck Personality Inventory from English into Japanese. The English version of the short-form Eysenck Personality Questionnaire-Revised was translated into Japanese by the authors. They tried to keep the translated version as close to the original one as possible and important cultural and linguistic differences between Japanese and English speaking people were reviewed. With reference to the results of a back translation, a slight modification of the translation was made before the instrument could be applied. Face validity of each translated item was evaluated by only 3 people (1 Japanese and 2 Americans) specialising in linguistics. Two separate samples were included in the study; one sample consisted of 329 college students enrolled in introductory psychology classes at the University of Tohoku Gakwin. Another sample comprised 253 adults aged between 22 and 68 years, who were recruited through advertisements placed in the Tohoku University Hospital. The Japanese short-form of the Eysenck Personality Questionnaire-Revised was administered to both samples. Scale reliability was tested using Cronbach's alpha. Alphas of each scale were found adequate and similar to that of the English version. The coefficient alpha for Extraversion/Introversion, Neuroticism and Lie ranged from .709 to .829 for both college-age and adult samples. However, the value for the Psychoticism scale was lower (.480 for the college-age sample and .421 for the adult sample) than those of the other scales. Given that each item of the Psychoticism scale is rather specific and that this scale includes a smaller number of items compared to the other scales, the coefficient alpha obtained can be viewed as acceptable. However, no matter how close the translated version is to the original, some differences in interpretation depending on language and culture are unavoidable. Hosokawa and Ohyama (1993) concluded that the Japanese version of the short-form Eysenck Personality Questionnaire-Revised has been demonstrated to be a reliable and valid instrument to measure personality dimensions. Although the Cronbach coefficient alpha for the Psychoticism scale seems relatively low, it could indicate that the items of the

Psychoticism scale are not redundant but are measuring different aspects of the domain. They encouraged further research on the applicability and usefulness of this instrument in studies of the general population.

The NEO-PI-R was translated from English to Korean (Piedmont & Ho Chae, 1997). The purpose was to evaluate the psychometric integrity of the Korean translation of the NEO-PI-R. A multi-step process of translation was implemented. Initially, the first author translated the instrument from English into Korean. The Korean version was sent to two bilingual individuals unfamiliar with the psychological constructs, who translated it back into English. Then the first author compared the back-translation versions with the original English. These changes were sent to another two bilingual individuals. They translated the second Korean versions into English. Items that were not clear or did not satisfactorily capture the constructs being assessed were identified and, in discussions with the second author, new translations were made. The authors of the NEO-PI-R identified some items they believed unclear. Those items were again translated and sent to a third set of bilingual people for back-translation. Although this was a long process, at a point, the translations were deemed appropriate and were then forwarded to the distributors of the instrument for their approval and permission to use the new Korean version of the NEO-PI-R.

The researchers conducted two studies. The aim of the first study was to evaluate the validity and the reliability of the Korean translation of the NEO-PI-R. In study one only the Korean version was administered to a group of 654 Koreans: 320 men and 334 women. The overall alpha reliability of the Korean version of the NEO PI-R domain scales ranged from 0.40 to 0.92. These results are consistent with the American normative data (Costa & McCrae, 1992). The second study aimed at determining whether the Korean version could be considered a parallel form of the original measure. To achieve this aim, both the English and Korean versions were administered to 116 Korean Americans: 57 men and 59 women who were considered to be adequately bilingual. All subjects volunteered to participate in this study. Each was provided two packets containing various versions of the NEO PI-R and were instructed to complete the packet marked #1 immediately and the packet marked #2 in 7 days. Each packet contained either an English or Korean version of the NEO PI-R.

The alpha reliability for the domain scores were all high and ranged from ,81 to ,93 for time one and from ,79 to ,93 for time two. Retest correlations showed very high rank order stability in domain scores. However, if an individual obtains a similar scores on the different versions, then the observed differences can be attributed to cultural variability. Increasing interest is being directed towards demonstrating the cross-cultural generalisability of the five-factor model of personality. To determine if the five factors could be recovered on the data collected, an exploratory factor analysis was conducted. Congruence coefficients were calculated by comparing the obtained solution to normative data (Costa & McCrae, 1992). In terms of gender differences, Korean women obtained higher scores than Korean men on Agreeableness and Conscientiousness domains and lower on the Extraversion domain. This result differs from the American normative sample, Koreans, both men and women obtained higher scores on the Neuroticism domain and lower on the Extraversion, Openness, and Conscientiousness domains than Americans. From this study, Piedmont and Ho Chae (1997) concluded that the Korean version could be considered parallel to the English version.

Rolland et al. (1998) also did a study on the NEO-PI-R and NEO FF-I by translating these questionnaires from English to French. The items for each facet of each domain were translated as a set into French, and they were then reassembled in the test order. The translated items were then given to a bilingual individual unfamiliar with the instrument that provided a back translation into English. Copies of the back translation were then sent to the authors of the original English instrument who reviewed the back translation and suggested revisions. The French translations of the NEO-PI-R and NEO-FFI were examined to assess their equivalence to the original English language instruments. This process was continued until there was satisfaction that the French version back translated into English was equivalent to the original instrument. Two French samples were used: 447 college students responding anonymously and 268 military recruits responding as part of their military selection process. The French translations of the NEO PI-R and NEO FFI were administered to both samples. When the French student sample was compared with the American students normative samples, the domain scores for Extraversion and Openness were different, but differences for the other domains were small. On the NEO-PI-R, the

coefficient alpha for the French student sample varied from .50 to .90 and for the French military sample the coefficient alpha varied from .44 to .91 as compared to the U.S Normative sample with the coefficient alpha ranging from .56 to .92. For the NEO-FFI the coefficient alpha for the French students ranged from .62 to .84, for the French military sample the coefficient alpha ranged from .50 to .84 and for the U.S normative samples it ranged from .68 to .86. Internal reliability coefficients for domains were similar across the three samples, with lower values found for the French military sample when compared with the French students and the U.S.A normative sample. Both data sets for the French NEO-PI-R were factor analysed at the facet level. Parallel analysis which has been demonstrated to accurately reflect the optimal number of factors, indicated that a five-factor solution had the most appropriate number of factors for both French samples. The results of this study showed that the French translations of NEO-PI-R and NEO-FFI are valid and reliable.

According to Paunonen and Ashton (1998) the 16PF seems ideally suited for cross-cultural use because its scales are claimed to represent cultural universals. In fact, it has been translated from English into a number of different languages (Conn & Rieke, 1994). This questionnaire has been used in research for more than forty years. Montensen, Reinisch and Sanders (1996) investigated the psychometric properties of the Danish translation of the 16PF and EPQ. A psychometric analysis of the 16PF and Eysenck's EPQ was based on a sample of 558 young Danes. For the 16PF the range of coefficient alpha was from 0,14 to 0,81 for the primary factors and 0,51 to 0,87 for the second order factors. The study of the internal structure of the 16PF indicated unacceptable low reliability for most primary factor scales and consequently interpretation of these scales cannot be recommended for practical use where important decisions about people are made on the test results. The authors recommended that the second-order factor pattern should be the basis of 16PF interpretation in both practical and research contexts. The study confirms the usefulness of the Eysenck's Extraversion and Neuroticism scales, but also suggests serious problems with the Psychoticism scales. In spite of serious scale structure problems factor analysis revealed five of the six second-order factors that Krug and Johns (1986) obtained and that have been demonstrated in several 16PF studies. Thus

the obtained factor structure pattern appears to be robust, and it seems clearly related to the five-factor model of personality.

Research was also done on the American version of the 16PF5 by Ellis (1995). Ellis examined the measurement equivalence of the Spanish version of the 16PF using item response theory. This form of the 16PF was translated into Spanish by the department of languages and linguistics at the Texas University. The translator's native language was Mexican Spanish and the second language was English. The Spanish version of the survey was then back translated into English by the university language department. The translator's native language was English, and the second language Mexican Spanish. Discrepancies in the translation were corrected by agreement between the two translators. Simultaneously, the test publisher, IPAT, was developing an independent Spanish translation of form S. An individual who works in IPAT's business office but who had completed undergraduate studies in Nicaragua produced the test publisher's initial Spanish translation. These translations were reviewed and critiqued by a bilingual, Hispanic American with a Ph.D. degree in clinical psychology. Consensus among the translators regarding the Spanish translation of all forms and items were reached, except for 12 items. Form S was administered to two groups of subjects: English-speaking Anglo-Americans and Spanish-speaking Mexicans. The 16PF5 was administered in English to 307 English-speaking subjects and in Spanish to 244 Spanish-speaking subjects. Ellis used statistical methods based on item response theory (ITR) to identify test items that do not possess the property of measurement equivalence, in other words items that display differential item functioning (DIF). The 16 primary personality factor scales, composed of 173 items used in the fifth edition, were analysed separately for DIF (12 items loading on the IM scale were not analysed in this study). English-speaking subjects served as the reference group and Spanish-speaking subjects served as the focal group in all analyses. Lord's chi-square statistic was used as the index of DIF. Lord's chi-square index simultaneously tests the differences in the b parameters and the differences in the a parameters for the English-speaking group versus the Spanish-speaking group. The results of this study yielded seven DIF items from the following sub-scales: Warmth (1); Reasoning (3); Vigilance (1); and Openness to change (2). The IRT analyses were conducted for items from factor A (Warmth) and B (Reasoning) that were pilot tested in Form "S" but not included in the final English

version of the Fifth Edition. The results indicated that some pilot items were free from DIF; test information functions were improved by eliminating some original items and substituting pilot items in the Spanish version.

Ellis commented that the measurement equivalence of this experimental Spanish version of the 16PF5 was good. The results of this study indicated that it may be possible to improve the Spanish version by eliminating certain items, i.e. those that display DIF and/or those that provide limited information in extreme regions of the continuum, and substituting other. The author concluded that with continued research, a Spanish translation of the fifth edition of the 16PF that is equivalent in measurement properties to the English version will be provided.

Mack and Eysenck (1992) did a cross-cultural study of personality on 1064 Israel pupils, 505 boys and 559 girls. The subjects who participated in the study completed a Hebrew translation of the EPQ. Cross-cultural differences between the Israel sample and an English sample were found in Psychoticism and Neuroticism scales. The cultural differences and language effect on test results were also pointed out by Ralston (1995) when investigating the influence of language on the responses of bilingual Hong Kong Chinese managers. Subjects responded to either a Chinese or an English version of the Swart survey instrument and the findings of this study suggested that the language in which an instrument is administered may lead to losing valuable cross-cultural information that can affect the results of a cross-cultural study.

### **3.5 THE RELIABILITY AND THE VALIDITY OF THE VENDA VERSION OF THE 16PF5**

Psychological tests are applied in South Africa because they help in enhancing decision making. The demands of the South Africa Constitution and the Professional Board of Psychology pose pressure to the test users. Various studies in South Africa focused on the reliability and the validity of cognitive and personality tests. A number of authors report that differences in scores between population groups could be attributed to levels of socio economic status. Language used in tests was also mentioned as one of the problems in psychological testing. Many African language

testees do not understand the language of the test in the same way as their English counterparts. A number of authors see the translation or adaptation of psychological and educational tests as the solution in a multi-cultural context. Although there are good reasons for translating available questionnaires into target languages, problems of translation are many and call for special techniques (Bracken & Barona, 1991). Forward and backward translation methods are used to translate tests from the source language to the target language. The translators should be carefully selected and must have the necessary domain knowledge. After the translation/adaptation process, the new version should be pilot tested to confirm its factor structure in the target culture and to establish measurement equivalence (Van Ede, 1996).

The present study investigates the procedures to be followed if this option is chosen. The 16PF was translated into Venda using the back translation design discussed earlier. The questionnaire was translated from English into Venda by a bilingual translator who has a Ph.D. in Tshivenda and Linguistics working at the University of Venda. The Venda version was back translated into English by a translator who is a professor at the department of Tshivenda. The translator who translated the Venda version back to English was unfamiliar with the original 16PF5. The two English versions were compared by experts in the field of personality testing and recommendations were made. Revision of both translations were done by two translator until the two versions were thought to be equivalent. The techniques reported in this chapter with regard to local cross-cultural studies as well as overseas studies involving translated questionnaires were considered as a basis for further analyses of the functioning of the questionnaire for Venda speakers. Only once the adequacy of the translated questionnaire for Venda-speakers has been determined, would further research on the equivalence of this questionnaire and the English version be recommended.

### **3.6 SUMMARY**

Psychological tests provide useful information about individuals in a quick and objective way. But it is questionable whether psychological tests can be developed that would be suitable for all subgroups in a heterogeneous society like South Africa.

However, it is common practice in South Africa to adapt and standardise international tests locally. Research on cognitive tests and personality tests, the influence of language and issues related to translation, and translated personality questionnaires have been done. Various statistical methods have been used in this research to determine reliability, validity and bias. Translation of psychological tests from one language to another was recommended as one of the solutions to language problems in a multi-cultural assessment. Various personality questionnaires have been translated into different languages using both forward and backward translation methods. It has been indicated that this study focuses on the translation of the 16PF5 into Venda in order to address language problems.

## **CHAPTER 4**

### **METHODOLOGY**

#### **4.1 RESEARCH DESIGN**

The aim of this study is firstly to determine the extent to which the items of the Venda version of the South African 16PF5 measure the expected constructs in a reliable manner. Possible reasons for problematic items then need to be identified. Based on this suggestions for further developments and research will be made. The focus of this chapter is on the design of the study. The sampling procedure, a description of the size and characteristics of the sample, a description of the 16PF5 and of the translation into Venda, the procedures followed in obtaining the data, and techniques used in the analysis of the data are discussed.

#### **4.2 SAMPLE**

An opportunity was negotiated to apply the Venda translation of the 16PF5 to the first, second and third year Industrial Psychology or Psychology students enrolling at the University of Venda (Univen) at the beginning of the year 2001. They were all Venda speakers. The University of Venda is one of the universities with the majority of Venda speaking students in the Northern Province. Using the sample from this institution meant that one could test young Venda speaking students, who roughly shared the cultural origins of Venda language as mother tongue, and who could complete a Venda translation of 16PF5 fairly easily. The students all came from the same socio-economic status as they all came from areas falling under the Northern Province.

The participants were chosen from the Psychology and Industrial Psychology departments for various reasons. These included an attempt to limit extraneous variables as far as possible by keeping the group similar in terms of interests (and possibly career aspirations), and also on the basis of the assumption that the language skills of students reading either psychology or industrial psychology would be similar.

Approximately 100 students took part in this project. The sample comprised male and female students between the ages of 18 and 30 years. The 100 respondents who took the testing voluntarily (in this respect being a convenience sample) in response to the request can be described with reference to the frequency distributions given in terms of the biographical variables in Tables 1 to 4. Note that the frequencies do not add up to the given total in all cases because of missing values (some respondents haven't indicated all the required details, or their data were dropped because they did not complete all the questions). That led to the situation that only 85 respondents' data could be used.

**Table 4.1: Frequency distribution by gender**

**Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	<b>Male</b>	36	42.4	42.4	42.4
	<b>Female</b>	49	57.6	57.6	100.0
	<b>Total</b>	85	100.0	100.0	

**Table 4.2: Frequency distribution by home language**

**Language**

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Valid</b>	<b>N-Sotho</b>	5	5.9	5.9	5.9
	<b>Tsonga</b>	2	2.4	2.4	8.2
	<b>Venda</b>	78	91.8	91.8	100.0
	<b>Total</b>	85	100.0	100.0	

**Table 4.3: Frequency distribution by age**

**Age Years**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	4	4.7	4.7
	19	7	8.2	12.9
	20	11	12.9	25.9
	21	11	12.9	38.8
	22	9	10.6	49.4
	23	6	7.1	56.5
	24	11	12.9	69.4
	25	8	9.4	78.8
	26	6	7.1	85.9
	27	3	3.5	89.4
	29	1	1.2	90.6
	31	2	2.4	92.9
	32	2	2.4	95.3
	33	1	1.2	96.5
	37	1	1.2	97.6
39	2	2.4	100.0	
<b>Total</b>	85	100.0	100.0	

**Table 4.4: Frequency distribution by the level of education**

**Post school**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	26	30.6	30.6
	2	28	32.9	63.5
	3	31	36.5	100.0
	<b>Total</b>	85	100.0	100.0

## **4.3 DESCRIPTION OF THE 16PF5**

### **4.3.1 The sixteen personality factor questionnaire (16PF)**

At present there are six forms of the test available for use in the USA. Two of the forms (A and B) have already been adapted and standardised for South African use (Van Zyl, 1996). Two new forms of the 16PF that have been standardised for use in South Africa, are Form E and Form SA92. The 16PF was originally designed as a set of primary or elementary factor scales by means of which various other personality traits and behaviour patterns can be predicted (Cattell, 1965). All the 16PF scales are bipolar, in other words they contain two interpretable factors that correlate negatively.

IPAT revised the 16PF with the intention to select and update the best items from the five current forms of the 16PF and the Clinical Analysis Questionnaire and to combine these with new items to create one new form (Conn & Rieke, 1994). The general view is that the 16PF5 is better than the previous editions regarding the content and grouping of items. The questionnaire is easy to understand. In the 16PF5, all b response choices (to personality items) appear as a question mark thus providing a uniform response choice which covers several different reasons for not selecting either the a or c alternative (Prinsloo & Van Eeden, 1995). Previous 16PF editions contained a variety of response choices that testees sometimes found ambiguous.

As the name indicates, this questionnaire by Cattell involves 16 personality factors. Prior to the Fifth Edition, the scales did not have actual names, instead, a letter designated each scale, and high and low scores on each scale were described by appropriate adjectives. These adjectives along with the Fifth Edition item content and validation results were considered in the development of scale names. Most of the scale names reflect adjectives used in earlier editions. Some exceptions exist, however, for example, the adjectives of suspicious and distrustful that had previously described Factor L were seen as less socially acceptable than its new name of Vigilance. For Factor M, the name of Abstractedness was chosen since none of its former descriptors alone (imaginative, absent-minded, and impractical)

comprehensively reflected a higher scorer's orientation to internal mental process and ideas (Larsen & Ketelar, 1991).

Detail on what the questionnaire measures and why it is believed that these traits are being measured will now be discussed (Bergh, 1992; Cattell, 1965; Cattell et al., 1970; Conn & Rieke, 1994; Gregory, 1996; Van Eeden & Prinsloo, 1997). Behaviour associated with these traits are mostly based on overseas research as local studies in this regard are not widely published.

**MAJOR SOURCE TRAITS AS REPRESENTED ON THE SIXTEEN-PERSONALITY  
FACTOR INVENTORY (16PF)**

Factor-label		High score description	Low score description
A	Warmth	easygoing adventurous warm-hearted	cynical stiff detached
B	Intelligence/Reasoning	bright abstract-thinking	stupid concrete-thinking
C	Emotional stability	mature realistic calm	changeable unrealistic uncrotrolled
E	Dominance	self-assertive competitive stubborn	humble retiring meek
F	Impulsivity/Liveliness	serious taciturn	enthusiastic light-hearted
G	Conformity/Rule-consciousness	responsible moralistic stoic	disregards rules neglectful fickle
H	Social Boldness	adventurous uninhibited	timid aloof
I	Sensitivity	self-reliant independent	clinging dependent
L	Suspiciousness/ vigilance	accepting of	hard to fool
M	Imagination/abstractedness	creative artistic	conventional down-to-earth
N	Shrewdness/ Privateness	socially skilled astute	socially clumsy unpretentious
O	Insecurity/apprehension	worrying troubled	secure complacent
Q1 ideas	Radicalism/openness to change	freethinking liberal	respecting traditional
Q2	Sufficiency/self-reliance	prefers own decisions	sound follower
Q3	Self-discipline/Perfectionism	follows own urges	exacting
Q4	Tension	composed tranquil	driven overwrought

## **FACTOR A**

### **WARMTH**

The Fifth Edition descriptors of low range of this factor are reserved, impersonal and distant while the descriptors of high range are warm, outgoing and attentive to others. The earlier edition descriptors of low range are reserved, detached, cool, impersonal, formal, aloof and high range descriptors are warm, outgoing, kindly, easygoing, participating, likes people. The A- person prefers objects and ideas, working on their own and intellectual society, and are generally uncompromising and critical in outlook. They tend to excel in those careers, which require a minimum of interpersonal contacts. An A- person can possibly be expected to have a history of unsatisfactory human relationships that might have happened during the early childhood. On the other hand, the + person is prepared to form active groups, less afraid of criticism and have a better memory for people's names. These people can be less reliable in work that requires precision. High scorers on this factor are usually recorded as easygoing individuals who are generally warm hearted, generous and adaptable in their interpersonal relationships.

## **FACTOR B**

### **INTELLIGENCE/REASONING**

The Fifth Edition descriptor of low range is concrete and the descriptor of high range is abstract. The earlier edition descriptors of low range are concrete thinking, lower general mental capacity, less intelligent, unable to handle abstract problems and the high range descriptors are abstract-thinking, more intelligent, bright, higher general mental capacity, fast learner. Factor B is not always reliable as a measure of intelligence, but it indicates a general tendency for a person to have a high morale, to show perseverance and to have stronger, more stable interests. Criteria having high correlations with high B scores are the more skilled occupations, less unemployment, more members of social groups, greater success in examinations and learning situations. Low B may be characterised by low mental capacity and someone who is unable to handle abstract problems and could also be due to a lack of motivation. Scale B provides useful inferences in connection with other scales. For instance, if a

person achieves a high score on scale M (imagination) and a high N score, that person is supposed to be creative as well as socially experienced. Therefore factor M and N should be regarded together with factor B.

## **FACTOR C**

### **EMOTIONAL STABILITY**

The Fifth Edition descriptors of the low range of this factor are reactive, emotionally changeable and the descriptors of high range are emotionally stable, adaptive, and mature. The earlier edition descriptors of low range are affected by feelings, emotionally less stable, easily upset, and changeable while the high range descriptors are emotionally stable, mature, and faces reality.

This factor measures dynamic integration and maturity as against general emotionality. It appears from the questionnaire responses that C-individuals are easily irritated by people or things and dissatisfied with the state of the world, their family, constraints to which they are subject and their own health. Cattell (1965) considers a low score to be due in some cases to a fatigue-anxiety response to environmental stress that cannot be observed by means of pre-selection measurement. The C+ person indicates integration and maturity. High C scores usually identify emotionally stable individuals who act only after adequate deliberation and then proceed with patient perseverance. Such persons tend to be realistic, restrained, calm and even-tempered.

## **FACTOR E**

### **DOMINANCE**

The Fifth Edition descriptors of low range are deferential, cooperative, avoids conflict and the high range descriptors are dominant, forceful and assertive. The earlier edition descriptors of low range are submissive, humble, obedient, easily led, docile, accommodating and the descriptors of high range are dominant, assertive, aggressive, competitive, stubborn, bossy. The E- person is usually modest and inclined to be accommodating docile and somewhat passive. The items indicating E + describe a person who likes to dominate, control and criticise others. Such persons like to be in

control, enjoy challenges, feel superior to others and do not hesitate to impose their ideas on others. Generally the E+ person enjoys group activities and frequently assumes leadership positions. Factor E can be regarded together with factor L and Q<sub>1</sub> as an indication of possible hostility.

## **FACTOR F**

### **IMPULSIVITY/LIVELINESS**

The Fifth Edition descriptors of low range are serious, restrained, careful and the descriptors of high range are lively, animated, and spontaneous. The earlier edition descriptors are sober, serious, restrained, taciturn, introspective, silent and the high range descriptors are enthusiastic, spontaneous, happy-go-lucky, cheerful, expressive, impulsive and talkative. The F- factor should not be confused with depression. It is, however, associated in mild degree with practically all mental (and probably most physical) illness. Low F scores tend to be meditative, pessimistic, and introspective and scrupulously correct. The F+ persons generally come from a happier, easier, less punitive, more optimistic background, or else their attitude is more carefree because of lower aspirations, which do not make high demands. Generally, the F+ person enjoys work that involves frequent change. It can indicate some immaturity.

## **FACTOR G**

### **CONFORMITY/RULE-CONSCIOUSNESS**

The Fifth Edition descriptors of low range are expedient; nonconforming and the descriptors of high range are rule-conscious, dutiful. The earlier edition descriptors of low range are expedient, disregards rules, self-indulgent and the high range descriptors are conscientious, conforming, moralistic, staid, rule-bound. Although G-score could indicate someone who is not dependable, it is also found among persons who possess relatively high social status and also who are intellectually sophisticated. In the case of the G+ person, attitudes implanted early by strong fear and affection are important. The G+ person sees himself as an upholder of moral standards, as persevering, systematic, capable of concentration, interested in analysing people and as a person who prefers capable people to others. A high G person is described as

highly moral, conventional, inflexible person. One can rely on these people to do the work.

## **FACTOR H**

### **SOCIAL BOLDNESS**

The Fifth Edition descriptors of low range are shy, threat-sensitive, timid and the high range descriptors are socially bold, venturesome, thick-skinned. The earlier edition descriptors of low range are shy, threat-sensitive, timid, hesitant, intimidated and the high range descriptors are bold, venturesome, uninhibited, can take stress, thick-skinned. H- persons prefer professions that does not demand personal contact, prefer to have only one or two friends and cannot keep up with events. They often excel at precision work that do not demands attention to detail. The H+ persons show boldness in social, sexual, emotional, and physical danger situations. In a group situation the H+ person feels free to participate. Cattell (1965) sees the H factor as a crucial one in a personnel selection for occupations in which the person appointed will have to cope with human problems and emotional situations. This factor has been found to have a higher hereditary determinant than any other personality trait. There is a measure of overlap and a strong superficial resemblance between H and both A and F, but H is clearly distinguishable from A by confidence and inflexibility in A as opposed to shyness and inflexibility in H.

## **FACTOR I**

### **SENSITIVITY**

The Fifth Edition descriptors of low range are utilitarian, objective, unsentimental and the high range descriptors are sensitive, aesthetic, sentimental. The earlier edition descriptors of low range are tough-minded, self-reliant, no-nonsense, rough, realistic, unsentimental and the high range descriptors are tender-minded, sensitive, intuitive, refined, dependent. The I- person represents a tough, practical, mature, group-solidarity-generating and realistic temperament. It is largely environmental and cultural in origin. Low I scores usually identify self-reliant individuals. They also tend to be poised, logical and shrewd. These persons usually deal with the facts. The I+

person is usually gentle and kind hearted. The I+ persons are seen as delaying group decisions and as making negative, emotional remarks. These persons might experience problems in a stressful situation.

## **FACTOR L**

### **SUSPICIOUSNESS/VIGILLANCE**

The Fifth Edition low range descriptors are trusting, unsuspecting, accepting and the high range descriptors are vigilant, suspicious, skeptical, wary. The earlier edition descriptors of low range are trusting, accepting conditions, easy to get with and the high range descriptors are suspicious, hard-to-fool, skeptical, distrustful, oppositional. The L- person is easygoing, friendly and relaxed. These persons are inclined to be considerate, adaptable, noncompetitive and concerned about the welfare of others. They are also good team workers. The L+ persons on the other hand have little regard for the average, are correct in their behaviour, are irritated by arrogant people and skeptical about idealistic motives in others. High L persons insist on imposing their own views, feel that people talk about them behind their back, cannot tolerate human failings, are constantly opposed to others, are inclined to arguments and hostility.

## **FACTOR M**

### **IMAGINATION/ABSTRACTEDNESS**

The Fifth Edition descriptors of low range are grounded, practical, solution-orientated and the high range descriptors are abstracted, imaginative, idea-oriented. The earlier edition descriptors of low range are practical, concern with down-to-earth issues, steady, prosaic, conventional and the high score descriptors are imaginative, absent-minded, absorbed in ideas, impractical. The M- person is inclined to be constantly alert and responsible to external realities. They tend to be conforming and conventional. High M personalities tends to become absorbed in their own thoughts and lives and could be inclined to neglect practical planning. Though cheerful and somewhat irresponsible in practical matters they could in fact experience higher inward tension than M- persons. The M + persons focus on what they are interested in and tend to withdraw.

## **FACTOR N**

### **SHREWDNESS/PRIVATENESS**

The Fifth Edition descriptors of low range are forthright, genuine, artless and the high range descriptors are private, discreet, non-disclosing. The earlier edition descriptors of low range scores are forthright, genuine, artless, unpretentious, naïve, warmly emotionally involved and the high score descriptors are shrewd, polished, socially aware, worldly, astute, diplomatic, calculating, emotionally detached, wears a social mask. The N person is often naïve or sentimental and tend to lack both social skills and perception in social situations. The N+ person has a socially acquired pattern of skills that influences social adjustments. These individuals are clear thinkers with a practised, realistic approach to problems. High scores are found in skilled professionals such as engineers, scientists and pilots. Cattell states that the competence and efficiency of N+ persons could cause them to lack patience with people and their shortcomings.

## **FACTOR O**

### **INSECURITY/APPREHENSION**

The Fifth Edition low range descriptors are self-assured, unworried, complacent and the descriptors of high range descriptors are apprehensive, self-doubling, and worried. The earlier edition descriptors of low range score are self-assured, untroubled, secure, feels free of guilt, self-satisfied, confident and the high range descriptors are apprehensive, self-blaming, guilt-prone, insecure, worrying. The O- person feels emotionally secure and confident of his/her ability to cope. Such individuals tend to be free of significant feelings of inadequacy and inferiority. The O+ person tends to worry excessively and is inclined to be emotionally very sensitive. They also tend to feel inferior and not capable of coping with daily demands and to become easily discouraged. They feel that they are unable to meet the demands of everyday life.

## **FACTOR Q<sub>1</sub>**

### **RADICALISM/OPENNESS TO CHANGE**

The Fifth Edition low range descriptors are traditional, attached to the familiar and the high range descriptors are open to change, experimenting. The earlier edition descriptors of low range are conservative, respecting traditional ideas and the high range descriptors are experimenting, liberal, analytical, critical, free-thinking and open-to-change. The Q<sub>1</sub>- person is conservative and tends to respect established ideas and traditional beliefs. These people do not like changes. The Q<sub>1</sub>+ person is more informed more inclined to experiment with solutions to problems and less given to moralising. They enjoy work involving critical analysis and feel comfortable in working alone on projects of interest to them.

## **FACTOR Q<sub>2</sub>**

### **SUFFICIENCY/SELF-RELIANCE**

The Fifth Edition low range descriptors are group-oriented, affiliative and the high range descriptors are self-reliant, solitary, individualistic. The earlier edition descriptors of low range are group-oriented, a joiner and sound follower, group dependent and the high range descriptors are self-sufficient, resourceful, prefers own decisions. The Q<sub>2</sub>- person goes with the group and depends on social approval. This person values or requires consultation with peers before making decisions and initiating action. The Q<sub>2</sub>+ persons are significantly less satisfied with group integration. Their remarks tend to be solutions rather than questions and are often rejected by the group.

## **FACTOR Q<sub>3</sub>**

### **SELF-DISCIPLINE/PERFECTIONISM**

The Fifth Edition descriptors of low range scores are tolerates disorder, unexacting, flexible and the high range descriptors are perfectionistic, organized, self-disciplined.

## **FACTOR Q<sub>4</sub>**

### **TENSION**

The Fifth Edition descriptors of low range are relaxed, placid, patient and the high range descriptors are tense, high energy, impatient, driven. The earlier edition descriptors of low range are relaxed, tranquil, composed, has low drive, unfrustrated, torpid and the high range descriptors are tense, frustrated, driven, over-wrought. The Q<sub>4</sub> + people are discouraged rather than helped by criticism, evade people in public places, feel they cannot succeed, find frustration difficult to accept, say hurtful things when displeased, are intolerably irritated by trifling things, feel anxious and fearful when alone. The Q<sub>4</sub> - Person is composed and even tempered and in general feels satisfied and not frustrated. This person tends to be relaxed and generally free of regret and unreasonable worry.

The factor solution found for the Fifth Edition global factors is, very similar to those found for earlier 16PF editions (Cattell et al., 1970). The first primary factors lead to the second-order factor. The 16 primary factors can be combined in groups to obtain scores on six second-order factors, namely Extraversion, Anxiety, Self-control, Independence, Tough-mindedness and a loading on the primary factor B (Van Eeden et al., 1996).

The composition of the revised global scales is quite similar to that of the second order scales in previous 16PF editions. Most of the changes in the Fifth Edition global scales reflect improvements in the contributing primary scales, the reduction of gender differences, and the use of .30 cutoff for equations. After the global factor scales were developed, each was scaled to the sten distribution with a mean of 5.5 and a standard deviation of 2.0 using the Fifth Edition normative sample. A description of the five global factor scales for the Fifth Edition and their contributing primary factor scales follows:

## **THE SECOND ORDER FACTORS**

### **Extraversion**

A very low score might indicate withdrawal. This person would show severe tendencies associated with the relevant primary factors. A very high score on the other hand might suggest that a person might be very dependent and demanding. It is, however, likely that high scores make for better adjustment than very low scores. Primary factor scales loading on the Extraversion global factor are Warmth (A), Liveliness (F), Social Boldness (H), Privatness (N), and Self-Reliance (Q2). In the Fourth Edition Factor (N) was defined in terms of interpersonal attributes and behaviours but apparently did not measure these characteristics clearly enough to produce a high loading on Extraversion. In the Fifth Edition, these characteristics are tapped more reliably by refined Privatness (N) items.

### **Anxiety**

High anxiety should always be taken seriously as this might indicate pathology. Although low anxiety might indicate good ego integration, it could also imply an effort to manipulate the test results. The Fifth Edition Anxiety global factor contains the same combination of primary scales shown in earlier analyses: Emotional Stability (C), Vigilance (L), Apprehension (O), and Tension (Q4). It also shows some slight differences from its predecessor. Social Boldness (H) and Perfectionism (Q3), which contributed to Anxiety in the Fourth Edition at a very low level were omitted from the new equation because their loadings were below the .30 cutoff.

### **Tough-Mindedness**

A high score implies that the person is mentally alert, normally led by his or her intellect and does not withdraw into emotional behaviour. Primary scales loading on the Tough-mindedness global factor are Warmth (A), Sensitivity (I), Abstractedness (M), and Openness to Change (Q1). In previous 16PF editions, this scale was called Tough Poise. The new title of Tough-mindedness reflects the prominent contribution of Sensitivity (I), which was defined as "tough-minded" at the low end on the Fourth Edition. Tough-mindedness shows some variations from its Fourth Edition predecessor. These variations may relate to gender differences present in the Fourth

Edition factor pattern but not in that of the Fifth Edition and refinements in the Fifth Edition primary scales.

### **Independence**

A high score indicates a person who likes to do things his or her own way. This implies that they might be difficult to get along with. The opposite pattern suggests a group-dependent, passive person, who needs support and help from others and orientate their behaviour towards those who offer it. The primary scales having the highest loading on independence in the Fifth Edition are the same as those in the Fourth Edition. These primaries are Dominance (E), Social Boldness (H), Vigilance (L), and Openness to Change (Q1). In past equations, several other factors also appeared (including Factors G, M, N, and Q2), but they had very small weights (<.20). Many of these factors reappeared in the Fifth Edition factor pattern, but were omitted because they fell below the .30 cutoff.

### **Self-control**

With a high score the person tends to be rigid and to conform while the opposite implies a lack of restraint and control. The Self-control global factor was previously called Control. The prefix self was added to denote this scale's focus on the control of one's own thoughts, feelings, and behaviours rather than those of others. Primary scales having high loading on Self-control are Liveliness (F), Rule-consciousness (G), Abstractedness (M), and Perfectionism (Q3). All these primaries contributed to the previous Control factor except for Abstractedness (M), which has become more clearly defined in the Fifth Edition. The revised Abstractedness (M) scale contains items that involve carefully attending to practical environmental stimuli at the low end of the continuum and fancifully pursuing abstract thoughts and ideas at the high end.

#### **4.3.2 Translation of the 16PF5 into Venda**

The overall readability of the American version of the 16PF5 is at the fifth-grade level and the norm group for this version included testees aged 15 years and older. Since 1996, the HSRC research team was in frequent communication with experts from IPAT to clarify proposed reformulations. The main issue was to strike a balance

between making the necessary improvements, and deviating too far from the IPAT version, thus losing equivalence. IPAT staff was very helpful in trying to make sure that new formulations did not change the constructs being measured. An additional matter was the use (in the exploratory version in South Africa) of asterisks and footnotes to explain phrases that were considered problematic. The suggestion of IPAT to place explanatory phrases in parenthesis in the item, was adopted in the end. This was considered the best option to avoid complexity and distraction in terms of the formats or layouts. In so doing, the risk that testees would lose their bearings regarding their progress on the questionnaire and the answer sheet, as well as the content matter of items, was reduced. A final matter was the decision not to consider some items listed as “additional” by IPAT at some stages during the development. The main reason for this was that those items had already been rejected there because of some flaw or the other.

In the end, the 185-item version of the IPAT 16PF5 was applied, with exactly the same answering format. Some changes with regard to language were made, and there were also changes in the form of explanatory additions. The ten items affected were 3, 13, 38, 39, 47, 54, 84, 102, 113, and 141. These items mainly cover the E, L, and N fields. The HSRC also used the 64 items of the additional Form S. These two questionnaires (16PF5 and Form S of the 16PF5) were translated into Venda. The following process was followed:

Stage 1: The items were translated from English into Venda by a Venda-speaker who is fluent in both English and Venda. He has a Ph.D. in Tshivenda and works in the Department of Linguistics at Univen. The items were back translated into English by another Venda-speaker who is fluent in both English and Venda and who had no knowledge of the original test. He is a professor at the department of Tshivenda at Univen. An expert in the field of psychometrics, personality testing and specifically the 16PF compared the original English version and the back-translated English version with regard to technical details, language usage, the meaning conveyed and the constructs measured by the items. She is working in the Psychology Department at Unisa.

Approximately a quarter of the items had to be reworked, often including only a word that differed in the meaning. Examples of problematic items are Item 37 with the phrases “lively party” in the original version and “good feast” in the back-translation and Item 120 with the phrases “articles on today’s social problems” in the original version and “a piece of recent problems” in the back-translation.

Stage 2: The first translator considered the Venda translation of problematic items to identify where improvements could be made. The second translator considered the back translation of these items (including those that have now been changed) to identify possible improvements. The expert at Unisa again compared the items and so did the HSRC project leader of the 16PF5 standardisation. A few items were again identified where it was possible that the construct being measured could have altered. For example, in Item 13 the phrase “gossip about others” in the back-translation does not convey the idea of suspicion as strong as “stab you in the back” in the original version.

Stage 3: The remaining problematic items in the back-translation were discussed with the student (a Venda-speaker) who checked the meaning of these items in the Venda version before making the corrections to the Venda version.

#### **4.3.3 The Reliability of the 16PF5**

Statistics for the American version are as follows: the average internal consistency values for the primary scales ranged from ,66 to ,86 with a median of ,75. Two-week test retest estimates for the primary scales ranged from ,69 to ,87 with a median of ,80. Two months test-retest estimates ranged from ,56 to ,79 with a median of ,69.

The two-weeks test-retest reliability estimates for the Fifth Edition global factor scales ranged from ,84 to ,91 with a median of ,87. The two-month test-retest estimates for the global factor scales ranged from ,70 to ,82 with a median of ,80. Two months test-retest estimates ranged from ,56 to ,79 with a median of ,69.

#### **4.3.4 Validity of the 16PF5**

For the 16PF5, the global factor scales were developed in the same way as for earlier 16PF editions, i.e. by factor analyzing the primary factor scale scores. The Fifth Edition global factor scales are Extraversion, Anxiety, Tough-mindedness, Independence, and Self-control. Comparison of the global factor scales across the 16PF Fourth (Form A) and Fifth Editions has shown a high degree of congruence overall, with correlations ranging from .65 to .81 for four of the five scales. The lowest correlations were found between Fifth Edition Tough-mindedness and Fourth Edition (Form A). This low correlation supported the need to reconceptualize Tough Poise, and thus it was renamed Tough-mindedness for the Fifth Edition.

For the 16PF5, the primary scales were developed in the same fashion as for the earlier 16PF editions that is by factor analyzing parcels of 16PF items. The primary scales are named Warmth (A), Reasoning (B), Emotional Stability (C), Dominance (E), Liveliness (F), Rule-Consciousness (G), Social-Boldness (H), Sensitivity (I), Vigilance (L), Abstractedness (M), Privatness (N), Apprehension (O), Openness to Change (Q1), Self-Reliance (Q2), Perfectionism (Q3), and Tension (Q4).

#### **4.4 PROCEDURES FOLLOWED IN OBTAINING THE DATA**

The data was obtained from the University of Venda from the Venda speaking group who enrolled for Psychology or Industrial Psychology. The researcher explained the purpose for the research and why personality tests are important.

The following motivation was given: "Personality tests are used in a variety of settings such as educational, occupational and clinical. These tests can also be used at universities to assist students in career choices, to diagnose possible reasons for study problems and to select and accept students into university programs. In industries, personality tests can be used for job selection.

In South Africa, practitioners are facing problems in using personality tests across groups because available tests include for example those designed for one population

group and with norms for that group, those designed for one group but with norms for different groups and those designed and normed for different groups simultaneously.

Based on the above situation, the Professional Board for Psychology (8 June 1999) issued a draft policy, which put pressure on test developers, and test users to adapt and develop culturally appropriate measures. In order to meet this demand, we have to research whether available tests work for every individual. The present study is aimed at translating the Sixteen-Personality Factor Questionnaire Fifth Edition (16PF5) and to determine its validity and reliability for the Venda speaking group. However, it is important for the Venda speaking people to participate in this project in order to form part of the norm for 16PF5 Venda speaking group."

A group of second and third year Psychology students from Univen were tested during the first session. During a second session the Venda translation of the 16PF5 was administered to the first, second and the third year Industrial Psychology students. The data obtained from this sample were sent to the HSRC for capturing.

#### **4.5 TECHNIQUES OF ANALYSING THE DATA**

The HSRC collected and captured the data in ASCII format. They checked the data for errors and after incomplete questionnaires were deleted, 85 complete records remained. The HSRC scored the items of the test.

The analysis of each of the 16 personality factors commenced with the calculation and reporting of the mean and standard deviation of each item of a primary factor. This included the additional items written for a factor. A study of the means can reveal in some cases, such as in the case of factor B, whether an item was too difficult or not. In other factors the mean can reveal whether the sample obtained extremely high or low scores on the item (indicating the "amount" present of a particular trait) thus resulting in a relatively small standard deviation or lack of variability, which may be interpreted as lack of discrimination. Such items are more inclined to obtain low scores with other items and with the test as a whole-thus performing poorly in an item analysis.

The SPSS (Statistical Package for the Social Sciences) program was used for item analysis. The items of each factor were analysed following the following steps:

Step 1: The item analysis was first performed on all the original items of a factor (this excludes the additional items). This was called the “first run” as it was often necessary to exclude items on the basis of the results and then have to redo the analysis on the remaining items. The correlation for each item (see Hays, 1963, p.499 for a discussion on the correlation as an index of a linear relationship) with the corrected test total (the test total with the item in question excluded from the total) was reported as well as the effect that the exclusion of that item would have on the Cronbach Alpha value of the total test: This is the Cronbach Alpha of the test should the item in question be excluded from the scale. The Cronbach Alpha is an index of the internal consistency reliability of the scale (Lemke & Wiersma, 1976, pp. 98-102). According to Lemke and Wiersma (1976, p. 99) “internal consistency” means the degree to which the items intercorrelate or the degree to which the items measure the same trait. The researcher firstly studied the item-total correlations and if items were found to be negatively correlated with the test total, these items were excluded and the analysis redone with the remaining items. The rational is that items that measure the same trait should be expected to intercorrelate positively and to correlate positively with the test total.

Step 2: This second set of item statistics were now considered to be the second run. Again items correlating negatively with the test total were noted, omitted and the item analysis repeated with the remaining items. When all items correlated positively with the test total, the effect of each item on the Cronbach Alpha, should it be excluded from the scale, was noted and if a considerable increase in the Cronbach Alpha could be achieved, the item was then also excluded and the item analysis redone. This process was repeated until either no further increase in the internal consistency reliability could be achieved or at least 5 items remained.

Step 3: Hereafter the “additional items” were added and the items analysis was again repeated, items with negative correlations excluded, the item analysis repeated on the remaining items, etcetera.

Step 4. When no further improvement could be achieved by excluding items, the items of this analysis (the last run) were considered to make-up the scale. A table containing items excluded and items finally selected was then constructed and qualitatively viewed by the researcher to try and see a common trend in the items excluded and to try and give reasons why these items did not work.

The results of both the quantitative and the quantitative analysis are reported in the next chapter.

## CHAPTER 5

### ITEM ANALYSIS

#### 5.1 INTRODUCTION

The 16 primary personality factor scales, composed of 185 items used in the Fifth Edition were analysed for the reliability of each factor. The additional 60 items were also included in the analysis. The Venda speaking group was the focal group in all analyses.

#### 5.2 RELIABILITY ANALYSES

An overall evaluation of the results indicated that many of the items had to be excluded if the aim was to achieve acceptable reliability. A detailed theoretical interpretation of the items to be excluded from each factor would therefore probably have resulted in capitalizing on chance and an over interpretation. To illustrate the type of process to be followed in finding reasons why items could be ineffective, a detailed qualitative interpretation is given for the first three factors. Thereafter only clearly identifiable trends are mentioned.

##### 5.2.1 Reliability analysis of Factor A (Warmth)

Table 5.1 includes the means and standard deviations of all the items of Factor A, that is the original items of the 16PF5 as well as the additional items. An item analysis was performed on the items of factor A, starting as a first run with the original 11 items, that is excluding the additional items in Table 5.1, then eliminating those items with a negative item-scale correlation and performing a second run. When all items correlated positively with the scale total, the effect of each item on the Cronbach Alpha, should it be excluded from the scale, was noted and items excluded until either no further increase in the internal consistency reliability could be achieved or at least 5 items remained. The additional items were added and the process repeated. These results are reported in Table 5.2.

**Table 5.1: Means and standard deviations of the items (original and additional items) in Factor A (N = 85)**

Items of Factor A	Mean	Std. Deviation
Factor A: A1 or "Item1"	1.75	.653
Factor A: A2 or "Item31"	1.58	.730
Factor A: A3 or "Item33"	1.73	.625
Factor A: A4 or "Item63"	.94	.956
Factor A: A5 or "Item65"	.94	.943
Factor A: A6 or "Item96"	1.79	.465
Factor A: A7 or "Item98"	1.74	.601
Factor A: A8 or "Item127"	1.16	.962
Factor A: A9 or "Item129"	1.68	.727
Factor A: A10 or "Item159"	1.66	.716
Factor A: A11 or "Item161"	.92	.954
Factor A additional part1 item1	1.73	.662
Factor A additional part1 item2	.89	.873
Factor A additional part1 item22	.82	.953
Factor A additional part1 item23	1.31	.887
Factor A additional part2 item10	1.01	.893

The means indicate that this sample tends to answer in a "positive" direction with regard to the trait of warmth. In terms of variability, responses to most of the items seem to vary across a broad range (this was also the case for most of the other factors) with the variability of item 96 being relatively smaller. The mean for item 22 is relatively lower.

**Table 5. 2: Sequential Item analyses of Items of Factor A**

Items of Factor A:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run		5 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	Alpha Item Deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted	item-scale r	alpha item deleted
Factor A: A1 or "Item1"	.2291	-.0191	.2995	.3347	.2557	.3156	.2462	.3488	.3346	.3513
Factor A: A2 or "Item31"	-.0894	.1543								
Factor A: A3 or "Item33"	.1888	.0076	.1656	.4219	.1242	.3605	.1337	.3931	.1058	.4495
Factor A: A4 or "Item63"	-.0159	.1232								
Factor A: A5 or "Item65"	-.0062	.1153								
Factor A: A6 or "Item96"	-.0865	.1304								
Factor A: A7 or "Item98"	.1034	.0533	.2879	.3486	.1840	.3424	.2388	.3553	.2734	.3831
Factor A: A8 or "Item127"	-.1673	.2315								
Factor A: A9 or "Item129"	-.0699	.1435								
Factor A: A10 or "Item159"	.1666	.0076	.1519	.4353	.1329	.3570	.1392	.3916	.1708	.4245
Factor A: A11 or "Item161"	.1854	-.0397	.2637	.3615	.3500	.2439	.3629	.2602	.3355	.3256
Additional part1 item1					.1113	.3646	.1561	.3845	.1569	.4297
Additional part1 item2					.1144	.3662	.1115	.4103	.1023	.4694
Additional part1 item22					.1199	.3659	.0572	.4459		
Additional part1 item23					.0755	.3840				
Additional part2 item10					.0156	.4106				
Cronbach Alpha	.0962		.4364		.3777		.4087		.4459	

Five of the original 11 items and two of the additional five items were left after the final run. The original items to be excluded could be changed (with consideration of the following comments) or replaced by additional or by new items. Items on factor A that were excluded are:

A2 or item 31

A4 or item 63

A5 or item 65

A6 or item 96

A8 or item 127

A9 or item 129

Additional part 1 item 22

Additional part 1 item 23

Additional part 2 item 10

The items of factor A concern specific jobs (architect, etc), preferences with regard to job related functions, and items dealing with the expression of feelings. With the exception of item 159, all the items measuring expression of feelings were excluded in terms of correlations with the total score or the influence on the reliability coefficient. An explanation of why these items did not seem to measure the construct of warmth as well as some of the other items, could be that in the Venda culture most people tend to be reserved and less inclined to express their feelings. Although this sample indicated a tendency towards warmth, it is questionable if it will manifest as openness in terms of the expression of their feelings. This type of item might not be suitable for measuring this construct with Venda-speaking people. It is not clear why some of the items dealing with specific jobs had to be excluded. Understanding of what these jobs entail could have been an issue as most of the items describing job related functions were included in the final run. There could be language issues as well, for example, when considering the translation of item 63, it seems as if the use of the negative form could have caused some confusion.

### 5.2.2 Reliability analysis of Factor B (Reasoning)

Tables 5.3 and 5.4 contain the results of the analyses for factor B. When considering the results in Table 5.3, keep in mind that these items are scored 0 or 1 compared to other scales where the scores are 0, 1 or 2. Easy as well as difficult items seem to be indicated as far as this sample is concerned. The range of variability is relatively narrow (compared to the other factors).

**Table 5.3: Means and standard deviations of the items (original and additional items) in Factor B (N = 85)**

Items of Factor B	Mean	Std. Deviation
Factor B: B1 or "Item171"	.58	.497
Factor B: B2 or "Item172"	.32	.468
Factor B : B3 or "Item173"	.94	.237
Factor B : B4 or "Item174"	.61	.490
Factor B : B5 or "Item175"	.22	.419
Factor B : B6 or "Item176"	.92	.277
Factor B : B7 or "Item177"	.14	.350
Factor B : B8 or "Item178"	.38	.487
Factor B : B9 or "Item179"	.38	.487
Factor B : B10 or "Item180"	.38	.487
Factor B : B11 or "Item181"	.18	.383
Factor B : B12 or "Item182"	.41	.495
Factor B : B13 or "Item183"	.19	.393
Factor B : B14 or "Item184"	.40	.493
Factor B : B15 or "Item185"	.18	.383
Factor B additional part2 item30	.06	.237
Factor B additional part2 item31	.07	.258
Factor B additional part2 item32	.25	.434

**Table 5.4: Sequential Item analyses of Items of Factor B**

Items of Factor B:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run		5 <sup>th</sup> run	
	item-scale r	alpha item deleted	Item-Scale R	alpha item deleted	item scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted
Factor B: B1 or "item171"	.0677	.1568	.1509	.3361	.2448	.2862	.1859	.3551	.2057	.3236
Factor B: B2 or "item172"	.0713	.1554	.0915	.3620	.0658	.3638	.0733	.4044	.0649	.3828
Factor B: B3 or "item173"	.0659	.1646	.1385	.3479	.0782	.3536	.1185	.3839	.0978	.3670
Factor B: B4 or "item174"	.1110	.1344	.1532	.3350	.1884	.3125	.1959	.3504	.2006	.3262
Factor B: B5 or "item175"	.1528	.1205	.1095	.3527	.0279	.3741	.0687	.4020	.0508	.3844
Factor B: B6 or "item176"	.2235	.1179	.2554	.3154	.2866	.3033	.2890	.3389	.2754	.3238
Factor B: B7 or "item177"	.0029	.1829	-.0300	.3954						
Factor B: B8 or "item178"	.0038	.1889	.0761	.3700	.0793	.3596	.0858	.4008	.1143	.3638
Factor B: B9 or "item179"	.1943	.0901	.2772	.2750	.3030	.2600	.3295	.2847	.3101	.2762
Factor B: B10 or "item180"	-.0645	.2218								
Factor B: B11 or "item181"	.2469	.0856	.2165	.3134	.1369	.3357	.1808	.3601	.1390	.3532
Factor B: B12 or "item182"	-.0136	.1980								
Factor B: B13 or "item183"	.0450	.1679	.0645	.3683	.0298	.3714	.0514	.4062	.0503	.3828
Factor B: B14 or "item184"	-.1527	.2637								
Factor B: B15 or "item185"	-.0774	.2145								
Additional part2 item30							.0253	.3640	.0068	.3849
Additional part2 item31							-.0281	.3761		
Additional part2 item32							.0890	.3530	.0643	.3806
Cronbach Alpha	.1763		.3661		.3954		.3599		.3761	

Ten of the original 15 items and two of the three additional items were included in a final scale. Items on factor B that were excluded are:

B7 or item 177

B10 or item 180

B12 or item 182

B14 or item 184

B15 or item 185

Additional part 2 item 31

Although many of the items could be included based on item-total correlations and reliability results, the verbal reasoning items were difficult to translate. Many of the words used are not familiar to the Venda respondents e.g. in item 173, the word “veal” is not used because all kinds of animals or birds fall under a word “meat”. In item 174 the word “larva” is not familiar. The Venda translation in the case of this factor is longer because the translator used explanation of words.

Some items dealing with vocabulary, number series and knowledge were excluded. Item 177 could have been difficult for this sample because the possible answers did not give a clue to the respondents, unlike in the American version where answers can be reached by grammatical strategy or by a structural strategy. The word “near” does not belong because it is a different type of word than “cat” or “sun” or in the English version a respondent could reason that it contains four letters while both “cat” and “sun” have only three letters. Item 180 is not clear in the Venda translation. Three of the items to be excluded contain series of numbers or letters (items 182, 184 and 185) with item 184 containing a printing error and 185 being relatively difficult for this sample. Item 2.31 is a knowledge item that was relatively difficult.

### 5.2.3 Reliability analysis of Factor C (Emotional stability)

Tables 5.5 and 5.6 contain the results of the analyses for factor C. The subjects responded in an “average” range to these items with a relatively lower mean for item 2 and a higher mean for item 97.

**Table 5.5: Means and standard deviations of the items (original and additional items) in Factor C (N = 85).**

Items of Factor C	Mean	Std. Deviation
Factor C : C1 or "Item2"	.32	.694
Factor C : C2 or "Item32"	1.01	.945
Factor C : C3 or "Item35"	1.51	.840
Factor C : C4 or "Item64"	1.05	.937
Factor C : C5 or "Item67"	1.01	.970
Factor C : C6 or "Item97"	1.71	.687
Factor C : C7 or "Item128"	1.34	.920
Factor C : C8 or "Item131"	1.20	.936
Factor C : C9 or "Item160"	.53	.839
Factor C : C10 or "Item162"	1.39	.874
Factor C additional part1 item3	1.11	.951
Factor C additional part1 item4	.72	.934
Factor C additional part1 item24	1.56	.778
Factor C additional part1 item25	.81	.957
Factor C additional part2 item11	1.66	.716
Factor C additional part2 item12	4.25	.596
Factor C additional part2 item29	1.00	.951

**Table 5.6: Sequential Item analyses of Items of Factor C**

Items of Factor C:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run		5 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted	item scale r	alpha item deleted	item scale r	Alpha item deleted
Factor C: C1 or "item2"	.0710	-.0046	.1469	.3307	.0554	.3369	.0554	.3369	.0789	.4328
Factor C: C2 or "item32"	-.0930	.1082								
Factor C: C3 or "item35"	.1058	-.0382	.2233	.2785	.2807	.2507	.2807	.2507	.3061	.3560
Factor C: C4 or "item64"	.2534	-.1772	.2241	.2735	.1703	.2933	.1703	.2933	.1758	.4033
Factor C: C5 or "item67"	-.0002	.0383								
Factor C: C6 or "item97"	.0246	.0220	.0847	.3634	-.0254	.3611	-.0254	.3611		
Factor C: C7 or "item128"	.1731	-.1019	.2535	.2510	.2601	.2533	.2601	.2533	.2953	.3553
Factor C: C8 or "item131"	.0313	.0133	.0653	.3927						
Factor C: C9 or "item160"	-.2593	.2008								
Factor C: C10 or "item162"	-.1427	.1349								
additional part1 item3							.1062	.3217	.1113	.4290
additional part1 item4							.0590	.3416	.0511	.4510
additional part1 item24							.0406	.3437	.1079	.4258
additional part1 item25							.2775	.2423	.2477	.3737
additional part2 item11							.0125	.3509	.1028	.4264
additional part2 item12							-.2355	.4087		
additional part2 item29							.2429	.2593	.2149	.3875
<b>Cronbach Alpha</b>	.0331		.3594		.3927		.3371		.4314	

Although only four of the original 10 items could be included, 6 of the seven additional items were found to be effective. Items on factor C that were excluded are:

C2 or item 32

C5 or item 67

C6 or item 97

C8 or item 131

C9 or item 160

C10 or item 162

Additional part 2 item 12

The possibility of a cultural difference in the expression of emotions is again noted. Most of the items describing variation in moods were excluded (items 131 and 160). Items 67 and 97 deal with emotional needs and depression. Most of the items dealing with emotional stability and coping were included with items 32 and 162 being an exception. There could be translation problems as well, in item 2 the word “upset” was translated as “nndadisa” meaning “confused” in English. The use of the negative did not seem to create problems except possibly in the case of item 160. There was a translation error in item 2.12. In item 97 translation could also have played a role. There seem to be no Venda expression for “depression”.

#### **5.2.4 Reliability analysis of Factor E (Dominance)**

Tables 5.7 and 5.8 contain the results of the analyses for factor E. The means indicate a tendency towards “assertiveness” with relatively lower means for items 38, 102, 132, 1.5 and 1.26.

**Table 5.7: Means and standard deviations of the items (original and additional items) in Factor E (N = 85)**

Items of Factor E	Mean	Std. Deviation
Factor E: E1 or "Item3"	1.46	.880
Factor E: E2 or "Item36"	1.54	.795
Factor E: E3 or "Item38"	.25	.554
Factor E: E4 or "Item66"	1.84	.508
Factor E: E5 or "Item99"	1.18	.966
Factor E: E6 or "Item102"	.92	.903
Factor E: E7 or "Item130"	1.54	.839
Factor E: E8 or "Item132"	.94	.968
Factor E: E9 or "Item163"	1.72	.683
Factor E: E10 or "Item165"	1.35	.922
Factor E additional part1 item5	.39	.757
Factor E additional part1 item26	.42	.777
Factor E additional part2 item13	1.24	.959
Factor E additional part2 item14	1.40	.876

**Table 5.8: Sequential Item analyses of Items of Factor E**

Items of Factor E:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run		5 <sup>th</sup> run		6 <sup>th</sup> run	
	item-scale r	alpha item deleted										
Factor E: E1 or "item3"	.2343	.2757	.2528	.4135	.3205	.4183	.2991	.2245	.2947	.3449	.3146	.3942
Factor E: E2 or "item36"	.2851	.2580	.2775	.4055	.2056	.4725	.1450	.2987	.1838	.3951	.2213	.4363
Factor E: E3 or "item38"	-.0425	.3774										
Factor E: E4 or "item66"	.3166	.2801	.3208	.4129	.3018	.4501	.2746	.2737	.3000	.3736	.3205	.4209
Factor E: E5 or "item99"	.2218	.2780	.3057	.3858	.3354	.4077	.2868	.2225	.2947	.3402	.3021	.3969
Factor E: E6 or "item102"	-.1081	.4333										
Factor E: E7 or "item130"	.1238	.3287	.1503	.4569	.1724	.4881	.1188	.3092	.1595	.4049	.1786	.4534
Factor E: E8 or "item132"	.0806	.3524	.0742	.4970								
Factor E: E9 or "item163"	.2242	.2925	.2424	.4234	.2907	.4408	.2195	.2751	.2192	.3850	.2483	.4295
Factor E: E10 or "item165"	.0740	.3536	.1367	.4660	.1146	.5201	.0994	.3186	.1029	.4313	.1132	.4841
additional part1 item5							.0123	.3492	-.0375	.4734		
Additional part1 item26							-.0490	.3726				
Additional part2 item13							.0826	.3274	.1333	.4193	.0898	.4970
Additional part2 item14							-.1080	.4041				
Cronbach Alpha	.3499		.4667		.4970		.3313		.4272		.4734	

Seven of the 10 original items could be included, but only one of the four additional items. Items on factor E that were excluded are:

E3 or item 38

E6 or item 102

E8 or item 132

Additional part 1 item 5

Additional part 1 item 26

Additional part 2 item 14

Respondents obtained a relatively low mean on items dealing with co-operating with others (indicating a tendency towards co-operation with the group). The items excluded seem to deal more with the interaction process compared to asserting oneself with regard to the correct way of doing things, proper standards, etcetera (as in the items included). Overlap in constructs could have resulted in items measuring “group affiliation” being excluded from a scale measuring more “assertiveness”. In item 38 an explanation for “assertive” was used. Item 2.14 was translated incorrectly.

### 5.2.5 Reliability analysis of Factor F (Liveliness)

Tables 5.9 and 5.10 contain the results of the analyses for factor F. This group tended to respond in a "positive direction". The mean and the standard deviation for item 70 are low. This item is related to dressing in a quiet or eye-catching manner.

**Table 5.9: Means and standard deviations of the items (original and additional items) in Factor F (N = 85)**

Items of Factor F	Mean	Std. Deviation
Factor F : F1 or "Item4"	.31	.708
Factor F : F2 or "Item6"	1.45	.866
Factor F : F3 or "Item37"	.45	.794
Factor F : F4 or "Item39"	1.69	.724
Factor F : F5 or "Item68"	1.56	.794
Factor F : F6 or "Item70"	.08	.385
Factor F : F7 or "Item100"	1.24	.947
Factor F : F8 or "Item103"	1.60	.743
Factor F : F9 or "Item134"	1.52	.840
Factor F : F10 or "Item164"	1.51	.826
Factor F additional part1 item6	1.36	.871
Factor F additional part1 item27	.79	.940
Factor F additional part2 item15	.82	.941
Factor F additional part2 item16	.93	.973

**Table 5.10: Sequential Item analyses of Items of Factor F**

Items of Factor F:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run		5 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted	item scale r	alpha item deleted
Factor F: F1 or "item4"	.0712	.5195	.0711	.5566	.1119	.4186	.0763	.5465	.1216	.5688
Factor F: F2 or "item6"	.3208	.4428	.2787	.4973	.3037	.3582	.3533	.4758	.3008	.5244
Factor F: F3 or "item37"	.1183	.5099	.1414	.5411	.1614	.4051	.1551	.5306	.1281	.5703
Factor F: F4 or "item39"	.2366	.4740	.2233	.5153	.1817	.4005	.1569	.5290	.2181	.5470
Factor F: F5 or "item68"	.2672	.4633	.3082	.4882	.2578	.3767	.3061	.4917	.3206	.5201
Factor F: F6 or "item70"	.1698	.4963	.1467	.5344	.1282	.4183	.0890	.5383	.1441	.5618
Factor F: F7 or "item100"	.3050	.4467	.3359	.4749	.3087	.3517	.3362	.4783	.3362	.5125
Factor F: F8 or "item103"	.0059	.5390								
Factor F: F9 or "item134"	.2956	.4526	.3187	.4835	.2677	.3715	.3386	.4811	.3256	.5176
Factor F: F10 or "item164"	.3286	.4416	.3390	.4768	.3411	.3486	.3056	.4909	.3246	.5182
additional part1 item6					-.1399	.4945				
Additional part1 item27					-.0353	.4696				
additional part2 item15					.0144	.4539	.0488	.5653		
additional part2 item16					.1528	.4081	.2574	.5037	.2560	.5390
Cronbach Alpha	.5073		.5390		.4281		.5375		.5653	

Only one of the original 10 items was excluded. One of the additional four items was included. Items on factor F that were excluded are:

F8 or item 103

Additional part 1 item 6

Additional part 1 item 27

Additional part 2 item 15

The translation of the word “happy-go-lucky” in item 103 was problematic. No trends were observed.

### 5.2.6 Reliability analysis of Factor G (Rule-Consciousness)

Tables 5.11 and 5.12 contain the results of the analyses for factor G. The sample indicated a tendency to be “rule-conscious”, with the exception of regarding breaking the rules as acceptable if there was a reason for this (e.g. the relatively lower means for items 136 and 166).

**Table 5.11: Means and standard deviations of the items (original and additional items) in Factor G (N = 85)**

Items of factor G	Mean	Std. Deviation
Factor G : G1 or "Item5"	.69	.873
Factor G : G2 or "Item7"	1.05	.898
Factor G : G3 or "Item40"	1.74	.657
Factor G : G4 or "Item69"	1.58	.792
Factor G : G5 or "Item72"	1.65	.751
Factor G : G6 or "Item104"	1.31	.913
Factor G : G7 or "Item106"	.95	.975
Factor G : G8 or "Item133"	1.12	.981
Factor G : G9 or "Item136"	.48	.796
Factor G : G10 or "Item166"	.76	.959
Factor G : G11 or "Item168"	1.81	.545
Factor G additional part1 item7	1.55	.779
Factor G additional part1 item28	.36	.769
Factor G additional part2 item17	1.61	.773

**Table 5.12: Sequential Item analyses of Items of Factor G**

Items of Factor G:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run	
	item-scale r	Alpha item deleted	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted
Factor G: G1 or "item5"	-.0355	.3544						
Factor G: G2 or "item7"	.1327	.2809	.1132	.3782	.0760	.3252	.1528	.3803
Factor G: G3 or "item40"	.1371	.2839	.1271	.3701	.0627	.3260	.1075	.3949
Factor G: G4 or "item69"	-.0031	.3362						
Factor G: G5 or "item72"	.0898	.2996	.1447	.3632	.1909	.2816	.1402	.3847
Factor G: G6 or "item104"	.1833	.2563	.1668	.3532	.1333	.3007	.1757	.3707
Factor G: G7 or "item106"	.1491	.2720	.2008	.3358	.2257	.2555	.1884	.3648
Factor G: G8 or "item133"	.1739	.2589	.1436	.3656	.2050	.2656	.1562	.3798
Factor G: G9 or "item136"	.1756	.2645	.2320	.3264	.2343	.2624	.2529	.3423
Factor G: G10 or "item166"	.1332	.2803	.1541	.3599	.0800	.3250	.1618	.3770
Factor G: G11 or "item168"	.0424	.3133	.1081	.3766	.0745	.3223	.0728	.4033
Additional part1 item7					-.0355	.3625		
Additional part1 item28					.1040	.3129	.1338	.3869
Additional part2 item17					-.0365	.3625		
Cronbach Alpha	.3126		.3869		.3293		.4042	

Only two of the original 11 items were excluded. One of the additional three items was included. Items on factor G that were excluded are:

G1 or item 5

G4 or item 69

Additional part1 item 7

Additional part 2 item 17

The items deal with a response to environmental restraint. No trend was observed in the items excluded.

### 5.2. 7 Reliability analysis of Factor H (Social Boldness)

Tables 5.13 and 5.14 contain the results of the analyses for factor H. The sample indicated a tendency towards social boldness. Items with higher means and lower means were however also included.

**Table 5.13: Means and standard deviations of the items (original and additional items) in Factor H (N = 85)**

Items of Factor H	Mean	Std. Deviation
Factor H : H1 or "Item9"	1.28	.908
Factor H : H2 or "Item41"	1.42	.878
Factor H : H3 or "Item71"	.65	.896
Factor H : H4 or "Item73"	1.27	.944
Factor H : H5 or "Item105"	.71	.924
Factor H : H6 or "Item107"	.68	.929
Factor H : H7 or "Item135"	1.81	.567
Factor H : H8 or "Item137"	1.48	.854
Factor H : H9 or "Item167"	.93	.985
Factor H : H10 or "Item169"	1.55	.809
Factor H additional part1 item8	1.45	.852
Factor H additional part1 item9	1.18	.915
Factor H additional part1 item29	1.68	.694
Factor H additional part2 item18	.82	.953

**Table 5.14: Sequential Item analyses of Items of Factor H**

Items of Factor H:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item-scale r	alpha item deleted	Item Scale R	alpha item deleted
Factor H: H1 or "item9"	-.0215	.5757						
Factor H: H2 or "item41"	.3676	.4627	.3929	.5097	.3852	.5229	.3576	.5647
Factor H: H3 or "item71"	.2466	.4991	.2683	.5465	.3344	.5336	.3147	.5742
Factor H: H4 or "item73"	.2459	.4992	.2471	.5533	.3085	.5386	.3346	.5690
Factor H: H5 or "item105"	.1032	.5420	.1783	.5733	.1035	.5835	.1384	.6141
Factor H: H6 or "item107"	.4074	.4469	.4130	.5010	.3006	.5406	.3754	.5593
Factor H: H7 or "item135"	.1565	.5225	.1219	.5778	.0802	.5790	.0960	.6120
Factor H: H8 or "item137"	.2050	.5112	.2088	.5628	.2156	.5592	.2413	.5904
Factor H: H9 or "item167"	.3550	.4621	.3551	.5186	.3734	.5220	.3605	.5620
Factor H: H10 or "item169"	.2307	.5042	.2072	.5626	.2107	.5601	.2163	.5952
Additional part1 item8					.0751	.5868		
Additional part1 item9					.0860	.5869		
Additional part1 item29					.2105	.5606	.2179	.5945
Additional part2 item18					.2819	.5446	.2691	.5848
Cronbach Alpha	.5313		.5757		.5761		.6075	

Again only one item in the original scale (of 10 items) was excluded together with two of the additional four items. Items on factor H that were excluded are:

H1 or item 9

Additional part 1 item 8

Additional part 1 item 9

No apparent reason could be found for the items that were excluded. The sample seems to prefer to give socially accepted responses, which could have had some influence.

## 5.2. 8 Reliability analysis of Factor I (Sensitivity)

Tables 5.15 and 5.16 contain the results of the analyses for factor I. The means of these items varied and relatively low means were found for two items (item 170 and 1.30).

**Table 5.15: Means and standard deviations of the items (original and additional items) in Factor I (N = 85)**

Items of Factor I	Mean	Std. Deviation
Factor I : I1 or "Item8"	1.24	.854
Factor I : I2 or "Item10"	1.88	.448
Factor I : I3 or "Item42"	.55	.748
Factor I : I4 or "Item44"	1.13	.910
Factor I : I5 or "Item74"	.92	.941
Factor I : I6 or "Item77"	.86	.928
Factor I : I7 or "Item108"	.99	.945
Factor I : I8 or "Item110"	1.22	.943
Factor I : I9 or "Item138"	.55	.852
Factor I : I10 or "Item140"	1.49	.854
Factor I : I11 or "Item170"	.44	.778
Factor I additional part1 item10	.80	.936
Factor I additional part1 item30	.35	.735
Factor I additional part2 item19	1.21	.965

**Table 5.16: Sequential Item analyses of Items of Factor I**

Items of Factor I:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted
Factor I: I1 or "item8"	-.0618	-.0345	-.0265	.0468				
Factor I: I2 or "item10"	-.1272	-.0269	-.0936	.0572				
Factor I: I3 or "item42"	.2428	-.2574	.2237	-.0863	.2054	.1764	.1164	.3144
Factor I: I4 or "item44"	-.0130	-.0725	.0969	-.0291	.2394	.1385	.2931	.2010
Factor I: I5 or "item74"	.0223	-.1040	.0083	.0270	-.0689	.3338		
Factor I: I6 or "item77"	-.0103	-.0750	.0730	-.0146	.1613	.1899	.2132	.2538
Factor I: I7 or "item108"	-.0376	-.0515	-.0883	.0872				
Factor I: I8 or "item110"	.0612	-.1395	.0212	.0187	.0157	.2835	.0786	.3408
Factor I: I9 or "item138"	-.2930	.1271	-.2020	.1411				
Factor I: I10 or "item140"	-.0352	-.0548	-.0653	.0685				
Factor I: I11 or "item170"	.0481	-.1155	-.0116	.0374				
additional part 1 item 10			.1373	-.0583	.1389	.2045	.2023	.2608
additional part 1 item 30			.0027	.0298	.0665	.2479	.0535	.3445
additional part 2 item 19			.0296	.0702	.0702	.2499	.0458	.3627
Cronbach Alpha	.0734		.0294		.2560		.3338	

Four of the original 11 and two of all three additional items were included. Items on factor I that were excluded are:

- I1 or item 8
- I2 or item 10
- I5 or item74
- I7 or item 108
- I9 or item 138
- I10 or item 140
- I11 or item 170

Problems with measurement of constructs related to emotions have been mentioned. But in this scale there was a choice between two activities (or descriptions of tasks related to activities) with little direct reference to expressions of emotions, etcetera. The problem with many of the items not included in this factor might be that highly stereotypical activities have been used in the item content. For example, “building”, “mechanical”, “artist”, “ dancing”, “ wrestling” and “football”. The use of these words could make it difficult for different sexes to endorse items according to the construct of sensitivity, because those items are being perceived as the domain of the opposite sex.

### **5.2.9 Reliability analysis of Factor L (Vigilance)**

Tables 5.17 and 5.18 contain the results of the analyses for factor L. Most of the items in the original scales have high average scores. There is no apparent reason why this is not the case for the additional items (maybe the way in which expressions such as “behind my back” and flatter” were understood, could have influenced the results).

**Table 5.17: Means and standard deviations of the items (original and additional items) in Factor L (N = 85)**

Items of Factor L	Mean	Std. Deviation
Factor L : L1 or "Item11"	1.81	.567
Factor L : L2 or "Item13"	1.95	.263
Factor L : L3 or "Item43"	1.87	.431
Factor L : L4 or "Item45"	1.19	.838
Factor L : L5 or "Item76"	.79	.952
Factor L : L6 or "Item78"	1.60	.775
Factor L : L7 or "Item109"	1.48	.750
Factor L : L8 or "Item112"	.95	.937
Factor L : L9 or "Item139"	1.19	.957
Factor L : L10 or "Item141"	1.69	.673
Factor L additional part1 item11	1.04	.981
Factor L additional part1 item31	.45	.794
Factor L additional part1 item32	.88	.944
Factor L additional part2 item20	.85	.970

**Table 5.18: Sequential Item analyses of Items of Factor L**

Items of Factor L:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted
Factor L: L1 or "item11"	.0705	-.0696	.1346	.2817	.1404	-.1284	.2077	.1334
Factor L: L2 or "item13"	.0649	-.0440	.0337	.3319	.1787	-.0899	.1084	.2056
Factor L: L3 or "item43"	-.0800	.0065						
Factor L: L4 or "item45"	-.0477	.0110						
Factor L: L5 or "item76"	-.1254	.0905						
Factor L: L6 or "item78"	.0758	-.0930	.0960	.3215	-.1178	.0460	-.0203	.2726
Factor L: L7 or "item109"	.1278	-.1340	.2270	.1912	.0692	-.1018	.2880	.0425
Factor L: L8 or "item112"	-.0447	.0127						
Factor L: L9 or "item139"	.0571	-.0927	.2486	.1504	-.1031	.0535	.0746	.2112
Factor L: L10 or "item141"	-.1092	.0443						
additional part 1 item11					.1580	-.2327	.0403	.2450
additional part 1 item31					.0310	-.0730	.0313	.2378
additional part 1 item32					-.1221	.0699		
additional part 2 item20					-.1217	.0727		
Cronbach Alpha	.0262		.3137		.0408		.2213	

Five of the original 10 and two of the four additional items were included. Items on factor L that were excluded are:

L3 or item 43

L4 or item 45

L5 or item 76

L 8 or item 112

L10 or item 141

Additional part 1 item 32

Additional part 2 item 20

Items included and excluded deal with the motives of people and issues of trust and loyalty. No trend was therefore observed for items excluded. There might be translation problems for items 43, 76, 141, 112, 1.32 and 2.20. In item 43 the problem might be in the translation of the word “motive” with “people’s work”. In item 112 the negative form was used. The vocabulary and idiomatic expression used in item 76 (“smooth talkers”), 141 (“tougher”), and item 2.20 (“flatter”) might have caused translation problems. In item 1.32, explanation of words was used which might have been confusing.

### 5.2.10 Reliability analysis of Factor M (Abstractedness)

Table 5.19 and 5.20 contain the results of the analyses for factor M. Items with both high and low means are observed in this factor. The lower means for item 49 and 114 could be related to socially accepted responses (being sensible and realistic).

**Table 5.19: Means and standard deviations of the items (original and additional items) in Factor M (N = 85)**

Items of Factor M	Mean	Std. Deviation
Factor M : M1 or "Item12"	.65	.896
Factor M : M2 or "Item14"	1.26	.966
Factor M : M3 or "Item17"	1.26	.902
Factor M : M4 or "Item46"	.95	.962
Factor M : M5 or "Item49"	.21	.599
Factor M : M6 or "Item79"	1.64	.721
Factor M : M7 or "Item81"	1.18	.990
Factor M : M8 or "Item111"	.73	.918
Factor M : M9 or "Item114"	.35	.685
Factor M : M10 or "Item142"	1.68	.711
Factor M : M11 or "Item145"	.62	.899
Factor M additional part1 item12	.75	.950
Factor M additional part1 item13	1.32	.916
Factor M additional part 2 item 1	.82	.953
Factor M additional part2 item2	1.26	.941
Factor M additional part2 item21	1.24	.934

**Table 5.20: Sequential Item analyses of Items of Factor M**

Items of Factor M:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted
Factor M: M1 or "item12"	.1309	.3315	.2025	.4677	.1538	.6178	.1712	.6331
Factor M: M2 or "item14"	.2634	.2689	.2740	.4399	.3624	.5805	.3898	.5940
Factor M: M3 or "item17"	.2479	.2802	.2362	.4553	.1545	.6178	.1421	.6380
Factor M: M4 or "item46"	.3145	.2436	.2978	.4302	.3500	.5829	.3348	.6046
Factor M: M5 or "item49"	-.1585	.4104						
Factor M: M6 or "item79"	.0838	.3481	.0835	.5016	.0552	.6285	.0251	.6499
Factor M: M7 or "item81"	-.1381	.4487						
Factor M: M8 or "item111"	.2545	.2762	.3330	.4174	.5067	.5542	.5202	.5706
Factor M: M9 or "item114"	.0773	.3498	.0753	.5025	.0197	.6319	.0321	.6479
Factor M: M10 or "item142"	.0144	.3701	.0371	.5137	-.0004	.6353		
Factor M: M11 or "item145"	.2574	.2760	.3253	.4214	.3695	.5805	.3560	.6015
additional part1 item12					.2669	.5986	.2746	.6158
additional part1-item13					.3493	.5838	.3786	.5971
additional part2 item1					.1294	.6233	.1090	.6451
additional part2 item2					.2715	.5978	.2889	.6132
additional part2 item21					.4366	.5670	.4438	.5848
Cronbach Alpha	.3549		.4933		.6192		.6353	

Eight of the original 11 items and all five of the additional items were included. Items on factor M that were excluded are:

M5 or item 49

M7 or item 81

M10 or item 142

Again no trend was observed as the items excluded deal with being practical or not similar to items that were acceptable.

### 5.2. 11 Reliability analysis of Factor N (Privateness)

Tables 5.21 and 5.22 contain the results of the analyses for factor N. The sample responded in both directions on this scale with a range of responses for each item. It was mentioned that this sample is more reserved in terms of expression of emotions. It is interesting to note that this is not the case on this scale when items deal with sharing of problems especially when this is in a relatively close relationship (e.g. items 18, 50 and 2.3).

**Table 5.21: Means and standard deviations of the items (original and additional items) in Factor N (N = 85)**

Items of factor N	Mean	Std. Deviation
Factor N : N1 or "Item15"	.74	.953
Factor N : N2 or "Item18"	.42	.777
Factor N : N3 or "Item47"	1.34	.880
Factor N : N4 or "Item50"	.88	.944
Factor N : N5 or "Item80"	1.52	.811
Factor N : N6 or "Item84"	.49	.766
Factor N : N7 or "Item113"	1.51	.811
Factor N : N8 or "Item117"	.89	.926
Factor N : N9 or "Item143"	.96	.981
Factor N : N10 or "Item148"	1.72	.666
Factor N additional part1 item14	1.15	.958
Factor N additional part2 item3	.71	.936
Factor N additional part2 item22	.33	.714
Factor N additional part2 item23	.81	.957

**Table 5.22: Sequential Item analyses of Items of Factor N**

Items of Factor N:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run	
	item-scale r	alpha item deleted	item scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item delet ed
Factor N: N1 or "Item15"	.1315	.2516	.1235	.4042	.2061	.4137	.1667	.4649
Factor N: N2 or "Item18"	.2451	.2029	.2800	.3230	.3763	.3650	.3357	.4124
Factor N: N3 or "Item47"	-.0226	.3275						
Factor N: N4 or "Item50"	.2546	.1816	.1991	.3603	.1781	.4237	.1878	.4572
Factor N: N5 or "Item80"	.0666	.2835	.1027	.4083	.0339	.4661	.0425	.4994
Factor N: N6 or "Item84"	.0911	.2724	.1205	.3987	.1671	.4276	.2045	.4521
Factor N: N7 or "Item113"	.0991	.2688	.1580	.3818	.0725	.4551	.1211	.4767
Factor N: N8 or "Item117"	-.0451	.3418						
Factor N: N9 or "Item143"	.2250	.1962	.2976	.2977	.2356	.4024	.2928	.4175
Factor N: N10 or "Item148"	-.0153	.3112						
additional part1 item14					.0140	.4802		
additional part2 item3					.1723	.4257	.1490	.4707
additional part2 item22					.2662	.4017	.2276	.4467
additional part2 item23					.2210	.4082	.2575	.4317
Cronbach Alpha	.2885		.4066		.4493		.4802	

Seven of the original 10 items and three of the four additional items were included  
 Items on factor N that were excluded are:

N3 or item 47

N8 or item 117

N10 or item 148

Additional part1 item 14

There was a translation error in item 117. Different constructs could have been measured in this factor, for example, for items 47, 148, and 1.14 responses indicate more reserve from this sample especially regarding private matters whereas this sample has indicated a tendency to share problems.

### 5. 2.12 Reliability analysis of Factor O (Apprehension)

Tables 5.23 and 5.24 contain the results of the analyses for factor O. The means indicate that the sample tend to be more prone to worry and sensitive to approval and disapproval. Relatively lower means were found for item 146 and 150. In item 146 translation of the word “worrier” might have created problems.

**Table 5.23: Means and standard deviations of the items (original and additional items) in Factor O (N = 85)**

Items of factor O	Mean	Std. Deviation
Factor O: O1 or "Item19"	1.13	.936
Factor O: O2 or "Item21"	.95	.987
Factor O: O3 or "Item51"	1.73	.643
Factor O: O4 or "Item54"	1.59	.729
Factor O: O5 or "Item82"	1.08	.929
Factor O: O6 or "Item87"	1.84	.531
Factor O: O7 or "Item116"	1.44	.879
Factor O: O8 or "Item119"	1.29	.857
Factor O: O9 or "Item146"	.61	.901
Factor O: O10 or "Item150"	.55	.838
Factor O additional part1 item15	1.46	.853
Factor O additional part2 item16	1.38	.886
Factor O additional part2 item4	1.24	.895
Factor O additional part2 item5	1.29	.936
Factor O additional part2 item24	1.71	.651

Items of Factor O:	1 <sup>st</sup> run	
	item-scale r	Alpha Item Deleted
Factor O: O1 or "item19"	.1982	.4067
Factor O: O2 or "item21"	.1762	.4164
Factor O: O3 or "item51"	.1489	.4247
Factor O: O4 or "item54"	.1465	.4250
Factor O: O5 or "item82"	.1734	.4168
Factor O: O6 or "item87"	.0354	.4508
Factor O: O7 or "item116"	.1741	.4161
Factor O: O8 or "item119"	.4571	.3038
Factor O: O9 or "item146"	.1859	.4116
Factor O: O10 or "item150"	.0438	.4614
"Cronbach Alpha	.4416	

All the items of the original scale of factor O were included in the first run and no further analyses were done with the additional items.

### 5.2.13 Reliability analysis of Factor Q1 (Openness to change)

Tables 5. 25 and 5.26 contain the results of the analyses for factor Q1. The sample responded in both directions on this scale. The mean score of item 20 in the original scale is relatively low. The translations of the word “conventional” may have caused problems because it was translated as “vudaho” in Venda that means “stable” in English.

**Table 5.25: Means and standard deviations of the items (original and additional items) in Factor Q1 (N = 85)**

Items of factor Q1	Mean	Std. Deviation
Factor Q1 : q1 or "Item20"	.44	.808
Factor Q1 : q2 or "Item22"	1.78	.585
Factor Q1 : q3 or "Item24"	1.28	.895
Factor Q1 : q4 or "Item52"	.72	.868
Factor Q1 : q5 or "Item53"	.91	.996
Factor Q1 : q6 or "Item55"	1.33	.878
Factor Q1 : q7 or "Item83"	1.59	.776
Factor Q1 : q8 or "Item86"	1.35	.909
Factor Q1 : q9 or "Item88"	.96	.981
Factor Q1 : q10 or "Item118"	1.84	.508
Factor Q1 : q11 or "Item120"	.94	.968
Factor Q1 : q12 or "Item147"	.96	.919
Factor Q1 : q13 or "Item149"	1.66	.716
Factor Q1 : q14 or "Item151"	.86	.966

**Table 5.26: Sequential Item analyses of Items of Factor Q1**

Items of Factor Q1:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	item scale r	alpha item deleted
Factor Q1: q1 or "item20"	.1171	.2178	.1180	.3481	.1505	.3684
Factor Q1: q2 or "item22"	.2903	.1745	.2967	.3036	.3178	.3271
Factor Q1: q3 or "item24"	.0155	.2594	.0783	.3639	.0728	.3992
Factor Q1: q4 or "item52"	.0690	.2367	.0884	.3595	.0507	.4064
Factor Q1: q5 or "item53"	.0194	.2610	.0155	.3934		
Factor Q1: q6 or "item55"	.1895	.1844	.2538	.2946	.2416	.3313
Factor Q1: q7 or "item83"	.0917	.2282	.0724	.3633	.1164	.3804
Factor Q1: q8 or "item86"	.2213	.1677	.2413	.2981	.2421	.3297
Factor Q1: q9 or "item88"	.0776	.2332	.0696	.3701	.0666	.4057
Factor Q1: q10 or "item118"	.0057	.2535	.0549	.3645	.0105	.4042
Factor Q1: q11 or "item120"	-.1274	.3242				
Factor Q1: q12 or "item147"	-.0689	.2957				
Factor Q1: q13 or "item149"	.1768	.1993	.2008	.3223	.1990	.3535
Factor Q1: q14 or "item151"	.0939	.2255	.1122	.3518	.1683	.3611
Cronbach Alpha	.2483		.3653		.3934	

Eleven of the original 14 Items were included. Items on factor Q1 that were excluded are:

Q1: q5 or item 53

Q1: q11 or item 120

Q1: q12 or item 147

The items excluded, similar to those included, deal with people or ideas that are different, imply change, and/or improvement. In item 53 translation might be the problem because "personal meaning" was translated as "feelings", "vhudipfi" in the Venda translation. The translation might distort the meaning of this item.

### 5.2.14 Reliability analysis of Factor Q2 (Self-Reliance)

Tables 5.27 and 5.28 contain the results of the analyses for factor Q2. The means for most items were relatively low. This sample indicated a tendency towards group affiliation i.e. they like to interact with others in a group situations and in work and leisure prefer a group approach.

**Table 5.27: Means and standard deviations of the items (original and additional items) in Factor Q2 (N = 85)**

Items of factor Q2	Mean	Std. Deviation
Factor Q2 : q1 or "Item25"	.81	.945
Factor Q2 : q2 or "Item27"	.48	.825
Factor Q2 : q3 or "Item56"	.42	.792
Factor Q2 : q4 or "Item59"	.78	.956
Factor Q2 : q5 or "Item89"	.86	.953
Factor Q2 : q6 or "Item92"	.26	.657
Factor Q2 : q7 or "Item121"	1.31	.913
Factor Q2 : q8 or "Item123"	.49	.811
Factor Q2 : q9 or "Item152"	.45	.824
Factor Q2 : q10 or "Item156"	.39	.757
Factor Q2 additional part1 item17	.88	.969
Factor Q2 additional part1 item18	1.07	.973
Factor Q2 additional part2 item6	.38	.756
Factor Q2 additional part2 item25	.48	.825

**Table 5.28: Sequential Item analyses of Items of Factor Q2**

Items of Factor Q2:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run	
	item-scale r	Alpha Item Deleted	Item-scale r	alpha item deleted	item-scale r	Alpha Item Deleted
Factor Q2: q1 or "item25"	.2737	.5445	.3107	.5585	.3942	.6607
Factor Q2: q2 or "item27"	.1243	.5814	.1347	.6038	.1401	.6943
Factor Q2: q3 or "item56"	.0577	.5952			.0864	.6998
Factor Q2: q4 or "item59"	.2707	.5455	.3226	.5548	.3237	.6713
Factor Q2: q5 or "item89"	.3567	.5196	.3595	.5433	.3731	.6638
Factor Q2: q6 or "item92"	.3661	.5289	.3433	.5563	.4018	.6652
Factor Q2: q7 or "item121"	.2610	.5480	.2595	.5733	.1897	.6898
Factor Q2: q8 or "item123"	.3402	.5281	.3159	.5580	.3824	.6640
Factor Q2: q9 or "item152"	.2705	.5456	.2372	.5782	.2664	.6787
Factor Q2: q10 or "item156"	.2746	.5453	.2806	.5675	.3414	.6698
Additional part1 item17					.3656	.6649
Additional part1 item18					.4403	.6533
Additional part2 item6					.3563	.6681
Additional part2 item25					.2266	.6837
Cronbach Alpha	.5751		.5952		.6900	

The ten original and four additional items of factor Q2 were all included.

### 5.2.15 Reliability analysis of Factor Q3 (Perfectionism)

Tables 5.29 and 5.30 contain the results of the analyses for factor Q3. The means indicate that this sample tends to answer in a "positive" direction with regard to perfectionism. Relatively lower means for item 29 (indicating some tolerance for disorder) and item 122 (indicating less time urgency) could point to an influence of the environment.

**Table 5.29: Means and standard deviations of the items (original and additional items) in Factor Q3 (N = 85)**

	Mean	Std. Deviation
Factor Q3 : q1 or "Item26"	1.72	.666
Factor Q3 : q2 or "Item29"	.53	.839
Factor Q3 : q3 or "Item57"	1.08	.916
Factor Q3 : q4 or "Item61"	1.22	.943
Factor Q3 : q5 or "Item90"	1.82	.560
Factor Q3 : q6 or "Item93"	1.93	.338
Factor Q3 : q7 or "Item122"	.44	.680
Factor Q3 : q8 or "Item125"	1.81	.545
Factor Q3 : q9 or "Item154"	1.58	.762
Factor Q3 : q10 or "Item157"	1.55	.809
Factor Q3 additional part1 item19	1.60	.775
Factor Q3 additional part2 item7	1.27	.918
Factor Q3 additional part2 item8	1.81	.523
Factor Q3 additional part2 item26	1.13	.961
Factor Q3 additional part2 item27	1.40	.848

**Table 5.30: Sequential Item analyses of Items of Factor Q3**

Items of Factor Q3:	1 <sup>st</sup> run		2 <sup>nd</sup> run		3 <sup>rd</sup> run		4 <sup>th</sup> run	
	item-scale r	alpha item deleted	item-scale r	alpha item deleted	Item Scale R	alpha item deleted	item scale r	alpha item deleted
Factor Q3: q1 or "item126"	.1694	.0294			.2200	.4881	.2236	.5117
Factor Q3: q2 or "item29"	-.0600	.1790	.1569	.2491				
Factor Q3: q3 or "item57"	.0638	.0877						
Factor Q3: q4 or "item61"	.0771	.0757			.1830	.5004	.1630	.5330
Factor Q3: q5 or "item90"	.0626	.0970	-.0027	.3591	-.0221	.5357		
Factor Q3: q6 or "item93"	.1116	.0908	.1532	.2464	.1366	.5079	.0973	.5355
Factor Q3: q7 or "item122"	-.1718	.2250						
Factor Q3: q8 or "item125"	.0271	.1141	.1085	.2759	.1633	.5014	.1704	.5239
Factor Q3: q9 or "item154"	.1476	.0321	.2134	.2556	.2514	.4785	.2559	.5025
Factor Q3: q10 or "item157"	.0253	.1173			.2443	.4799	.2407	.5063
Additional part1 item19					.2162	.4880	.2484	.5044
additional part2 item7			.1423	.2617	.2849	.4660	.2969	.4884
additional part2 item8					.2741	.4815	.2261	.5141
additional part2 item26			.1475	.2515	.3221	.4523	.3620	.4648
additional part2 item27			.1340	.2597	.1253	.5149	.1442	.5347
Cronbach Alpha	.1188		.2975		.3591		.5357	

Six of the ten original items and the five additional items were included. Items on factor Q3 that were excluded are:

Q3: q2 or item 29

Q3: q3 or item 57

Q3: q5 or item 90

Q3: q7 or item 122

All the items measure planning, precision and organization and therefore no trend was observed. In item 93 translation of the word “perfectionist” might be a problem as there is no direct equivalent for this word in Venda. The means of these items are not very low, indicating the group strives to maintain an orderly life; they are more or less precise and methodical.

#### **5. 2.16 Reliability analysis of Factor Q4 (Tension)**

Tables 5.31 and 5.32 contain the results of the analyses for factor Q4. Variation was found across the means of the items.

**Table 5.31: Means and standard deviations of the items (original and additional items) in Factor Q4 (N = 85)**

	Mean	Std. Deviation
Factor Q4: q1 or "Item28"	.87	.923
Factor Q4: q2 or "Item30"	1.36	.871
Factor Q4: q3 or "Item60"	1.32	.903
Factor Q4: q4 or "Item62"	1.11	.976
Factor Q4: q5 or "Item91"	.33	.714
Factor Q4: q6 or "Item94"	.65	.896
Factor Q4: q7 or "Item124"	.48	.840
Factor Q4: q8 or "Item126"	.78	.943
Factor Q4: q9 or "Item155"	1.15	.958
Factor Q4: q10 or "Item158"	.40	.790
Factor Q4 additional part1 item20	.94	.980
Factor Q4 additional part1 item21	.42	.792
Factor Q4 additional part2 item9	1.39	.901
Factor Q4 additional part2 item28	1.39	.901

**Table 5.32: Sequential Item analyses of Items of Factor Q4**

Items of Factor Q4:	1 <sup>st</sup> run	
	item scale r	alpha item deleted
Factor Q4: q1 or "item 28"	.2921	.5852
Factor Q4: q2 or "item 30"	.3672	.5677
Factor Q4: q3 or "item 60"	.1907	.6089
Factor Q4: q4 or "item 62"	.4857	.5331
Factor Q4: q5 or "item 91"	.3021	.5852
Factor Q4: q6 or "item 94"	.1067	.6274
Factor Q4: q7 or "item 124"	.2768	.5888
Factor Q4: q8 or "item 126"	.1336	.6235
Factor Q4: q9 or "item 155"	.4455	.5450
Factor Q4: q10 or "item 158"	.2645	.5916
additional part 1 item 20		
additional part 1 item 21		
additional part 2 item 9		
additional part 2 item 28		
Cronbach Alpha	.6126	

All the items of the original scale of factor Q4 were included in the first run and no further analyses were done with the additional items.

## CHAPTER 6

### CONCLUSION

The situation in South Africa increases pressure on the test developers and test users to ensure fair testing practices (e.g. the Employment Equity Bill, the draft policy of the Professional Board of Psychology on classification of psychometric measurements devices, instruments, methods and techniques). According to legislation only psychological tests and similar instruments of which validity and reliability have been scientifically proven and that are not biased against any employee or group may be used. There is also a concern that available tests are not appropriate for different cultures and lead to discriminatory practice. Most of the available tests were created and standardized in the days when test populations were made up of a single group. If combined groups were used, it was very difficult to compare the scores across cultures.

Many South African studies were conducted in the field of cross-cultural psychological testing. These studies supported the view that South African tests are reliable and valid for the groups for which they were developed and standardised. However, cross-cultural comparison of scores could give information that is discriminatory if used unconditionally.

Due to the diversity of South Africa, the use of English as the language of most of the psychological tests remains a problem. English as the language of many psychological tests is a potential cause of discrimination for many South African who complete tests in English when this is not their mother tongue. Translation of psychological tests into different languages of South Africa was suggested as a solution for cross-cultural testing. Translation of all tests into 11 official languages of South Africa can be expensive, though beneficiary to some groups.

The HSRC is investigating the use of a South African English version of the 16PF5. The present study looked at the functioning of a Venda version of this questionnaire.

The questionnaire was administered to a sample of Venda - speaking students at Univen and reliability analysis was done for the items of each of the primary factors.

Analyses of the reliability of the items indicated that out of the 249 items, 29% could not be included in a Venda version of the 16PF5. A qualitative analysis of the reasons why items were not included was done for each scale. Reasons identified included translation errors, problems in understanding the vocabulary and idiomatic language used, and the use of the negative form. Possible overlap of constructs was also suggested for some of the scales and the influence of some resistance of this cultural group against openly expressing their emotions was furthermore noted. Given the large number of items to be excluded, only general trends were indicated as to avoid over interpretation. These trends need to be considered when changing or replacing the items that were excluded with new items or with the additional items that did work.

The present study has a limitation for equivalence studies in that only the Venda translation was administered to the Venda speaking subjects ( or alternatively that results were not compared to that of an English-speaking sample). The sample was furthermore relatively small and represented only a limited Venda speaking group comprised of first, second and third year students registered for Psychology and Industrial Psychology at the University of Venda. If the goal is to develop a Venda version of the adapted 16PF5 that can be administered to a variety of Venda speaking subjects, a number of additional groups should be included in the development of a final Venda translation.

The reason for translation problems might be linked with the fact that the Venda language has not been used as a language of teaching, training and networking and as a result the words that are available in both languages (English and Venda) are limited. Furthermore, it may be impossible to simply translate some English items and end up with Venda items that are equivalent in terms of their measurement properties. In this case, "similar" items should be developed in Venda. These items should be similar to their English counterparts in that they assess the same construct. However, no matter how close the translated version is to the original, some differences in

interpretations depending on its own language and culture could be inevitable (Van Eeden et al. 1996). It was recommended by Taylor and Boeyens (1991) that the meaning attached to the psychological constructs by all relevant cultures should be considered in developing a new personality assessment instrument. With continued research, a Venda translation of the Fifth Edition of the 16PF that is equivalent to the English version in terms of its measurement properties will be produced.

This research can be regarded as a first step in developing a Venda version of the 16PF5. Many of the items of the 16PF5 Venda version can be used and the results of this study can be used for further investigation or to improve the Venda version. This can be achieved by eliminating items that display translation and cultural problems. It is also recommended that items that are not easily translatable into other languages or cultures should be avoided. Only once the items of the Venda translation are proven to be acceptable could further reliability, validity and equivalence analyses be considered.

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Key terms:

Personality; assessment; 16PF; cross-cultural; language; translation; item analysis; reliability; South Africa; Venda