

**A CONFIRMATORY FACTOR ANALYTIC STUDY OF THE  
ASPECTS OF IDENTITY QUESTIONNAIRE (AIQ-IV)**

by

**LEONIE ELS**

**Submitted in partial fulfilment of the requirements for the degree**

**MAGISTER COMMERCII (INDUSTRIAL PSYCHOLOGY)**

in the

**FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES  
(DEPARTMENT HUMAN RESOURCE MANAGEMENT)**

at the

**UNIVERSITY OF PRETORIA**

**PRETORIA**

**FEBRUARY 2010**

Supervisor: Mr MA Buys

## ACKNOWLEDGEMENTS

Completing this research project would not have been possible without the guidance and support of a number of people. I would like to express my sincerest thanks and gratitude to the following people:

- ❖ Mr. MA Buys for his continuous guidance, support and patience from my first step of this project.
- ❖ My parents for all their prayers and encouragement throughout the year.
- ❖ My boyfriend, Iaan van Tonder, for his empathy and being so supportive every step of the way to keep me motivated.
- ❖ My dearest friend, Janene Schwartz, who have made this year one that I would never forget. I would never have completed this without her entertaining company and support.

Most importantly, I thank the Lord for providing me with strength and blessings to make this journey an unforgettable one.

## DECLARATION

I, Leonie Els, declare that this dissertation entitled A CONFIRMATORY FACTOR ANALYTIC STUDY OF THE ASPECTS OF IDENTITY QUESTIONNAIRE (AIQ-IV) is my own work, and that all the sources that I have used or have quoted from have been indicated and acknowledged by means of complete references

---

LEONIE ELS

22099949

---

DATE

## SUMMARY

To obtain valid and reliable research findings it is important to follow the process to validate measuring instruments. This entails determining the psychometric properties of a measure to eliminate or decrease the presence of measurement errors. Measurement errors have a negative impact on the validity of research findings.

The aim of this study was to perform a confirmatory factor analytic study on the Aspects of Identity Questionnaire (AIQ-IV) to assess the model fit of the data. Confirmatory factor analysis was employed as part of the process to assess construct validity of a questionnaire to discover the misrepresenting influences of these measurement errors and to provide a foundation for further research.

The AIQ-IV was administered to a sample of 157 participants in the South African context including different race, gender, age and occupation groups, drawn by means of convenient sampling. The research results and fit indices indicated that the data reflected a reasonable model fit.

## KEY TERMS

Identity orientations, personal identity, social identity, relational identity, collective identity, social identity theory, self-categorisation theory, measurement errors, construct validity, confirmatory factor analysis, structural equation modelling.



## TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
DECLARATION	iii
SUMMARY	iv
KEY TERMS	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	vii
LIST OF TABLES	viii
CHAPTER 1: SCIENTIFIC INTRODUCTION TO THIS STUDY	1
1.1 Background to the research	1
1.2 Problem statement	2
1.3 Aim of the study	4
1.4 Research design	4
1.5 Research method	5
1.5.1 Phase 1: Literature review	5
1.5.2 Phase 2: Construct validity	6
1.5.3 Phase 3: Empirical study	6
1.6 Chapter division	8
1.7 Chapter summary	8
CHAPTER 2: LITERATURE REVIEW	9
2.1 Conceptualising the self	9
2.1.1 Introduction	9
2.1.2 Conceptualising the self through a naturalist view	10
2.1.3 Conceptual definitions of the self	11
2.1.3.1 Self-awareness and self-representations	11
2.1.3.2 Structure of the self	12
2.2 Identity orientations	13
2.2.1 Introduction	13



2.2.2	Personal identity	15
2.2.3	Social identity	17
2.2.4	Collective identity	21
2.2.5	Relational identity	22
2.3	Theories on identity	24
2.3.1	Identity theory	25
2.3.2	Social identity theory and self-categorisation theory	26
2.4	Chapter summary	35
CHAPTER 3: CONSTRUCT VALIDITY		36
3.1	Introduction	36
3.2	Conceptual meaning of construct validity	37
3.3	Influence of measurement error	38
3.4	Determining construct validity	39
3.4.1	Reliability	39
3.4.2	Item analysis	40
3.4.3	Exploratory factor analysis (EFA)	40
3.4.4	Structural equation modelling	44
3.5	Chapter summary	57
CHAPTER 4: EMPIRICAL STUDY		59
4.1	Introduction	59
4.2	Implications of the research design for validity and reliability	59
4.2.1	Construct validity	60
4.2.2	Translation validity	60
4.2.3	Criterion-related validity	61
4.2.4	Threats to construct validity	62
4.2.5	External validity	63
4.3	Population and sample	64
4.4	Measuring instrument	66
4.4.1	Development of the AIQ-IV	66



4.4.2	Description of the AIQ-IV	67
4.4.3	Administration and scoring of the AIQ-IV	67
4.4.4	Interpretation of the AIQ-IV	68
4.4.5	Validity and reliability of the AIQ-IV	68
4.5	Data gathering	69
4.6	Data analysis	70
4.6.1	Descriptive statistics	70
4.6.2	SEM	70
4.7	Chapter summary	72
CHAPTER 5: RESEARCH RESULTS		73
5.1	Descriptive statistics	73
5.2	CFA	74
5.3	Chapter summary	77
CHAPTER 6: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS		78
6.1	Limitations	78
6.1.1	Participant responses	78
6.1.2	Language	78
6.1.3	Tests, items and response modes	84
6.1.4	Sample size	84
6.2	Empirical recommendations	85
6.2.1	EFA	85
6.2.2	Item analysis	85
6.2.3	Reliability	85
6.3	Chapter summary	86
7	REFERENCES	87
LIST OF FIGURES		
Figure 5.1	Identity orientations CFA model of the AIQ-IV for the total group	76

## LIST OF TABLES

Table 4.1	Biographical information of the participants: Gender	64
Table 4.2	Biographical information of the participants: Ethnicity	65
Table 4.3	Biographical information of the participants: Language	65
Table 4.4	Biographical information of the participants: Age	65

Table 5.1	Descriptive statistics for the AIQ-IV	73
Table 5.2	Fit indices for the pooled sample	75

## ANNEXURE A

Aspects of Identity Questionnaire (AIQ-IV)	115
--	-----



# CHAPTER 1

## SCIENTIFIC INTRODUCTION TO THIS STUDY

This dissertation aims to assess the model fit of the Aspects of Identity Questionnaire (AIQ-IV), developed by Cheek (1989), by employing a confirmatory factor analytic study. In this chapter, the background to the research is outlined and that leads to the formulation of the problem statement. Stemming from the aforementioned, the aim of the research is then described. The research design and research method, contributing to the structure of the research process, are then described. Lastly, the presentation of the chapter division is outlined.

### 1.1 Background to the research

The demonstration of the self has been shown to involve multiple components, even from the beginning of self research (Cooley, 1902; Loevinger, 1976; Mead, 1934). These orientations or aspects of the self have been described by referring to the personal, relational, social and collective self. Cheek (1989) states that people encompass a number of identity orientations and memberships. These orientations and memberships vary in the degree of overall importance to the self-concept and can influence self-esteem in various ways. This has led to the development of several theories with the aim to make sense of the implications of these different identity orientations, and further to aid in explaining the behaviour of individuals in social settings.

Social researchers seek to assess these identity orientations in individuals' self-concepts. One aid that has been developed for this assessment is Cheek's AIQ-IV (1989). The AIQ-IV's development started with the selection of items from Sampson's (1978) list of identity characteristics. These were believed to characterise the field of personal and social identity (Cheek & Briggs, 1981). Psychometric analysis was then employed, and that pointed to another domain, collective identity, which was added to the scale (Cheek, Underwood, & Cutler, 1985). Furthermore, a fourth domain, relational identity, was found and added to the AIQ-IV (Cheek, Smith, & Tropp, 2002).

Determining the psychometric properties of a measure is very important to eliminate or decrease the presence of measurement errors. Measurement errors have a negative impact on the validity of research findings. The aim of this study is to perform a confirmatory factor analytic study on the AIQ-IV to assess the model fit of the data. Confirmatory factor analysis (CFA) is part of the process to assess construct validity of a questionnaire to discover the misrepresenting influences of these measurement errors. Construct validity reflects the degree of correspondence between constructs and their measures. Therefore, construct validity is known to be an essential condition for theory development and testing (Bagozzi, Yi & Phillips, 1991).

## 1.2 Problem statement

Breckler and Greenwald (1986) suggest that different self-aspects would correlate with distinct social motivations that would in turn have separate implications for self-esteem. These different self-aspects can impact social behaviours in various and important ways (Ellemers, Spears & Doosje, 2002). Depending on which self-aspect is triggered within a specific social context, it may cause different behaviours and characteristics to surface.

Tajfel (1974) proposes that social categorisation has an impact on people's perception of others and of themselves and is at the centre of social identity theory (SIT). When categorisation or grouping takes place, with the implied threat in perceiving other groups as being different than one's own, the impact of social identity becomes evident. Hogg, Terry & White (1995) propose that the social group one is part of provides a self-definition that is connected to one's self-concept. These memberships are characterised as a social identity that guides one's thinking as a member. This prescribes what one should feel and think and how to conduct oneself. These social identities can clarify and explain a variety of group behaviours. Hogg *et al.* (1995) further argue that when a social identity is triggered and prominent, it results in depersonalisation of the self. This is associated with processes fundamental to group phenomena such as social stereotyping, discrimination, group cohesion and ethnocentrism, co-operation and altruism, emotional contagion and empathy, collective behaviour, shared norms and the mutual influence process.

Thus, it is evident that research findings and literature seem to point out the existence of multiple self-aspects from unique cognitive structures, which have separate influences on judgments, behaviours, and self-evaluations. Furthermore, due to the lack of research in this field, it is apparent that more research needs to be done on the way these diverse self-aspects relate to one another. A further aim would be to discover how self-aspects can be assessed in such a way as to decrease or eliminate the associated ambiguity. It is therefore important to have valid instruments or tools with which to assess how people relate to their multiple identities.

Measures often contain both a theoretical concept of interest and measurement error. Measurement error, recognised as a serious problem throughout the social sciences (Fiske, 1982), can be divided into random error and systemic error, such as method variance. Campbell and Fiske (1959) argue that both aspects can have serious confusing influences on empirical research that can lead to misleading findings and conclusions. Random error may bring forward errors in inference because it tends to attenuate the observed relationships among variables in statistical analyses. In some situations, random error can lead to the increase of parameter estimates (Bagozzi, 1991). Method variance may also result in biased outcomes due to the observed relationships among variables, measured with the common method, being inflated.

As measurement errors are the cause of potential threats to the validity of research findings, it is consequently important to validate measures to untie the confusing impact of these errors prior to testing theory. If omitting to assess construct validity, one may fail to estimate and correct the confusing influences of random error and method variance. Overlooking this estimation may yield ambiguous results to theory testing. As a consequence, a hypothesis may be rejected or accepted based on the presence of too much error in measurement, and not necessarily based on the sufficiency or insufficiency of its theory (Bagozzi *et al.*, 1991).

### **1.3 Aim of the study**

Bagozzi *et al.* (1991) emphasise the importance of validating measures to untie the confusing influences of errors prior to testing theory. Measurement errors like random error and method variance present possible threats to the validity of research results. It is therefore important to investigate construct validity to minimise or eliminate the influences of measurement error and to make sure that the results of theory testing is valid and reliable.

The purpose of this study is to perform a CFA on the data of the AIQ-IV. A CFA study will provide statistics to assess the model fit of the data and set the foundation for further statistical analysis. This type of analysis forms part of the process to determine the construct validity of measures, i.e. the extent to which an operationalisation measures the concept it is believed to measure (Cook & Campbell, 1979). The establishment of the psychometric properties of this questionnaire will contribute to its employment by researchers and practitioners who attempt to assess the multiple aspects of identity.

### **1.4 Research design**

This study employs a quantitative research method, where data was gathered by means of the distribution of questionnaires. The collected data was then analysed with the purpose to investigate the model fit of the questionnaire.

A non-experimental, cross-sectional survey research design was used for the purpose of this study. According to Ruane (2005), this type of design collects information from a single group of respondents at a single point in time with no aim to follow up. When implementing a cross-sectional study, the researcher will ask a number of questions to a broad cross-section of people by means of a questionnaire in order to address the topic of interest. Cross-sectional research is thus a practical design for performing various descriptive and exploratory research studies. This is the best method for this study because it eliminates the effects of subject mortality/attrition or other factors related to longitudinal designs. The advantage of this

design, however, lies in the fact that the design is unsuitable for investigating change over a period of time.

The research done for this study meets the requirements of descriptive research by describing the different identity orientations, i.e. personal identity, social identity, relational identity and collective identity, that influence people's behaviour in various ways.

The survey was conducted by distributing a link to the web-based questionnaire via email to available and willing individuals. The honesty of answers was enhanced, and bias due to personal characteristics of the interviewer eliminated, by allowing the questionnaires to be completed anonymously. This was a once off questionnaire, with no objective to perform follow up research. The questionnaire was distributed via email and self-administered, thus allowing respondents to complete it personally. This was a convenient method of collecting information from participants in a non-threatening manner and obtaining an appropriate response rate. The data was then analysed, interpreted and discussed with the aim to investigate the model fit of the questionnaire.

## **1.5 Research method**

The research method consists of three phases, namely a literature review, a conceptualisation of construct validity and an empirical study. The literature review focuses on previous research and background of identity orientations that have important influences on human behaviour. The importance of assessing the construct validity of a questionnaire is argued. Then, the steps of the empirical study are shown to give an understanding of the analyses and the research strategy.

### **1.5.1 Phase 1: Literature review**

Phase 1 entails a literature review in the form of descriptive research, and consists of the following three steps:

Step 1:            Conceptualising the self

Step 2: Conceptualising identity and four identity orientations, i.e. personal identity, social identity, relational identity and collective identity

Step 3: Conceptualising related identity theories

### 1.5.2 Phase 2: Construct validity

Phase 2 entails a description of construct validity and highlights the importance of the investigation of construct validity of questionnaires. This process can also be divided in three steps:

Step 1: Describing the importance of developing valid and reliable questionnaires

Step 2: Conceptualising construct validity

Step 3: Describing the purpose of performing CFA as part of the process to assess construct validity

### 1.5.3 Phase 3: Empirical study

Phase 3 involves a quantitative empirical study that is based on measurable properties and phenomena and their relationships. This is also a process that consists of several steps:

Step 1: *Determining the population and sample.* For the current study it was not necessary to select a specific population, for the aim is purely to assess the model fit of the AIQ-IV. The results will not be generalised to a specific population, therefore, the convenient and accidental sampling strategies were sufficient for the purpose of the current study. A sample of N=150 or higher was regarded as sufficient to determine the model fit of the AIQ-IV.

Step 2: *Measuring instrument.* Identity orientations refer to the relative importance that individuals place on various identity attributes or characteristics when

constructing their self-definitions (Cheek, 1989). The AIQ-IV measures four identity orientations – personal, relational, social and collective identity – in individuals’ self-concepts.

- Step 3: *Data collection and administration.* The AIQ-IV was converted to a web-based format and the link was distributed via email to available and willing individuals included in contact lists. This was a once off questionnaire with the aim to perform a CFA on the data, without the intent to follow up. The questionnaires were completed anonymously with the aim to enhance honesty of answers, and to eliminate bias due to personal characteristics of the researcher.
- Step 4: *Scoring and statistical processing.* The data was processed according to the requirements of the questionnaire. Descriptive statistics provides the reader with summary statistics, which serves to describe the data and to do comparisons. CFA was conducted with use of the Statistical Package for Social Sciences for Windows (SPSSWin), and provided the measures of the overall degree of fit, e.g. goodness-of-fit indexes.
- Step 5: *Results.* The results were reported and interpreted according to the empirical aim.
- Step 6: *Conclusions.* Conclusions were formed with reference to the literature review and empirical study.
- Step 7: *Limitations.* The limitations of the research study were determined and discussed.
- Step 8: *Recommendations.* Recommendations were made with reference to the AIQ-IV, performing research studies in a multi-cultural South African context, and for future research.

## **1.6 Chapter division**

The chapters of the dissertation are divided as follows:

- Chapter 2: Literature review
- Chapter 3: Construct validity
- Chapter 4: Empirical study
- Chapter 5: Research results
- Chapter 6: Conclusions, limitations and recommendations

## **1.7 Chapter summary**

The scientific orientations of the research are laid out in this chapter, which includes the presentation of the problem statement, aim, research design, research methodology and the chapter division. Chapter 2 involves the conceptualisation of the self and goes further to describe the four identity orientations – personal, social, relational and collective – and related identity theories.



## CHAPTER 2

### LITERATURE REVIEW

The purpose of this chapter is to conceptualise the self and its relatedness to different levels and structures of the self. Based on these classifications of the self, a conceptualisation of four identity orientations – personal identity, social identity, relational identity and collective identity – follows, with reference to the existing literature. The chapter concludes with the development and discussion of related identity theories

#### 2.1 Conceptualising the self

##### 2.1.1 Introduction

According to Tracy and Trzesniewski (2008), numerous aspects of human behaviour will be impossible to explain without the concept and belief that people possess a self. In fact, an understanding of the self is essential for grasping and making sense of personality processes. These include the processes that cause and regulate thoughts, feelings and behaviours.

James (1890:330) states that the self is categorised as psychology’s “most puzzling puzzle”. For the past century, psychologists have debated about this topic and argued whether it is a puzzle worth puzzling about. Allport (1937) suggests that the self should be viewed as an obstacle in the path of understanding psychological processes. Skinner upholds this view by arguing that “[t]here is no place in a scientific analysis of behaviour for a mind or self” (1990:1209). In addition, Pinker (1997) claims that self-awareness is a difficult problem that humans are not able to comprehend because humans are not sufficiently evolved. Ramachandran (2007) adds to this view and characterises the problem of grasping the self as science’s greatest mystery.

Research that was done over the past few decades has revealed many ways in which the self influences how people think, behave, and feel depending on different situations. The self is also believed to determine the goals people pursue in life and the ways they deal with and adjust to new environments. Numerous prominent areas of personality research also presume

a fundamental role for the self. Some examples of these research areas include the study of self-conscious emotions such as pride and shame (Tracy, Robins & Tangney, 2007), internal working models of attachment (Collins & Allard, 2001), autobiographical memories (McLean, Pasupathi & Pals, 2007; Sutin & Robins, 2005), and traits such as narcissism (Morf & Rhodewalt, 2001).

### 2.1.2 Conceptualising the self through a naturalist view

The self has been conceptualised as a central focus of several universal theories of the person from the early days of scientific psychology. Examples of the most influential theorists of the first half of the 20<sup>th</sup> century are James (1890), Baldwin (1897), Cooley (1902), McDougall (1908), Allport (1931), Mead (1934), Murphy (1947), Hilgard (1949) and Allport (1955). Indeed, many classic studies on the self originated from the work and contributions of these theorists.

During this period, three central viewpoints of the self emerged in these broad formations of the person. Firstly, the self was viewed as the central focus to understanding behaviour in social settings and processes relating to personality. In addition, many of these early theorists endeavoured to associate and explain self-processes in terms of other basic psychological processes. More specifically, the self was viewed as an executive, decision-making body, which synchronises the thoughts, feelings and behaviour of a very multifaceted, dynamic organism. Secondly, much emphasis was placed on the interaction and relations between biological and social forces. In this viewpoint, the self consists of the raw materials that are presented by nature and formed by nurture. Thirdly, an evolutionary and functionalist perspective was used to conceptualise and explain the self. The early theorists were following the evolutionary work of Darwin and based their work very much on evolutionary thinking. Specifically, James (1890) was dedicated to this view and based his contributions on a *naturalistic* rationalisation of the origin and role of the self-awareness. He assumed that conscious mental existence “emerged by way of natural selection because it gave our species certain survival, and therefore, reproductive advantages” (James, 1890:52).

For the most part of the second half of the 20<sup>th</sup> century, research on the self revealed a different direction away from these three viewpoints and researchers commenced to conceptualise the self as a social and cultural structure.

### **2.1.3 Conceptual definitions of the self**

Leary (2004) points out that the main source of ambiguity in defining the self, is that the self is associated not only with a single entity but rather with numerous structures and processes.

#### **2.1.3.1 Self-awareness and self-representations.**

Tracy and Trzesniewski's (2008) conclusion is that all the definitions of the self boils down to two central categories of phenomena: firstly, a continuous sense of self-awareness and secondly, stable mental representations. These two aspects of the self support James' (1890) classic distinction between the self-as-perceiver (the "I") and the self-as-object of perception (the "Me").

The ongoing sense of awareness is associated with consciousness and is seen as part of the psychological phenomenon for which it appears to have direct and convincing proof. Farthing (1993) notes that "casual introspection seems to reveal a self: the unique entity that is the perceiver of our perceptions, the thinker of our thoughts, the feeler of our emotions and desires, and the agent of our actions..." (1993:139). Self-awareness, therefore, is viewed as a specific form of consciousness in which the self is the centre of attention.

The second category of self-phenomena involves stable mental representations. In this view, the self as a mental representation is a product of reflexive activity ("Me"), rather than the reflexive activity itself ("I"). A mental representation can be of the person as a physical, social, psychological or moral being. These mental representations can be based in the past, present or future. This is what modern researchers generally imply by self-concept, what Leary (2007) calls the conceptual self, and what Sedikides and Skowronski (2003) refer to as the symbolic self.

Both self-awareness (“I”) and self-representations (“Me”) have been conceptualised and labelled as personality variables. That is, the degree to which people are constantly self-aware is not fixed, but rather varies depending on situations. Self-representations also fluctuate in content, clarity, stability, structure and complexity.

Another key definitional subject concerns the concept of self-esteem. In the continuous sense of self-awareness, people are constantly evaluating themselves (the “I” evaluates the “Me”). In conjunction, people create stable mental representations that consist of an evaluative component. The former can be viewed as the self-evaluation process (e.g. feeling capable while working on a project), whereas the latter can be viewed as self-esteem (e.g. stable representation of the self as capable or responsible).

#### **2.1.3.2 Structure of the self**

Some theorists do not fully agree with the theory that a person has a distinctive stable self that is representative of his/her unique personal experiences and characteristics (Brewer & Chen, 2007; Turner & Onorato, 1999; Tyler, Kramer & John, 1999). Instead, these theorists view the self as an entity that is socially constructed. They suggest that the individual is influenced by society through various specific social contexts, each of which imposes a role that confers a unique sense of the self. Based on this perspective of a social self, people are considered to have multiple selves that reflect their various group memberships and related identities. Consistent with this view, when people aim to answer the question “Who am I?”, they respond with a large number of replies that include anything from beliefs about personal thoughts and feelings, to one’s place in the larger context of relationships, social roles, and cultural societies (Gordon, 1968).

Within psychology, the idea that people have multiple selves commenced with the summary table of James (1890), where he categorised the levels and structures of the self. In the first row the personal or individual self is displayed. This category of self represents people’s beliefs about their private self, including their values, characteristics and abilities. The second row portrays the relational self. This category reflects the way people view themselves with regard to intimate relationships. In the third row the social self is shown and represents the

way people view themselves in a more universal interpersonal framework. These include their social roles and reputation in that specific social context. The last row displays the collective self. This category represents people's identities in relation to their various reference groups, such as their nationality, religion and ethnicity.

Trafimow, Triandis and Goto (1991) argue that information concerning the personal self may be stored in memory separately and thus differs from the way information concerning the social and collective self is programmed and retrieved. Rubin and Hewstone (1998) explain that when an individual is focused on the personal self, self-esteem is embedded in the achievement of personal objectives. However, when an individual is focused on the collective self, self-esteem is embedded in the activities and reputation of the social groups to which the person belongs.

## **2.2 Identity orientations**

### **2.2.1 Introduction**

The concept of identity is not limited to one field of study, but numerous applications can be found in such diverse academic disciplines as chemistry, art, mathematics, biology, history, psychology and sociology (Bosma *et al.*, 1994). Psychologists, psychiatrists and sociologists specifically have applied this concept when aiming to understand and conceptualise individuality or selfhood (Archer, 1994; Breakwell, 1992; Kroger, 1993; Lapsley & Power, 1988; Yardley & Honess, 1987).

Adams and Marshall (1996) studied the investigations of several researches, i.e. the perspectives of ego-psychology (Erikson, 1964; Loevinger, 1976), the sociology of self-image (Rosenberg, 1989), the psychology of individualism (Waterman, 1984), decision-making and informational styles of identity (Berzonsky, 1992), the psychology of developing the self (Damon, 1983; Leahy, 1985) and other social-psychological interdisciplinary investigations (e.g., Baumeister, 1986, 1991a, 1991b). Adams and Marshall (1996) conclude their study with the following functional suggestions that they believe are essential to comprehending selfhood in the study of identity:

- i. Identity is proposed to be a social-psychological construct. In this view, the formation of what is vital to the self and to others is represented by social influences by means of imitation and identification processes and dynamic self-constructions.
- ii. The active self-constructive aspects of identity are based upon cognitive or ego operations. These operations are believed to arrange, structure and create/recreate information about the self.
- iii. When viewed as a psychological structure, identity is a self-regulatory system that functions to focus attention, manage impressions, filter or process information and select suitable behaviours.
- iv. Identity, as a construct, contains its own useful purpose similar to all social-psychological constructs.

Adams and Marshall (1996) further investigate the concept of identity and propose five most commonly renowned roles of identity that include the following:

- i. Identity aids in providing a basis and structure for comprehending and knowing oneself.
- ii. It presents a means of both personal control and free will.
- iii. Through values, commitments and goals, it presents a sense of meaning and direction.
- iv. It aims toward consistency, unity and harmony between values, beliefs and commitments.
- v. It facilitates the acknowledgment of potential through a sense of future, opportunities and various choices.

The thinking on the self has been recognised to engage multiple components, even since the early days of self research. These orientations or aspects of the self have been described by referring to personal identity, social identity, relational identity and collective identity. Cheek (1989) argues that people have several identity orientations and memberships that are not fixed but vary in relative importance in the self-concept. Depending on the level of importance of these orientations and memberships, they can have various implications for self-esteem. Several theories have been developed to explain these different identity orientations in order to describe individuals' behaviour in social settings.

The implications of identity orientations of people in the work place can be applied to understand behaviour. Flynn (2005) suggests that because employees relate or identify with each other in diverse ways in their working context, they have a preference for different forms of social exchange. Alpert, Ashforth and Dutton (2000) state that employees use identity orientations to identify themselves in relation to other entities by positioning them in a certain context. Based on the type of identity orientation activated (i.e. personal, social, relational or collective), specific phenomena such as in-group attraction, depersonalisation, and identity-based clashes, may direct employees to distinguish their self-concepts from others in certain ways (Brewer & Gardner, 1996). Modern research also emphasises the significant role that identity orientations play in predicting employees' willingness to interact and work together in a group (Chatman & Flynn, 2001; Chatman, Polzer, Barsade & Neale, 1998; Dukerich, Golden & Shortell, 2001; Flynn, Chatman & Spataro, 2001.) The manner in which employees choose to co-operate may also be an outflow of their prominent identity orientations. In the same way, patterns of exchange can trigger or strengthen employees' identity orientations.

### **2.2.2 Personal identity**

According to Brewer and Garner (1996), people may prefer different identity orientations at different stages, with the specific preference rooted in the way the focal person defines him/herself. They propose that a personal identity orientation is triggered and reflected when the self is defined as a unique being.

The individual self, also known as the personal, private or idiocentric self, involves the formation of oneself as independent and unique, possessing a definite and clear boundary that distinguishes one from others (Bakan, 1966; Geertz, 1984; Loevinger, 1976; Markus & Kitayama, 1991). Gaertner, Sedikides, Vevea and Luzzini (2002) also echo this viewpoint by defining the individual self as consisting of those characteristics that represent the person as unique from fellow in-group members. This view of the self is recognised to be connected with a sense of personal agency. It is seen as autonomous from others and the social milieu, and contains a perception that the self is in general different to others (Kashima *et al.*, 1996; Shweder & Bourne, 1982, Triandis, McCusker & Hui, 1990).

By separating and distinguishing the person from others, the individual or personal self is attained. That is, the individual self includes those aspects of the self-concept that separate the person from other persons as a distinct collection of qualities and features. These aspects differentiate the individual within his or her social environment. This process of self-representation is based on interpersonal comparison processes and is focused on the intention of enhancing or protecting the person psychologically (Brewer & Gardner, 1996; Markus, 1977; Sedikides, 1993).

Markus and Kitaya (1991) argue that the culturally based representation of the person forms the view individuals have of themselves. This leads to the establishment of an autonomous self-construal. Related to this view, there is said to be a single “true” nature to a person, or “real” self. The foundation of defining and validating the true or real self is formed by consistent expression of established traits, attitudes, abilities, and other personal characteristics. People that are capable to behave autonomously and not be influenced by others around them are those who are confident that they know their real self. Inconsistency in viewing the personal self presents a risk to the core, constant, and real self that can cause self-concept uncertainty, lack of clarity, or a sense of possessing a divided self (Campbell, 1990; Donahue, Robins, Roberts & John., 1993). When taking this into account, individual stability is an indication of maturity, self-integrity, and unity, and therefore related to positive dimensions of well-being (Allport, 1937, Lecky, 1945; Shoda, 1998). Positive correlations between measures of self-perceived inconsistency and levels of distress and poor well-being have been documented by a number of studies across social roles (Donahue *et al.*, 1993; Sheldon, Ryan, Rawsthorne & Ilardi, 1997).

In addition, Ellemers *et al.* (2002) emphasise the importance of the individual self and aspects of personal identity as a basis for clarifying and understanding social behaviour. These aspects direct theoretical studies and empirical work even when group processes and intergroup affairs are the focus of research. The first example is the way that group cohesion is often conceptualised as originating from interpersonal links between individual group members (Hogg, 1992; Prentice, Miller & Lightdale, 1994). Secondly, effects of the group on people’s self-definitions are investigated by looking at the expectations that individual in-group members harbour about each other (Swann, Milton & Polzer, 2000). Lastly, explanations on



the inclination to either identify with or detach the self from specific groups are based on a consideration of how membership in the group may be favourable for the particular individual (e.g. Luhtanen & Crocker, 1991).

The majority of this research has been performed in Western cultures, which can be classified as cultural contexts in which a strong emphasis is placed on personal identities and individual accomplishments (Hofstede, 1980; Triandis, 1989). Consequently, the main emphasis of research in the field of social psychological theory is focused on the investigation of interpersonal relations and individual processes. Due to this, focus on the individual self also filters through generally used research paradigms, in which analysis specifically or unintentionally centres on the individual self or on interpersonal associations with other in-group members. Furthermore, in laboratory testing with the “minimal group paradigm,” categorisations are often random and temporary, leading to the formation of groups with no past and no future (Doosje *et al.*, 2001). This means that general stages of group commitment are subjected to stay somewhat low in these studies, which probably lessens the focus on and concern with group-level results. It is perhaps no wonder that the observed results seem to demonstrate and substantiate the idea that individual identities are inclined to be most important even when in the investigation of social surroundings (Gaertner *et al.*, 1999).

### **2.2.3 Social identity**

The concept of social identity has significant potential to clarify and predict a diverse range of social behaviours. This potential originates from the idea that the social identity of individuals associate them with social groups and roles that influence their behaviour and actions. Unfortunately, the concept of social identity and its impact has not been completely exploited because of the complexity of this concept and the difficulty to measure and analyse the data.

Social identity is described as a concept that is triggered and developed in a continuous exchange process among the individual and the group, which contains enduring central and tangential components. Jenkins (2004) describes the process of social identity as continuous interaction between the individual and the in-group, and between the individual and out-groups. In his view, it relates to an ongoing process and not an entity or label. This processual

nature facilitates and guides the rationalisation of the multifaceted and dynamic characteristics of identity in social interactions. The emphasis on process distinguishes the dynamic, relational, contextual and constructed character of social identity. The resulting identity is based on the context and the relative strengths of internal and external categorisations at that moment.

A fundamental starting point in the social identity approach is the idea that without incorporating the broader social context in which individuals operate and function, one cannot comprehend and rationalise the impact of social groups on the way people view and perceive themselves and others around them.

The individualistic, independent model of the self is not sufficient to completely describe the definitions of the selves of all people. Investigations performed in cross-cultural studies show that members of various collectivist cultures see the person as being part of a social network, completely human only in the context of personal relationships, and defined by their social roles and ranks (Markus & Kitayama, 1991; Triandis, 1989). Members of East Asian collectivist cultures, based on this model of identity, lean towards constructing and developing an *interdependent self-construal* (Markus & Kitayama, 1991), in which group memberships, relationships viewed as important, and social roles tend to label and define the self. Given this line of thinking on self-definition, individual characteristics, attitudes and beliefs are somewhat less significant when defining the self. Linked to this view is Wu's (1994) contribution that East Asian societies refer to aspects of the private or internal self as the "small self," which ought to be less important than the "greater self" of loyalty and commitment to social groups like family, in-groups and society. In this cultural model of the self, defining and sustaining self-integrity is not related to being consistent across circumstances, but is rather experienced as an issue of successfully accepting the rules, norms and expectations of specific roles and contexts. The aspect of consistency is not believed to be primary to human needs, nor is inconsistency viewed as a negative condition or platform where stress is elicited. In fact, because it is expected that norms and rules connected with different situations are not going to be stable but are prone to vary, inconsistency across situations is actually expected and accepted. Markus and Kitayama (1998) believe that a mature person is someone who has the ability to adapt behaviour efficiently according to

varying situations. Different cultural societies form different connotations to consistency of the self-concept across situations and relationships. Research done by Suh (2002) concludes that North American participants who rate high on self-concept consistency across relationships were assessed and accepted to be socially skilled and likeable by those who are in their group. The results of the Korean participants in the same study show no relations between consistency and these informant ratings.

Every person has a variety of distinct and overlapping social identities. Social identities include those that develop from highly significant and clearly defined categories as well as those that refer to more intangible and ambiguous social groups. A very important outcome may be the appearance of differing perceptions of self and others and this depends on which identity is most prominent (Crisp & Hewstone, 2001; Haslam & Turner, 1992; Mussweiler *et al.*, 2000; Spears, 2001; Van Rijswijk & Ellemers, 2002). Therefore, the degree to which group characteristics and processes have an effect on the social self may perhaps not be similar for all members of the group, but depend on the degree to which each group member observes him/herself in terms of that specific group membership (Ellemers *et al.*, 1999c).

Brewer (1991), Deaux (1992), and Turner (1984) all propose that purely to belong to a group and to be seen as a member, does not qualify the category as significant and identifying. For the criterion to be significant in terms of social identification, the membership must be acknowledged and accepted by the member as self-defining. If a member has a specific social identity that is significant, it refers to becoming one with that group, being and behaving similar to other group members, and making the groups' viewpoint your own.

In group-based identities, the homogeneity of perception discloses itself in a number of ways (Hogg & Abrams, 1988; Oakes, Haslam & Turner, 1994). These may be classified along attitudinal, cognitive and behavioural lines. Social stereotyping is emphasised and primary among the cognitive outcomes. Some researchers have established that perceptions based on stereotypes of in-group and out-group members are enhanced and influenced to be more homogeneous by people identifying and relating with the in-group (Haslam *et al.*, 1996). Likewise, others have established strong evidence that identifying with the group influences the perception of the self to be prototypical within the group (Hogg & Hardie, 1992).

However, other researchers claim that homogeneity with the in-group links strongly with the absence of motivational forces that can differentiate the self from other group members (Brewer, 1993a; Simon, Pantaleo & Mummendey, 1995).

Individuals make similar positive assessments of a group along attitudinal lines when they become members of the group. Evidently, social identity investigators show that when members identify with the group, independent of individual attachments within the group, they feel a strong attraction to belonging to the group as a whole (Hogg & Hardie, 1992). Corresponding with this, others find that even when the group's status is viewed and experienced to be somewhat low, greater commitment and loyalty to the group and desire to remain part of the group are strengthened by the effects of in-group identification (Ellemers, Spears & Doosje, 1997).

In addition, the self is conducted in agreement with a group with which individuals identify and feel they belong to. In a low-status minority group, for example, individuals who identify with the group status and describe and express themselves with reference to that group, are more likely than not to share in the culture of the group, to differentiate themselves from the out-group, and to demonstrate similar behaviour (Ethier & Deaux, 1994; Ullah, 1987). Also, the appearance of groupthink or high consensus in managerial groups is to a large extent more likely to be evident under circumstances where members identify highly with the social group (Turner, Pratkanis, Probasco, & Leve, 1992). Furthermore, social identification is one of the principal platforms and a strong motivation for group members to participate in social movements (Simon *et al.*, 1998).

Adding to these views, considerable evidence exists in studies that report on incidents that demonstrate the influential impact of individuals' social identities on their perceptions, emotions and behaviour. These are illustrated in related examples, such as members of sports teams who blame themselves after their team has lost (Taylor & Doria, 1981); participants in research studies who remain to stand by each other within an unsuccessful group, even when there is no hindrance to depart from the group (Ellemers *et al.*, 1997); or campaigners who put themselves in danger for beliefs or causes that are not likely to improve their own current circumstances, like animal rights and environmental activists (Drury & Reicher, 2000). The

example of kamikaze pilots and suicide bombers is possibly the most intense type of sacrifice of the self in the collective category. These compromises that individuals tend to make for the sake of defending their group and the collective self, also counter the belief that the individual self is inevitably prevalent over the collective self (Gaertner *et al.*, 1999).

As seen above, there are several examples in society of influential social behaviour that sometimes fail to directly and easily provide justifications for behaviour by simply focusing on the characteristics of individual self or personal identity. Instead, such behavioural observations are more concurrent with the concept that in some situations people's collective selves and social identities exceed the influence of the personal identity to direct perceptual, affective, and behavioural responses in significant ways (Ellemers, Spears & Doosje, 2002).

#### **2.2.4 Collective identity**

The collective self, also known as the social or socio-centric self, refers to self-definitions developed from being a member of groups or social categories. Such views of the self goes hand-in-hand with the tendency to place emphasis on group association, in-group norms, roles and status as defined by collectives (Hofstede, 1980; Kluckhohn & Strodtbeck, 1961; Tajfel & Turner, 1979, Triandis, 1995).

Collective identification is primarily seen as a description of a member as defined by a category. A specific group of individuals, who evidently possess a number of common characteristics, share this identity. Collective identity is described as “a place in the social world” (Simon & Klandermans, 2001:320). This shared category can be built on recognised traits, like race and gender, or on attained positions, like profession or political orientation (Deaux, 1996; Sedikides & Brewer, 2001; Simon & Klandermans, 2001). These mutual categories do not require a member's direct contact or interaction with every one of the other members of the category. The member is psychologically part of the categorical group. Moreover, as proposed by Deaux (1996), defining collective identity is based on a prejudiced rationalisation or acceptance when the individual's identity is at risk. Specifically, even though an individual is seen as belonging to a specific social category, that category only

develops into a collective identity if the individual recognises that the category defines the self to a certain extent.

Ashmore, Deaux and McLaughlin-Volpe (2004) find that collective identity has a multidimensional nature. Diversely applied, collective identity indicates recognition by the member to be part of a specific category (i.e., qualities are shared within a group). In addition, it indicates a collection of cognitive values related to the category, for example, stereotypic characteristics assumed to be common to all members, or ideas that direct group objectives, expectations and actions. Tajfel (1981:255) argues that collective identity furthermore includes “value and emotional significance”. The emotional component of collective identity includes the way one assesses a category and the supposed importance that other members connect to the category, and the emotional loyalty and intimacy one experiences toward other category members. Collective identity also has behavioural repercussions. Individual behaviour is reflective of membership of the group, for example the use of a specific language with regard to cultural belonging, or church attendance with regard to religious belonging, is indicative of what is meant by collective identity.

Poletta and Jasper (2001) argue that although collective identities are conveyed by certain components related to culture, such as name, vocal style, narrative, symbol, sign, clothing or ritual, they are not conveyed by all cultural components. And contrary to “interest”, collective identity excludes a logical formula for calculating options. Collective identity is also associated with optimistic emotions for group members.

#### **2.2.5 Relational identity**

The *relational self* encapsulates definitions of the self based on bonds with significant members, the quality of the relationships, interpersonal roles, and traits that an individual shares with significant others (A. Aron, E. Aron, & Smollman, 1992; Berscheid, 1983; Clancy & Dollinger, 1993; Cross & Madson, 1997; Gilligan, 1982; McGuire & McGuire, 1982; Ogilvie & Ashmore, 1991). This view of the self places emphasis on interpersonal relatedness, intimacy and interdependence, and would commonly be connected with a psychological orientation to belong (Baumeister & Leary, 1995).

Brewer and Gardner (1996), Hazan and Shaver (1994), and Reis and Shaver (1988) also explain that the relational self is accomplished by relating with significant others, i.e., the relational self includes those features of the self-concept that are shared with relationship partners and characterises the position and role of the person within his/her significant relationships. The relational self is therefore assimilated with personalised ties of attachment. Examples of these ties include parent-child relationships, friendships, romantic relationships and also particular role relationships such as teacher-student or clinician-client. This type of self-representation is coupled with the objective of maintaining the relationship itself and protecting or enhancing the significant other and therefore relies on the process of reflected appraisal.

Researchers in Western societies are nowadays searching for ways that members form self-construals, which is moving away from the independent, individualistic models. Crocker, Luhtanen, Blaine & Broadnax (1994), for instance, investigate the group-orientated origins of self-esteem of American ethnic group members in collectivist societies. Cross and Madson (1997) propose that the observed gender dissimilarities in behaviour for Western societies may possibly be described and clarified in relation with dissimilarities within the self. They state that females from Western cultural societies are more prone than males to form a self-construal that is defined at least to some extent by relationships with others (phrased as the “relational-interdependent self-construal” by Gross, Bacon & Morris, 2000). This is because women are socialised to focus on relationships and to take the needs and requests of intimate others into consideration. In this self-construal, intimate relationships are part of the self-definition, therefore, activation of the representations of intimate others tend to follow as representations of the self are triggered. Individuals with a high relational self-construal will perceive intimate bonds and relationships as very important for expression, enhancement and verification of the self. Thus, these individuals will focus and centre their attention on developing, maintaining and enhancing intimate, meaningful relationships (Cross *et al.*, 2000; Cross, Morris & Gore, 2002).

The Relational-Interdependent Self-Construal (RISC) Scale was developed to measure the extent to which people use close relationships to define themselves (Cross *et al.*, 2000). The relational model proposes fresh views on theories and processes linked to the self. Modern

studies demonstrate that when an individual has a high relational self-construal he/she is more prone to be associated with proper organised cognitive thinking patterns to process and categorise information relating to others based on relationships that are evaluated to be close (Cross *et al.*, 2002). Individuals with a high relational self-construal are likely to be correct when they need to describe the morals, beliefs, and loyalty to the relationship of their living partners because they are inclined to attend and listen closely to self-disclosures (Cross & Morris, 2003). These individuals are more inclined to have self-views that are comparable to those of a close friend than individuals with low relational self-construal (Cross *et al.*, 2002).

Cross *et al.* (2003) suggest that motivation processes related to the self are also connected with the relational self-construal and its variation. Individuals with high relational self-construals view self-enhancement as enhancing not only the needs, requirements or characteristics of the individual but also enhancing the self-defining relationship. The focus on self-integrity, or a view of a consistent self, is not really associated with a process of developing an established, unwavering collection of traits that characterise the “real” self. It is rather associated with a process of defining and confirming the self by establishing and preserving close, intimate relationships. Cross *et al.* (2003) propose that if consistency is not that essential for self-definition and preserving a consistent view of self, then it is perhaps predicative of well-being, to a lesser degree for individuals with high relational self-construals.

### **2.3 Theories on identity**

There are two closely related viewpoints on the dynamic representation of the social self between individual behaviour and social construction, namely identity theory and SIT. However, these two theories reside in parallel but separate universes and evidently have nearly no organised interaction between them. Distinctions can be based mainly on the micro-sociological building blocks of identity theory and the psychological building blocks of SIT. Identity theory is more seen fit to explain constant identities and interpersonal social relations, whereas SIT may perhaps be more functional when investigating intergroup aspects and identifying socio-cognitive producing particulars of identity dynamics (Hogg *et al.*, 1995).



Identity theory (e.g. Burke, 1980; McCall & Simmons, 1978; Stryker, 1987; Turner *et al.*, 1987) and SIT (e.g. Hogg & Abrams, 1988; Tajfel & Turner, 1979; Turner, 1982; Turner, 1985; Turner *et al.*, 1987) are two perspectives on the social foundation of the self-concept and on the nature of normative behaviour. These two perspectives contain numerous parallels/similarities. Both deal with the social nature of self as represented by society, and contradict perspectives that recognise the self as self-regulating, independent of and superior to society. Both consider the self as partitioned into a number of identities that reside in restricted practices, e.g. norms and roles, and they employ similar words and a similar language – but most of the time with rather diverse connotations (e.g. identity, identity salience, commitment).

Identity theory is predominantly a micro-sociological theory that seeks to explain individual behaviours linked by roles, whereas SIT is a social psychological theory that seeks to explain group-related processes and intergroup affairs. Both theories position their main theoretical emphasis on a complex and dynamic self that mediates the association between social surroundings and individual behaviour. Universal distinctions can be traced, to a significant degree, to the dissimilar disciplinary roots of the two theories – sociology for one and psychology for the other. Additional detailed differences involve the extent and nature of specification of socio-cognitive processes that are linked with identity-related behaviour, and the relative emphasis associated with roles and with intergroup relations (Hogg *et al.*, 1995).

### **2.3.1 Identity theory**

Identity theory (Stryker, 1987; Burke 1980; McCall & Simmons, 1978; Turner, 1978) describes social behaviour in terms of the reciprocal associations between self and society. It is highly connected to the symbolic interactionist outlook that views society as having an effect on social behaviour because of its impact on the self (Mead, 1934). Identity theory was developed partially in order to transform the central belief system of symbolic interactionism into an empirically testable collection of propositions (Stryker, 1987). Identity theory, nonetheless, discards the symbolic interactionist analysis of society as a “relatively undifferentiated, co-operative whole”, arguing instead that society is claimed to be “complexly differentiated but nevertheless organised” (Stryker & Serpe, 1982:206). This idea

of society shapes the foundation for the central proposition of identity theory: that as a reflection of society, the self should be viewed as a multifaceted and structured construct. Identity theorists talk about identities (or, more specifically, role identities) when they refer to the multiple components of the self. The concepts of identity salience and commitment are employed, in turn, to account for the influence of role identities on social behaviour (Hogg *et al.*, 1995).

These broad perspectives of identity theory form the foundation for a relatively large body of micro-sociological literature interested in predicting role-related behaviour (e.g., Simon, 1992; Thoits, 1991). Accordingly, identity theorists lean towards focusing on individualistic outcomes of identity-related processes (Rosenberg, 1981).

### **2.3.2 Social identity theory and self-categorisation theory**

SIT is projected as a social psychological theory of intergroup dimensions, group relations, and the social self. This theory has its roots in research done by Tajfel on social influences on perception (e.g., Tajfel, 1959, 1969a) and on cognitive and social orientation factors of racial discrimination, prejudice, and inequity (e.g., Tajfel 1963, 1969b, 1970), but was developed and completely devised in partnership with Turner and colleagues at the University of Bristol in the mid- to late 1970's (e.g., Tajfel, 1974, 1978, 1982; Tajfel & Turner, 1979; Turner, 1982).

During the early to mid-1980's, John Turner instigated a significant theoretical outflow of SIT to create the self-categorisation theory (SCT) (Turner, 1985; Turner *et al.*, 1987). Although SCT is different from SIT in various respects, they are closely linked so adequately as to be considered part of the same theoretical and meta-theoretical underpinning (Hogg & McGarty, 1990).

The development of SIT is closely related with the development of a distinctive European social psychology. Ever since the late 1960's, European social psychologists have considered themselves to possess a somewhat dissimilar social and theoretical schema than North American social psychologists (e.g., Jaspars, 1980, 1986; Tajfel, 1972, 1984). The European

version is one that acknowledges meta-theoretical and conceptual boundaries of theoretical reductionism and therefore searches for theories that articulate individual psychological processes and broader social influences (Doise, 1986; Lorenzi-Cioldi & Doise, 1990). The mentioned objectives also outline SIT and its more modern expansion into SCT. The regional distinction between Europe and North America, nonetheless, is now vague (Moreland, Hogg & Hains, 1994).

The following is a brief introduction to SIT and SCT. These theories are able to describe intergroup behaviour – how people perceive and distinguish groups. They can also present an invaluable understanding of phenomena like motivation, conflicts, leadership, employee turnover, merger and acquisitions.

### ***SIT***

The central idea of SIT (Tajfel, 1974) is that social categorisation affects the way individuals perceive others and the self. An essential aspect of categorisation is the threat of viewing groups of individuals as being dissimilar to other groups. Every group has its own social identity and uniqueness, as opposed to every person's separate distinctive identity.

The different groups that people feel they belong to, determine the different social identities they possess. There are numerous examples of different categories that can be identified, namely one's nationality, political affiliation, work, sports team, religion and gender. Hogg *et al.* (1995) believe that the social category that one is part of, together with the feeling that one belongs, presents a definition of the self that is associated with one's self-concept, a definition of who the self is in terms of the significant qualities and traits of that group. People possess of numerous memberships in different categories that vary in terms of general significance in the concept of the self. Every one of these memberships is categorised in the mind of individual member as a social identity, which depicts and represents one's characteristics and qualities as of the group – that is, it directs one's beliefs and feelings, and the way one is supposed to conduct oneself. Thus, whenever a particular social identity becomes the prominent source for regulating the self in a particular situation, self-perception and actions turn out to be in-group stereotypical and normative. Perceptions of relevant out-group

members turn out to be out-group stereotypical, and intergroup behaviour obtains competitive and discriminatory properties to altering levels based on the nature of associations between the groups.

The concept of categorisation or identification is loaded with significant emotional implications, which can be either positive or negative (Tajfel, 1974). Hogg and Terry (2000) furthermore maintain that the process in itself can be a cause of self-esteem as well, which influences individuals to form in-group favouring based on evaluative uniqueness when weighed against a significant out-group. Social identity, which is perceived as a basis of self-esteem and positive social evaluation, influences the identity that is observed most important in a certain framework or situation (i.e. Crocker & Luthanen, 1990; Abrams & Hogg, 1988). In other words, individuals aim to achieve and sustain evaluative uniqueness.

Therefore, social identities are also perceived as evaluative and not simply rigid or evocative. Social identities provide an evaluation (commonly broadly shared) of a social category, also including its members, in relation to other important applicable social categories. Members of the category are strongly encouraged to attain behavioural tactics for accomplishing and sustaining in-group/out-group judgments that support the in-group, and consequently the self, because social identities are perceived to encompass these significant self-evaluative outcomes (Hogg *et al.*, 1995).

Since its origin, SIT has been developed to explain how position, security, stability, permeability, and legitimacy affect social identity (Tajfel, 1974, 1979; Hogg & Abrams, 1988) and has been extended into several different factors of social life. The ongoing expansion of SCT has lent itself to an imperative insight on the cognitive aspect of SIT.

### ***SCT***

SCT aims to explain systematically the cognitive analysis of social categorisations (i.e. Turner, 1982, 1985; Abrams & Hogg, 1999) which is considered still in its premature phase and in the process of developing (Haslam, 2001). At the centre of this theory is the aspects of stereotyping and depersonalisation of perceptions of the self. Therefore, when individuals

categorise themselves as belonging to a group, corresponding aspects with the group and dissimilarities between the in-group and out-group are highlighted. The relative strength of social identity compared to personal identity determines the degree of the emphasis. Groups and the self are observed based on stereotypes and labels when social identity is prominent. The process of depersonalisation causes cognitive redefinitions of self (and others) that are psychologically existent and matching with a specific social category of individuals. That is, the social category and self become one, for the self adopts the social category (Turner, 1999).

It is further argued by Hogg *et al.* (1995) that the depersonalisation of self is recognised as a fundamental process causing series of group occurrences – for example, social typecasting, group cohesion and ethnocentrism, co-operation and altruism, emotional contagion and empathy, shared norms, collective behaviour and the reciprocal influence process. It does not mean a loss of identity nor contains any of the negative connotations of terms like “de-humanisation” or “de-individuation”; it only implies an adjustment in terms of the level of identity (from unique individual to group member). Through depersonalisation, self-categorisation effectively brings self-perception and behaviour in line with the applicable context in-group model, and consequently converts individuals to group members and individuality to group behaviour.

The method that causes a category to be most important is a combination of having access to that group and comparative match of the particular category. Hogg and Williams (2000) explain that accessibility represents the capability of the individual to employ a specific categorisation, which is subject to uncertainty reduction and self-enhancement. Comparative matching represents the successfulness of fit between a certain category and reality. Turner (1985) argues that the fundamental cognitive aspect of matching may be explained relatively to comparative fit and normative fit. Comparative fit employs the notion of meta-contrast to establish the most suitable category, and normative fit is focused on comparing the particular content of categories. Accordingly, individuals subjectively select a category that reduces discrepancies within categories and maximises discrepancies, important to the context, between categories. The concept of relative matching involves a process of self definition that is dynamic and indifferent to alterations occurring in the particular situation, which in turn has an effect on the social identity of people, i.e. behaviour, norms and perception of others.

According to SCT, individuals cognitively characterise social groups as related to prototypes. A prototype is defined as a subjective demonstration of the significant aspects (e.g. morals, attitudes and behaviours) of a social category that is dynamically developed from applicable social particulars in the direct or more continuing dynamic framework (Fiske & Taylor, 1991). Individuals' prototypes are generally very similar or shared because members of the same group usually locate themselves in comparatively alike positions in the same social context, i.e. they are exposed to comparable information from the same field. Prototypes are normally not likely to be checklists of traits, even though they may be obtained in this manner through investigation. Rather, they are vague clusters, which portray the features that are dependent on the context, frequently in the appearance of representations of ideal members (real members who are representatives of the group) or ideal types (a relatively vague generalisation of group features). Individuals can compare the prototypicality of actual group members, as well as the self; specifically, the degree to which a member is observed to be nearly identical to the group prototype.

Due to groups being defined as distinct entities by group prototypes, they are constructed as a dynamic balance between opposite cognitive forces to minimise intra-category differences and to maximise intercategory differences; a process controlled by the principle of meta-contrast. Based on this process, prototypes are influenced mainly by which out-group is significant. Therefore, relatively continuing variations in prototypes and thus in self-perception are possible to surface if the relevant comparison out-group varies over time. Thus, social identity is extremely dynamic. It is responsive, in both nature and substance, to intergroup dimensions of immediate social comparative contexts (Hogg *et al.*, 1995).

Hogg *et al.* (1995) conclude that social identity and self-categorisation theories of group processes have several essential qualities:

- i. they are broad-spectrum theories of the social context and not impeded by group size, distribution, etc.;
- ii. they integrate the function of both the immediate and the more lasting intergroup framework in group actions;
- iii. they explain a variety of group actions (e.g. discrimination, conformity, typecasting and ethnocentrism) based on a restricted quantity of hypothetically integrated generative values;

- iv. they are in essence socio-cognitive; and
- v. they refrain from structuring group processes from interpersonal processes.

The process of self-categorisation depersonalises perception, feelings and actions based on the contextually significant self-defining in-group prototype. Behaviour, therefore, is predisposed by the categorical formation of society by means of the mediation of social identity and the associated process of self-categorisation. The contextual prominence of particular social identities is founded on the extent to which they significantly provide a particular context. Contextual aspects affect the form taken by identity – contingent cognitions and behaviours. Because social identities have an attached value, a complex social dynamic context exists in which groups compete for relatively positive social identities. Intergroup relations and social identity therefore are dynamically intertwined.

### ***Differences between identity theory and SIT***

Hogg *et al.* (1995) compare the theories from the stance of a social identity theorist, whereas an identity theorist's viewpoint may well be expected to expose various issues or to attach alternative interpretations with issues.

### ***Level of analysis***

The most significant starting point of difference is the statement that identity theory does not assign much prominence on unfolding generative cognitive processes, because it is not fundamentally a psychological theory. Considering this piece of information, SIT, as a psychological theory, may possibly have a number of advantages over identity theory – advantages that derive from its more detailed specification of socio-cognitive processes (Hogg *et al.*, 1995).

For example, identity theory centres attention on the process of classifying oneself as belonging to an unambiguous social category, recognising the part that other may have in supporting this categorisation, and connects self-perception to behaviour by means of behavioural instructions personified by roles. Nonetheless, it generally falls short of any

detailed identifications of the cognitive processes and structures (e.g. categorisation and prototypes) that may lie behind identity dynamics and may construct compliance with norms. Burke (1991) and Burke and Reitzes (1991) however illustrate a dissonance reduction process in which the self, as a cybernetic control mechanism, is stimulated to align self-perception with proposed evaluations (observations of self recommended by others' behaviour) by adapting behaviour. As a result of minimising or avoiding inconsistency between internalised identity standards and others' perceptions of self, people's behaviour tend to correspond with their role identities. Socio-cognitive mechanisms do not presume a central function in identity theory, with the exception of the former proposed mechanism. Role-taking processes are primarily not investigated empirically or elaborated by identity theorists, but rather are assumed, even though the original symbolic interactionist emphasis on "taking the role of the other" actually provokes a socio-cognitive analysis, such as proposed by Burke (1991). In contrast, such processes and structures shape the theoretical and empirical basis of SIT, specifically SCT, which describes in detail a social psychological process that associates identity to behaviour by means of depersonalisation and conformity.

Rising from distinctions in the emphasis on, and nature of, socio-cognitive processes, identity theory only insinuates the likelihood that people may possibly favourably evaluate others who contain the similar role identities as themselves and that this favourable evaluation may be more evident as a function of identity prominence. This concept can be investigated more fully by employing the view of depersonalised social attraction by SIT or SCT (Hogg, 1992, 1993).

Finally, identity theory's focus on a minimised emphasis on generative socio-cognitive processes may in addition be partially responsible for its inclination to underestimate the function of the immediate context and instead assign changes in identity to changes in role position. SIT, in comparison, has a fairly more dynamic and more highly elaborated perspective on identity, which describes contextual prominence in conditions of social comparative aspects, self-esteem motivation, uncertainty reduction and social explanation. This perspective may perhaps be able to account more completely for the responsiveness of social behaviour to the immediate environment (Hogg *et al.*, 1995).



Doise (1986) and Lorenzi-Cioldi and Doise (1990) believe that, among social psychological theories, one of the strengths of SIT/SCT is that it systematically attempts to articulate the psychological level of analysis (socio-cognitive processes) with the sociological level (socio-historical dimensions of intergroup relations). Considering this, social identity is a social construct that mediates the individual and society.

### ***Intergroup behaviour***

Hogg *et al.* (1995) conclude that a further significant source of distinction between the theories is that SIT concerns intergroup affairs and group behaviour, whereas identity theory centres on role behaviour. Thus, the focal point is different for identity theory and SIT. The focal point of identity theory is on role behaviour and role identities, and does not regard any direct explanation of the impact that other social attributes may have on the self. These “other attributes” are generally large-scale category memberships, for example gender, ethnicity, race and nationality. In SIT, the latter are the main considerable causes of social identity. Social identity dynamics are contextualised by the social interactions between such categories.

Identity theory does not emphasise intergroup relations and consequently the role played by out-groups, as SIT does. Instead identity theory attends to counter-roles (e.g. father-daughter), which are not necessarily identical to out-groups (Burke & Tully, 1977). Furthermore, counter-roles are considered relevant only to the extent that they can facilitate to clarify the explanations of role identities. Little emphasis is placed on the influence of people’s identities on their relationships with out-group others in the viewpoint of identity theory. In contrast, SIT aims to identify the impact of salient social identity on people’s perceptions of and behaviour toward others, principally out-group others. In this regard, SIT goes further than identity theory. Not only does it clarify a person’s individual behavioural preferences, as identity theory does; it also clarifies people’s relations with out-group others and subsequently permits some understanding of intergroup behaviour. SIT is in fact capable to clarify how a person’s position in the social environment (mediated by self) has an effect on social behaviour by building on a classification of society as hierarchically structured in terms of relations between large-scale social categories (Hogg *et al.*, 1995).

### ***Roles and groups***

Hogg (1995) argues that although SIT would most likely employ roles to refer to positions in a given group (e.g. leader, comedian, bureaucrat), it does not explicitly discuss roles. From this viewpoint, one may argue that roles present a sense of distinct individual identity within a group, possibly fulfilling a need for intra-group differentiation (Brewer, 1991, 1993b) or even a need for personal identity, but that they do not present a social identity in the stringent sense of the term. This approach contrasts rather much with identity theory, which regards self-definition to develop primarily from roles, by means of role identities, rather than from the wide range of broader social attributes that SIT regards to be the underpinning of social identity. SIT consequently allows a conceptual differentiation between roles (differential behavioural instructions within a group) and identity founded on group membership. On the other hand, identity theory's view of roles has various characteristics of both group membership and differential behavioural prescriptions of a group. In this sense, group membership and roles may not be differentiated from one another (Hogg *et al.*, 1995).

### ***Social context and identity salience***

Finally, Hogg *et al.* (1995) conclude that the two theories differ in the extent to which they consider the self-concept as contextually responsive and dynamic. Both approaches believe the self to be structured into relatively distinct identities, but identity theory, principally Stryker's (1987) formulation, views this structure as fairly stable, altering primarily in response to changes in role positions (Serpe, 1987). Others, for example, McCall and Simmons (1987) and Burke (1980, 1991) believe identities to be more responsive to context. However, roles themselves are dynamically constructed and reconstructed by means of interpersonal relations. The constant relative salience of identities within the self-concept is believed to be relatively stable. Except in rare situations, the constant salience of a person's identity establishes his or her behavioural responses. For example, the impact of identities on emotional outcomes directly reflects the constant salience of a person's identity.

Identity theory recognises that contextual factors may be essential (McCall & Simmons, 1987), definitely in construction and reconstruction of roles, but places less emphasis than SIT

on the explanation of socio-cognitive processes that cause the self to be greatly responsive to immediate contextual prompts. On the contrary, although SIT sees social identity as a continuing construct that varies with changing intergroup relations, it also places at centre the view that the content of social identity is dynamically responsive to immediate contextual cues. Varying contexts may prescribe different contextually relevant behaviours dependent on the same social identity (Hogg *et al.*, 1995).

In conclusion, identity theory derives from the perspective of sociology and deals with the formation and function of people's identity as related to the behavioural roles they engage with in society. SIT and SCT originate in the discipline of psychology, and deal with the formation and function of identity as related to people's membership in groups (Hogg *et al.*, 1995). Although these two theories are remarkably similar and related, a number of significant differences exist that distinguish them to certain extents.

## **2.4 Chapter summary**

This chapter conceptualises the self and different identity orientations. Identity theories are described and it touches on the differences between SIT and SCT. The chapter to follow conceptualises the term construct validity and explain the importance thereof by describing the influence of measurement error on the validity of measuring instruments. The chapter concludes with the process of determining construct validity of a measuring instrument and explain the statistical analyses that were employed.

## CHAPTER 3

### CONSTRUCT VALIDITY

In this chapter the term construct validity is defined and described. The influence of measurement errors on the validity of measuring instruments is also explained. The chapter ends with outlining the process and statistical analyses of determining construct validity of a measuring instrument.

#### 3.1 Introduction

Measuring abstract attributes is one of the most fascinating tasks in psychology. According to Barret (2002), a construct is an observed consistency in behaviour to which psychologists have attached a label. Murphy and Davidshofer (2001) argue that all constructs contain two fundamental properties. Firstly, they are believed to be abstract summaries of some regularity in nature and secondly, they are linked to or associated with concrete, observable entities or events.

These constructs are fundamental to science because they symbolise departures from our sensory understandings that are required to form scientific laws. They permit us to generalise from an experiment involving falling apples to circumstances involving a variety of falling objects. Constructs are not limited to unseen forces or processes – indeed, any group of similar things or events may provide grounds to classify a construct (Murphy & Davidshofer, 2001).

Construct validity relates to the estimated exactness of the conclusion that the operationalisation correctly reflects its construct. It is an estimation of how well one converts concepts or theories into concrete measures. Bagozzi and Yi (1991) argue that the outcomes of theory testing may possibly be vague and that one cannot assess and rectify the confusing effect of random error and method variance without assessing construct validity.

### 3.2 Conceptual meaning of construct validity

A construct is a term purposely designed for a specific scientific rationale, generally to categorise knowledge and steer research in an effort to illustrate or explain some aspect of nature. Constructs include at least two types of meaning – systemic and observational (Kaplan, 1964). Systemic meaning relates to the view that the interpretation of what a construct entails is related to the theory in which the construct is embedded. Observational meaning relates to the view that a construct should allow for direct or indirect operationalisation if it is to contain explanatory power (Torgerson, 1958).

Peter (1981) explains that the term “construct validity” is commonly used to refer to the perpendicular association linking a construct that is on an unobservable, conceptual plane with a supposed assessment thereof that is on an operational plane. According to this, a scale is assessed as construct valid, firstly to the extent that it measures the full extent, focus, course, and trend of a representative illustration of the construct’s attributes, and secondly to the extent that a scale is not infected by factors that are representative of constructs stemming from another area or error. Although this definition recognises the deficiencies in the measurement process, it does not preclude the matter that construct validity cannot be measured directly but only inferred. In essence, a scale’s construct validity is assumed when its results (variance) predicts as supportive (and psychometric) theory suggests that they should predict. For instance, if a construct is hypothesised to have three dimensions, a factor analysis of a supposed measure of the construct, which brings forward three meaningful factors, could be interpreted as supportive confirmation of construct validity (Peter, 1981).

According to Murphy and Davidshofer (2001), psychological measurement is a process rooted in concrete, observable behaviours, and the process of construct explanation includes the following three steps:

- identifying the behaviours that associate with the construct to be assessed;
- identifying additional constructs and determining whether they are related or unrelated to the construct to be assessed; and

- identifying behaviours that are related to each of these additional constructs, and on the basis of the relation among constructs, establishing whether the various behaviours are related to the construct to be assessed.

The assessment of abstract constructs to make inferences about people is not a straightforward task; therefore, psychologists must make sure that they use measures that are reliable and valid. Van Vuuren and Fourie (2002) highlight the principle that validation starts with psychological theory, prior to any research of observation and examination of the applicable behaviour domain. Without the theory of validation, the process will be pointless and worthless.

According to Cascio (1998), information applicable to a construct can be collected and established in a variety of ways. These ways include the following:

- analysis of the internal consistency of measurement procedures;
- correlation of new procedures with established measures of the same construct;
- factor analysis of a group of procedures demonstrating which of them share common variance and thus measure the same construct;
- covariance structure modelling; and
- convergent and discriminant validity.

### **3.3 Influence of measurement error**

A measuring instrument commonly does not only involve a theoretical concept of importance but also reflects measurement error. Measurement error is generally acknowledged as a considerable dilemma apparent all over the social sciences (e.g., Fiske, 1982), and is divided into random error and systematic error, also known as method variance. Method variance refers to inconsistency regarding the measurement technique and not to the construct of concern. Instances involve halo effects, archival biases, key-informant prejudices or limitations, acquiescence and social desirability. Both of these mentioned elements of error are known to have significant perplexing effects on empirical studies that can lead to deceptive findings (Campbell & Fiske, 1959).

Random error may induce errors in inference and has a tendency to alleviate the perceived relationships between variables in statistical investigations. In some situations, random error may aggravate parameter estimations (Bagozzi, 1991). Method variance may reveal ambiguous and prejudiced findings as well by aggravating perceived relationships between variables assessed with the common method.

Due to errors, associated with measuring methods, presenting possible menace and obstacles in terms of validity of statistical results, it is imperative to focus on validating measuring instruments to minimise the perplexing effects of these errors prior to testing theory. Campbell and Fiske (1959) advise that the perplexing effects can be countered or minimised when employing several measures and various methods or techniques of measurement.

### **3.4 Determining construct validity**

#### **3.4.1 Reliability**

The reliability of a measurement instrument points to how free it is from random error. Test-retest reliability and internal consistency are two commonly used statistic values to indicate a measurement instrument's reliability.

Test-retest reliability is evaluated by using a measurement instrument on the same participants in two different occurrences and then determining the correlation of the results attained. The second type of reliability, internal consistency, indicates the extent to which the items of a scale all assess the same aspect or factor of interest. Internal consistency of a measurement instrument's items can be assessed by using the Cronbach's Coefficient Alpha (Cortina, 1993) employing the SPSSWin.

This statistic will provide a presentation of the average correlation between all of the items of the measurement instrument. Values presented vary between 0 and 1, where values closer to 1.00 indicate higher reliability. According to Anastasi (1976), a desirable reliability coefficient would fall in the range of 0.8 to 0.9. The commonly accepted value is a coefficient

of 0.7 or higher for a group of items to be deemed acceptable (Nunnally & Bernstein, 1994), whilst Bartholomew, Antonia and Marcia (2000) argue that between 0.8 and 0.6 is acceptable.

### **3.4.2 Item analysis**

In the process of determining construct validity, the initial investigations should involve generating item statistics. In order to determine the item values, item means, variances, and item-total correlations are calculated. These statistics will provide guidance in selecting the appropriate statistical methods to follow.

### **3.4.3 Exploratory factor analysis (EFA)**

#### ***Purpose***

The purpose of employing Exploratory Factor Analysis (EFA) in the process of investigating construct validity of a measurement instrument, is to determine and describe the inconsistency of the observed variables relative to the underlying latent factors. The factor analytic models are presented by the generated path diagrams, where every latent variable is indicated by a circle, every observed variable is indicated by a square, and causality is indicated by arrows.

When employing EFA, the researcher investigates a sizeable group of variables, assuming that the observed variables are connected by means of an underlying structure; yet the precise characteristics and features of the structure are not known to the researcher. With EFA, the researcher endeavours to expose and explain this structure. For instance, EFA assists in determining the number of factors that are present, the relationship among these factors, and how the variables and factors are linked. In EFA, several combinations and explanations are approximated with changing numbers of factors and different forms of rotation. Then the researcher reviews the different explanations and chooses the most appropriate explanation in terms of theory and a range of descriptive statistics. As implied by the term, EFA is an exploratory statistical technique. After selecting a solution, the researcher can experimentally evaluate the produced correlation matrix, generated from the factor model, against the sample



correlation matrix. EFA is typically performed using correlations that present the extent and level of linear relationships within scale-free components (Ullman, 2006b).

### ***R- and Q-factor analysis***

Incorporated in EFA are two separate types of factor analysis, namely R-factor analysis and Q-factor analysis. The purpose of using R-factor analysis is to look for latent factors underlying the variables. This enables the researcher to classify and arrange different items that appear to measure similar underlying constructs. In Q-factor analysis, the researcher explores factors that appear to underlie the participants and determine the different types of people partaking in the study. The calculations are similar, but the terms and objectives are not (Thompson, 2000). The following concepts that will be discussed all refer to R-factor analysis.

### ***Appropriateness of the data***

It is essential to look at correlations for determining the appropriateness of the data and ensuring that the different variables are related. If the different variables are unrelated, there is no sense in performing a factor analysis. A considerable value for correlations would be  $>0.3$ .

### ***Sample size***

It is recommended to include a minimum of 50 observations and no less than five times the number of observations than variables. Stevens (2002) summarises a number of suggestions on required sample size and contributes that the number of observations necessary to ensure that the factors are reliable rely on the research data; more specifically, on the extent to which the variables load on the various factors.

To provide some guidance, a factor can be considered reliable when it contains

- 3 or more variables with loadings of 0.8 and any sample size;
- 4 or more variables with loadings of 0.6 and any sample size; or
- 10 or more variables with loadings of 0.4 and a sample size of 150 and more.

Stevens (2002) further suggests that in the situation where factors only have a few loadings, a sample size of 300 and more is required.

### *Number of factors*

According to Mardia, Kent and Bibby (1979) it is important to establish the number of factors that are suitable for one's data and there is a limitation on the number of factors one needs to include. The smallest number of variables needed for the various numbers of factors is indicated below:

# Factors	2	3	4	5	6
Variables required	5	7	8	9	11

In general, one wants to have a considerably smaller number of factors compared to the number of variables, because one desires numerous variables loading on all the factors to conclude the meaningfulness of the factor.

### *Factor extraction*

Factor extraction entails establishing the minimum number of factors that need to be employed to most successfully characterise the interrelations between the group of variables. There are a number of techniques that may be employed to assist in deciding on the number of factors to keep. These include Kaiser's criterion, screen test and parallel analysis. The parallel analysis technique is used frequently and more popular, predominantly in the field of social sciences (Choi, Fuqua & Griffin, 2001; Stober, 1998) and has revealed to be the most accurate.

### ***Parallel analysis***

This technique, designed by Horn, involves evaluating the size of the eigen values against those calculated from a randomly generated data set of the same size (Horn, 1965). Only the eigen values that are higher than the corresponding values from the random data set are kept.

### ***Factor rotation***

Rotation methods can be divided into two key approaches, producing either orthogonal (uncorrelated) or oblique (correlated) factor solutions. With orthogonal rotation, the solutions obtained are more straightforward and not so complicated to understand, which entails easier interpretations and reporting. However, they do oblige the researcher to presuppose independence of the underlying constructs and that they are therefore perceived as being uncorrelated. Employing the oblique approach permits for the factors to correlate; nevertheless, these approaches are experienced to be more complicated and confusing to understand, interpret and report on (Tabachnick & Fidell, 2001).

The oblique rotation, Oblimin, allows for determining the extent to which the factors are in fact intercorrelated, that is, the strength of the correlations. This statistic produces three main tables with results indicating correlations and factor loadings that need to be considered: Pattern Matrix, Structure Matrix and Component Correlations Matrix. Interpretations of these tables will now be discussed:

The *Component Correlation Matrix* indicates the strength of the relationship between the two factors. This gives the researcher substantive details to conclude whether it is a rational and satisfactory assumption that the factors are uncorrelated.

The *Pattern Matrix* shows the details of the factor loadings of every one of the variables.

The *Structure Matrix* provides information about the correlation between variables and factors.

### ***Interpretation***

After generating the factor loadings matrix, it is essential to understand and decode the factors. Significance of the factor loadings is measured in two ways and is discussed below.

### ***Practical significance***

Here the researcher will aim to determine whether the scores of the factor loadings are sufficiently high so that the factors consequently have a significant effect on the variables. The following guidelines from Hair *et al.* (1998) are recommended:

- ±0.3 – minimal
- ±0.4 – more important
- ±0.5 – practically significant

### ***Statistical significance***

The loadings need to differ significantly from zero. Stevens (2002) recommends the following loadings comparable to sample size: 0.722 (n = 50); 0.512 (n = 100); 0.384 (n = 200); 0.298 (n = 300); 0.210 (n = 600); 0.162 (n = 1000).

#### **3.4.4 Structural equation modeling**

Structural equation modeling (SEM) is a statistical modeling technique that is extensively employed in the field of behavioural sciences. This technique is observed as combining factor analysis and regression or path analysis. The focus of employing SEM is most of the time on theoretical and abstract constructs, which are symbolised by the latent factors. SEM presents a broad-spectrum and suitable structure for various statistical analyses, which involve factor analysis. Using SEM, one can specify CFA models (Hox & Bechger, 2001).

### ***Interpretation***

SEM analysis starts with a path diagram that is displayed by squares and circles joined with arrows. Observed (or measured) variables are represented by a rectangle or squared box, and latent (unmeasured) factors by a circle or ellipse. Single headed arrows or “paths” are displayed to indicate causal relationships. Double headed arrows imply co-variances or correlations, without a causal interpretation (Wright, 1921). Statistically, the single headed arrows or paths signify regression coefficients and double-headed arrows signify co-variances.

### ***Purpose***

In SEM, the CFA is imposed on the data. In this case, the rationale of SEM is twofold. First, it endeavours to obtain estimates of the parameters of the model, i.e. the factor loadings, the variances and co-variances of the factor, and the residual error variances of the observed variables. The second objective is to evaluate the model fit, i.e. to assess if the model itself presents an acceptable fit to the data.

### ***Advantages***

There are several benefits to using the SEM technique as part of the process to assess construct validity of a measurement instrument. When associations or relationships between factors are investigated, these associations are hypothetically without measurement error for the reason that the error has been approximated and eliminated, and only common variance remains. Therefore, reliability of a measurement instrument can be explained and reported openly and unambiguously within the analysis by approximating and eliminating the influences of measurement error. Furthermore, it is possible to investigate multifaceted and complicated associations between factors. When the aspect or occurrence of interest is multifaceted and difficult to interpret, SEM is the single technique that permits comprehensive statistical analyses inclusive of all the associations simultaneously. In the field of social sciences, hypotheses are generally established and presented at the level of the construct. When employing other statistical techniques, these hypotheses positioned at the construct level are examined at the level of a measured variable, which is an observed

variable including measurement error. Not matching the level of hypothesis and level of analysis can be challenging and complicate interpretations of associations. This technical detail is frequently neglected by researchers and is therefore predetermined to result in incorrect and flawed research findings. Considering these implications, the functionality of performing analyses on construct level hypotheses at the proper and suitable level is a unique benefit of the SEM technique (Ullman, 2006b).

### ***Background on CFA***

Schmitt, Coyle and Saari (1977) suggest a functional summary and evaluation of six methods to measure construct validity. They conclude that, overall, CFA (path analytic formulation) yields the most information and is simplest to comprehend and explain. In addition, this approach forces investigators to be explicit about hypothesised associations and can derive estimates of inter-correlations among traits, among methods, and among traits and methods (Kalleberg & Kluegel, 1975; Schmitt, 1978).

### ***The rationale behind CFA***

The CFA model is an efficient and popular technique for assessing construct validity, generates a smaller number of assumptions and presents better analytic and indicative details with regard to reliability and validity than Campbell and Fiske's (1959) Multitrait-Multimethod (MTMM) matrix. The CFA model allows for techniques that have an effect on measurement instruments, measuring attributes or qualities to different extents and enable them to correlate freely among themselves. Bagozzi *et al.* (1991) add that the CFA model has the following advantages: Firstly, indicators and indexes of the overall degree of fit are calculated and presented in several particular applications (e.g. the chi-square goodness-of-fit test). Secondly, functional and valuable indications are generated and assess the level of convergent and discriminant validity (i.e. through chi-square difference tests, the strength of factor loadings for attributes and the approximations for attribute correlations). Thirdly, clear statistical findings are obtainable for separating variance into attribute, method and error components (i.e. through squared factor loadings and error variance).

### ***Convergent and discriminant validity***

One can investigate convergent validity by examining the approximations of attribute variance (i.e. the square of loadings for attribute factors). As convergent validity is the conformity between measures of the same attribute, attribute variance revealing the amount of shared variation for measures of the same attribute should signify the level of convergent validity (Widaman, 1985). If the whole group of attribute factor loadings are statistically significant, it means that convergent validity has been accomplished. Inspecting the amount of attribute variance is inspected can assist in determining problematic aspects.

Discriminate validity refers to the extent that measures of dissimilar attributes are separate. The idea is that if two or more attributes are distinct, valid measures of these are not supposed to correlate too highly. For that reason, an ideal correlation among attributes would point out that the attributes are not distinguishable. Discriminant validity among attributes is attained when the attribute correlation diverges significantly from 1.00 (Schmitt & Stults, 1986).

### ***Different questions relating to CFA***

This section concentrates on processes and aspects relating to a type of SEM analysis termed CFA. According to Ullman (2006b), CFA can be employed to investigate and answer the following questions:

- i. Do the parameters of the model combine to estimate a population covariance matrix (estimated structured covariance matrix) that is highly similar to the sample covariance matrix (estimated unstructured covariance matrix)?
- ii. What are the significant associations among variables within the model?
- iii. Which nested model provides the best fit to the data?

In the section to follow, these broad-spectrum research questions including the related aspects to consider are discussed.

### *Adequacy of model*

The primary question that is investigated by employing CFA, entails an evaluation among a data set, an empirical covariance matrix and an estimated structured population covariance matrix. The empirical covariance matrix is scientifically the estimated unstructured population covariance matrix. The estimated structured population covariance matrix is generated based on the model parameter estimates. The most important question addressed by SEM is, “Does the model produce an estimated population covariance matrix that is consistent with the sample (observed) covariance matrix?” When the model represents a good fit, the parameter estimates will generate an estimated structured population covariance matrix that is similar to the sample covariance matrix. “Closeness” is principally inspected by means of the chi-square test statistic and fit indexes. It is also possible to estimate a model with a factor structure at a certain point in time and then investigate whether the factor structure (measurement model) stays consistent over time. Employing this longitudinal approach, the researcher can investigate whether the factor structure (construct) stays consistent over this period of time or whether the comparative values of the indicators adjust as young adults mature, for instance (Ullman, 2006b).

### *Significance of parameter estimates*

Ullman (2006b) argues that model estimations for path coefficients and their standard errors are calculated under the embedded hypothesis that the model fits very well. Only when the model fit is assessed to represent very close fit, the estimates and standard errors may be viewed critically, and separate significance assessments on parameters (path coefficients, variances, and covariances) may be executed. These assessments may serve as investigations of the null hypothesis and the theory that there exists no covariance among the two latent variables. This parameter estimate (covariance) is then assessed with a  $z$ -test (the parameter estimate divided by the estimated standard error). The null hypothesis is similar as in regression, the path coefficient is equal to zero. There is statistical proof for the hypothesised predictive association if the path coefficient is significantly higher than zero.



### ***Comparing nested models***

Ullman (2006b) notes that besides assessing the overall model fit and particular parameter estimates, it is furthermore possible to statistically weigh nested models against each other. Nested models are described as models that are separated and subsets of one another. When theories are identified as nested hypotheses, each model may signify a separate theory. These nested models are statistically evaluated and consequently present an important test for competing theories (models).

A certain degree of the common variance between the items may exist not only because of the underlying constructs but possibly also in the phrasing of the items and the broad domain of influence (e.g. personal identity, social identity, relational identity and collective identity). One could compare a model to another which also contains paths that account for the variance explained by the common domain or phrasing of the item. The model with the included paths to account for this variability is recognised as the full model. The other model is accepted as nested within this full model. To assess this hypothesis, the chi-square of the model with paths included to account for domain and phrasing is deducted from the chi-square of the nested model that does not account for common domains and phrasing between the items. The corresponding degrees of freedom for these two models should also be deducted from each other. The meaning of the chi-square difference statistic can then be evaluated in the normal way. If the difference is significant, the fuller model that includes the additional paths is essential to describe and rationalise the data. If the difference is not significant, the nested model, which is thriftier than the fuller model, would be acknowledged as the preferable and desired model (Ullman, 2006b).

### ***The process of CFA***

Ullman (2006b) proposes that this method of modelling could be described as a process containing four different stages, that is, model specification, model estimation, model evaluation and model modification. These stages are discussed in the section to follow.

### *Model specification and forming hypotheses*

An initial action in the process of estimating a CFA model is model specification. This step entails three stages:

- i. developing the hypotheses to be tested in the form of a figure and formula;
- ii. statistically classifying the model; and
- iii. assessing the underlying statistical assumptions of the model.

#### *i. Model hypotheses and diagrams*

This stage includes specifying the model through providing the particular hypotheses to be tested. This is achieved most commonly by means of a diagram. The asterisks in the diagram point to parameters to be estimated. The regression coefficients, variances and covariances of independent variables are parameters that are estimated or fixed to a certain value. The value 1.00 shows that a parameter, either a path coefficient or a variance, has been fixed.

#### *ii. Model statistical specification*

The associations in the diagram are straightforwardly converted into formulas and then the model is estimated. The Bentler–Weeks method (Bentler & Weeks, 1980) is a technique employed for model specification. In this method, each of the variables present in the model, latent or measured, is either an independent variable (IV) or a dependent variable (DV). The parameters that need to be estimated are the regression coefficients, and the variances and the covariances of the independent variables in the model (Bentler, 2001). In the Bentler–Weeks model, only independent variables have variances and covariances as parameters of the model. Every dependent variable in the model has an equation. An asterisk indicates a parameter that needs to be estimated. Variables included in the equation that does not have asterisks are observed as parameters fixed to the value 1.00.

### *iii. Model identification*

A principally complicated topic that is recognised as a perplexing issue in SEM is the process of identification. This section does not include an in-depth discussion on model identification; only the basic details are touched on. Employing SEM, a model is specified, parameters for the model are estimated incorporating sample data, and the parameters are integrated to generate the estimated population covariance matrix. Nonetheless, only models that are identified lend themselves to be estimated. A model is thought to be identified if there is a distinctive numerical solution for every one of the parameters. The following are general guidelines, however, they may be adequate for numerous models (Bollen, 1989).

The initial step in model identification is to calculate the number of data points and the number of parameters that need to be estimated. The variances and covariances in the sample covariance matrix are known as the data in SEM. The number of parameters is calculated by adding the number of asterisks in a diagram. This includes the number of regression coefficients, variances and covariances that need to be estimated. An essential prerequisite for a model to be estimated is that there need to be a larger number data points than parameters to be estimated. Hypothesised models with a larger number of data than parameters are termed as *over-identified*. If there are an equal number of data points and parameters, the model is termed as *just identified*. If there are less data points than parameters, the model is termed as *under-identified*, and then the parameters are not suitable to be estimated. By fixing, constraining or deleting parameters, the excess of parameters can be decreased (Ullman, 2006b).

The second step is to investigate the measurement part of the model. The measurement component of the model relates to the association among the measured indicators and the factors. It is required to ascertain the scale of every factor and to determine the identifiability of this part of the model. Factors, appose to measured variables, are theoretical and abstract, and are characterised fundamentally by common variance. Consequently, they do not comprise an inherent scale and need to be scaled. To create the scale of a factor, the variance for the factor is fixed to 1.00, or the regression coefficient from the factor to one of the measured variables is fixed to 1.00. Fixing the regression coefficient to 1.00 lends the factor

an equal variance as the common variance portion of the measured variable. If the factor is an IV, either option is suitable. If the factor is a DV, the regression coefficient is fixed to 1.00. Omitting to determine the scale of a latent variable is by far the most general error made when identifying a model (Ullman, 2006b).

Next, to determine the identifiability of the measurement part of the model, the number of factors and measured variables is inspected. When only one factor is evident, the model can be identified if the factor contains a minimum of three indicators with nonzero loading and the errors are uncorrelated. When there are two or more factors evident, one should review the number of indicators for every factor. If each factor contains three or more indicators, the model can be identified if errors linked with the indicators are uncorrelated, each indicator loads on only a single factor, and the factors are permitted to co-vary. When there are only two indicators for a factor, the model can be identified if there are no correlated errors, each indicator loads on only one factor, and none of the covariances among factors is equal to zero.

### ***Sample size and power***

Covariances are the basis of SEM and tend to be more unstable when estimated from small samples. Subsequently, large sample sizes are required for SEM techniques. Parameter estimates and chi-square tests of fit are very sensitive to sample size as well. Nonetheless, it may be achievable to estimate small models with smaller number of research participants, provided that variables are highly reliable. MacCallum, Browne and Sugawara (1996) provide diagrams of minimum sample size required for tests of goodness-of-fit. Furthermore, even though SEM requires a large sample and analyses are affected by small samples, noteworthy research findings have been accomplished by Bentler and Yuan (1999) who produced test statistics for small samples sizes.

### ***Missing data***

Difficulties associated with missing data are often exaggerated in SEM because of the great number of measured variables. Relying on including fully completed cases only, frequently

leaves a researcher with an insufficient number of complete cases for estimating a model. For this reason, suggestion of missing data is specifically essential in most SEM models. When it is evident that the data are missing at random (MAR; missingness on a variable may depend on other variables in the dataset excluding the variable itself) or missing completely at random (MCAR; missingness is unrelated to both the variable missing data and the variables included in the dataset), Little and Rubin (1987) suggest the EM (expectation maximisation) algorithm in obtaining maximum likelihood (ML) estimates. There exists a number of software programs that generate techniques for missing data estimation. EQS 6.1 (Bentler, 2001) generates the EM-based maximum likelihood solution, without needing to specifically select this method, based on the Jamshidian–Bentler calculations (Jamshidian & Bentler, 1999). In addition, LISREL and AMOS also generate EM-based maximum likelihood estimates. It should be considered that, when the data does not reflect a normal distribution, the maximum likelihood test statistics may not be accurate. Though not overtly incorporated in SEM software, Schafer and Olsen (1998) propose one more technique for treating missing data –multiple imputation.

### ***Multivariate normality and outliers***

In SEM, most of the generally used methods for estimating models presume multivariate normality. When assessing normality it is usually useful to look at both univariate and multivariate normality indexes. Outliers, skewness and kurtosis can be assessed by looking at univariate distributions. Normality and multivariate outliers can be assessed by looking at multivariate distributions. Multivariate normality can be investigated by using Mardia's (1970) coefficient, while multivariate outliers can be investigated by using Mahalanobis (1936) distance. Mardia's coefficient can be changed to a normalised score where normalised coefficients usually greater than 3.0 are suggestive of non-normality (Bentler, 2001; Ullman, 2006a). Mahalanobis distance is the distance between a case and the centroid. Mahalanobis distance is disseminated as a chi-square with degrees of freedom equivalent to the number of measured variables included, to compute the centroid. Hence, a multivariate outlier can be explained as a case that is linked with a Mahalanobis distance larger than a critical distance specified typically by a  $p < .001$  (Tabachnick & Fidell, 2006).

### ***Model estimation techniques and test statistics***

After completion of the model specification phase, the population parameters are estimated and investigated. In this section, a number of popular estimation techniques are discussed and advice provided on estimation techniques and test statistics choices. The aim of estimation is to minimise the variation among the structured and unstructured estimated population covariance matrices.

In the process of EFA, the observed and reproduced correlation matrices are evaluated in comparing the two matrices. This notion is continued and developed further in SEM to comprise a statistical test of the dissimilarities among the estimated structured and unstructured population covariance matrices (Bollen, 1989).

ML is generally a defaulting technique in most software packages since it provides the most accurate estimates when the data is distributed normally. GLS (generalised least squares) contains similar favourable properties as ML under normally distributed data. The ADF (asymptotically distribution free) method contains no assumptions on distribution of data and therefore is most common (Browne, 1974; 1984), but it is not practical when a large number of variables is present. It is also inaccurate when the study includes small sample sizes. Satorra and Bentler (1988, 1994, 2001) and Satorra (2000) also developed an amendment for nonnormality that can be used in the ML, GLS, or EDT chi-square test statistics. In short, the Satorra–Bentler scaled  $\chi^2$  is a modification on the  $\chi^2$  test statistic (Satorra & Bentler, 2001). EQS also modifies the standard errors for parameter estimates to correct for the degree of nonnormality (Bentler & Dijkstra, 1985).

### ***Some guidelines for choosing an estimation method***

Based on research done by Hu, Bentler and Kano (1992) and Bentler and Yuan (1999), a few general recommendations and some guidance are suggested. These researchers advise that sample size and feasibility of the normality and independence assumptions have to be taken in account when deciding on the best suitable estimation technique. ML, the scaled ML, or GLS estimators may be fine options when medium (over 120) to large samples and evidence

of the feasibility of the normality assumptions are present. ML estimation is currently the most popular estimation technique being applied in SEM. When dealing with medium (over 120) to large samples, the scaled ML test statistic will be a suitable selection with nonnormality or assumed dependence among factors and errors. In small samples (60 to 120) the Yuan–Bentler test statistic appears to be most appropriate. The model chi-square test statistic is labelled “Satorra-Bentler scaled chi-square” and tests the hypothesis that the difference among the estimated structured population covariance matrix and the estimated unstructured population covariance matrix is not significant. Preferably, the probability connected with this chi-square should be large, greater than 0.05.

### ***Model evaluation***

In the section to follow, some factors of model evaluation are considered. The difficulty of evaluating fit in a SEM model is discussed and then several popular fit indexes are presented.

### ***Assessing the overall fit of the model***

Sample size has a great influence on the model chi-square test statistic. Therefore, the fit of models estimated with large samples is usually complex to investigate. Fit indexes have been created to attend to this obstruction. There are five universal categories of fit indexes: comparative fit, absolute fit, proportion of variance accounted for, parsimony adjusted proportion of variance accounted for and residual based fit indexes. A comprehensive explanation of model fit falls outside the scope of this dissertation; consequently, the focus will include the two most preferred and frequently used fit indexes. They are the comparative fit index (CFI) (Bentler, 1990) and a residual based fit index – the root mean square error of approximation (RMSEA) (Browne & Cudeck 1993; Steiger & Lind, 1980).

The first category of model fit index is evaluated by comparing nested models. At the one extremity of the scale are the uncorrelated variables or independence model – the model that matches entirely unrelated variables. This model contains degrees of freedom equivalent to the number of data points minus the variances that are estimated. At the other extremity of the scale is the saturated and ideal model including zero degrees of freedom. Fit indexes

using a comparative fit approach position the estimated model somewhere down this scale, with 0.00 showing a very poor fit and 1.00 showing a perfect fit.

The CFI (Bentler, 1990) investigates fit relative to other models. Hu and Bentler (1999) argue that CFI values larger than 0.95 are usually suggestive of well fitting models. The CFI is normed to the 0 to 1 range, and is efficient in assessing model fit, even in small samples (Hu & Bentler, 1998, 1999). If data nonnormality is present, the CFI is computed from the Satorra–Bentler scaled chi-square. To differentiate it from a CFI including a normality theory chi-square, this CFI is usually conveyed as a “robust CFI”.

The RMSEA (Steiger & Lind, 1980) approximates the lack of fit in a model by comparing it to a perfect model. The RMSEA is an assessment of noncentrality when compared with sample size and degrees of freedom. For a certain noncentrality, large  $N$  and degrees of freedom imply a better fitting model, that is, a smaller RMSEA. Values of 0.06 or less point to a close fitting model (Hu & Bentler, 1999). Values larger than 0.10 are suggestive of poor fitting models (Browne & Cudeck, 1993). Hu and Bentler (1999) argue that in small samples ( $< 150$ ) the RMSEA over-rejects the true model, meaning that, its value is too large. Due to this dilemma in interpretation, this index may not be so appropriate with small samples. As with the CFI, the selection of estimation method effects the size of the RMSEA.

Unfortunately, conflicting evidence between the CFI and RMSEA fit indexes is not unusual. At this stage, it is usually effective to indefinitely assume that the model is acceptable, and possibly, to investigate model modification indexes to determine if a significant parameter has been excluded. The hypothesised model can be evaluated against a comparing model that accounts for the variance due to common item wording. Hence, it is sensible to carry on interpreting the model. An additional technique of assessing the fit of the model is to consider the residuals. Looking at the standardised residuals can help with the interpretation of the values. These values are in a correlational output and thus can be described as the residual correlation not explained by the model. The principal focus is on the average standardised variance residual and the average standardised covariance residual. If these correlations are squared, they reflect the percentage of variance, on average, not explained by the model. If these scores are very small, it is suggestive of a well fitting model. No fixed



recommendations for acceptable size of residuals have been determined, but evidently a smaller size is more satisfactory and advisable. When a researcher employs SEM analyses, it is a good suggestion to report on multiple-fit indexes. The ones described here are trustworthy and recommended options to report, for they evaluate fit in dissimilar but related ways (Ullman, 2006b).

### ***Model modification***

The two main justifications for modifying a SEM model are to test hypotheses in theoretical contexts and to develop and enhance fit, specifically in exploratory work. SEM is a confirmatory technique. Consequently, when model modification is employed to enhance fit, the analysis converts from confirmatory to exploratory. Any findings drawn from a model exposed to extensive modification should be considered with utmost caution. Whenever possible, cross-validation should be applied to modified models. The three fundamental techniques of model modification are the chi-square difference, Lagrange multiplier (LM), and Wald tests (Ullman, 2006a). All are asymptotically equal under the null hypothesis, however, their methods and style in terms of model modification differs. In CFA models where the measurement structure is of specific interest, it may happen that there are other traits of the items, the measured variables, that influence a significant variance in the model.

In conclusion, a researcher cannot determine construct validity with only a single study. In fact, Cronbach (1971) argues construct validation to be a continuous method of evaluation and improvement. Further, construct validity should not be viewed as the empirical certification of a measure, because whether empirical evidence supports or invalidates a measure, relies on the qualities of the construct and the hypothesised relationships between the construct and other variables.

### **3.5 Chapter summary**

This chapter conceptualises construct validity and explains the importance thereof by describing the influence of measurement error on the validity of measuring instruments. The chapter closes with the process of determining construct validity of a measuring instrument

and explains the statistical analyses that were employed. The next chapter describes the method of investigation that was followed in the research project. The implications of the research design for validity and reliability are explained. The chapter continues describing the sampling method, measuring instrument, data gathering and concludes with explaining the data analysis that was followed.

## CHAPTER 4

### EMPIRICAL STUDY

The purpose of this chapter is to explain the method of investigation. The main goal of the current study is to perform a CFA on the AIQ-IV.

#### 4.1 Introduction

According to Moser and Shuler (1989), when one develops or validates a test, there is normally two questions to be asked:

- How precisely can an object be measured (reliability)?
- Which conclusions are possible or allowed (validity)?

Reliability can be defined as the amount of true variance at observed variance. The true score cannot be directly observed because of errors of measurement. Inter-item consistency exists where one computes the mean correlation between all items of a scale, otherwise referred to as Cronbach's alpha coefficient (Moser & Shuler, 1989).

According to Gatewood and Field (1990), validity denotes the extent to which existing evidence verifies inferences made from scores on selection measures. In the instance of the AIQ-IV one would want to know how well predictors are related to the four identity orientations, namely personal identity, social identity, relational identity and collective identity. Validity entails construct, content and criterion referenced validity.

#### 4.2 Implications of the research design for validity and reliability

To be able to assess and conclude on the appropriateness of the current study's research design, it is necessary to take into account the aspects of validity and reliability relevant to the selected research design. The different types of validity are considered in the following section.

#### 4.2.1 Construct validity

Construct validity pertains to the extent to which conclusions can justifiably be drawn from the operationalisations in a study to the hypothetical constructs in which those operationalisations are rooted. McBurney (1994) describes construct validity as the property of a test that actually assesses the constructs it is intended to assess and no others. Construct validity is related to generalising from the measures to theory. In the case of the proposed study, this considers whether the questionnaire really measures the aspects of identity (personal self, social self, relational self and collective self).

Construct validity can be divided in two types, namely translation validity and criterion-related validity. Translation validity focuses on whether the operationalisation is a proper expression or mirror image of the construct. It assumes that there is a satisfactory comprehensive definition of the construct and that one can test the operationalisation against it. Criterion-related validity examines whether the operationalisation performs the way it is supposed to, according to the theory of the construct. It presumes that the operationalisation ought to perform in predictable ways in relation to other operationalisations based on the theory of the construct.

#### 4.2.2 Translation validity

The following two validity types attempt to assess the degree to which the construct is accurately translated into the operationalisation.

- *Face validity*. This refers to whether the operationalisation appears a good translation of the construct after reading through the questions of the questionnaire. Although this is a weak measure of validity, being essentially a subjective judgment conclusion, it does not mean that it is wrong. A reading through the questions of the AIQ-IV, shows that it does appear to measure the four aspects of identity in individuals' self-concepts – personal, social, relational, and collective.

- *Content validity.* This type of validity is indicative of the extent to which a test represents the universe of items from which it is drawn. One basically compares the operationalisation against the relevant content domain of the construct. This approach presumes that the researcher holds a good detailed description of the content domain. With constructs such as personal identity, relational identity, social identity and collective identity, it is a difficult task to outline the criteria that should be present to measure it effectively. In the development of the AIQ-IV, some items were reworded, others eliminated and new items developed to improve the reliability and content validity of the measures (Cheek, 1982; Cheek & Hogan, 1981; Hogan & Cheek 1983).

#### 4.2.3 Criterion-related validity

In criterion-related validity, one compares the performance of the operationalisation against some criterion. It is a prediction about how the operationalisation will perform, concluded from the theory of the construct. The difference in criterion-related validity types is in the criteria one uses as the benchmark for decision.

- *Predictive validity.* This is the operationalisation's ability to predict something it should theoretically be able to predict. In this study, the items of the AIQ-IV indicate different identity orientations – the personal, social, relational or collective self in individuals' self-concepts.
- *Concurrent validity.* This type of validity assesses the operationalisation's ability to distinguish between groups that it should theoretically be able to distinguish.
- *Convergent validity.* This examines the degree to which the operationalisation is similar to other operationalisations that it theoretically should be similar to. Psychometric analysis has been performed on the AIQ-IV to ensure that operationalisations of the constructs reflect certain constructs and a third (collective identity) and fourth (relational identity) scale were added.

- *Discriminant validity*. This examines the degree to which the operationalisation is not similar to other operationalisations to which it theoretically should not be similar.

#### 4.2.4 Threats to construct validity

In a research study one wants to reach a conclusion that the measures reflect what one wants them to reflect. There are certain threats to validity that need to be considered to make certain that the measures accurately reflect what they need to reflect. Some of these threats to construct validity, as according to Cook and Campbell (1979), are presented in the following section:

- *Inadequate preoperational explication of constructs*. It might be that the constructs in the AIQ-IV have not been defined (operationally) in such a way that it reflects the true meaning of the specific constructs. This can be eliminated by re-examining the concepts, employing methods to articulate the concepts, or involving experts to review the operationalisations of the constructs. Psychometric analyses indicate that certain items originally scored in the social identity category (e.g. “Being a part of the many generations of my family”) were tending to cluster on a second or third factor representing communal or collective identity. A third scale for this domain was developed (Cheek *et al.*, 1985) and has then been expanded (Cheek, Tropp, Chen & Underwood, 1994).
- *Mono-operation bias*. In a cross-sectional study where the questionnaire is completed at a single point in time with no follow up, it may not capture the full breadth of the concepts, i.e. personal identity, relational identity, social identity and collective identity, in the questionnaire.
- *Mono-method bias*. With only a single version of the AIQ-IV, one cannot provide much evidence that one is really measuring the aspects of identity. After performing psychometric tests, it was found that neither the social nor collective scales focus on intimate relationships with close friends or romantic partners, so a fourth scale for

relational identity orientation (“Being a good friend to those I really care about”) was added to the AIQ-IV (Cheek *et al.*, 2002).

- *Hypothesis guessing.* Most participants do not just partake passively in a research project. The participants might guess what the actual aim of the questionnaire is and base their answers on that. Therefore, the outcome of the questionnaire might not be effective because the participants answered the questions in such a way as to agree with what they think they should answer.
- *Evaluation apprehension.* Many people are anxious about testing and measurement situations. Participants completing the questionnaire might want to look good or answer questions in a certain way that will affect the outcome of the measures.
- *Experimenter/researcher expectancies.* The researcher can bias the results of a study in numerous ways, either consciously or unconsciously. Therefore, it is essential that the communication to the participants does not explain the desired outcome of the research study to lead them to answer in a certain way.

#### 4.2.5 External validity

External validity is associated with generalising. It is the extent to which the inferences from the study accommodates other persons in other places and at other times. Under external validity, there exist two methods for how one provides substantiation for a generalisation:

- *Population validity.* This concerns the generalising from the sample to the population from which it was drawn.
- *Ecological validity.* This refers to generalising findings to other situations, settings or conditions.

For the current research study, a convenient sampling method was employed, therefore, any available participants could complete the questionnaire. For the aim of this study it is not

required to generalise the findings to a certain population, but rather to perform a CFA on the AIQ-IV to assess the model fit of the data.

### 4.3 Population and sample

In order to perform valid and reliable research, one requires a sufficient sample. A multi-stage sampling method was selected for the study. The non-probability sampling strategies identified as suitable for this study are as follows:

- *Convenience sampling.* The advantage of this study is that it is a convenient and inexpensive method to obtain a sample. The questionnaire was sent out via email to as many participants as possible and completed voluntarily.
- *Accidental sampling.* In this study, any participant available was included in the sample until the desired number was obtained.

For the current study, it was not necessary to select a specific population, for the aim is purely to assess the model fit of the data of the AIQ-IV. The results will not be generalised to a specific population, therefore, the convenient and accidental sampling strategies are appropriate for the purpose of this study.

The biographical information of the participants is displayed in the following tables:

**Table 4.1**  
**Biographical information of the participants: Gender**

	Frequency	Percent (%)
<b>Male</b>	71	45.2
<b>Female</b>	85	54.1
<b>Total</b>	156	99.4
<b>Total</b>	157	100.0



**Table 4.2**  
**Biographical information of the participants: Ethnicity**

		Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
<b>Valid</b>	<b>Black</b>	23	14.6	14.7	14.7
	<b>Coloured</b>	3	1.9	1.9	16.7
	<b>Indian</b>	10	6.4	6.4	23.1
	<b>White</b>	119	75.8	76.3	99.4
	<b>5.00</b>	1	.6	.6	100.0
	<b>Total</b>	156	99.4	100.0	
<b>Missing</b>	<b>System</b>	1	.6		
<b>Total</b>		157	100.0		

**Table 4.3**  
**Biographical information of the participants: Language**

	Frequency	Valid percentage (%)	Cumulative percentage (%)
<b>Afrikaans</b>	101	64.7	64.7
<b>African</b>	13	8.3	73.1
<b>English</b>	33	21.2	94.2
<b>Other</b>	9	5.8	100.0
<b>Total</b>	156	100.0	

**Table 4.4**  
**Biographical information of the participants: Age**

		Frequency	Percentage (%)	Valid percentage (%)	Cumulative percentage (%)
<b>Valid</b>	<b>20-30</b>	142	90.4	91.6	91.6
	<b>31-40</b>	7	4.5	4.5	96.1
	<b>41050</b>	5	3.2	3.2	99.4
	<b>61&lt;</b>	1	.6	.6	100.0
	<b>Total</b>	155	98.7	100.0	
<b>Missing</b>	<b>System</b>	2	1.3		
<b>Total</b>		157	100.0		

Table 4.1 shows a convenience sample of 157 participants (71 male and 85 female) completed the AIQ-IV. Table 4.2 indicates the sample predominantly consists of white respondents ( $n = 119$ ). Other respondents include blacks ( $n = 23$ ), coloureds ( $n = 3$ ), Indians ( $n = 10$ ) and other ( $n = 1$ ). In terms of language as evident in Table 4.3, the sample consists predominantly of Afrikaans speaking participants (64.3%). Other languages include African (8.3%), English (21%), and other (5.7%). Table 4.4 shows that approximately 91% of the participants are between 20 and 30 years old. Of the participants, 5% are between 31 and 40, 4% between 41 and 50, and only 1% older than 61 years of age.

## 4.4 Measuring instrument

### 4.4.1 Development of the AIQ-IV

Identity orientations pertain to the relative importance that individuals place on various identity attributes or characteristics when constructing their self-definitions (Cheek, 1989). As mentioned above in the discussion of the background of the research, the development of the AIQ-IV commenced with the selection of items from Sampson's (1978) list of identity characteristics deemed to characterise the domains of personal and social identity (Cheek & Briggs, 1981, 1982.)

Subsequently, some items were reworded, others eliminated and new items developed to improve the reliability and content validity of the measures (Cheek, 1982; Cheek & Hogan, 1981; Hogan & Cheek 1983). Psychometric analyses indicated that certain items originally scored in the social identity category (e.g. "Being a part of the many generations of my family") were tending to cluster on a third factor representing communal or collective identity. A third scale for this domain was developed (Cheek *et al.*, 1985) and was then expanded (Cheek, Tropp, Chen & Underwood, 1994). Neither the social nor collective scales focus on intimate relationships with close friends or romantic partners, which necessitated a fourth scale for relational identity orientation ("Being a good friend to those I really care about") being added to the AIQ-IV (Cheek *et al.*, 2002).

#### 4.4.2 Description of the AIQ-IV

The AIQ-IV is a 45-item objective inventory that measures the importance of the following four identity orientations in individuals' self-concepts:

- i. personal identity, or the importance of one's psychological traits and other personal attributes (e.g., "My personal values and moral standards");
- ii. relational identity, or how individuals see themselves in the context of their intimate relationships (e.g., "My relationships with the people I feel close to");
- iii. social identity, or how individuals see themselves in more general interpersonal contexts (e.g., "My reputation, what others think of me"); and
- iv. collective identity, or how individuals represent their various reference group identities (e.g., "My race or ethnic background") (Cheek *et al.*, 1994).

#### 4.4.3 Administration and scoring of the AIQ-IV

The AIQ-IV takes about 10 to 15 minutes to complete, and full instructions are provided for the participant on the web-based questionnaire. Privacy was protected, as the questionnaires were completed anonymously.

The items of the AIQ-IV are endorsed on a five-point Likert scale, anchored at the extreme values of 1 and 5. Respondents had to respond according to the extent that they agree or disagree with the statement made. The numerical five-point scale is divided as follows:

- 1 = Not important to my sense of who I am
- 2 = Slightly important to my sense of who I am
- 3 = Somewhat important to my sense of who I am
- 4 = Very important to my sense of who I am
- 5 = Extremely important to my sense of who I am

Participants selected a number out of the options from 1 ("not important to my sense of who I am") to 5 ("extremely important to my sense of who I am") next to each item.

#### 4.4.4 Interpretation of the AIQ-IV

The AIQ-IV measures the relative importance that individuals place on various identity attributes or characteristics when constructing self-definitions.

The 45 items of the AIQ-IV are believed to measure four identity orientations and the items are allocated to an identity orientation as follows:

- Personal identity – 10 items
- Relational identity – 10 items
- Social identity – 7 items
- Collective identity – 8 items
- Special items – 10 items

The allocated items are suggested to be indicators of the four different assigned identity orientations. There are ten items, called special items, included in the questionnaire, that are not scored on scales.

#### 4.4.5 Validity and reliability of the AIQ-IV

Research on the validity and reliability of the AIQ-IV questionnaire was only found in studies done abroad; nothing was found in the South African context.

Del Prado *et al.* (2007) conducted a study and tested three theoretical perspectives on cultural universals and differences in the content of self-concepts in individualistic (United States,  $n = 178$ ; Australia,  $n = 112$ ) and collectivistic (Mexico,  $n = 157$ ; Philippines,  $n = 138$ ) cultures, using three methods of self-concept assessment. Across the four cultural groups, alpha reliabilities for the AIQ-IV assessment ranged from 0.80 to 0.83 for the personal identity scale, 0.82 to 0.91 for the relational identity scale, 0.80 to 0.82 for the social identity scale and 0.67 to 0.77 for the collective identity scale. According to Antonia and Marcia (2000), reliability coefficients between 0.60 and 0.80 are acceptable. The widely accepted social science cut-off is that alpha should be 0.70 or higher for a set of items to be considered acceptable (Nunnally & Bernstein, 1994).

## 4.5 Data gathering

The AIQ-IV measures four identity orientations – personal, relational, social and collective identity – in individuals’ self concepts. For this study, the AIQ-IV questionnaire was converted to a web-based format and the link distributed via email to all available and willing individuals. This was a once off questionnaire with the aim to perform a CFA study, without the intent to follow up.

The questionnaires were completed anonymously with the aim to enhance honesty of answers, and to eliminate bias due to personal characteristics of the researcher. This was also a convenient way of getting information from people in a non-threatening way and obtaining an appropriate response rate. The data was then analysed, interpreted and made known with the goal to assess the model fit of the data of the questionnaire.

The invitation/information letter that was distributed to the individuals introduces the researcher to the recipients, explains the purpose of the study, discusses the number of questions and the amount of time required for completion of the survey, addresses anonymity and confidentiality and provides instructions for completing the survey. Contact information was provided, including the name, email address and telephone number of the dissertation advisor.

Within the letter of invitation, recipients are advised that by logging in to the website, completing the survey, and submitting the survey they issue their informed consent. Participants were provided with an embedded link to the survey at <http://www.up.ac.za/hrresearch/index.php?sid=44736&lang=en>. Participants were asked to log in to the website and complete their online surveys within seven days. The researcher followed up via email within four days of sending the survey to the individuals to remind them to complete the survey.

After completing the survey website, respondents viewed a portal thanking them for participating in the survey.

## 4.6 Data analysis

The statistical analysis was performed with the SPSSWin and EQS for Windows.

### 4.6.1 Descriptive statistics

Statistical analysis of research consists of different parts. One of the first steps is to give a brief description of the sample. In this study, descriptive statistics are used to provide the reader with summary statistics. Summary statistics serves two purposes: it describes the data with one or two numbers which make it easier to compare and also provides a basis for later analysis (Graziano & Raulin, 2000).

### 4.6.2 SEM

The SEM process was used because it focuses on two steps, namely validating the measurement model and fitting the structural model (Garson, 2009). Generally, a structural equation model is a complex composite statistical hypothesis. It consists of two main parts. The measurement model represents a set of  $p$  observable variables as multiple indicators of a smaller set of  $m$  latent variables, which are usually common factors. The path model describes relations of dependency – usually accepted to be in some sense causal – between the latent variables (McDonald & Ho, 2002). Kline (1998) advises SEM researchers always to test the pure measurement model underlying a full structural equation model first, and only if the fit of the measurement model is found to be acceptable, to proceed to the second step of testing the structural model by comparing its fit with that of different structural models (models created by trimming or building).

For the purpose of this study, a CFA was employed for the validation of the measurement model. CFA aims to determine whether the number of factors and the loadings of measured (indicator) variables conform to what is expected on the basis of pre-established theory. CFA may be used to confirm that the indicators sort themselves into factors corresponding to how well the indicators have been linked to the latent variables (Garson, 2009).

The measurement model is estimated to determine whether the model being tested should be accepted or rejected using goodness-of-fit measures. The goal of estimation is to minimise the difference between the structured and unstructured estimated population covariance matrices. In EFA, the observed and reproduced correlation matrices are compared. This idea is extended in SEM to include a statistical test of the differences between the estimated structured and unstructured population covariance matrices. The EQS program (Bentler, 1989) was used for all the SEM procedures in this study, with ML estimation, which is the most frequently used estimation method in SEM (Ullman, 2006b).

There is no agreement among researchers on how many fit indexes one should report on. Jaccard and Wan (1996) recommend the use of at least three goodness-of-fit tests. Kline (1998) recommends at least four tests. McDonald and Ho (2002) believe that no global index of fit (together with a criterion for its acceptability) can substitute a detailed examination of the discrepancies. Therefore, the most popular fit indexes have been selected to report on in this study. The following indexes of model fit were used: the non-normed fit index (NNFI) (Bennet & Bonnett, 1980), the CFI (Bentler, 1989, 1990), the incremental fit index (IFI) (Bollen, 1989) and the RMSEA. An NNFI close to 1 indicates a good fit. CFI values greater than 0.95 are often indicative of good fitting models (Hu & Bentler, 1999). The CFI is normed to the 0 to 1 range, and does a good job of estimating model fit even in small samples (Hu & Bentler, 1998, 1999). By convention, the IFI should be equal to or greater than 0.90 for the model to be accepted, but it can be greater than 1.0 for the model to be accepted. The RMSEA by convention indicates an acceptable fit if it is less than 0.08. Values of 0.06 or less indicate a close fitting model (Hu & Bentler, 1999). Values larger than 0.10 are indicative of poor fitting models (Browne & Cudeck, 1993).

The chi-square, CFI, NNFI, IFI and RMSEA statistics were used as overall goodness-of-fit indices for the nested models.

## **4.7 Chapter summary**

This chapter portrays the method employed for the empirical study. The description of the sample, measuring instrument, data gathering, and data analysis are discussed. The next chapter contains the empirical investigation of the research project. This includes reporting on the data analyses and interpretation of the results.



## CHAPTER 5

### RESEARCH RESULTS

In this chapter, step 7 of the empirical investigation is discussed. This entails the reporting, analysis and interpretation of the data through descriptive, explanatory and inferential statistics. The empirical findings are integrated with the literature review.

#### 5.1 Descriptive statistics

The descriptive statistics for the AIQ-IV scale are displayed in Table 5.1 below.

**Table 5.1**  
**Descriptive statistics for the AIQ-IV**

Descriptive statistics								
	N	Means	Std. deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. Error
Item 1	157	2.3822	1.08920	1.186	.307	.194	-.743	.385
Item 2	157	4.3057	1.15282	1.329	-1.562	.194	1.344	.385
Item 3	157	3.8471	.94167	.887	-.529	.194	-.340	.385
Item 4	157	3.3758	1.11179	1.236	-.277	.194	-.474	.385
Item 5	157	2.6051	1.17538	1.382	.212	.194	-.845	.385
Item 6	157	3.9682	.91582	.839	-.900	.194	.660	.385
Item 7	157	2.9427	1.08156	1.170	-.008	.194	-.434	.385
Item 8	157	2.7325	1.19498	1.428	-.016	.194	-.977	.385
Item 9	157	3.5032	1.05990	1.123	-.597	.194	-.191	.385
Item 10	157	3.5796	1.01985	1.040	-.476	.194	-.236	.385
Item 11	157	3.1783	1.32773	1.763	-.333	.194	-1.050	.385
Item 12	157	4.7389	.56779	.322	-3.150	.194	14.306	.385
Item 13	157	3.5732	1.00769	1.015	-.736	.194	.370	.385
Item 14	157	3.7834	1.03971	1.081	-.767	.194	.095	.385
Item 15	157	4.3885	.73945	.547	-1.150	.194	1.119	.385
Item 16	157	2.5796	1.14426	1.309	.205	.194	-.750	.385
Item 17	157	2.6369	1.09868	1.207	.116	.194	-.774	.385
Item 18	157	3.7325	1.10582	1.223	-.720	.194	.073	.385
Item 19	157	4.5223	.72134	.520	-1.895	.194	4.725	.385
Item 20	157	4.3439	.74862	.560	-1.216	.194	1.648	.385

**Table 5.1**  
**Descriptive statistics for the AIQ-IV (Continued)**

	N	Means	Std. deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. Error
Item 21	157	4.3312	.85025	.723	-1.519	.194	2.656	.385
Item 22	157	3.2484	1.21241	1.470	-.096	.194	-.951	.385
Item 23	157	2.7452	.97339	.947	-.059	.194	-.245	.385
Item 24	157	3.0701	1.14978	1.322	-.215	.194	-.729	.385
Item 25	157	3.7771	.97795	.956	-.580	.194	-.075	.385
Item 26	157	4.1656	.89046	.793	-.940	.194	.196	.385
Item 27	157	2.3694	1.30230	1.696	.590	.194	-.757	.385
Item 28	157	4.0127	.86222	.743	-.815	.194	.557	.385
Item 29	157	3.8408	1.07124	1.148	-.881	.194	.348	.385
Item 30	157	4.1529	.93484	.874	-1.169	.194	1.292	.385
Item 31	157	4.0385	.79166	.627	-.383	.194	-.521	.385
Item 32	157	2.0255	.98677	.974	.719	.194	-.132	.385
Item 33	157	4.0321	.96357	.928	-.892	.194	.310	.385
Item 34	157	2.7452	1.26036	1.589	.084	.194	-1.075	.385
Item 35	157	3.8217	1.10653	1.224	-.877	.194	.216	.385
Item 36	157	3.9873	.80054	.641	-.736	.194	.849	.385
Item 37	157	2.9745	1.13199	1.281	-.164	.194	-.708	.385
Item 38	157	3.8981	.84871	.720	-.568	.194	.192	.385
Item 39	157	2.9618	1.25517	1.575	-.065	.194	-.963	.385
Item 40	157	3.5096	1.36164	1.854	-.692	.194	-.739	.385
Item 41	157	4.0510	.93230	.869	-.823	.194	.106	.385
Item 42	157	3.3822	1.06539	1.135	-.396	.194	-.338	.385
Item 43	157	2.9873	1.26079	1.590	-.073	.194	-.985	.385
Item 44	157	4.4586	.63539	.404	-.906	.194	.507	.385
Item 45	157	3.3185	1.06842	1.142	-.411	.194	-.531	.385

The variability of the means, standard deviation, skewness and kurtosis reflects how the participants responded to the different scales. The variability indicates that the data which were collected and analysed were not normally distributed.

## 5.2 CFA

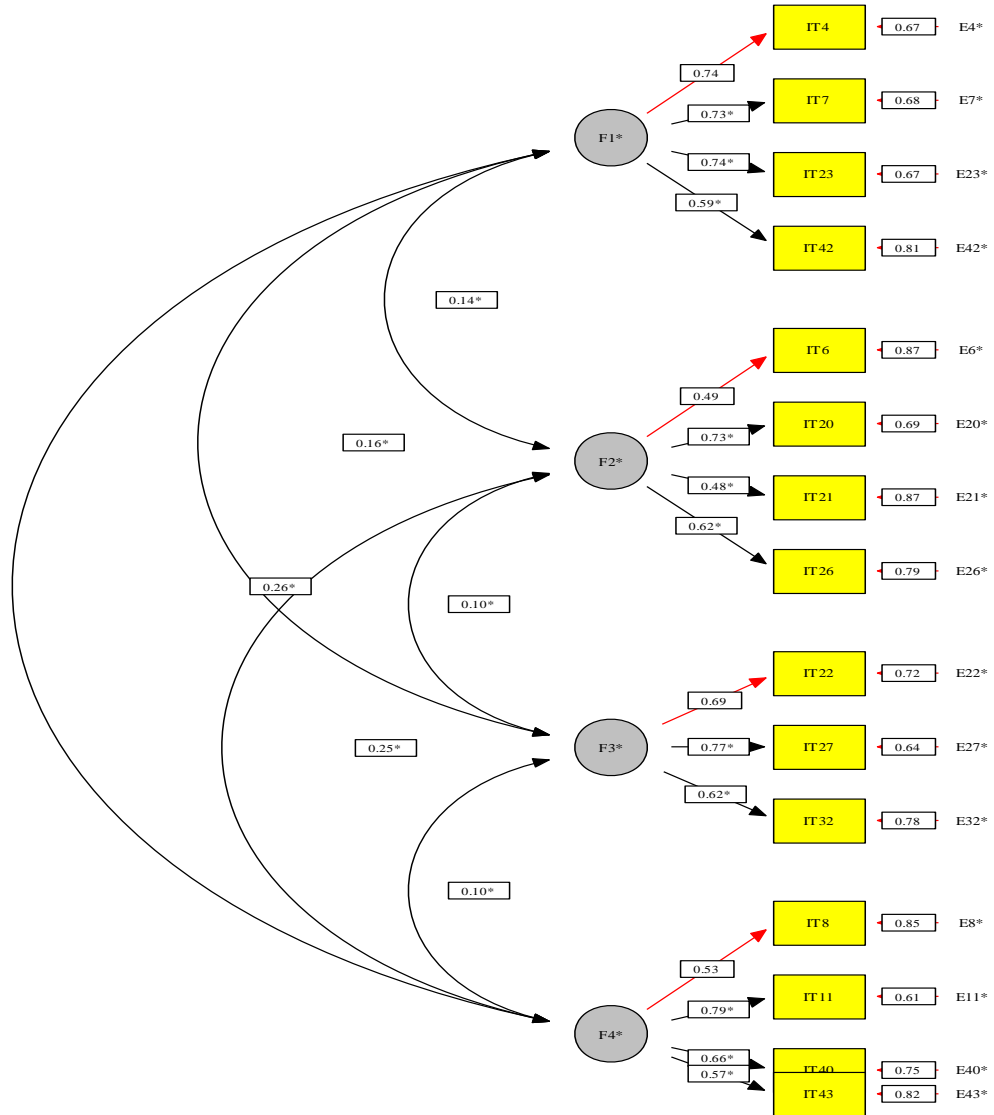
A CFA was conducted on the total group to determine whether the data fits the proposed measurement model. The following table display the fit indices after CFA was performed.

**Table 5.2**  
**Fit indices for the pooled sample**

<b>Model</b>	<b>Pooled sample</b>
Chi-square	655.426
(df)	105
NNFI	0.871
CFI	0.897
IFI	0.901
RMSEA	0.066
$p \leq 0.001$	

As indicated in Table 3, the CFI, NNFI and IFI values are 0.897, 0.871 and 0.901 respectively. A value of 0.90 is accepted to be a good fit for all the above fit indices (Bentler, 1990; Bentler & Bonnet, 1980; Steiger, 1995). In this study, the RMSEA has a value of 0.066. Hu and Bentler (1999) consider RMSEA of 0.06 or less as a close fitting model. The chi-square is 655.426 with 105 df ( $p = 0.001$ ) for the total group. It can be concluded that the fit indices indicate a reasonable model fit.

The structural equation model for the four domains underlying the AIQ-IV for the total group is given in Figure 1. The latent variables have been allowed to correlate with one another.



**Figure 5.1: Identity orientations CFA model of the AIQ-IV for the total group**

The CFA model indicates that the items are grouped together and loaded on the factors as seen in Figure 1. These groupings do not correspond perfectly with the proposed groupings of the authors of the AIQ-IV. This indicates that there might be other common characteristics that group these items together, which the authors did not consider or were unknown at the time.

### **5.3 Chapter summary**

This chapter summarises the results of the statistical analysis that was performed on the sample. The output of the descriptive statistics and CFA were disclosed and interpreted to draw conclusions from the research results.

The next chapter contains the conclusions of the research project. Then the limitations and influences thereof are described while also providing recommendations for further research.

## CHAPTER 6

### CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

In this final chapter of the study, the conclusions, limitations and recommendations are discussed.

The research results generated a CFA model of the AIQ-IV questionnaire that was applied in the South African context. After conducting several statistical analyses, the fit indices were examined and it was concluded that the data reflected a reasonable model fit.

The following factors are highlighted and discussed as possible limitations that could have influenced the research results of the current study in various ways.

#### **6.1 Limitations**

##### **6.1.1 Participant responses**

Because most participants do not participate passively in a research project, there might be a possibility that some guessed what the purpose of the project is and based their responses on their perceptions. This could have an impact on the validity and therefore on the outcome of results.

Many people are anxious about testing and measurement situations. Although the questionnaire was completed anonymously and with free will, some participants might complete the questions in a certain manner in order to look good. This will affect the outcome of the measures.

##### **6.1.2 Language**

Very few new culturally relevant tests have been developed that can be applied to the diverse range of cultural and language groups in the South African context. Among the reasons for

this is the current major shortage of test development capacity in South Africa (Foxcroft, 2004).

Both Foxcroft and Roodt (2001) and McIntire and Miller (2000) document the process of developing a psychological test and state that it is complex and extensive. However, aspects related to the planning of a psychological test are not sufficiently emphasised at all times and often not even mentioned, e.g. in Kaplan and Saccuzzo (1997) and Murphy and Davidshofer (1998). At least two rationales are argued concerning why much time and consideration should be included in the planning phase of the test development process. Firstly, when the test is to be administered in a multicultural context, attention needs to be paid to the cultural relevance (and potential bias) of the test right from the planning and design phase, instead of sensitivity to cultural aspects only being shown from the item writing phase onwards. Secondly, given the short history of developing culturally appropriate tests applicable to diverse groups in the South African context, test developers need to consider the basic issues related to cultural diversity in test samples. These include, for example, which methods of test administration might be appropriate for certain cultural groups and in which language to develop the test. Thus, sufficient time needs to be invested in the planning phase – exploring and critically considering test design issues.

Typically, a test plan consists of the following aspects:

- (a) indicating the purpose and rationale for the test as well as the intended target population;
- (b) defining the construct (content domain) and establishing a set of test specifications to guide item writing;
- (c) selecting the test format;
- (d) selecting the item format; and
- (e) specifying the administration and scoring methods (McIntire & Miller, 2000, Robertson, 1990).

However, when a test is developed for a multicultural target population, some expansion and elaboration of the typical aspects of a test plan is required to ensure that cross-cultural aspects are added to the structure of its design.

McIntire and Miller (2000) emphasise that a statement of the purpose of a test should comprise of an indication of the construct to be measured (e.g. identity, personality or self-esteem) as well as how the outcome (results) of the test will be used (e.g. to predict a performance criterion, to compare individuals to a norm group or to make a diagnosis). Furthermore, the context in which the test will be used (in this instance, the multicultural South African context), should also be included in the purpose statement. The rationale for this is that, just as the nature of the construct to be measured and the intended use of the test have implications for the development of the test specifications, the fact that the test is to be used in multicultural settings will have implications for the planning related to the design of the test. It needs to be taken into account here that the South African society has a diversity of cultures in which appreciation for the culture of origin exists alongside variations in acculturation towards a Western norm (Claassen, 1997). In view of the varying cultural distances between cultures and subcultures in South Africa and the influence that culture exerts on behaviour (and hence test performance), Claassen (1997:306) states that a “realistic objective in cross cultural testing is rather to construct tests that presuppose only experiences that are common to different cultures”. Retief (1992) adds that multicultural tests should provide not only an index of commonality but also an index of difference. From this, it is evident that a multicultural test could have two components: one that taps aspects of the construct that are common across cultures and one that taps aspects of the construct that are unique to each group. The former can be employed when cross-cultural comparisons are made, while the latter can be employed to obtain a comprehensive, more culturally contextualised picture of the individual being assessed. Accordingly, if the fact that the test is developed for a multicultural context is specified in the test plan, the test developer will be attentive to the fact that the test plan will also have to include ways of identifying aspects of the construct that are common to and unique to the various groups included.

It is advised that the test developer make a list of the characteristics of the intended test-takers and focus on those characteristics that could influence how they will respond to the test items as well as their performance on the test. Furthermore, the more important characteristics that might need to be taken in account when developing a test for a multicultural South African context need to be highlighted. For example, age is usually one of the key aspects of the



intended target population that needs to be clarified. Whether the test is developed for children, adolescents or adults will have an impact on the nature of the format and items.

An additional important and complex aspect to take into account when defining the target population in the multicultural South African context is the educational status. The schooling of individuals plays a significant role in the ability to read, write and work with numbers as well as in higher order cognitive development, in that it “influence[s] how people think or the reasoning strategies they use, how they approach problems, their ability to deal with issues in an independent way, as well as to work accurately and quickly” (Grieve, 2001:325). The fact that people who have had an inferior quality of education have not had the same opportunities to develop academic proficiencies and cognitive skills as those from more advantaged educational backgrounds, due to the historical inequality in the provision of education among the various cultural groups in South Africa, needs to be considered. In addition, the standard of educational provision in rural areas has been noticeably lower to that offered in urban areas. It is therefore expected that urban-rural distinctions are evident in cognitive tests (Freeman, 1984).

Nell (1994) argues that language is the most significant moderator variable of test performance, particularly in a multilingual society. If a test is administered in a language in which test-takers are not proficient, it will be complex to determine whether poor performance on the test is a result of language or communication difficulties or due to the fact that test-takers have a low level of the construct being measured. Based on this, studies by Meiring, Van de Vijver, Rothmann and Barrick (in press, 2003) and Abrahams and Mauer (1999b) show that comprehending English concepts in personality tests was challenging for black test-takers and influenced the construct comparability of the tests across cultural groups. Related to these findings, the results of the AIQ-IV questionnaire might not be a true reflection of the assessment of the four identity orientations between the different cultural backgrounds.

According to the International Test Commission’s guidelines for adapting educational and psychological tests, “test developers/publishers should provide evidence that language use in

the directions, rubrics, and items themselves ...are appropriate for all cultural and language populations for whom the instrument is intended” (Hambleton, 1994:232). Subsequent to this, if it is decided that a test will only be developed in one language but with the aim to employ it with multilingual participants, it is advised that the test plan should specify how the language proficiency of participants with respect to the test language will be determined. It is also necessary to describe the level of proficiency required to make provision that language aspects do not contaminate the test results. However, test developers may wish to develop a multilingual test. In this instance, the test plan should specify available versions. In addition, it should be specified in which language the test content will originally be developed (source language) prior to translating to the other language versions.

According to Hambleton (1994), the source language version is sometimes unreasonably complicated and as a result rather tricky to translate correctly. This is one of the causes of the development of inadequate quality cross-cultural tests. Another issue identified by Hambleton (1994) is the problem with the translation of concepts and idiomatic expressions from the source language version, which do not have equivalents in the other languages. A team of experts in the cultural, content and language fields should therefore be included right from the planning phase to examine the content being developed to reduce probable translation difficulties.

Where it is decided to develop more than one language version of the test, the test plan should also indicate the methodologies that will be used, to ensure the systematic gathering of judgmental and empirical evidence that the various language versions are equivalent (Hambleton, 1994). Readers are referred to Bracken and Barona (1991), Brislin (1970), Hambleton (1994), Kanjee (2001), Van de Vijver and Leung (1997) and Van Ede (1996) for a comprehensive discussion of the issues and methods associated with translating tests into various languages and establishing the equivalence of the translations.

Conventionally, test developers confer with a diversity of sources to obtain support in concisely defining and operationalising a construct in terms of observable, measurable behaviours when a construct is to be defined in a test plan. When the aim is to develop a test to be used with a diversity of cultures and language groups, there is a critical aspect that

needs to be considered prior to the construct being defined and operationalised by employing the sources and resources outlined above. Taking into account the differences that is evident between various cultural and language groups relating to their customs, values, traditions and diverse world views, the same construct could be interpreted and comprehended in much different ways in various cultural and language groups (Hambleton, 1994). A common example of this is the construct of intelligence. This construct is connected in Western cultures with being mentally sharp and quick thinking, whereas in Eastern cultures it is connected with being considerate and reflective (i.e., wise and slow to respond). It is therefore very important that the meaning and understanding of the construct should be explored in the various cultural groups from the planning phase to minimise construct bias from the first step.

In addition, according to the International Guidelines for Test Use (ITC, 2001), when the objective is to use a test with participants from different cultural groups, it is recommended to ensure that the constructs being measured are meaningful for each group. In other words, the construct to be assessed should not simply be investigated with regard to the way different cultural and language groups conceptualise it, but furthermore to whether the construct is meaningful for them. The rationale for developing a test for a specific cultural group that does not perceive the construct to be relevant or of value for them would be questionable.

The home language and ethnic background of the respondents might have an influence on their responses due to different understandings of certain words used. Thus, the effect of language could have a direct impact on the reliability of the scores obtained in the statistical analysis. For this study, the AIQ-IV questionnaire was only available in two languages, namely Afrikaans and English. The descriptive statistics show that different ethnic groups with different home languages completed the questionnaire. For future studies, it might be recommended to translate the questionnaire to enable all the respondents to answer the questions in their home language. This will ensure comprehensive understanding of the questions and therefore provide more reliable research findings and conclusions of statistical analysis.

### **6.1.3 Tests, items and response modes**

A test consists of items to which the participant needs to respond by using a particular response mode. There exist a variety of modes in which a test can be presented (e.g. paper-based or computer-based); various item formats (e.g. multiple choice or performance tasks), and various response modes (e.g. verbal, written or typing on a computer keyboard). For administering an instrument in a multicultural context, Hambleton (1994) emphasises that instrument developers must ensure that the selection of their testing techniques, item formats, test conventions and procedures are known to the proposed populations. It is not advisable simply to assume that the selected presentation and response modes or item formats are equally familiar and suitable for all the intended cultural groups.

The AIQ-IV was changed to a web-based format. Some of the participants might not have been familiar to the computer-based mode and selecting their responses using a Likert-type format, due to their cultural backgrounds. Numerous cross-cultural psychologists recognised between-culture mean comparisons using Likert-type scales to be risky. The reason is that conclusions can be affected by remaining measurement inequivalencies and by cultural differences in response styles and reference groups (Heine, Lehman, Peng & Greenholtz, 2002; Smith, 2004).

### **6.1.4 Sample size**

This study included a sufficient number of respondents, but including a sample that is more representative of the ethnic groups in South Africa might contribute to more valid conclusions regarding the South African population. Although the sample included different ethnic groups, the number of respondents per ethnic group was not equal. This limitation impacts on the external validity of this research study. Therefore, it is not recommended to draw any inferences on the impact of culture and whether differences exist between the various cultural groups in the current study.

The current study's aim was to perform a factor analytic study on the AIQ-IV questionnaire. To improve the validity and reliability of research results, by assessing construct validity of

measuring instruments, the following empirical recommendations are proposed and discussed for further research studies.

## **6.2 Empirical recommendations**

### **6.2.1 EFA**

It is recommended to employ an EFA to uncover the underlying structure of the observed variables. By using EFA, one can determine how many factors exist, the relationship between the factors as well as how the variables are associated with the factors. Oblique approaches allow for the factors to be correlated (Tabachnick & Fidell, 2001). The rotation approach, Oblimin, allows for determining how strongly intercorrelated the factors actually are. This statistic produces three main tables, namely the Pattern Matrix, Structure Matrix and Component Correlations Matrix. The Pattern Matrix displays the factor of each of the variables, the Structure Matrix provides information about the correlation between variables and factors, and the Component Correlations Matrix shows the strength of the relationship between the factors which provides information to decide whether it would reasonable to assume that the components are not related.

### **6.2.2 Item analysis**

To provide an indication of the item quality, item means, variances and item-total correlations, one should generate item statistics. These statistics provide an initial indication of the appropriateness of the subsequent analysis procedures.

### **6.2.3 Reliability**

The reliability of a measurement instrument indicates how free it is from random error. It is therefore recommendable to assess the internal consistency of the scale. This provides evidence of the degree to which the items that make up the scale are all measuring the same underlying attribute.

The Cronbach's Coefficient alpha is a preferred statistic used to indicate the level of internal consistency. Values range from 0 to 1, with higher values indicating greater reliability. According to Anastasi (1976), a desirably reliability coefficient would fall in the range of 0.80 to 0.90. The widely-accepted social science cut-off is that alpha should be 0.70 or higher for a set of items to be considered acceptable (Nunnally & Bernstein, 1994), whilst Bartholomew, *et al.* (2000) argue that between 0.80 and 0.60 is acceptable.

Employing all these statistical analyses will allow researchers assess the construct validity of the scale. Construct validity is concerned with the degree of correspondence between constructs and their measures; therefore, construct validity is an essential condition for theory development and testing. Without assessing construct validity, one cannot estimate and correct the confusing influences of random error and method variance, and the results of theory testing may be ambiguous. That is, a hypothesis might be rejected or accepted because of excessive error in measurement, not necessarily due to the inadequacy or adequacy of theory (Bagozzi *et al.*, 1991).

In conclusion, the AIQ-IV may be useful and appropriate in the multicultural South African context. However, more in-depth study is recommended before it is applied equally in different cultural groups.

### **6.3 Chapter summary**

The outcome of the current confirmatory factor analytic study concludes that the research results indicate a reasonable model fit of the data. The limitations in terms of participant responses, language, response modes and sample of the study that could influence the reliability and validity of research outcomes in different ways are discussed. Several empirical recommendations in terms of EFA, item analysis and reliability are proposed to assess construct validity of the AIQ-IV for future research.

## 7 REFERENCES

Abrahams, F. & Mauer, K.F. 1999b. Qualitative and statistical impact of home language on responses to the items of the Sixteen Personality Factor Questionnaire (16PF) in the South African context. *South African Journal of Psychology*, 29: 76-86.

Abrams, D. & Hogg, M.A. 1988. Comments on the motivational status of self-esteem in social identity and intergroup discrimination. *European Journal of Social Psychology*, 18: 317-334.

Abrams, D. & Hogg, M.A. 1999. *Social identity and social cognition*.

Adams, G.R. & Marshall, S.K. 1996. A developmental social psychology of identity: Understanding the person-in-context. *Journal of Adolescence*, 19: 429-442.

Allport, G.W. 1937. *Personality: A psychological interpretation*. New York: Holt.

Allport, G.W. 1931. What is a trait of personality. *Journal of Abnormal and Social Psychology*, 25: 368-372.

Allport, G.W. 1955. Is the concept of self necessary? *Becoming: Basic considerations for a psychology of personality* (Chapter 10). New Haven, CT: Yale University Press.

Alpert, S., Ashforth, B. & Dutton, J. 2000. Organisational identity and identification: charting new waters and building new bridges. *Academy of Management Review*, 25: 13-18.

Anastasi, A. 1976. *Psychological testing*. New York: McMillan.

Archer, S.L. (Ed.) 1994. *Interventions for adolescent identity development*. Thousand Oaks: Sage.

Aron, A., Aron, E. & Smollman, D. 1992. Inclusion of others in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63: 596-612.

Bagozzi, R.P. 1991. Structural equation models in marketing research. In Neal, W.D. (Ed.) *First annual advanced research techniques forum*. Chicago: American Marketing Association.

Bagozzi, R.P., Yi, Y. & Phillips, L.W. 1991. Assessing construct validity in organisational research. *Administrative Science Quarterly*, 36: 421-58.

Bakan, D. 1996. *The duality of human existence: Isolation and communion in Western men*. Boston: Beacon Press.

Baldwin, J.M. 1897. *Social and ethical interpretations in mental development*. New York: Macmillan.

Barret, P. 2007. Structural equation modelling: Adjudging model fit. *Personality and individual differences*, 42: 815-824.

Bartholomew, K., Antonia, J.Z. & Marcia, J.E. 2000. Coded semi-structured interviews in psychological research. In Resi, H.T. & Judd, C.M. (Eds.) *Handbook of research methods in social and personality psychology*. Cambridge: Cambridge University Press.

Baumeister, R.F. 1986. *Identity: cultural change and the struggle for self*. New York: Oxford University Press.

Baumeister, R.F. 1991a. *Meanings of life*. New York: Guilford Press.

Baumeister, R.F. 1991b. *Escaping the self*. New York: Basic Books.

Baumeister, R.F. & Leary, M.R. 1995. The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117: 497-529.

Bentler, P.M. 1989. *EQS structural equations program: Manual*. Los Angeles: BMDD Statistical Software.



Bentler, P.M. 1990. Comparative fit indexes in structural models. *Psychological Bulletin*, 107: 238-246.

Bentler, P.M. 2001. *EQS 6 structural equations program manual*. Encino: Multivariate Software.

Bentler, P.M. & Bonnett, D.G. 1980. Significance tests & goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin*, 88: 588-606.

Bentler, P.M. & Dijkstra, T. 1985. Efficient estimation via linearization in structural models. In Krishnaiah, P.R. (Ed.) *Multivariate analysis 6*. Amsterdam: North-Holland.

Bentler, P.M. & Weeks, D.G. 1980. Linear structural equation with latent variables. *Psychometrika*, 45: 289–308.

Bentler, P.M. & Yuan, K.H. 1999. Structural equation modeling with small samples: Test statistics. *Multivariate Behavioral Research*, 34: 181–197.

Berscheid, E. 1983. Emotion. In Kelly, H.H., Berscheid, E., Christensen, A., Harvey, J.H., Huston, T.L., Levinger, G., McClintock, E., Replau, L.A. & Petersen, D.R. (Eds.) *Close relationships*. New York: Freeman.

Berzonsky, M. 1992. A process perspective on identity and stress management. In Adams, G.R., Gullotta, T.P. & Montemayor, R. (Eds.) *Adolescent identity formation*. Newbury Park, CA: Sage.

Bollen, K.A. 1989. *Structural equations with latent variables*. New York: Wiley.

Bosma, H.A., Graafsma, T.L.G., Grotevant, H.D. & De Levita, D.J. 1994 (Eds.) *Identity and development: An interdisciplinary approach*. Newbury Park: Sage.

Bracken, B.A. & Barona, A. 1991. State of the art procedures for translating, validating and using psycho-educational tests in cross-cultural assessment. *School Psychology International*, 12: 119-132.

Breakwell, G.M. (Ed.) 1992. *Social psychology of identity and the self concept*. London: Surrey University Press.

Breckler, S.J. & Greenwald, A.G. 1986. Motivational facets of the self. In Higgins, E.T. & Sorrentino, R. (Eds.) *Handbook of motivation and cognition*. New York: Guilford Press.

Brewer, M.B. 1991. The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17: 475-482.

Brewer, M.B. 1993a. The role of distinctiveness in social identity and group behaviour. In Hogg, M.A. & Abrams, D. (Eds.) *Group Motivation: Social Psychological Perspectives*. London: Harvester/Wheatsheaf.

Brewer, M.B. 1993b. Social Identity, distinctiveness, and in-group homogeneity. *Social Cognition*, 11: 150-164.

Brewer, M.B. & Chen, Y. 2007. Where (Who) are collectives in collectivism? Toward conceptual clarification of individualism and collectivism. *Psychological Review*, 114: 133-151.

Brewer, M.B. & Gardner, W. 1996. Who is this “we”? Levels of collective identity and self representations. *Journal of Personality and Social Psychology*, 71: 83-93.

Brislin, R. 1970. Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1: 185-216.

Brown, J.D. 1998. *The self*. New York: McGraw-Hill.

Browne, M.W. 1974. Generalized least squares estimators in the analysis of covariance structures. *South African Statistical Journal*, 8: 1–24.

Browne, M.W. 1984. Asymptotically distribution-free methods for the analysis of covariance structures. *British Journal of Mathematical Statistical Psychology*, 37: 62–83.

Browne, M.W. & Cudeck, R. 1993. Alternative ways of assessing model fit. In Bollen, K.A. & Long, J.S. (Eds.) *Testing structural models* (pp. 35-57). Newbury Park: Sage.

Burke, P.J. 1980. The self: Measurement requirements from an interactionist perspective. *Social Psychology Quarterly*, 43:18-29.

Burke, P.J. 1991. Identity processes and social stress. *American Sociological Review*, 56: 836-49.

Burke, P.J. & Reitzes, D.C. 1991. An identity approach to commitment. *Social Psychology Quarterly*, 54: 280-86.

Burke, P.J. & Tully, J. 1977. The measurement of role/identity. *Social Forces*, 55: 880-97.

Campbell, J.D. 1990. Self-esteem and clarity of the self-concept. *Journal of Personality and Social Psychology*, 59: 538-549.

Campbell, D.T. and Fiske, D.W. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56: 81-105.

Cascio, W.F. 1998. *Applied psychology in personnel management* 3<sup>rd</sup> Ed. Englewood Cliffs: Prentice-Hall.

Chatman, J.A. & Flynn, F.J. 2001. The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams. *Academy of Management Journal*, 44: 956-074.

Chatman, J.A., Polzer, J., Barsade, S. & Neale, M. 1998. Being different yet feeling similar: the influence of demographic composition and organisational culture on work processes and outcomes. *Administrative Science Quarterly*, 43: 749-780.

Cheek, J.M. 1989. Identity orientations and self-interpretation. In Buss, D.M. & Cantor, N. (Eds.) *Personality psychology: Recent trends and emerging directions*. New York: Springer-Verlag.

Cheek, J.M. & Briggs, S.R. 1981. Self-consciousness and aspects of identity. *Journal of Research in Personality*, 16: 401-408.

Cheek, J.M. & Hogan, R. 1981. *The structure of identity: Personal and social aspects*. Paper presented at the annual meeting of the American Psychological Association, Los Angeles, CA. August: 351-356.

Cheek, J.M., Smith, S.M. & Tropp, L.R. 2002. *Relational identity of orientation: A fourth scale for the AIQ*. Paper presented at the meeting of the Society for Personality and Social Psychology, Savannah, February.

Cheek, J.M., Tropp, L.R., Chen, L.C. & Underwood, M.K. 1994. *Identity orientations: Personal, social and collective aspects of identity*. Paper presented at the meeting of the American Psychological Association, Los Angeles, August. Adapted from: Cheek, Underwood & Cutler (1985).

Cheek, J.M., Underwood, M.K. & Cutler, B.L. 1985. *The Aspects of Identity Questionnaire (III)*. Unpublished manuscript. Georgia: Wellesley College.

Choi, N., Fuqua, D. & Griffin, B.W. 2001. Exploratory analysis of the structure of scores from the multidimensional scales of perceived self efficacy. *Educational and Psychological Measurement*, 61: 475-89.

Claassen, N.C.W. 1997. Cultural differences, politics and test bias in South Africa. *European Review of Applied Psychology*, 47: 297-307.

Clancy, S.M. & Dollinger, S.J. 1993. Photographic depictions of the self: Gender and age differences in social connectedness. *Sex Roles*, 29: 477-495.

Collins, J. 2001. *Good to great: Why some companies make the leap...and others don't*. New York, NY: Harper Collins.

Collins, N.L. & Allard, L.M. 2001. Cognitive representations of attachment: the content and function of working models. In G.J.O. Fletcher & M.S. Clark (Eds.), *Blackwell Handbook of Social Psychology: Vol. 2. Interpersonal Processes* (pp. 60-85). UK: Blackwell.

Cook, T.D. & Campbell, D.T. 1979. *Quasi-experimentation: Design and analysis issues in field settings*. Boston: Houghton Mifflin.

Cooley, C.H. 1902. *Human nature and the social order*. New York: Scribner's.

Cortina, J.M. 1993. What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78: 98-104.

Crisp, R.J. & Hewstone, M. 2001. Multiple categorisation and implicit intergroup bias: differential category dominance and the positive-negative asymmetry effect. *Journal of Social Psychology*, 31: 45-62.

Crocker, J. & Luthanen, R. 1990. Collective self-esteem and ingroup bias. *Journal of Personality and Social Psychology*, 58: 60-67.

Crocker, J. Luthanen, R., Blaine, B. & Broadnax, S. 1994. Collective self-esteem and psychological well-being among White, Black, and Asian college students. *Personality and Social Psychology Bulletin*, 20: 503-513.

Cronbach L.J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika*, 16: 297-333.

Cronbach, L.J. 1971. Test Validation in Thorndike, R.L. (Ed.) *Educational Measurement*. 2<sup>nd</sup> ed. Washington: American Council on Education.

Cross, S.E., Bacon, P.L. & Morris, M.L. 2000. The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology*, 78: 791-808.

Cross, S.E., Gore, J.S. & Morris, M.L. 2003. The relational-interdependent self-construal, self-concept consistency, and well-being. *Journal of Personality and Social Psychology*, 85: 933-944.

Cross, S.E. & Madson, L. 1997. Models of the self: Self-construals and gender. *Psychological Bulletin*, 122: 5-37.

Cross, S.E. & Morris, M.L. 2003. Getting to know you: The relational self-construal, relational cognition, and well-being. *Personality and Social Psychology Bulletin*, 29: 512-523.

Cross, S.E., Morris, M.L. & Gore, J.S. 2002. Thinking about oneself and others: The relational-interdependent self-construal and social cognition. *Journal of Personality and Social Psychology*, 82: 399-418.

Damon, W. 1983. *Social and personality development: Infancy through adolescence*. New York: W.W. Norton.

Deaux, K. 1992. Personalising identity and socialising self. In Breakwell G.M., (Ed.) *Social psychology of identity and the self-concept*. London: Surrey University Press.

Del Prado, A.M., Church, A.T., Katigbak, M.S., Miramontes, L.G., Whitty, M.T., Curtis, G.J., Vargas-Flores, De J, J. Ibáñez-Reyes, J., Ortiz, F.A. & Reyes, J.A.S. 2007. Culture, method, and the content of self-concepts: Testing trait, individual-self-primacy, and cultural psychology perspectives. *Journal of Research in Personality*, 41: 1119-1160.

Doise, W. 1986. *Levels of explanation in social psychology*. Cambridge: Cambridge University Press.

Donahue, E.M., Robins, R.W., Roberts, B.W. & John, O.P. 1993. The divided self: Concurrent and longitudinal effects of psychological adjustment and social roles on self-concept differentiation. *Journal of Personality and Social Psychology*, 64: 834-846.

Doosje, B., Spears, R. & Ellemers, N. 2001. The dynamic and determining role of ingroup identification: Responses to anticipated and actual changes in the intergroup status hierarchy. *Journal of Social Psychology*. In Press.

Drury, J. & Reicher, S. 2000. Collective action and psychological change: the emergence of new social identities. *Journal of Social Psychology*, 39: 579-604.

Dukerich, J., Golden, B. & Shortell, S. 2002. Beauty is in the eye of the beholder: The impact of organisational identification, identity, and image on the cooperative behaviours of physicians. *Administrative Science Quarterly*, 47: 507-533.

Ellemers, N., Spears, R. & Doosje, R. 1997. Sticking together or falling apart: In-group identification as a psychological determinant of group commitment versus individual mobility. *Journal of Personality and Social Psychology*, 72:617-626.

Ellemers, N., Spears, R. & Doosje, R. 2002. Self and social identity. *Annual Review of Psychology*, 53: 161-86.

Elliott, D., & Stern, J.E. 1997. *Research ethics: A reader*. Hanover: University Press of New England.

Erikson, E.H. 1964. *Insight and responsibility*. New York: W.W. Norton.

Ethier, K.A. & Deaux, K. 1994. Negotiating social identity when contexts change: Maintaining identification and responding to threat. *Journal of Personality and Social Psychology*, 67: 243-251.

Farthing, G.W. 1993. The self paradox in cognitive psychology and Buddhism: Review of "The embodied mind: Cognitive science and human experience." *Contemporary Psychology*, 38: 139-140. Cambridge, MA: MIT Press.

Fiske, D.W. 1982. Convergent-discriminant validation in measurements and research strategies. In Brinberg, D. and Kidder, L.H. (Eds.) *Forms of validation in research*. San Francisco: Jossey-Bass.

Fiske, S.T. & Taylor, E.T. 1991. *Social Cognition*. 2<sup>nd</sup> ed. New York: McGraw-Hill.

Flynn, F.J. 2005. Identity orientations and forms of social exchange in organisations. *Academy of Management Review*, 30: 737-750.

Flynn, F.J., Chatman, J.A. & Spataro, S.A. 2001. Getting to know you: The influence of personality on the impression formation and performance of demographically different people in organisations. *Administrative Science Quarterly*, 46: 414-442.

Foxcroft, C.D. 2004. Planning a psychological test in the multicultural South African context. *South African Journal of Industrial Psychology*, 30: 8-15.

Foxcroft, C.D. & Roodt, G. 2001. *An introduction to psychological assessment in South Africa*. Johannesburg: Oxford University Press.



Freeman, M.C. 1984. *The effect of cultural variables on the Goodenough-Harris Drawing Test and the Standard Progressive Matrices*. Unpublished master's dissertation, University of the Witwatersrand, Johannesburg, South Africa.

Gaertner, L., Sedikides, C. & Graetz, K. 1999. In search of self-definition: Motivational primacy of the collective self, or contextual primacy? *Journal of Personality and Social Psychology*, 76: 5-18.

Gaertner, L., Sedikides, C., Vevea, J.L. & Iuzzini, J. 2002. The "I," the "We," and the "When": A meta-analysis of motivational primacy in self-definition. *Journal of Personality and Social Psychology*, 83: 574-91.

Garson, G.D. Online Statsnotes: An Online Textbook. PA 756. Available from <http://www2.chass.ncsu.edu/garson/pa765/statnote.htm>. [1 September 2009].

Gatewood, R.D. & Field, H.S. 1990. *Human resource selection*. 2<sup>nd</sup> ed. Orlando: Holt, Rinehart & Winston.

Geertz, C. (1984). "From the native's point of view": On the nature of anthropological understanding. In Shweder, R.A., & Le Vine, R.A. (Eds.) *Culture theory: Essays on mind, self, and emotion*. Cambridge: Cambridge University Press.

Gilligan, C. 1982. *In a different voice: Psychological theory and women's development*. Cambridge: Harvard University Press.

Gordon, C. 1986, Self-conceptions: Configurations of content. In Gordon, C. & Gergen, K.J. (Eds.), *The self in social interaction* (pp. 115-136). New York: Wiley.

Graziano, A.M. & Raulin, M.L. 2000. *Research methods a process of inquiry*. 4<sup>th</sup> Edition. Boston: Allyn & Bacon.

Greenwald, A.G. & Breckler, S.J. 1985. To whom is the self presented? In Schlenker, B.R. (Ed.) *The self and social life*. New York: McGraw-Hill.

Grieve, K.W. 2001. Factors affecting assessment results. In Foxcroft, C.D. & Roodt, G. (Eds.) *An introduction to psychological assessment in South Africa*. Johannesburg: Oxford University Press.

Hair, J.F. Jr., Anderson, R.E., Tatham, R.L. & Black, W.C. 1998. *Multivariate data analysis*, 5<sup>th</sup> Ed. Upper Saddle River: Prentice Hall.

Hambleton, R.K. 1994. Guidelines for adapting educational and psychological tests. *Bulletin of the International Test Commission*, 10: 229-244.

Haslam, S.A., Oakes, P.J., McGarty, C., Turner, J.C., Reynolds, K.J. & Eggins, R.A. 1996. Stereotyping and social influence: The mediation of stereotype applicability and sharedness by the views of in-group and out-group members. *British Journal of Social Psychology*, 35: 369-397.

Haslam, S.A. & Platow, M.J. 2001. Your wish is our command: The role of shared social identity in translating a leader's vision into followers' action. In Hogg, A. & Terry, D.J. (Eds.) *Social Identity Processes in Organisational Context*. Sussex: Psychology Press.

Haslam, S.A. & Turner, J.C. 1992. Context-dependent variation in social stereotyping: The relationship between frame of reference, self-categorisation and accentuation. *Journal of Social Psychology*, 22. 251-277.

Hazan, C. & Shaver, P.R. 1994. Attachment as an organisational framework for research on close relationships. *Psycho-logical Inquiry*, 5: 1-22.

Heine, S.J., Lehman, D.R., Peng, K. & Greenholtz, J. 2002. What's wrong with cross-cultural comparisons of subjective Likert scales? The reference-group effect. *Journal of Personality and Social Psychology*, 82: 903-918.

Hilgard, E.R. 1949. Human motives and the concept of the self. *American Psychologist*, 4: 374-382.

Hofstede, G. 1980. *Culture's consequences: International differences in work-related values*. Beverly Hills: Sage.

Hogan, R. & Cheek, J.M. 1983. Identity, authenticity, and maturity. In Sarbin, T.R. & Scheibe, K.E. (Eds.) *Studies in Social Identity*. New York: Praeger.

Hogg, M.A. 1992. *The social psychology of group cohesiveness: From attraction to social identity*. London: Harvester/Wheatsheaf.

Hogg, M.A. 1993. Group cohesiveness: A critical review and some new directions. *European Review of Social Psychology*, 4: 85-111.

Hogg, M.A. & Abrams, D. 1988. *Social identifications: A social psychology of intergroup relations and group processes*. London: Routledge.

Hogg, M.A. & Hardie, E.A. 1992. Prototypicality, conformity and depersonalised attraction: A self-categorisation analysis of group cohesiveness. *British Journal of Social Psychology*, 31: 41-56.

Hogg, M.A. & McGarty, C. 1990. Self-categorisations and social identity. In Abrams, D. & Hogg, M.A. (Eds.) *Social Identity Theory: Constructive and critical advances*. London: Harvester/Wheatsheaf.

Hogg, M.A., Terry, D.J. & White, K.M. 1995. A tale of two theories: A critical comparison of identity theory with social identity theory. *Social Psychology Quarterly*, 58: 255-269.

Hogg, M.A. & Terry, D.J. 2000. Social identity and self-categorisation processes in organisational contexts. *Academy of Management Review*, 25: 21-140.

Hogg, M.A. & Williams, K.D. 2000. From I to we: Social identity and the collective self: *Group Dynamics: Theory, Research and Practice*, 4: 81-87.

Horn, J.L. 1965. A rationale and test for the number of factors in factor analysis. *Psychometrics*, 30: 179-85.

Hox, J.J. & Bechger, T.M. 2001. An introduction to structural equation modeling. *Family Science Review*, 11: 354-73.

Hu, L & Bentler, P.M. 1998. Fit indices in covariance structural equation modelling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3, 424-453.

Hu, L. & Bentler, P.M. 1999. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6: 1-55.

Hu, L., Bentler, P.M. & Kano, Y. 1992. Can test statistics in covariance structure analysis be trusted? *Psychological Bulletin*, 112: 351–362.

International Test Commission, (ITC). 2001. International guidelines for test use. *International Journal of Testing*, 1: 93-114.

Jaccard, J. & Wan, C.K. 1996. *Lisrel approaches to interaction effects in multiple regression*. Thousand Oaks: Sage.

James, W. 1890. *The principles of psychology*. Cambridge, MA: Harvard University.

Jamshidian, M. & Bentler, P.M. 1999. ML estimation of mean and covariance structures with missing data using complete data routines. *Journal of Educational and Behavioral Statistics*, 24: 21–41.

Jaspars, J.M.F. 1980 .The coming of age of social psychology in Europe. *European Journal of Social Psychology*, 10: 421-29.

Jaspars, J.M.F. 1986. Forum and focus: A personal view of European social psychology. *European Journal of Social Psychology*, 16: 3-15.

Jenkins, R. 2004. *Social Identity*. 2<sup>nd</sup> Ed. Routledge, London.

Kagitcibasi, C. 1996. *Family and human development across cultures*. Mahwah: Lawrence Erlbaum.

Kalleberg, A.L. & Kluegel, J.R. 1975. Analysis of the Multitrait-Multimethod Matrix: Some limitations and an alternative. *Journal of Applied Psychology*, 60: 1-9.

Kaplan, A. 1964. *The Conduct of Inquiry*. Scranton, Pennsylvania: Chandler Publishing.

Kaplan, R.M. & Saccuzzo, D.P. 1997. *Psychological testing: Principles, applications, and issues*. 4<sup>th</sup> ed. Pacific Grove: Brooks/Cole Publishing Company.

Kanjee, A. 2001. Cross-cultural test adaptation and translation. In Foxcroft, C.D. & Roodt, G. (Eds.) *An introduction to psychological assessment in South Africa*. Johannesburg: Oxford University Press.

Kashima, Y., Yamaguchi, S., Kim, U., Choi, S.C., Gelfand, M.J. & Yuki, M. 1995. Culture, gender, and the self: A perspective from individualism-collectivism research. *Journal of Personality and Social Psychology*, 69: 925-937.

Kelloway, E.K. 1998. *Using LISREL for structural equation modeling: A researcher's guide*. Thousand Oaks: Sage.

Kluckhohn, F. & Strodtbeck, F. 1961 *Variations in value orientations*. Evanston: Row, Peterson.

Kroger, J. 1993. *Discussions on ego identity*. Hillsdale: Lawrence Erlbaum Associates.

Lapsey, D.K. & Power, F.C. (Eds.) 1988. *Self, ego, and identity: Integrative approaches*. New York: Springer-Verlag.

Leahy, R.L. (Ed.) 1985. *The development of the self*. Orlando: Academic Press.

Leary, M.R. 2004. What is the self? A plea for clarity. *Self and Identity*, 3: 1-3.

Leary, M.R. 2007. How the self became involved in affective experience: Three sources of self-reflective emotions. In Tracy, J.L., Robins, R.W. & Tangney, J.P. (Eds.), *The self-conscious emotions: Theory and research* (pp. 38-52). New York: Guilford.

Lecky, P. 1945. *Self-consistency: A theory of personality*. New York: Island Press.

Little, R.J.A. & Rubin, D.B. 1987. *Statistical analysis with missing data*. New York: Wiley.

Loevinger, J. 1976. *Ego involvement: Conceptions and theories*. San Francisco: Jossey-Bass.

Lorenzi-Cioldi, F. & Doise, W. 1990. Levels of analysis and social identity. In Abrams, D. & Hogg, M.A. (Eds.) *Social Identity Theory: Constructive and Critical Advances*. London: Harvester/Wheatsheaf.

Luhtanen, R. & Crocker, J. 1991. Self-esteem and intergroup comparisons: Toward a theory of collective self-esteem. In Suls, J. & Willis, T.A. (Eds.), *Social comparison: Contemporary theory and research*. Hillsdale, NJ: Lawrence Erlbaum.

MacCallum, R.C., Browne, M.W., & Sugawara, H.M. 1996. Power analysis and determination of sample size for covariance structure modelling. *Psychological Methods*, 1: 130–149.

Mahalanobis, P.C. 1936. On the generalised distance in statistics. *Proceedings of the National Institute of Sciences of India*, 2: 49–55.

Mardia, K.V. 1970. Measures of multivariate skewness and kurtosis with applications. *Biometrika*, 57: 519–530.

Mardia, K.V., Kent, J.T. & Bibby, J.M. 1979. *Multivariate Analysis*. New York: Academic Press.

Markus, H. 1977. Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35: 63-78.

Markus, H. & Kitayama, S. 1991. Culture and the self: Implications of cognition, emotion and motivation. *Psychological Review*, 98: 224-253.

McBurney, D.H. 1994. *Research methods*. 3<sup>rd</sup> Ed. California: Wadsworth.

McCall, G. & Simmons, J. 1978. *Identities and Interactions*. Revised ed. New York: Free Press.

McDonald, R.P., & Ho, M.H.R. 2002. Principles and practice in reporting structural equation analyses. *Psychological Methods*, 7, 64-82.

McDougall, W, 1908. *An introduction to social psychology*. 31<sup>st</sup> Ed. London: Methuen.

McLean, K.C., Pasaputhi, M. & Pals, J.L. 2007. Selves creating stories creating selves: A process model of self development. *Personality and Social Psychology Review*, 11: 262-278.

McGuire, W. & McGuire, C. 1982. Significant others in self-space: Sex differences and developmental trends in the social self. In: Suls, J. (Ed.) *Psychological perspectives on the self*. Hillsdale, H.J: Erlbaum.

McIntire, S.A. & Miller, L.A. 2000. *Foundations of psychological testing*. Boston: McGraw-Hill.

Mead, G.H. 1934. *Mind, self, and society*. Chicago, IL: University of Chicago Press.

Medsker, G.J., Williams, L.J. & Holahan, P.J. 1994. A review of current practices for evaluating causal models in organisational behaviour and human resources management research. *Journal of Management*, 20: 439-464.

Meiring, D., Van de Vijver, F.J.R., Rothmann, S. & Barrick, M.R. 2003. Construct, item, and method bias of cognitive and personality tests in South Africa. Unpublished manuscript submitted for publication to *The International Journal for Selection and Assessment*.

Moreland, R.L., Hogg, M.A. & Hains, S.C. 1994. Back to the future: Social psychological research on groups. *Journal of Experimental Social Psychology*, 30: 527-555.

Morf, C.C. & Rhodewalt, F. 2001. Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12: 177-196.

Moser, K. & Schuler, H. 1989. The nature of psychological measurement. In Herriot, P. (Ed.), *Assessment and selection in organisations: Methods and practice for recruitment and appraisal*. Chichester: Wiley.

Mouton, J. 2001. *How to succeed in your Master's & Doctoral studies*. Pretoria: Van Schaik.

Murphy, G. (1947). *Personality: A biosocial approach to origins and structure*. New York: Harper.

Murphy, K.R. & Davidshofer, C.O. 1998. *Psychological testing: Principles and applications*. 4th Ed. Upper Saddle River, NJ: Prentice-Hall.



Murphy, K.R. & Davidshofer, C.O. 2001. *Psychological testing principles and applications*. 5<sup>th</sup> Ed. New Jersey: Prentice Hall.

Mussweiler, R., Gabriel, S. & Bodenhausen, G.V. 2000. Shifting social identities as a strategy for deflecting threatening social comparisons. *Journal of Personality and Social Psychology*, 79: 398-409.

Nell, V. 1994. Interpretation and misinterpretation of the South African Wechsler-Bellevue Adult Intelligence Scale: a history and prospectus. *South African Journal for Psychology*, 27: 43-49.

Nunnally, J.C. & Bernstein, I.H. 1994. *Psychometric theory*. 3<sup>rd</sup> Ed. New York: McGraw-Hill.

Oakes, P.J., Haslam, S.A. & Turner, J.C. 1994. *Stereotypes and social reality*. Oxford: Basil Blackwell.

Ogilvie, D.M. & Ashmore, R. 1991. Self-in-other representation as a unit of analysis in self-concept research. In Curtis, R.C. (Ed.) *The relational self*. New York: Guilford Press.

Peter, J.P. 1981. Construct Validity: A Review of Basic Issues and Marketing Practices *Journal of Marketing Research*, 18: 133-145.

Pinker, S. 1997. *How the mind works*. New York: W.W. Norton.

Poletta, F. & Jasper, J.M. 2001. Collective identity and social movements. *Annual Reviews Sociology*, 27: 283-305.

Prentice, D.A., Miller, D.T. & Lightdale, J.R. 1994. Asymmetries in attachments to groups and to their members – distinguishing between common-identity and common-bond groups. *Journal of Personality and Social Psychology Bulletin*, 20: 484-493.

Ramachandran, V. S. 2007. The neurology of self-awareness [5.9.09]. *Edge*. ([www.edge.org](http://www.edge.org)).

Reid, A. & Deaux, K. 1996. Relationship between social and personal identities: Segregation of integration? *Journal of Personality and Social Psychology*, 71: 1084-1091.

Reis, H.T. & Shaver, P. 1988. Intimacy as an interpersonal process. In Duck, S. (Ed.) *Handbook of personal relationships: Theory, research, and interventions* 1<sup>st</sup> ed. Chichester: Wiley.

Retief, A. 1992. The cross-cultural utility of the SAPQ – bias or fruitful differences. *South African Journal of Psychology*, 22: 202-207.

Robertson, G.J. 1990. A practical model for test development. In Reynolds, C.R. & Kamphaus, R.W. (Eds.) *Handbook of psychological and educational assessment of children: Intelligence and achievement*. New York: The Guilford Press.

Rosenberg, M. 1981. The self-concept: Social product and social force. In Rosenberg, M. & Turner, R.H. (Eds.) *Social psychology: Sociological perspectives*. New York: Basic Books.

Rosenberg, M. 1989. *Society and the adolescent self-image*. Middletown, CT: Wesleyan University Press.

Ruane, J.M. 2005. *Essentials of research methods: A guide to social science research*. UK: Blackwell Publishing.

Rubin, M. & Hewstone, M. 1998. Social identity theory's self-esteem hypothesis: A review and some suggestions for clarification. *Personality and Social Psychology Review*, 2: 40-62.

Sampson, E.E. 1978. Personality and the location of identity. *Journal of Personality*, 46: 552-568.

- Satorra, A. 2000. Scaled and adjusted restricted tests in multi-sample analysis of moment structures. In Heijmans, D.D.H. Pollock, D.S.G. & Satorra, A. (Eds.) *Innovations in multivariate statistical analysis: A festschrift for Heinz Neudecker*. Dordrecht: Kluwer Academic.
- Satorra, A. & Bentler, P.M. 2001. A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, 66: 507–514.
- Satorra, A. & Bentler, P.M. 1988. Scaling corrections for chi-square statistics in covariance structure analysis. In *Proceedings of the American Statistical Association*, 66: 308–313.
- Satorra, A. & Bentler, P.M. 1994. Corrections to test statistics and standard errors in covariance structure analysis. In von Eye, A. & Clogg, C.C. (Eds. *Latent variables analysis: Applications for developmental research*. Thousand Oaks, CA: Sage.
- Schafer, J.L. & Olsen, M.K. 1998. Multiple imputation for multivariate missing-data problems: A data analyst's perspective. *Multivariate behavioral research*, 33: 545–571.
- Schmitt, N. 1978. Path analysis of multitrait-multimethod matrices. *Applied Psychological Measurement*, 2: 157-73.
- Schmitt, N., Coyle, B.W. & Saari, B.B. 1977. A review and critique of analyses of multitrait-multimethod matrices. *Multivariate ehavioral Research*, 12: 447-78.
- Schmitt, N. & Stults, D.N. 1986. Methodology review: Analysis of multitrait-multimethod matrices. *Applied Psychological Measurement*, 10: 1-22.
- Sedikides, C. 1993. Assessment, enhancement, and verification determinants of the self-evaluation process. *Journal of Personality and Social Psychology*, 65: 317-338.
- Sedikides, C. & Brewer, M.B. (Eds.) (in press). *Individual self, relational self, and collective self*. Philadelphia: Psychology Press.

Sedikides, C. & Skowronski, J.J. 2003. Evolution of the symbolic self: Issues and prospects. In Leary, M.R. and Tangney, J.P. (eds.): *Handbook of Self and Identity* (594-609), New York, NY: Guilford.

Serpe, R.T. 1987. Stability and change in self: A structural symbolic interactionist explanation. *Social Psychology Quarterly*, 50: 40-55.

Sheldon, K.M., Ryan, R.M., Rawsthorne, L.J. & Ilardi, B. 1997. Trait self and true self: Cross-role variation in the Big-Five personality traits and its relations with psychological authenticity and subjective well-being. *Journal of Personality and Social Psychology*, 73: 1380-1393.

Shoda, Y. 1998. Behavioural expressions of a personality system: Generation and perception of behavioural signatures. In Cervone, D. & Shoda, Y. (Eds.) *The coherence of personality: Social-cognitive bases of consistency, variability, and organisation*. New York: Guilford Press.

Shweder, R.A & Bourne, E.J. 1982. Does the concept of the person vary cross-culturally? In Marsella, A.J. & White, G.M. (Eds.) *Cultural conceptions of mental health and therapy*. Dordrecht: D. Reidel.

Simon, R.W. 1992. Parental role strains, salience of parental identity, and gender differences in psychological distress. *Journal of Health and Social Behaviour*, 33: 25-35.

Simon, B., Loewy, M., Stuermer, S., Weber, U., Freytag, P., Habig, C., Kampmeier, C. & Spahlinger, P. 1998. Collective identification and social movement participation. *Journal of Personality and Social Psychology*, 74: 646-658.

Simon, B., Pantaleo, G. & Mummendey A. 1995. Unique individual or interchangeable group member? The accentuation of intragroup differences versus similarities as an indicator of the individual self versus the collective self. *Journal of Personality and Social Psychology*, 69: 106-119.

Skinner, B.F. 1990. Can psychology be a science of the mind? *American Psychologist*, 45: 1206-1210.

Smith, P.B. 2004. Acquiescent response bias as an aspect of cultural communication style. *Journal of Cross-Cultural Psychology*, 35: 50–61.

Spears, R. 2001. The interaction between the individual and the collective self: Self categorization in context. In Sedikides, C. & Brewer, M.B. (Eds.) *Individual self, relational self, and collective self: Partners, opponents of strangers?* Philadelphia: Psychology Press. In press.

Steiger, J.H. 1995. *Manual to Statistica – SEPATH*. Tulsa, OK: Statsoft.

Steiger, J.H. & Lind, J. 1980. *Statistically based tests for the number of common factors*. Paper presented at the meeting of the Psychometric Society, Iowa City, IA.

Stevens, J. 2002. *Applied multivariate statistics for the social sciences*. 4<sup>th</sup> Ed. Mahwah, NJ: Lawrence Erlbaum Associates.

Stober, J. 1998. The Frost multidimensional perfectionism scale revisited: More perfect with four (instead of six) dimensions. *Personality and Individual Differences*, 24: 481-91.

Stryker, S. 1987. Identity theory: Developments and extensions. *Self and Identity*, 89-104.

Suh, E.M. 2002. Culture, identity consistency, and subjective well-being. *Journal of Personality and Social Psychology*, 83: 1378-1393.

Sutin, A.R. & Robins, R.W. 2005. Continuity and correlates of emotions and motives in self-defining memories. *Journal of Personality*, 73: 793-824.

Swann, W.B., Milton, L.P. & Polzer, J.T. 2000. Should we create a niche or fall in line? Identity negotiation and small group effectiveness. *Journal of Personality and Social Psychology*, 79: 238-250.

Tabachnick, B.G. & Fidell, L.S. 2001. *Using multivariate statistics*. 4<sup>th</sup> ed. New York: HarperCollins.

Tabachnick, B.G. & Fidell, L.S. 2006. *Using multivariate statistics*. 5<sup>th</sup> ed. Boston: Allyn & Bacon.

Tajfel, H. 1959. Quantitative judgment in social perception. *British Journal of Psychology*, 50: 16-29.

Tajfel, H. 1963. Stereotypes. *Race*, 5: 3-14.

Tajfel, H. 1969a. Social and cultural factors in perception. *Handbook of Social Psychology*, 3: 315-94.

Tajfel, H. 1969b. Cognitive aspects of prejudice. *Journal of Social Issues*, 25: 79-97.

Tajfel, H. 1970. Experiments in intergroup discrimination. *Scientific American*, 223: 96-102.

Tajfel, H. 1972. Some developments in European social psychology. *European Journal of Social Psychology*, 2: 307-22.

Tajfel, H. 1974. Social identity and intergroup behavior. *Social Science Information*, 13: 65-93.

Tajfel, H. 1978. *Differentiation between social groups*. London: Academic Press.

Tajfel, H. 1979. Individuals and groups in social psychology. *British Journal of Social and Clinical Psychology*, 18: 183-90.

Tajfel, H. 1982. *Social identity and intergroup relations*. Cambridge: Cambridge University Press.

Tajfel, H. 1984. *The social dimension: European developments in social psychology*. Cambridge: Cambridge University Press.

Tajfel, H. & Turner, J.C. 1979. An integrative theory of intergroup conflict. In Austin, W.G. & Worschel, S. (Eds.) *Psychology of intergroup relations*. Monterey: Brooks-Cole.

Taylor, D.M. & Doria, J.R. 1981. Self-serving and group-serving bias in attribution. *Journal of Social Psychology*, 113: 201-211.

Thoits, P.A. 1991. On merging identity theory and stress research. *Social Psychology Quarterly*, 54: 101-12.

Thompson, B. 2000. Q-Technique factor analysis: One variation on the two-mode factor analysis of variables. In Grimm, L.G. & Yarnold, P. *Reading and Understanding More Multivariate Statistics*. Washington: American Psychological Association.

Torgerson, W.S. 1958. *Theory and Methods of Scaling*. New York: John Wiley & Sons.

Tracy, J.L., Robins, R.W. & Tangney, J.P. 2007. *The self-conscious emotions: Theory and research*. New York: Guilford.

Tracy, J.L. & Trzesniewski, K.H. 2008. Naturalizing the self. In John, O.P., Robins, R.W. & Pervin, L.A. (Eds.) *Handbook of personality: Theory and research*. 3<sup>rd</sup> Edition. New York: Guilford.

Trafimow, D., Silverman, E.S., Fan, R.M.T. & Law, S.F. 1997. The effects of language and priming on the relative accessibility of the private self and the collective self. *Journal of Cross-Cultural Psychology*, 28: 107-23.

Trafimow, D., Triandis, H.C. & Goto, S.G. 1991. Some tests of the distinction between the private self and the collective self. *Journal of Personality and Social Psychology*, 60: 649-55.

Triandis, H.C. 1989. The self and social behavior in differing cultural contexts. *Psychological Review*, 96: 502-20.

Triandis, H.C. 1995. *Individualism and collectivism*. Oxford: Westview Press.

Triandis, H.C., McCusker, C. & Hui, C.H. 1990. Multimethod probes of individualism and collectivism. *Journal of Personality and Social Psychology*, 59: 1006-1020.

Turner, J.C. 1982. Towards a cognitive redefinition of the social group. In Tajfel, H. (Ed.) *Social Identity and Intergroup Relations*. Cambridge: Cambridge University Press.

Turner, J.C. 1984. Social identification and psychological group formation. In Tajfel, H. (Ed.) *The Social Dimension*. New York: Cambridge University Press.

Turner, J.C. 1985. Social categorization and the self-concept: A social cognitive theory of group behavior. *Advances in Group Processes: Theory and Research*, 2: 77-122.

Turner, J.C. 1999. Some current issues in research on social identity and self-categorisations theories. In Ellemers, N., Spears, R. & Doosje, B. (Eds.) *Social Identity*. Oxford: Blackwell.

Turner, J.C., Hogg, M.A., Oakes, P.J., Reicher, S.D. & Wetherell, M.S. 1987. *Rediscovering the social group: A self-categorisation theory*. Oxford: Blackwell.

Turner, J.C. & Onorato, R.S. 1999. Social identity, personality, and the self-concept: A self-categorisation perspective. In Tyler, R.T., Kramer, R.M. & John, O.P. (Eds.), *The psychology of the social self* (pp. 11-46). Mahwah, NJ: Erlbaum.



Turner, M.E., Pratkanis, A.R., Probasco, P. & Leve, C. 1992. Threat, cohesion, and group effectiveness: Testing a social identity maintenance perspective and groupthink. *Journal of Personality and Social Psychology*, 63: 781-796.

Tyler, T.R., Kramer, R.M. & John, O.P. (Eds.) 1999. *The psychology of the social self*. Mahwah, NJ: Erlbaum.

Ullah, P. 1987. Self-definition and psychological group formation in an ethnic minority. *British Journal of Social Psychology*, 26: 17-23.

Ullman, J.B. 2006a. Structural equation modeling. In Tabachnick, B.G. & Fidell, L.S. (Eds.) *Using multivariate statistics*. 5th ed. Boston: Allyn & Bacon.

Ullman, J.B. 2006b. Structural equation modelling: Reviewing the basics and moving forward. *Journal of Personality Assessment*, 87: 35-50.

Van de Vijver, F.J.R. & Leung, K. 1997. *Methods and data analysis for cross-cultural research*. Newbury Park: Sage.

Van Ede, D.M. 1996. How to adapt a measuring instrument for use with various cultural groups: a practical step-by-step introduction. *South African Journal of Higher Education*, 10: 153-160.

Van Rijswijk, W. & Ellemers, N. 2002. Context effects on the application of stereotype content to multiple categorizable targets. *Personality and Social Psychology Bulletin*, 28: 90-101.

Van Vuuren, L.J. & Fourie, C. 2002. Rejoinder to article by De Bruin and Lew: Construct validity of the career resilience questionnaire. *SA Journal of Industrial Psychology*, 28: 70-72.

Voskuijl, O. & Evers, A. 2007. Tensions between the prescriptive and descriptive ethics of psychologists. *Journal of Business Ethics*, 72: 279-91.

Waterman, A.S. 1984. *The psychology of individualism*. New York: Praeger.

Widaman, K.F. 1985. Hierarchically nested covariance structure models for multitrait-multimethod data. *Applied Psychological Measurement*, 9: 1-26.

Wright, S. 1921. Correlations and causation. *Journal of Agricultural Research*, 20: 557-85.

Wu, D.Y.H. 1994. Self and collectivity: Socialisation in Chinese preschools. In Ames, R.T. Dissanayake, W. & Kasulis, T.P. (Eds.) *Self as person in Asian theory and practice*. Albany: State University of New York.

Yardley, K. & Honess, T. (Eds.) 1987. *Self and identity: Psychological perspectives*. New York: John Wiley & Sons.

ANNEXURE A: Aspects of Identity Questionnaire (AIQ-IV)

AIQ-IV Questionnaire						
<p><b>INSTRUCTIONS:</b> These items describe different aspects of identity. Please read each item carefully and consider how it applies to you. Fill in the blank next to each item by choosing a number from the scale below.</p> <p>By completing this questionnaire you confirm and give permission that this information may be used for research purposes.</p>						
		Not important to my sense of who I am	Slightly important to my sense of who I am	Somewhat important to my sense of who I am	Very important to my sense of who I am	Extremely important to my sense of who I am
1	The things I own, my possessions	1	2	3	4	5
2	My personal values and moral standards	1	2	3	4	5
3	My popularity with other people	1	2	3	4	5
4	Being a part of the many generations of my family	1	2	3	4	5
5	My dreams and imagination	1	2	3	4	5
6	The ways in which other people react to what I say and do	1	2	3	4	5
7	My race or ethnic background	1	2	3	4	5
8	My personal goals and hopes for the future	1	2	3	4	5
9	My physical appearance: my height, my weight, and the shape of my body	1	2	3	4	5
10	My religion	1	2	3	4	5
11	My emotions and feelings	1	2	3	4	5



12	My reputation, what others think of me	1	2	3	4	5
13	Places where I live or where I was raised	1	2	3	4	5
14	My thoughts and ideas	1	2	3	4	5
15	My attractiveness to other people	1	2	3	4	5
16	My age, belonging to my age group or being part of my generation	1	2	3	4	5
17	My gestures and mannerisms, the impression I make on others	1	2	3	4	5
18	The ways I deal with my fears and anxieties	1	2	3	4	5
19	My sex, being a male or a female	1	2	3	4	5
20	My social behaviour, such as the way I act when meeting people	1	2	3	4	5
21	My feelings of being a unique person, being distinct from others	1	2	3	4	5
22	My relationships with the people I feel close to	1	2	3	4	5
23	My social class, the economic group I belong to whether lower, middle or upper class	1	2	3	4	5
24	My feeling of belonging to my community	1	2	3	4	5
25	Knowing that I continue to be essentially the same inside even though life involves many external changes	1	2	3	4	5
26	Being a good friend to those I really care about	1	2	3	4	5
27	My self-knowledge, my ideas about what kind of person I really am	1	2	3	4	5



28	My commitment to being a concerned relationship partner	1	2	3	4	5
29	My feeling of pride in my country, being proud to be a citizen	1	2	3	4	5
30	My physical abilities, being coordinated and good at athletic activities	1	2	3	4	5
31	Sharing significant experiences with my close friends	1	2	3	4	5
32	My personal self-evaluation, the private opinion I have of myself	1	2	3	4	5
33	Being a sports fan, identifying with a sports team	1	2	3	4	5
34	Having mutually satisfying personal relationships	1	2	3	4	5
35	Connecting on an intimate level with another person	1	2	3	4	5
36	My occupational choice and career plans	1	2	3	4	5
37	Developing caring relationships with others	1	2	3	4	5
38	My commitments on political issues or my political activities	1	2	3	4	5
39	My desire to understand the true thoughts and feelings of my best friend or romantic partner	1	2	3	4	5
40	My academic ability and performance, such as the grades I earn and comments I get from teachers	1	2	3	4	5
41	Having close bonds with other people	1	2	3	4	5
42	My language, such as my regional accent or dialect or a second language that I know	1	2	3	4	5
43	My feeling of connectedness with those I am close to	1	2	3	4	5



44	My role of being a student in college	1	2	3	4	5
45	My sexual orientation, whether heterosexual, homosexual, or bisexual	1	2	3	4	5
46	Race (1=African Black; 2=Indian; 3=Colored; White=4; Other=5)	1	2	3	4	5
47	Age (1=18-25; 2=26-30; 3=31-35; 4=36-40; 5=41-45)	1	2	3	4	5
48	Gender (1=Male; 2=Female)	1	2			