

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.



UNIVERSITY OF CAPE TOWN

Employee personal values as indicators of suitability for given levels of work in terms of Jaques' levels of work theory.

Qhubekani Ndiweni

(NDWQHU001)

A dissertation submitted in partial fulfilment of the requirements for the award of the Degree of Master of Commerce in Organisational Psychology

Faculty of Commerce

University of Cape Town

2008

COMPULSORY DECLARATION:

This work has not been previously submitted in whole or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in this dissertation from the work, or works of other people has been attributed, and has been cited and referenced.

Signature

Signed by candidate

Date.....

24/06/09

ACKNOWLEDGEMENTS

This project was made possible through the support received from management and staff at Magellan Consulting, the publisher of the psychological measuring instruments used in this study, namely Dr Maretha Prinsloo, Dr Sherin Bickrum, Amanda Du Toit and Zelia Teixeira. Magellan Consulting not only provided data necessary for the study to be undertaken, but also generously provided free training on one of the instruments used in the study. During the process of analysing and interpreting the data, Magellan staff also made themselves available to clarify some of the more technical issues relating to the instruments.

Throughout the project, from conceptualisation to final submission, I received excellent guidance from my supervisor, Associate Professor Burger van Lill, from whose expertise in this area of study in particular and in conducting research in general, I benefited enormously.

ABSTRACT

The purpose of this study is to examine if personal values/value systems held by employees can be used to accurately assign them to levels of work to which they will be best suited and, by implication, are likely to perform well. To fulfil this purpose, data covering a biographically mixed sample ($N=399$), being employees of various organisations was obtained by way of psychological assessment. Two psychological measures were used – one that measures employees' level of work profiles (CPP) and the other, their personal value systems (VO). Using correlation analysis and stepwise regression analysis, the study finds a statistically significant association between an employee's value system and his/her level of work profile ($p<.05$), and a moderate but also statistically significant ability of values to predict an employee's level of work profile ($p<.001$). The study concludes by recommending that, as part of the many considerations that should be taken into account in pursuit of successful initial and subsequent placement of people in organisations, personal values held by employees should be one of the qualities to be assessed and taken into consideration. The study further notes that the consideration of employee value systems as a quality necessary for on-the-job success should be done in addition to, rather than in replacement of the traditionally preferred qualities of cognitive abilities, personality and acquired knowledge/skills.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	I
ABSTRACT	II
TABLE OF CONTENTS	III
LIST OF TABLES	VIII
LIST OF FIGURES	IX
CHAPTER 1: INTRODUCTION	1
BACKGROUND.....	1
STATEMENT OF THE PROBLEM	2
OBJECTIVES OF THE STUDY.....	3
RESEARCH HYPOTHESES	3
Hypothesis 1	3
Hypothesis 2.....	3
METHOD	4
SIGNIFICANCE OF THE STUDY	4
CHAPTER 2: LITERATURE REVIEW	6
INTRODUCTION	6
PSYCHOLOGICAL ASSESSMENT	7
<i>The concept of psychological assessment</i>	7
<i>A brief history of the practice of psychological assessment</i>	8
<i>An overview of psychological assessment in South Africa</i>	9
<i>Limitations of psychological measurement</i>	9
'Faking good' and 'faking bad'	10
Bias relating to computer literacy	10
AN OVERVIEW OF THE CONSTRUCT OF VALUES	11
<i>Key characteristics of values</i>	12
Values are enduring.....	12
Values are beliefs	12
Values are both forms of conduct and end states (instrumental and terminal values)	12
Values have a cognitive dimension	13
<i>The difference between values and value systems</i>	13
<i>The number of values held by people</i>	13
<i>Distinction between values and personality</i>	14
<i>Causes of values (values as dependent variables)</i>	15

<i>Consequences of values (values as independent variables)</i>	15
<i>Concern about values in the world of work</i>	16
<i>Effects of violation of values in the world of work</i>	16
<i>Psychological assessment of values</i>	17
<i>Assessment of values in occupational settings</i>	18
<i>The VO as a measure of values</i>	20
General description	20
<i>Categorisation of values: Lower order and higher order values</i>	22
The VO as a reverse-item measure	22
The bi-polar nature of the VO	23
Application of VO results	24
ORGANISATIONAL DESIGN	24
<i>The concept of organisational design</i>	24
<i>The stratified systems theory of organisational design</i>	26
General description	26
Levels of work complexity	28
The challenge of placing employees to the right level of work	30
Determining the suitability of an employee for a given level of work.....	30
Suitability for current levels of work	30
Suitability for potential levels of work	31
Traditional methods used to assign employees to appropriate levels of work.....	32
The importance of an ‘employee-work level’ match.....	33
Do values have a role in determining the ‘employee-work level’ match?	34
A theoretical model depicting the relationship between values and levels of work.....	34
Criticism of the stratified systems theory.....	36
Psychological assessment of level of work profiles	37
What it means to assess ‘levels of work’ psychologically.....	37
The Cognitive Process Profile (CPP).....	39
The CPP as a multiple construct measure	39
The CPP as a cognitive measure: Its difference with other traditional cognitive measures.....	39
The CPP as a measure of the construct of levels of work.....	40
Application of CPP results	41
CONCLUSION	41
CHAPTER 3: METHOD	43
INTRODUCTION	43
RESEARCH DESIGN	43
Design.....	43
Predicting intermediate criterion	43
Sample.....	44
Participants.....	45

Description of the sample	45
MEASURING INSTRUMENTS	47
<i>Metric properties of the Value Orientations measure</i>	<i>47</i>
Development and norms.....	47
Administration, scoring and reporting	47
Difference between rejection and acceptance of a value	49
Reliability of the VO.....	49
Validity of the VO	49
<i>Metric properties of the Cognitive Process Profile.....</i>	<i>51</i>
Development and norms.....	51
Administration, scoring and reporting	51
Reliability of the CPP	51
Study 1: Internal consistency of the CPP.....	51
Study 2: Internal consistency of the CPP.....	52
Validity of the CPP	53
CPP compared to the Career Path Appreciation (CPA)	53
Permission to use data	53
Training on assessment measures.....	54
Clearance from the University.....	54
Ethical considerations	54
Data collection.....	54
Data analysis.....	55
CONCLUSION	55
CHAPTER 4: RESULTS	56
INTRODUCTION	56
DESCRIPTIVE STATISTICS	56
<i>Value Orientations Measure</i>	<i>56</i>
Descriptive statistics for the values accepted scale	56
Descriptive statistics for the values rejected scale.....	57
<i>CPP (Levels of work scale).....</i>	<i>58</i>
Descriptive statistics for the current work level scale of the CPP	58
Descriptive statistics for the potential work level scale of the CPP.....	59
VERIFICATION OF THE SCALES.....	59
<i>Factor analysing the VO to establish its construct validity</i>	<i>59</i>
Factor extraction: Eigenvalues for all factors.....	60
Factor extraction: Variance accounted for by the extracted factors.....	60
<i>Factor loadings for each of the factors.....</i>	<i>61</i>
<i>Constructing factor components and naming the factors</i>	<i>62</i>
Naming the factors.....	63
Factor 1: Rejection of low order values (acceptance of high order values)	63

Factor 2: Rejection of high order values (acceptance of low order values)	63
Factor 3: Acceptance of low order values (rejection of high order values).....	63
Factor 4: Acceptance of high order values (rejection of low order values).....	64
<i>Construct validity of the CPP (Levels of work scale)</i>	64
RELIABILITY OF THE MEASURING INSTRUMENTS	64
Internal consistency of the Value Orientations Measure	65
Internal consistency of the CPP (Levels of work scale).....	66
THE ASSOCIATION BETWEEN VALUES AND LEVEL OF WORK PROFILES	67
<i>Test 1: Is there an association between accepted values and one's level-of-work profile?</i>	67
Existence of a relationship.....	68
Strength of the relationship	68
Direction of the relationship	69
<i>Test 2: Is there an association between rejected values and one's level-of-work profile?</i>	69
Existence of a relationship.....	70
Strength of the relationship	70
Direction of the relationship	70
VALUES AS PREDICTORS OF LEVEL-OF- WORK PROFILES	70
Test 1: Can accepted value orientations be used to predict one's current level-of-work profile?.....	71
Test 2: Can accepted value orientations be used to predict one's potential level-of-work profile?	72
Test 3: Can rejected value orientations be used to predict one's current level-of-work profile?	73
Test 4: Can rejected value orientations be used to predict one's potential level-of-work profile?	74
CONCLUSION	75
CHAPTER 5: DISCUSSION, IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS	76
INTRODUCTION	76
METRIC PROPERTIES OF THE MEASURING INSTRUMENTS	76
Multidimensional nature of the VO.....	76
Uni-dimensional nature of the levels of work scale of the CPP.....	77
Reliability of the Value Orientations Measure	77
Reliability of the CPP (levels of work scale).....	78
THE ASSOCIATION BETWEEN VALUES AND LEVEL- OF- WORK PROFILES (HYPOTHESIS 1)	78
Lower order values and levels of work.....	78
Higher order values and levels of work	80
The similarity between current and potential levels of work.....	82
Low strength of association between values and levels of work	82
THE ABILITY OF VALUES TO PREDICT LEVEL-OF-WORK PROFILES (HYPOTHESIS 2)	82
Can accepted values be used to predict current level-of-work profiles?	82
Can accepted values be used to predict potential level-of-work profiles?	83
Can rejected values be used to predict current level-of-work profiles?.....	83
Can rejected values be used to predict potential level-of-work profiles?.....	84
IMPLICATIONS: APPLICATION OF FINDINGS	84

Implication for organisations designed on the SST model	84
Implication for organisations not designed on the SST model	85
Comparison of present findings with previous studies	86
Confirmation of the role of values in explaining social behaviour	86
Other studies done on the role of values in the world of work	86
LIMITATIONS OF THE STUDY	88
Limitations relating to metric qualities of the measuring instruments	88
Limitations of self-report inventories.....	88
Limitations of computerised measures	88
ALTERNATIVE INTERPRETATION OF FINDINGS.....	89
The problem of fluidity of values.....	89
Inability to establish causality	89
CONTRIBUTION OF STUDY TO ORGANISATIONAL PSYCHOLOGY	90
RECOMMENDATIONS	91
CONCLUSION	92
REFERENCES	93
APPENDIX.....	97
APPENDIX: CORRELATION MATRIX OF THE VO AND THE CPP(LEVELS OF WORK SCALE)	98

LIST OF TABLES

TABLE 1: <i>THE MOST COMMONLY USED MEASURES FOR ASSESSING VALUE SYSTEMS IN OCCUPATIONAL SETTINGS</i>	19
TABLE 2: <i>A DETAILED DESCRIPTION OF THE SEVEN VALUE ORIENTATIONS MEASURED BY THE VO</i>	21
TABLE 3: <i>THE SEVEN STRATA OF THE SST IN WHICH ALL ORGANISATIONAL SYSTEMS FALL</i>	27
TABLE 4: <i>PROFILE OF THE MAIN CHARACTERISTICS OF EACH LEVEL OF WORK COMPLEXITY IN TERMS OF THE SST.</i>	29
TABLE 5: <i>A HYPOTHETICAL DEPICTION OF THE RELATIONSHIP BETWEEN VALUES AND LEVEL OF WORK PROFILES.</i>	36
TABLE 6: <i>A SUMMARY OF THE INSTRUMENTS COMMONLY USED TO MEASURE EMPLOYEE LEVEL-OF-WORK PROFILES.</i>	38
TABLE 7: <i>DESCRIPTION OF THE SAMPLE (N = 399)</i>	45
TABLE 8: <i>INTERNAL CONSISTENCY OF THE VO AS REPORTED BY MAGELLAN</i>	49
TABLE 9: <i>THE CONSTRUCT VALIDITY OF THE VO THROUGH COMPARISON WITH THE MP</i>	50
TABLE 10: <i>INTERNAL CONSISTENCY OF THE CPP (N=107)</i>	52
TABLE 11: <i>INTERNAL CONSISTENCY OF THE CPP (N=91)</i>	52
TABLE 12: <i>CPP COMPARED TO THE CPA</i>	53
TABLE 13: <i>DESCRIPTIVE STATISTICS FOR THE VALUES ACCEPTED SCALE OF THE VO (N = 399)</i>	57
TABLE 14: <i>DESCRIPTIVE STATISTICS FOR THE VALUES REJECTED SCALE OF THE VO (N = 399)</i>	57
TABLE 15: <i>DESCRIPTIVE STATISTICS FOR THE CURRENT LEVELS OF WORK SCALE OF THE CPP (N = 399)</i>	58
TABLE 16: <i>DESCRIPTIVE STATISTICS FOR THE POTENTIAL LEVELS OF WORK SCALE OF THE CPP (N= 399)</i>	59
TABLE 17: <i>VARIANCE ACCOUNTED FOR BY EACH FACTOR AFTER ROTATION</i>	61
TABLE 18: <i>FACTOR LOADINGS ON FOUR FACTORS IDENTIFIED THROUGH FACTOR ANALYSIS</i>	61
TABLE 19: <i>ASSIGNMENT OF VARIABLES OF THE VO TO FACTORS TO WHICH THEY HAVE THE HIGHEST LOADINGS</i>	62
TABLE 20: <i>CORRELATION BETWEEN CURRENT AND POTENTIAL LEVEL OF WORK PROFILES OF THE CPP</i>	64
TABLE 21: <i>INTERNAL CONSISTENCY OF FACTOR 1 OF THE VO (N = 399)</i>	65
TABLE 22: <i>INTERNAL CONSISTENCY OF THE LEVELS OF WORK SCALE OF THE CPP (N = 399)</i>	66
TABLE 23: <i>CORRELATION BETWEEN ACCEPTED VALUE ORIENTATIONS AND LEVEL OF WORK PROFILES (N = 399)</i>	68
TABLE 24: <i>CORRELATION BETWEEN REJECTED VALUE ORIENTATIONS AND LEVEL OF WORK PROFILES (N = 399)</i>	69
TABLE 25: <i>ABILITY OF ACCEPTED VALUES TO PREDICT CURRENT LEVEL OF WORK PROFILES (N = 399)</i>	72
TABLE 26: <i>ABILITY OF ACCEPTED VALUES TO PREDICT POTENTIAL LEVEL OF WORK PROFILES (N = 399)</i>	72
TABLE 27: <i>ABILITY OF REJECTED VALUES TO PREDICT CURRENT LEVEL OF WORK PROFILES (N = 399)</i>	73
TABLE 28: <i>ABILITY OF REJECTED VALUES TO PREDICT POTENTIAL LEVEL OF WORK PROFILES (N = 399)</i>	74

LIST OF FIGURES

FIGURE 1: CATEGORISATION OF VALUES MEASURED BY THE VO INTO LOWER ORDER AND HIGHER ORDER VALUES.....	22
FIGURE 2: A DIAGRAMMATIC REPRESENTATION OF THE BI-POLAR NATURE OF THE VO.....	23
FIGURE 3: EXTRACT FROM A CPP CANDIDATE REPORT SHOWING THE CANDIDATE'S WORK-LEVEL PROFILE.....	40
FIGURE 4: THE RELATIONSHIP BETWEEN THE PREDICTOR AND THE CRITERION IN THE PRESENT STUDY	44
FIGURE 5: EXTRACT OF A COMPLETED ITEM FROM THE VO	48
FIGURE 6: SCREE PLOT OF THE VO FACTORS	60
FIGURE 7: EXEMPLIFICATION OF THE RELATIONSHIP BETWEEN LOWER-ORDER VALUES AND LEVEL OF WORK PROFILES.	79
<i>FIGURE 8: EXEMPLIFICATION OF THE RELATIONSHIP BETWEEN HIGHER ORDER VALUES AND LEVEL OF WORK PROFILES.</i>	<i>81</i>

CHAPTER 1: INTRODUCTION

Background

There is growing consensus amongst both practicing managers and management academics on the criticality of ensuring efficient and effective human resource management practices in organisations (Ulrich & Brockbank, 2005). Some even see the effectiveness of human resource management (HR) practices in organisations as being the single most important determinant of overall organisational success (Armstrong, 2003). If the effectiveness of HR practices is of such a strategic significance to the overall success of an organisation, then it would follow that due diligence needs to be exercised in all decisions relating to the management of people. Malone (2004) sees the benefits of effective HR practices going beyond economic benefits for organisations to the overall work-life satisfaction of the employees who work in such organisations. Malone's view thus extends the benefits of sound HR practices from economic to broader social benefits.

(Tuckder, Kao, & Verma, 2004) note that because of the significance referred to above, HR management practices have, over the past half century, received a great deal of research attention, and are likely to continue to do so. The strategic importance of ensuring the most efficient and effective ways of managing people in organisations necessitates the search for better models to ensure success in this regard. Many models have been suggested to date, all with the objective of solving the problem of poor people management practices in organisations. These models are targeted at different aspects of people management in organisations, such as how they should be supervised (various theories of supervision), remunerated (numerous debates about how to reward employees) etc (Armstrong, 2003). The present study forms part of the on-going search for these models that could improve the way people in organisations are managed.

Statement of the problem

Despite a growing awareness of the importance of efficient people management practices, Athey (2004) reports that poor people management practices are still common in most organisations around the world. She refers to a 2004 study conducted by Gallup (a research firm) which showed that 80% of job dissatisfaction, lack of organisational commitment and general employee disenchantment in the UK is attributable to poor HR practices. Athey translates this figure into monetary terms and concludes that the result of the poor people management practices costs the UK in the region of US\$64 billion annually. Evidence therefore shows that despite an increase in knowledge about the importance of effective people management practices, there is still a gap between how people should be managed and actual practice. This gap which results in huge economic and social losses calls for a further investigation into ways of reaping the benefits of effective people management.

The present study will add further knowledge to the on-going search for optimality in the way employees in organisations are managed. This will be done by examining an aspect that deals with the question of qualities that should be taken into account during the process of assigning employees to certain roles/positions, with the intention of ensuring a perfect match between the employee and the job. Such a match has been shown to be necessary for job satisfaction, motivation and eventual optimal performance (Armstrong, 2003). One method that has been used for a long time in this regard is psychological assessment, where an employee's psychological characteristic such as cognitive abilities, personality, interests, attitudes, and values would be measured using an appropriate psychological measure, and decisions regarding person-job fit taken there-from (Anastasi & Urbina, 1997). Within the practice of psychological assessment as a tool of ensuring employee-job fit and subsequent optimal employee performance, Edenborough (2005) observes that the traditional tendency has been to measure cognitive abilities, and to a lesser extent, personality to arrive at decisions about the suitability of an employee for a given role. The present study departs slightly from this traditional practice by focusing on the significance of values, value systems or value orientations in determining the suitability of an employee for a given role in an organisation. Because of its coherence in defining roles and their capability requirements, Elliott Jaques' (1998) stratified systems theory

(SST) of organisational design and, in particular, its levels of work component will be used to provide a framework for the study.

Objectives of the study

In the context of the background and problem of the study outlined above, the present study aims to achieve the following:

1. Examine if there is a relationship/association between values/value systems or value orientations held by employees and the demands of certain jobs as determined by their location in the 'levels of work' hierarchy as defined by Jaques (1998); and
2. Determine if personal values/value systems or values orientations held by employees can be used as the basis, or part of the basis of assigning them to appropriate levels of work to which they are most suited in order to facilitate successful on the job performance.

Research hypotheses

The research hypotheses to be investigated in the present study are conceptualised on the basis of the findings of the literature review on the concept of value orientations; Jaques' SST model of organisational design, particularly the levels of work component of the model and the science and practice of psychological assessment. These are as follows:

Hypothesis 1

There is a positive linear relationship between an employee's values/value systems and his/her 'level of work' profile.

Hypothesis 2

Values/value systems held by an employee can be used to predict his/her suitability for a given role depending on that role's location in the 'levels of work' hierarchy.

The present study anticipates that those employees who hold lower order values should be found to more suitable for lower levels of work, while those who hold higher order values should be found to be better suited for optimal performance in roles found at higher levels of work.

Method

In order to investigate the hypotheses, the study will utilise appropriate statistical analysis methods (factor analysis, reliability analysis, correlation analysis and stepwise regression analysis) on secondary data collected from a biographically mixed sample of 399 participants. Intermediate criterion prediction will be conducted (with values being the predictor, and work-level profile being the criterion- an intermediate one in this case). The participants underwent psychological assessment on two instruments: one that measures value orientations held by an individual (the Value Orientations measure) and the other that measures level of work complexity to which an individual is most suited (the Career Process Profile). An individual's level of work profile as measured by the Career Process Profile represents intermediate criterion in the practice of occupational assessment, with on-the job performance being the final criterion (Anastasi & Urbina, 1997). Both these instruments, which are South African published, meet the legal requirements of reliability and validity, and are registered accordingly with the Health Professions Council of South Africa (Magellan, 2005).

Significance of the study

The present study is significant in that it challenges traditional preferences in occupational psychological assessment that have favoured the measurement of cognitive abilities and personality for purposes of matching employee abilities to job requirements in the interests of optimal on the job performance. This it does by investigating a relatively neglected area of values and focuses on their role in determining employee suitability for a given role. The present study further deviates from the usual studies in occupational assessment in that, rather than focusing on the final criterion (on the job performance), it focuses on intermediate criterion (being one's level of work profile/ranking). The findings of the study will therefore be relevant to the on-going search for optimal employee management practices so as to avert losses

similar to those reported by Athey (2004). It will also add value by inviting further research in this generally neglected area.

The introduction has outlined the background to the study by showing the research problem, stating the research objectives, introducing the research hypotheses to be investigated, highlighting the research design to be used to test the hypotheses, and also highlighting the significance of the study. The following chapter will review literature in the knowledge areas that form the conceptual background of the study, these being: the science and practice of psychological assessment, the concept of values/value systems or values orientations and Jaques' SST model of organisational design, particularly the levels of work component of the model.

CHAPTER 2: LITERATURE REVIEW

Introduction

The aim of the present study is to investigate whether values, value systems or value orientations held by individuals can be used in the world of work to make decisions about their suitability to perform well in given levels of work as defined by Jaques (1998) in his stratified systems theory of organisational design. The particular research hypotheses under investigation are that there is a positive relationship between values, value systems or value orientations and one's levels of work profile, and also that values can be used as the basis of, or part of the basis of placing employees at levels of work where they can perform successfully. To investigate such hypotheses, one would need to gather and utilise knowledge in the three areas that form the theoretical pillars of the study i.e. psychological assessment, values/value orientations and organisational design (OD) with specific reference to Jaques' stratified systems theory of OD.

This chapter will therefore present the outcome of a literature review in these three knowledge areas. The review will be organised according to subject in these three knowledge areas. The first section will examine psychological assessment, discussing its practice in South Africa, its use in the world of work, and its limitations. The second section will deal with values/value orientations, where the construct of values will be discussed, its main characteristics profiled, and the significance of values in the world of work examined. While the notion of values affects every aspect of human life, the discussion will be limited to their relevance in the world of work, given that the present study is located in an organisational (work) setting. The final section will review the concept of organisational design, with a particular focus on Jaques' (1998) stratified systems theory (SST) of organisational design. The SST is a very broad, multi-component theory created as a comprehensive model of organisational design. However, most of its components are outside the scope of the present study and will therefore not be discussed. Focus will thus be restricted to the levels of the work complexity component of the SST, given that levels of work are the dependent /intermediate criterion variable in the present study (values being the

independent/predictor variable). The discussion of levels of work complexity will include a description of the concept and how the suitability of individuals for given levels of work is measured. Though these three areas will be reported separately, their linkages will be emphasised as they are eventually integrated in the later chapters of the study to examine the hypotheses.

PSYCHOLOGICAL ASSESSMENT

In order to investigate the relationship between an individual's value systems and his or her level of work profile in the present study, data was collected through means of psychological assessment. This section will therefore discuss psychological assessment, first in general, and then later with specific reference to the assessment of the constructs used in the study – values and levels of work profile.

The concept of psychological assessment

Psychological assessment is defined by Foxcroft and Roodt (2001) as a holistic process involving the collection of broad information about an individual's abilities. This is drawn from a wide range of sources, such as psychometric tests, interviews and biographical information. Foxcroft and Roodt therefore view psychological assessment in a broader sense, than do others who see it within the narrower context of 'psychometric testing', which is just a single aspect of broader psychological assessment. A particularly relevant description of psychological assessment within occupational/organisational contexts, which is also the context of this study, is given by Goodstein and Prien (2006) who note that:

In the broadest terms, individual assessment is the process of (a) collecting information about a person in order to evaluate him or her, typically against the requirements of a specific job (b), then analysing and interpreting that information in order to make inferences about that person's future job performance, and (c), making recommendations about that individual should the person be hired, promoted, offered training and development opportunities or provided with coaching and mentoring (p.8).

Essentially, psychological assessment can therefore be seen as a scientific approach through the use of psychological measures to gain insight into an individual's different characteristics such as personality, aptitude, interests and values for purposes of reaching an informed decision about what that individual can or cannot do in a given setting.

A brief history of the practice of psychological assessment

In a study of this nature where new measures are used to assess certain psychological characteristics, it is necessary to provide a context by briefly outlining the roots of the science of psychological assessment. The practice of attempting to gain insight into human nature by examining characteristics that define and differentiate human behaviour can be traced back to ancient history, such as when the Chinese assessed civil service officials for continued suitability as early as 2200 B.C.E. (Aiken, 1994). The principle behind psychological assessment is that individuals have innate differences in terms of their personalities, behaviours and abilities- the differences which can be measured through psychological assessment, and used in situations that require the differentiation of people for various reasons. Over centuries, various methods have been employed to assess human behaviour and attributes. Foxcroft and Roodt (2001) observe that methods such as astrology, physiognomy, humorology, phrenology, chiology, palmistry and graphology were employed in the past for purposes of gaining insight into human characteristics. They conclude, however that because of a lack of scientific rigour in these methods, they are no longer relied upon for purposes of assessing individuals, with most of them having since phased out naturally. Psychological assessment as it is known today replaced these methods by presenting a new and science- based method of assessing human attributes (Nicholas, 2003).

An overview of psychological assessment in South Africa

Foxcroft and Roodt (2001) trace the use of psychological assessment in South Africa to as early as 1948. Through an examination of literature in this area, one concludes that psychological assessment has had challenges influenced by socio –political challenges in the country's history (Louw & Edwards, 1997) . Issues of credibility and questions about racial discrimination are some of the challenges that over-clouded assessment in its early inception.

Foxcroft and Roodt (2001), note that psychological assessment in South Africa today is more accepted and more widely used. There is also greater research into the development of local measures. The present study bears evidence to this by using two locally developed measures. Foxcroft and Roodt further note that there is now greater regulation in respect of the development and use of psychological measures - the Employment Equity Act No. 55 of 1998 and the Health Professions Act No. 56 of 1974 form the legislative platform for assessment, while the Health Professions Council of South Africa (HPCSA) has been established as an active statutory body that regulates and monitors the use of psychological measures. All these regulatory frameworks have improved and professionalised the practice of assessment in the country. The two measures used in the study are duly registered by the HPCSA.

Limitations of psychological measurement

It is necessary for any study that makes use of psychological assessment to discuss limitations of psychological assessment because all information obtained through psychological assessment is subject to measurement errors – a common source of criticism for assessment in general. The exhaustive list of all the factors that affect the accuracy of information obtained through assessment is very wide, including such factors as schooling, social background, physical impairment socio-economic status culture, language, test wise-ness and urbanisation. In the present study, discussion will be limited to only two factors that could have possibly affected the accuracy of the information obtained in the study – the phenomena of 'faking good and faking bad' and

the limitation of computerised measures. These two limitations will also be referred to in a discussion of the limitations of the study in general at the conclusion on the study.

'Faking good' and 'faking bad'

Studies have shown that test takers, particularly of personality and affective measures, are prone to provide answers that are socially desirable (Anastasi & Urbina, 1997). This has the effect of presenting a misleading picture about an individual, and decisions made there from could, as a result, also be inaccurate. This kind of bias is most relevant to the VO in the present study, where it is noted that it is relatively easy for a test taker to choose those items that reflect socially desirable values. Studies by Hirsh and Peterson (2008) on the big five personality traits and Pauls and Crost (2004) on the Balanced Inventory of Social Desirable Responding Version 7 (BIDR-7) found this to be a notable limitation in the assessment on 'non-ability' psychological constructs. Other studies by Motl, McAuley, and DiStefano (2004) corroborate this problem of 'faking good or faking bad' that has been put forward as a criticism of psychological measurement in general. In the present study, data on employees' value systems could have been affected by this shortcoming.

Bias relating to computer literacy

Both measuring instruments in the present study are computer administered. This presents a significant source of error and weakness given that computer literacy is still relatively low in South Africa. Even amongst those who are computer literate, actual levels of proficiency differ, meaning that those who are more proficient are at some level of advantage in terms of their performance in the measure. This limitation is significant, particularly to the CPP in the present study whose presentation in the form of a 'computer game' requires a relatively good level of computer proficiency for one to manoeuvre and 'play' the game effectively. A less proficient test taker will take longer in doing the 'manoeuvres' in 'the game', and this will reflect negatively on his speed score in the final assessment, which ultimately affects his or her final cognitive profile. Studies by, Kveřton, Jeliřnek, Voborřil and Klimusova (2007) discovered differences in performance between computer-based versions and pencil and paper versions of two measures (the Bourdon's Test and the Test for Concentration and Attention – CAT).

Another limitation noted of computerized assessments relates to ethics, where confidentiality becomes compromised with computer-based tests (Schulenberg & Yutrzenka, 2004).

Literature on this limitation however shows divergence of views regarding reliability and validity of computerised measures compared to the pencil and paper measures. For example, Wijndaele, Matton, Duvigneaud, Lefevre, Duquet, Thomis et al (2007) found similar reliability coefficients for five computerised measures between the paper and pencil versions and computerised versions of these measures, these being the General Health Questionnaire (GHQ-12), Symptom Checklist (SCL-90-R), Medical Outcomes Study Social Support Survey (MOSSSS), Perceived Stress Scale (PSS) and the Utrecht Coping List (UCL). Literature on the limitations posed by computerised measures shows a lack of a clear conclusion in terms of whether computerised measures increase or reduce the reliability of these measures. However, there is general consensus as to the significance of computerised measures in the future of psychological assessment in general, considering the pervasiveness of computer technology in most aspects of modern society.

Having outlined the nature of psychological assessment in general terms, including its limitations, the following section will turn to a discussion on the two variables in the present study – the predictor variable (values) and the intermediate criterion (levels of work profile), including a discussion of how these constructs are measured by way of psychological assessment.

AN OVERVIEW OF THE CONSTRUCT OF VALUES

Values are described by Rokeach (1973, p.5) as “an enduring belief that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence”. This view of values largely promoted by Rokeach is the view that will be adopted in the present study to investigate if values held by an individual can be used to indicate the level of work in an occupational setting to which the holder is most suited. The concept of values or

value systems will be used interchangeably with that of value orientations, which simply denotes a direction or leniency towards certain values (Rokeach, 1973).

Key characteristics of values

Rokeach (1973) discusses five characteristics that distinguish and help define and clarify the construct of human values.

Values are enduring

Rokeach argues that values bear both characteristics of being flexible over time, as well as being stable. He however further assesses this paradox by noting that while individual values may change depending on circumstances, there is a more stable value system that remains relatively fixed over time. What then appears to be a change in one's values will be a reflection of priority ordering of the values, rather than a change in one's core value system per se, which remains relatively stable through a lifetime.

Values are beliefs

Allport, as cited in Lemos (1994), concurs with Rokeach by noting that values can also be seen as being akin to beliefs, in that they form a basis from which all human actions are derived. This view is also shared by Banard, Rothman and Meiring (2008), who see values as being similar to belief systems, varying only in terms of specificity: a belief may be specific to a given situation or issue, while a value is slightly more general.

Values are both forms of conduct and end states (instrumental and terminal values)

Rokeach distinguishes values that guide behaviour (instrumental values) such as a value of being polite, or being responsible, from those values that represent a desired end state of existence (terminal values), such as happiness or friendship. From this perspective, instrumental values can therefore be seen as a means to attaining the terminal value status. Thus, a person who holds a terminal value of friendship is also

likely to hold an instrumental value of being polite, under a presumption that politeness will lead to social acceptance and hence the desired end state of friendship.

Values have a cognitive dimension

Rokeach argues that values also have a cognitive element, in that they represent a 'conception' of a certain desirable state, whether it is an instrumental or terminal state. This conception represents the cognitive aspect of values, as one has to think through and adopt certain desired values in line with the expected outcome of doing so compared to not doing so.

The difference between values and value systems

Values are seen not as existing in isolation but as part of a systematic layer. Rokeach (1973, p.11) comments that "after a value is learned, it becomes integrated somehow into an organized system of values wherein each value is ordered in priority with respect to other values". Rokeach further argues that this analogy of values explains why values may temporarily change as a result of changes in contexts, such as when one moves from one cultural environment to another. Under these circumstances, the priority ordering in the value system is shuffled and values are re-arranged accordingly. Aiken (1994) cites related studies by Strong who carried out longitudinal studies, spanning over a period of two decades regarding how values change, and concluded that at about late adolescence each individual would possess a steady value system that is set to remain relatively stable over a life-time. The present study will refer to this analogy later when it makes reference to the changes in value orientations that are expected as an employee moves up in levels of work hierarchy

The number of values held by people

A review of literature in this area indicates that there is no unanimity as to the number of values or valuing systems that individuals hold. The instrument used for measuring values in the present study, the Value Orientations (VO) identifies seven values, while other instruments identify differing numbers of values that can be held by individuals

(these will be profiled later). However, Rokeach (1973), argues that the number of terminal values held by an adult individual are a 'dozen and a half', while instrumental values are in the region of 'five or six dozen'. While noting that this proposition is not based on empirical findings, he emphasizes that any attempt to quantify the values held by individuals will invariably come to the important conclusion that the number of terminal values held by an average adult are generally few.

Distinction between values and personality

Many authorities on psychological assessment (Anastasi & Urbina, 1997; Foxcroft & Roodt, 2001; Kline, 2000) see the assessment of the psychological construct of values as part of the assessment of the broad 'non-ability construct' of personality. However, it is important to draw a distinction between these two constructs in the present study to avoid confusion in the interpretation of the results. Rokeach (1973) argues that while related, values are different from personality in that personality is the visible aspect of human existence, while values are the deep, underlying and invisible aspect. He notes that:

A person identified from the outside as an authoritarian on the basis of his F-Scale (personality measure) score can also be identified from the inside as one who places relatively high values on being obedient, clean, and polite and relatively low values on being broad-minded, intellectual, and imaginative (p. 21).

This distinction between values and personality becomes significant in the present study where it has been noted that like intelligence, personality has traditionally been recognized as an important factor in determining success in the world of work, usually at the expense of values.

Causes of values (values as dependent variables)

Values are influenced by contextual factors such as culture, nationality, regional location, as well as biographical factors such as gender, age and race. Rokeach (1973) cites studies conducted by Kohn which indicated that value systems held by people were significantly different across these categories. Kohn's studies are corroborated by relatively recent South African studies by Hugo and Van Vuuren (1996) who found that work values differed amongst various biographical groups such as Blacks and Whites and attributed this to their social backgrounds where, as a result of the different socialisation contexts, their value systems were shaped differently. These findings lead to the conclusion that values or value systems that individuals hold are a result of a complex interaction of contextual factors.

Consequences of values (values as independent variables)

If values represent 'a conception of the desirable', then it follows that they effectively guide virtually all aspects of human functioning. Rokeach (1973) summarises the consequences of values by noting that:

Values are determinants of virtually all kinds of behaviour that could be called social behaviour – of social action, attitudes and ideology, evaluations, moral judgments and justifications of self and others, comparisons of self and others, presentations of self and others, and attempts to influence others (p. 24)

Commenting on this relationship, Kline (2000, p.547) observes that "it would appear, on intuitive a priori grounds that the values which an individual holds should account, in some degree at least, for some of her or his actions". The assertions by Rokeach and Kline therefore indicate that values are critical in explaining and understanding all aspects of human conduct, endeavour and life in general, including conduct in the world of work. The discussion will now turn to the role of values in the world of work.

Concern about values in the world of work

In a recent study concerning values and work/corporate life amongst business students in Canada, Zhang, Straub and Kusyk (2007) emphasise that recent major corporate scandals and failures such as the widely cited Enron scandal are largely a result of value systems held by senior employees within those organisations. Their paper invites for a strong focus on assessing values/value systems as part of recruitment/appointment processes to avoid a repetition of similar corporate tragedies. It is within this context that the present study seeks to examine if individual value systems can be used to match individuals with their appropriate levels of work, in the interests of improved individual and corporate performance.

Discussing the concept of management by values (MBV), Dolan, Richley, Garcia and Lingham (2008) observe that there is a significant shift in management thought regarding the importance of values/value systems in the world of work. They note that whereas values have traditionally been seen as 'soft stuff' in a business world where 'hard stuff' is seen as more important for success, managers are now seeing the importance of the 'soft stuff' in the long-term success of both employees and organizations in general. It will be seen in the present study whether there are scientific grounds for this reported change in mindset to also consider issues of values and value orientations in people management decisions in the world of work.

Nyambegera, Daniels, and Sparrow (2001) conducted a study conceptually close to the present one, where they assessed the role of values in motivation. They found that values accounted for a 19% variance in overall employee motivation. Their study thus emphasised the importance of considering 'soft stuff' in the world of work in the interest of improving overall employee performance.

Effects of violation of values in the world of work

Literature on values indicates that human beings prefer to be in environments that are consonant with their values (Lemos, 1994; Najder, 1975). When they find themselves in circumstances that violate their value systems, they will react in different ways, either by asserting their values or by changing environments altogether. For example,

an individual who strongly holds the terminal value of 'family first' in terms of Rokeach's Values Survey is likely to be de-motivated in an environment where such a value system is not promoted. If this environment is one of work, one would become dissatisfied, frustrated and will lose commitment to an organisation that does not promote family friendly work practices (Zunker, 1994). The outcome in such a case will be poor performance and eventually, if the situation is not rectified, resignation where the individual will seek new opportunities in an environment that is in line with his or her value system. Magellan (2005) aptly summarises the consequences of violation of values in the context of the world of work by noting that:

This diversity amongst individuals is also prevalent in the work context and may have a profound impact on, for example, teamwork, individual effectiveness, openness to change or transformation, willingness to take risks, etc. Although these "different ways of thinking about things" may be a useful resource in the organisational context, it could also be at the root of conflict, misunderstandings and the inability to fully appreciate the vision of a particular organisation. It is in acknowledgement of the important implications that different worldviews, perceptions, etc have on life and work that the VO was developed as an instrument to assess the valuing systems people adhere to (p.3).

The present study will draw parallels to these views about the effects of violations of values in the world of work by drawing conclusions on the consequences of placing employees in levels of work complexity that do not support their value systems.

Psychological assessment of values

A wide range of psychological instruments have been developed for purposes of measuring values held by individuals. Like other human characteristics measurable through psychological assessment, values are assessed for various reasons and under various contexts. In the context of the objectives of the present study, the discussion will be limited to the assessment of values in the world of work (occupational settings).

Assessment of values in occupational settings

In order to provide a context of how value systems are measured in the world of work, it is necessary in a study of this nature to give a brief preview of common practices in the assessment of values in the world of work. Zunker (1994) surveyed and summarised the most widely used inventories for assessing values in the world of work. These are reported in a Table 1.

Table 1

The most commonly used measures for assessing value systems in occupational settings

Values Inventory	Publisher	General description
Work Environment Preference Schedule (WEPS)	The Psychological Corporation (USA)	Measures an individual's adaptability to values of a bureaucratic organisations .Total score reflects commitment to these values.
Work Values Inventory (WVI)	Houghton Mifflin (USA)	Measures sources of satisfaction sought by individuals at work. Scores reflect tendencies towards each of the 18 value orientations
Study of Values (SoV)	Houghton Mifflin(USA)	Personal values are measured in six categories : theoretical, economic, esthetic, social, political and religious
Survey of interpersonal Values (SIV)	Science Research Associates(USA)	Measures values that are important from an inter-personal relations perspective across six values: support, conformity, recognition, independence, benevolence, and leadership.
Survey of Personal Values	Science Research Associates (USA)	Measures values that influence the extent to which individuals cope with daily problems: practical mindedness, achievement, variety, decisiveness, orderliness, and goal orientation.
Rokeach Value Survey (RVS)	Consulting Psychologists Press (USA)	Measures the relative importance people attach to a set of 18 instrumental and 18 terminal values. Respondents carry out a priority ranking of these values to reflect their value systems.
Campbell Organisational Survey (COS)	NCS Assessments (USA)	Provides an overall, indexed measure of one's satisfaction with a given working environment.
The VO	Magellan Consulting (South Africa)	Measures value orientations across seven broad valuing systems. Measures both preferred and rejected value orientations.

[Source: Zunker (1994); Magellan (2005)]

The discussion will now turn to the VO as a measure of values since the assessment of values in the present study was done using this measure.

The VO as a measure of values

General description

The VO assesses value systems held by individuals across seven value types. The VO is designed in such a manner that it shows both those values that an individual accepts and the ones that he or she rejects. The seven value systems are colour-named. Magellan (2005) contends that colour-naming was necessitated by the need to avoid labelling some value types as being socially inferior or superior to others. Magellan contends as well that there is no value which is better than the other, as each value system has its own advantages and disadvantages. Thus, in terms of the values measured by the VO, it is better, in the interests of avoiding undesired social connotations, to describe someone as subscribing to predominantly 'orange value system' rather than describing that individual as being driven by materialistic values. Therefore, the value of materialism, which if used directly, can attract undesired social connotations, is termed an 'orange value' in the VO, a term that is socially neutral. These value systems as described by the VO are presented in detail in Table 2.

Table 2

A detailed description of the seven value orientations measured by the VO

Value	Brief description	Basic motives	Characteristic beliefs and actions	Emotional manifestation	Where commonly found
Purple (Safety)	Magical-mystical (experiencing life conditions as mysterious and often frightening).	Maintaining blood relationships and mysticism.	Need to be in a close, warm group, where one is safe and protected and where one can expect the familiar Obedience to chief, elders, ancestors, clan Preserves sacred objects, places, events, memories Observes rites of passage and customs Reciprocity (with regards to the in-group) is important Learning is based on story-telling, repetition and modeling.	Affinity for a paternalistic environment Finds meaning in in-group belonging and the symbols of such belonging (e.g. rituals) Tends to emphasise group boundaries / ethnocentric.	The superstitious, the flag for the patriotic, the carrying of religious symbols or lucky charms, the use of secret signs, excessively strong blood bonds and enmeshed family practices, those who believe in guardian angels, blood oaths, ancient grudges, trance dancing, family rituals, gangs, corporate "tribes".
Red (Power)	Powerful-impulsive Dominance	Enforcing dominance and power; Being what you are and what you want Gratifying impulses and senses Not too concerned with consequences of actions Avoiding shame and demanding respected.	Views world as having limited resources where one has to fight for one's share. Sees the world as filled with threats and predators Survival of the fittest. Others are not to be trusted. Can break free from domination to cater to one's own desires. Wants attention, respect. Wants to "call the shots". Conquers, out-foxes others. Learning usually occurs as the result of reinforcement and conditioning.	Often egocentric. May act impulsively (e.g. anger). Strives for respect and wants to avoid shame at all costs. Strong need for excitement, energy, sensual pleasure and instant gratification Presents a tough image. Proud, assertive, energetic, imaginative. Absence of guilt feelings, Tendencies to blame, take revenge. Not normally associated with calm, rational behaviour, Lack of consequential thinking, Defensive.	Rebellious youths, frontier mentalities, soldiers of fortune, macho cultures
Blue (Truth)	Purposeful Sainly Reliable	Believing in order and obedience to authority.	Laws, regulations and discipline build character and moral fibre Impulsivity should be controlled. Righteous living gives rise to stability and rewards Adherence to a code of conduct.	Conformist. Seeks some structure and order. Motivated by duty and "doing what is right".	Patriotism, codes of chivalry and honor, religious fundamentalism, Boy and Girl scouts.
Orange (Prosperity)	Strategic-materialist	Thinking in terms of abundance and acting in your own self-interest by playing the game Autonomy and manipulation.	Optimistic, risk-taking and self-reliant people deserve success Prosperity is achieved through strategy, technology and competitiveness. Resources should be manipulated to create and spread around the abundant good life.	Motivated by achievement of material rewards and the possibility of opportunity Competitive Opportunistic, Resilient Manipulative and strategic Flexible and creates value, Independent	Colonialism, fashion, "success" ministries, emerging middle classes, cosmetic industry, some mining cartels.
Green (Communitarian)	Sensitive-humanistic	Peace with inner self whilst exploring the caring dimensions of community.	Human spirit must be freed from greed, dogma and divisiveness. Feelings, sensitivity and caring takes priority Equal opportunities to all. Decision-making through reconciliation and consensus processes. Refresh spiritually, bring harmony and enrich human development, Theoretical, Relativistic.	Relationship-oriented Emphasis on sharing consensus and compromise, but also has potential to become radically "open-minded" and relativistic whilst "dogmatically" imposing a people orientation ("mean Green Meme").	Doctors without Borders, sensitivity training, animal rights, Rogerian counseling.
Yellow (Systemic)	Integrative	Living fully and responsibly whilst learning.	The emphasis is on flexibility, functionality and spontaneity Knowledge and competency supersedes rank, position and power. Differences can be integrated into interdependent, natural flows. Life is a kaleidoscope of natural hierarchies, systems and forms.	Individualistic Independent Seeks self-actualisation Not dependent on structure and order Freedom of choice is emphasised Integrated feelings, yet somewhat emotionally distanced.	Peter Senge's organisations, chaos theory, eco-industrial parks (using each other's outflows as raw materials), Stephan Hawking's Brief History of Time.
Turquoise (Holistic)	Holistic-global	Experience the wholeness of existence through mind and spirit.	The world is a single, dynamic organism with its own collective mind. Everything connects to everything else Emphasis on holistic, intuitive thinking and cooperative actions Energy and information permeates the Earth's total environment.	Autonomous, but seeks spiritual bonds with humanity and the universe Focused on the meaningfulness of human endeavours.	Gandhi's ideas of pluralistic harmony, theories of David Bohm.

(Source: Magellan, 2005)

Categorisation of values: Lower order and higher order values

The seven value systems measured by the VO can be summarised and categorised into two broad areas, particularly for purposes of analysis – being the internally focused lower order value systems, and externally focused higher order values systems (Magellan, 2005). Figure 1 summarises these two categories and their broad characteristics.

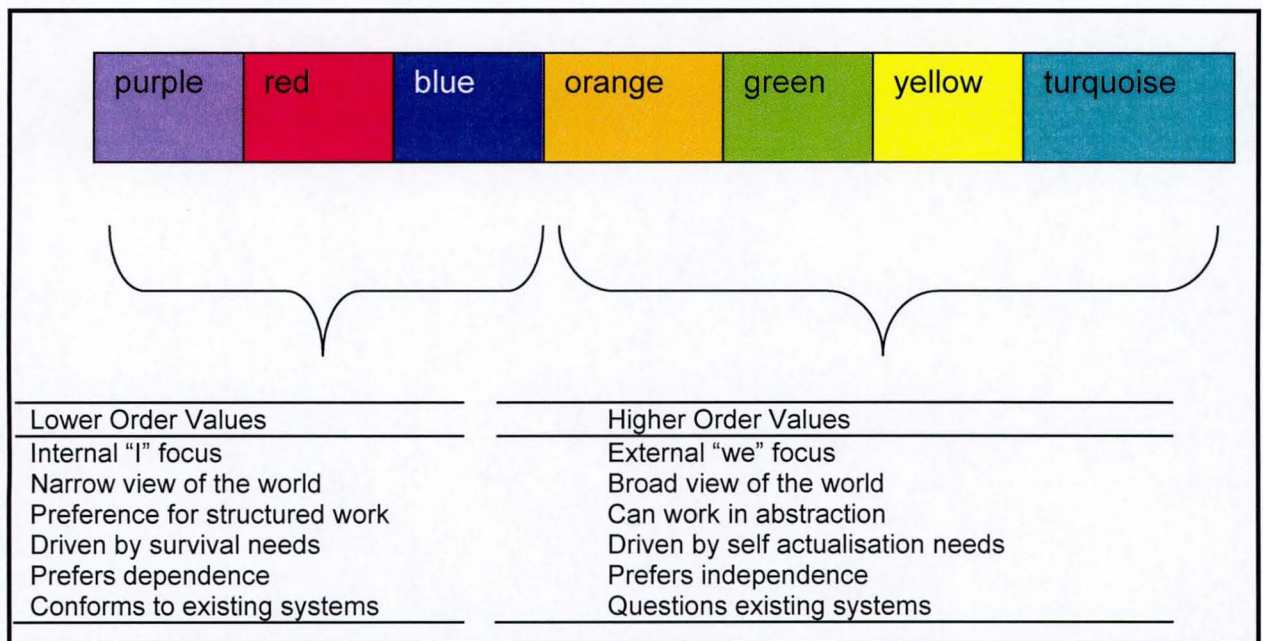


Figure 1. Categorisation of values measured by the VO into lower order and higher order values.

The VO as a reverse-item measure

The VO is a reverse-item measure. This means that, of the 45 items of the measure, most of the questions /items in the second half of the questionnaire are the reverse of questions asked in the first half of the questionnaire. The technique of 'reverse scoring' is common to most self-report measures where it is employed to minimise the challenge of 'faking good and faking bad' in such measures (Pauls & Crost, 2004).

The bi-polar nature of the VO

Because it is a bi-polar measure, the values rejected scale of the VO is essentially a mirror of the values accepted scale of the measure. Figure 2 is an extract from a VO candidate report to illustrate this bi-polar nature of the VO.

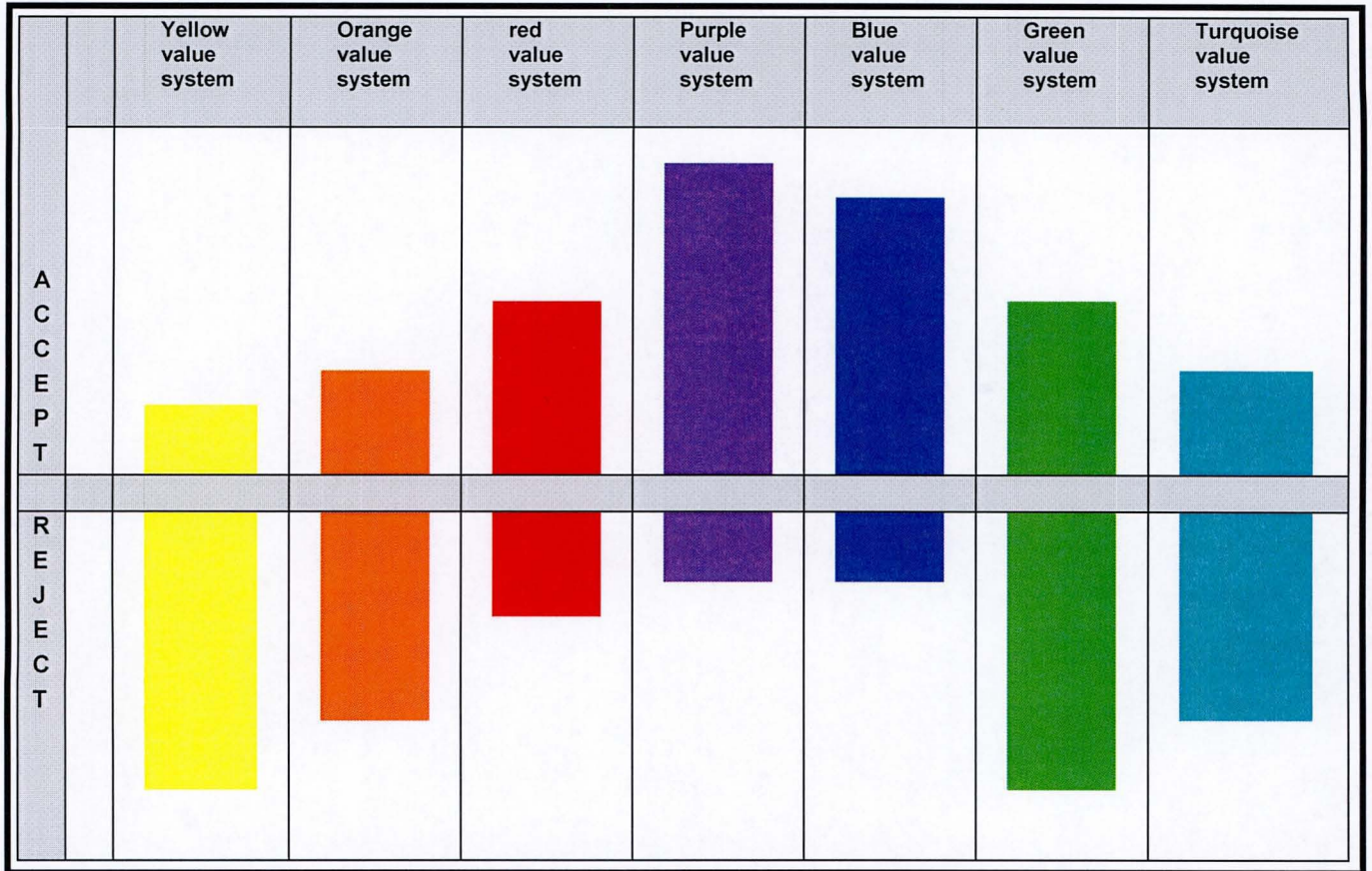


Figure 2. A diagrammatic representation of the bi-polar nature of the VO.

The coloured bars against each value system indicate the extent to which each value system is accepted or rejected by this particular test taker. Figure 2 shows that people are not neutral to any of the seven value systems – they stand somewhere in relation to each value, either accepting or rejecting it to a certain extent. That's, if an individual subscribes to the yellow valuing system by 5% (shown in Figure 2 as a protrusion on the 'accepted' side of the matrix), he or she automatically rejects it by 95% (shown in Figure 2 as a protrusion on the 'rejected' side of the matrix). This particular test taker is dominated by an acceptance of the purple valuing system (preference for belonging to a group), and predominantly rejects a yellow valuing systems (does not prefer independence).

Application of VO results

Magellan reports that the VO is used in people placement, organisational development, executive coaching and diversity management. The theme of its application in organisational settings seems to be the matching of individuals to the right jobs, teams and organisations with the aim of ensuring consonance between an individual's value systems and given work contexts. The present study will seek to empirically verify the appropriateness of its use in these contexts, particularly as an aid to deciding the level of work to which an employee is most suited. The following sub-section will now discuss the measurement of individuals' suitability for given levels of work complexity.

ORGANISATIONAL DESIGN

The concept of organisational design

Organisational design (OD) is a practice in organisations concerned with ensuring that an organisation operates as an integrated and efficient system able to achieve its objectives. Organisational design is defined by Jelinek, Litterer and Miles (1981, p.6) as "the planning of structures to deal adequately with the central issues of fit, coordination, commitment and control", while Armstrong (2006, p.320) views it as; "the design, development and maintenance of coordinated activities in which individuals and groups of people work cooperatively under leadership towards commonly understood and accepted goals". The challenge of organisational design is to ensure a perfect fit between external organisational forces, and internal processes, systems, resources, technology and people within an organisation with the ultimate objective of ensuring optimal organisational efficiency and effectiveness. The main proposition by organisational design specialists is therefore that a well designed organisation which is able to maintain equilibrium between its various components is more effective, more efficient, and ultimately more successful than a poorly designed one (Morris & Brandon, 1993).

Armstrong (2006) observes that while OD is often an on-going re-design process, all organisations have a 'grand design', being a foundational framework upon

which further modifications take place. In the redesign process, the following questions are asked, and answered through appropriate design methods: how is work allocated and divided?; how is work differentiated and integrated?; will work be done by individuals, groups or teams?; how will roles be differentiated?; to what extent will the organisation be centralised or decentralised?; and how many layers of authority will the organisation have?. The last question leads into a process of job design, where specific tasks and requirements for each role are specified (Morris and Brandon, 1993). All these questions are asked either at the formation of an organisation's 'grand design', or during the later stages of continuous re-design.

Literature on organisational design, particularly regarding its emphasis on the strong link between an efficient design and overall organisational success persuades one to take the view that if organisational success could be a matter of how well or poorly an organisation is designed, then OD becomes a critical issue in the management of organisations in general.

Literature also reveals that other than Jaques' (1998) model, there is no other integrated model on how organisations should be designed. Thus, every organisation will find different answers to the design questions referred to above, depending on its needs and circumstances. Further analysis reveals that these questions tend to be addressed in a rather disintegrated manner, for example, with one piece of literature focusing only on the question of centralization and decentralization (Ulrich & Brockbank, 2005), while the other focuses on the question of whether work should be done by individuals or groups (Mello, 2002).

Jaques (1998) came up with what he presented as a prototype for the design of hierarchical organisations – the stratified systems theory (SST). In promulgating the SST, Jaques was guided by the view that considering their huge success in the 20th century, large hierarchical organisations are likely to remain as the main form of organisation going into the future. Therefore, given the challenges of co-ordinating such large entities, there was a need for a coherent system of how such entities should be organised – hence his promulgation of the SST. This theory will be discussed in some detail in the following section.

Table 3

The seven strata of the SST in which all organisational systems fall

Stratum 7	Construct complex systems
Stratum 6	Oversee complex systems
Stratum 5	Judge downstream consequences
Stratum 4	Parallel process multiple paths
Stratum 3	Create alternative pathways
Stratum 2	Diagnostic accumulations
Stratum 1	Overcome obstacles/ Practical judgment

(Source: adapted from Jaques, 1998)

Jaques (1998) further observes that depending on their size, not all organisations will have all the seven strata. Those with systems that fall into the seventh strata would be typically the largest multinational organisations with a fully global presence, where the seventh stratum represents systems and processes done at the organisations global headquarters. On the basis of this stratified view of the organisation, Jaques argued that the following issues relating to the design of the organisation should then be addressed and implemented:

- Accountability and authority (How will accountability and authority be shared across all strata)
- Managerial layers (Extent of centralization/decentralization across strata)
- Lateral working relationships (How will cross functional individuals/teams relate)
- Role clarification, and differentiation (Clarification of roles within, and across levels)

- Assignment of levels of work complexity in each role across the strata (where will each given role /job be placed across the strata)
- Placement of people in levels of work which matches their capabilities
- Differentiation of compensation systems across the strata

Even though they may appear separate, all these components of the SST are complimentary and somehow interdependent, and their execution must be likewise if the requisite organisation is to be created. The present study will focus only on the levels of work complexity component of the SST, together with its consequent component of matching employees to their correct levels of work complexity. Further discussion of the SST will now turn to these components.

Levels of work complexity

After each role (job) has been identified in the process of designing a requisite organisation, it must then be placed in its appropriate strata within the organisation. The decision on where to place a role e.g that of a CEO, or that of a cleaner, will be based on the level of work complexity for that role (to be used interchangeably with the term 'levels of work in the present study'). If for example, a role is eventually placed at the 4th strata, it becomes a level four complexity role. Jacques (1998) describes the level of work complexity in a role as essentially the general size of a position compared to other roles and the levels of responsibility that goes with it. For example, the role of a CEO can be said to be of higher complexity than that of a cleaner in an organisation because it has greater responsibility, and is generally 'bigger' in size than that of a cleaner. It will therefore be slotted at the higher echelons of the strata e.g level 6, while that of a cleaner is slotted in the lowest levels e.g level 1. Table 4 presents a summarised schematic representation of the levels of work complexity across the strata, describing the main characteristics of roles found in each level, key capabilities required for successful performance in the given level and typical roles found in that level.

Table 4

Profile of the main characteristics of each level of work complexity in terms of the SST

Level of Work Complexity in a Role	Main characteristics of the level	Time span for work output (time needed for completion or longest assessment)	Key capabilities required for optimal performance	Typical role and activity (Organisational example of Toyota PLC)
Level 1 (Quality Role)	<ul style="list-style-type: none"> - Work done within clearly defined rules, policies and procedures - Focus in on the task - Challenge is to deliver per instructions 	1 Day - 3 Months	Ability to execute the given tasks, as per instruction	A Cleaner at a local Toyota Plant keeping the Assembly line tidy.
Level 2 (Service Role)	<ul style="list-style-type: none"> - Clear procedures have now melted a bit into frameworks - Focus in on a given situation/case - Challenge is to diagnose and solve general problems 	3 Months – One Year	Ability to pick out potential operational obstacles, analyse them and find a quick solution.	A Dispatch Foreman at a local Plant ensuring timeous dispatch of a consignment
Level 3 (Best Practice Role)	<ul style="list-style-type: none"> - Frameworks have now melted into fuzzy guidelines - Focus is now on the whole systems - Challenge is to refine processes 	2 Years	Ability to refine and continuously improve all processes and systems within a given context.	A production Manager at a local Plant preparing a monthly production Plan.
Level 4 (Strategic Development Role)	<ul style="list-style-type: none"> - Fuzzy guidelines have further melted to 'educated guesses' - Focus is both on various systems: current and future - Challenge is to model future systems 	3 – 5 Years	Ability to 'parallel process' both current organisational requirements, and future requirements	An Operations Executive at Toyota SA HQ reviewing reports submitted by the various Unit Managers
Level 5 (Strategy conceptualisation role (1))	<ul style="list-style-type: none"> - Guidelines are non-existent - Focus in now on the macro-environment - Ensure a fit between the system and its macro environment 	10 Years	Ability to read the macro environment and prepare the organisation to fit accordingly.	The Toyota SA General Manager assessing the impact of new safety legislation on various Plants
Level 6 (Strategy conceptualisation role (2))	<ul style="list-style-type: none"> - Guidelines are non-existent - Focus is on multiple diverse systems - Need to comprehend various systems (e.g multi geographical) 	15 – 20 Years	Ability to create a future for the Organisation using knowledge about the future.	Africa Regional CEO of a Toyota assessing emerging markets in the continent.
Level 7 (Corporate citizenship role)	<ul style="list-style-type: none"> - Guidelines non-existent - Focus is on organisational well being in an unknown future - Ability to predict and see Impact of global trends 	25 Years	Ability to see a truly global future of a Organisation with very limited knowledge about the future	Toyota CEO at Head Quarters in Japan, assessing the global trends in transportation and vehicle preference.

(Source: adapted from Jaques, 1998)

Table 4 shows the use of the time—span aspect of a role as a determinant of its level of work complexity. Jaques (1998) argued that the time span given for completion of tasks in a role is a distinct indicator of its complexity. Thus those roles whose outputs have a daily span such as those of a cleaner, would be of lower complexity than those roles with a time span of 25 years (CEO role).

The challenge of placing employees to the right level of work

Once all work in an organisation has been stratified according to Table 3 the major challenge then becomes that of deciding which employee to place in which level of work. As shown in Table 3, each level of work places unique constraints and requirements on the person placed in it. Thus, a level six role whose core outcome centres on the overseeing of complex systems places different constraints and demands from that of a level 1 role whose core outcome centres around practical judgement. Jaques (1998) argues that when there fails to be a match between the work level requirements and the person placed in it, the incumbent will fail to perform successfully in that role.

Determining the suitability of an employee for a given level of work

Suitability for current levels of work

Jaques (1998) identified three factors which play an interdependent role in determining the suitability of an employee for his or her current level of work as follows:

- **Mental processing:** An employee's cognitive abilities.
- **Values/Commitment:** An employee's values and commitment to the organisation.
- **Skilled knowledge:** An employee's educational knowledge, plus skills gained through practice.

Using these three factors, he proposed a simple equation to summarise the relationship between the factors as follows:

- Applied Capability (AC) = f (Complexity of Mental Processing) + Values / Commitment (V/C) and Skilled Knowledge (p. 18).

For determining suitability for a level of work that one currently occupies, Jaques added skills, knowledge and values to cognitive abilities. Essentially, he was arguing here that over and above cognitive abilities, an employee needs to have received some training in the role he or she occupies in order to perform well. He also adds another dimension – that of values and commitment, as a determinant of success in an employee's current role. This dimension will be further explored in the present study.

Suitability for potential levels of work

Jaques (1998) argued that an individual's mental processing capabilities, which he described as involving a series of processes where one would "take information, pick it over, play with it, analyse it, put it together, re-organise it, judge and reason with it, make conclusions, plans and decisions and take action" (p.18), is critical in making decisions on one's suitability for potential levels of work. A closer analysis of Jaques's analogy in the context of our knowledge about psychological assessment will reveal that, essentially, Jaques' was referring to cognitive abilities or intelligence, as the main determinant of one's potential capability for a given level of work (Foxcroft & Roodt, 2001). This would imply that those with higher cognitive abilities are better positioned to handle roles of higher complexity, and vice versa. He summarised this relationship method in a simple equation:

Potential Capability (PC) = f^* (Complexity of mental processing (CPM) (NB* f means function of).

Jacques' view as to the role of cognitive abilities in indicating potential capabilities of employees in the world of work is generally widely shared. Many organisations in South Africa use cognitive measures to select employees, particularly for managerial positions such as Graduate Trainees (Foxcroft & Roodt, 2001). Cognitive assessments

are also conducted for incumbent employees to assess their potential for promotion and development. In addition, in terms of psychometric properties (predictive validity), cognitive tests have been proven to have the second highest predictive validity on job performance with average validity coefficients of .51, which is second only to work samples (Cascio, 2003). Therefore, Jaques' assertion on this issue seems to be well accepted, and also supported by empirical evidence. In the same manner that cognitive abilities have been found to facilitate better person - job fit in a given role depending on its location in the levels of work hierarchy, the present study will seek to examine if value systems have a similar effect.

Traditional methods used to assign employees to appropriate levels of work

Traditional assessment practices have focused on the assessment of cognitive abilities and personality as determinants of suitability for a given level of work. Thus, organisations will assess cognitive abilities and use cognitive scores to decide whether an individual will do well in a given level of work (Zunker, 1994). Organisations would even develop internal norms where, for example, they would put IQ cut-off scores for given levels of work, for example, a cut-off of score of 60 as a minimum score if one is to be appointed, for a level three role. In a similar vein, organisations would expect certain personality requirements especially for positions in higher levels of work e.g assertiveness. Therefore, decisions relating to initial placement and future deployment will be based on these employee capabilities, in addition to other capabilities such as qualifications and experience. However, despite the widespread practice of assessing cognitive abilities and personality for purposes of assigning employees to roles depending on their levels of work location, it is still common to find the challenges of poor employee performance caused by, amongst other things, the failure of individuals to cope with the constraints and requirements of roles they occupy depending on where that roles is located within the seven levels. It is also common in organisations to find that an employee may perform well in one level, and upon promotion to a higher level, the same employee suddenly becomes an under-performer. The reasons for such situations can be easily explained by studying Jaques' levels of work theory and understanding the differences in requirements across the seven levels of work. The

fact that this problem is still experienced justifies the need for further research in this area to help organisations manage the problem of poor employee performance. This study is motivated by this need, and will thus depart from the traditional practices of investigating cognitive abilities and personality by investigating whether organisations should assess values held by employees or potential employees and use this information to decide at which level of work the employee is likely to perform successfully.

The importance of an 'employee-work level' match

The central theme in Jaques' (1998) discussion of the levels of work complexity component of the stratified systems theory of organisational design is the emphasis on the match between an employee's capability on one hand, and the complexity requirements of the role he or she occupies on the other. In other words, if a person who is suitable only for a level 1 role is placed in a level 5 role, the result will be poor on the job performance by the employee. Jaques sees this equilibrium between an employee's overall capabilities and the level of work requirements as being central in designing a requisite organisation. Without this equilibrium, employees will perform below their capabilities as a result of being overstretched (in case they are placed at a level higher than their current or potential capabilities) or be de-motivated due to lack of challenge (in case they are placed at a level lower than their current or potential capabilities). Overall, failure to achieve this equilibrium is seen through undesired outcomes with a detrimental impact on the overall performance of an organisation as a whole, such as de-motivation, dissatisfaction, overall poor employee performance, resignation, and ultimately lower than optimal organisational efficiency and effectiveness.

Those organisations that have successfully implemented Jaques model, including matching employee capabilities with work level requirements, report good results at the end. Commenting on his company's success after implementing the SST model, Wintermans (1994), who is also the CEO of Canadian Tyre Acceptance Limited observes that:

When the complexity of the role is too high, lower the complexity level until the integration between words and action can happen. For example, reduce the accountability to exclude development, and concentrate on ongoing production, or reduce the product categories somebody is responsible for from three to one. In this way, the person is neither overwhelmed nor "underwhelmed" (p.5).

Therefore, organisations that are poorly designed by way of failing to match people to their appropriate levels of work suffer consequences of poor performance. This position forms the context of the present study, where an examination will be made to see if values held by individuals can be used to achieve this critical equilibrium.

Do values have a role in determining the 'employee-work level' match?

While Jaques (1998) did mention the role of values and commitment in achieving the person-work level equilibrium, his emphasis was on cognitive abilities (intelligence) as the main factor that determines an employee's suitability for a given level of work. Jaques, therefore, seems to be arguing that there is a positive linear relationship between cognitive abilities and levels of work complexity whereby the higher the employee's cognitive abilities, the more suitable he or she is for roles in higher levels of work. The present study sought to investigate whether values or value systems held by individuals have a similar relationship with levels of work. The discussion below will present a theoretical assumption of this relationship, to be investigated empirically in the later chapters of the study.

A theoretical model depicting the relationship between values and levels of work

Other than the mild reference made by Jaques on the role played by value orientations in determining the suitability of an employee to both the current and potential levels of work, no other literature exploring this relationship in particular was found. There is therefore no specific previous empirical reference in the present study. However, based on the literature review, a hypothetical model representing the expected relationship between value orientations and levels of work was created to lay a theoretical foundation for empirical analysis.

If values are “determinants of virtually all kinds of behaviour that could be called social behaviour” (Rokeach 1973, p. 24) and can also be seen as being responsible for “some degree of our actions” as seen by Kline (2000) Furthermore, in considering that values are affected by certain contextual factors, one is persuaded to theorise that in relation to levels of work, certain values are more suitable for certain levels of work. Given that each level of work presents different challenges and constraints (context), it would appear that it requires certain value orientations that are consonant with those constraints if the important equilibrium discussed above is to be achieved. Magellan (2005) discusses this point by observing that a value system held by an individual can determine for example, the leadership style that one exhibits in the world of work.

Using value systems in the Rokeach Value Survey (RVS) (Rokeach, 1973), one is persuaded to conclude that an employee who holds dearly an instrumental value of obedience will feel uncomfortable operating at a higher level of work complexity where s/he will be required to question, challenge, and create new systems rather than merely follow existing ones. A person whose value system is dominated by such a value is likely to feel more comfortable and cope well with the requirements of work at the lower levels, e.g. level 1 where s/he will be expected to follow and apply existing rules and procedures, as given. If such a person is placed in a role located at higher levels of work complexity, there will be a mismatch between the person and level of work, resulting in the associated negative consequences as earlier highlighted.

It would appear therefore that certain values, both instrumental and terminal, seem more suitable for certain levels of work. Higher order values seem characteristically more suitable for higher levels of work, and lower order values seem commensurately suitable for lower levels of work. This hypothetical relationship, informed by the literature in these constructs is depicted pictorially in Table 5

Table 5

A hypothetical depiction of the relationship between values and level of work profiles

Level of Work (Range of Experience)	Minimum IQ Score	Predominant Value System
Level 7 Work	Higher IQ score	Predominantly Turquoise value system
Level 6 Work	-	Predominantly Yellow value system
Level 5 Work	-	Predominantly Green value system
Level 4 Work	Middle IQ score	Predominantly Orange value system
Level 3 Work	-	Predominantly Blue value system
Level 2 Work	-	Predominantly Red value system
Level 1 Work	Lower IQ score	Predominantly Purple value system

(Source: Hypothetical construction based on literature about values and levels of work)

Table 5 indicates that in the present study, it is expected that those whose value systems are dominated by lower order values (purple, red and blue) should display a tendency to fit better in lower levels of work, while those who hold higher order values (orange, green, yellow and turquoise) should fit better in higher levels of work. The meaning of these values will be discussed in the next section of this chapter.

The above illustration is a simplified hypothetical relationship between values and levels of work. It shows that in as much as there is a minimum IQ score that is ideal for meeting the requirements of a role in a given level of work, there is also a commensurate requirement in terms of values systems necessary for successful performance in that given role. It suggests that as an employee progresses from lower order values to higher order values, his or her ability to handle higher level roles also simultaneously increases, and vice versa. This hypothesis will be tested empirically and presented in the later chapters of the present study.

Criticism of the stratified systems theory

Bioss International (2008), a leader in SST consultancy services lists many big and successful companies both in South Africa and abroad such as Implats, Old Mutual, Edcon and BHP Billiton as successful users of the SST model of organisational design. However, despite its popularity and success, some scholars have criticised Jaques' SST model.

Ross (1992, p.1) summarises this criticism by noting that “much of what Jaques says directly contradicts current management doctrines, which stress the importance of teamwork, employee participation and the removal of management layers”. Thus, while modern management thinking recommends the end of the hierarchy in favour of smaller- semi autonomous networks, Jaques recommends the hierarchy, and while modern management thinking advocates for the removal of multiple layers in favour of the flatter and leaner organisation, Jaques recommends multiple layers (Malone, 2004). Cason (1997) also argues that by focusing on assessing existing capabilities for purposes of matching employees to their roles, Jaques seemed to be suggesting that leaders are born and cannot be made, a position which contradicts modern management thinking which advocates for the ‘making’ of leaders.

However, despite some of these criticisms, Cason (1997) observes that the SST is likely to remain as the favoured method of creating efficient organisations because of its ‘total systems approach’, in contrast with other approaches which tend present piecemeal solutions to OD challenges. Cason further notes that approaches such as business process re-engineering (BPR) and self-managed work teams have not been able to stand the test of time because of their disintegrated tendencies, a shortfall which the SST addresses well (Cason).

Psychological assessment of level of work profiles

What it means to assess ‘levels of work’ psychologically

Once we have classified all jobs in an organisation hierarchically into the seven levels in terms of Jaques’ theory , our next challenge will be to determine the level of work to which each individual in the organisation will be most suited. There are psychological measures that have been developed to do this – that is to give a ‘level of work profile’ of an individual, in the same manner that psychological measures have been developed to give a ‘personality profile’ of an individual. Therefore, through psychological measurement, we are able to know the level of work to which an individual fits best – both currently and potentially. This further informs us that each

individual has a psychological construct called 'levels of work' – just like each individual has psychological constructs called personality and intelligence which can be revealed through appropriate psychological assessment. In order to provide context to the practice of assessing the psychological construct of 'levels of work profile', Table 6 summarises the psychological measures commonly used to assess this construct.

Table 6

A summary of the instruments commonly used to measure employee level-of-work profiles

Level of Work Inventory	Developer	General Description
Career Path Appreciation (CPA)	Bioss International (England)	The CPA is administered in the form of an Interview conducted by an experienced psychologist, with the objective of gaining insight into an individual's conceptual capacity. The ultimate outcome will be an indication of one's current as well as potential working capacity , in line with the Levels of Work concept of the SST
Modified Career Path Appreciation (MCPA)	Bioss International (England)	Essentially similar to the CPA – different only in that it is computer administered and scored.
Initial Recruitment Interview Schedule (IRIS)	Bioss International (England)	Is also built on the same principle as the CPA, but is a shorter version, targeted at entry level managers, particularly Graduate Trainees. It is also administered by way of Interview.
Leadership Value Added (LVA)	MVC Associates International (USA)	Measures the level of consonance between an employee's current conceptual capabilities, contrasted with his/her current role requirements as guided by the level or work in which the role is located. Inferences are drawn about the incumbent's suitability for future roles.
CPP (Cognitive Process Profile)	Magellan Consulting (South Africa)	Primarily measure cognitive abilities, focusing on the process by which one applies cognitive abilities.

(Source: Bioss International, 2008; MVC Associates International, 2008; Magellan, 2007)

The discussion will now focus on the CPP as a measure of levels of work given that it is the measure used to assess the psychological construct of 'levels of work' in the present study.

The Cognitive Process Profile (CPP)

The CPP as a multiple construct measure

The CPP falls under the category of multiple construct measures (Anastasi & Urbina, 1997). Multiple construct measures are able to report on more than one construct using data collected in one sitting. A measure like the 16PF would be seen as a single construct measure because in one sitting, it can only report on the construct of personality. However, the CPP is a multiple construct measure in that in one sitting, it can report on two constructs, the first being one's cognitive processes, and the second being one's level of work profile. These two constructs are different, and they can accordingly be measured independently using single construct measures designed specifically to measure each one of them. For example, the Stanford- Binet Intelligence Scale can be used to measure only cognitive processes, while the Career Path Appreciation (CPA) can measure only the individual's level of work profile. These two constructs measured by the CPP will be discussed below.

The CPP as a cognitive measure: Its difference with other traditional cognitive measures.

The CPP differs materially from traditional cognitive measures such as the Stanford-Binet Intelligence Scale in that it does not measure the outcome of cognition as these measures do. Rather, it measures the process of cognition. As a result, the CPP does not yield a single summated IQ score as the traditional IQ measures do. Instead, it yields a profile across seven cognitive areas identified by the publishers (these metric properties will be discussed in the Method chapter). Its aim is not to quantify one's cognitive abilities as the traditional measures do, but rather to draw a profile of how one thinks or processes information. The publishers contend that measuring one's thinking processes is more useful than measuring one's summated IQ score for purposes of decision making. Thus while the Stanford- Binet Intelligence Scale will report that an individual's IQ is 65, the CPP will report on the thinking processes that the individual went through to arrive at the summated score – without reporting the summated score itself.

The CPP as a measure of the construct of levels of work

Because it is a multiple construct measure, the CPP is also able to measure the psychological construct of 'levels of work' in addition to the construct of cognition it measures, as described above. The present study does not seek to investigate how exactly the CPP does this, as doing so will be outside the scope and objectives of the study. The study will rely on the fact that the HPCSA registered the CPP as a valid measure of the two constructs – cognitive processes and levels of work (used as the intermediate criterion in the present study). Furthermore, the Method chapter will report on some of the construct validity studies conducted by the publishers to prove its ability to measure the construct of levels of work. This explains why the CPP appears on the list of other measures designed to measure only this construct in Table 5. Figure 3 shows an extract from a test taker summarising the test taker's work-level profile – where this particular test taker has a level five (5) work profile.

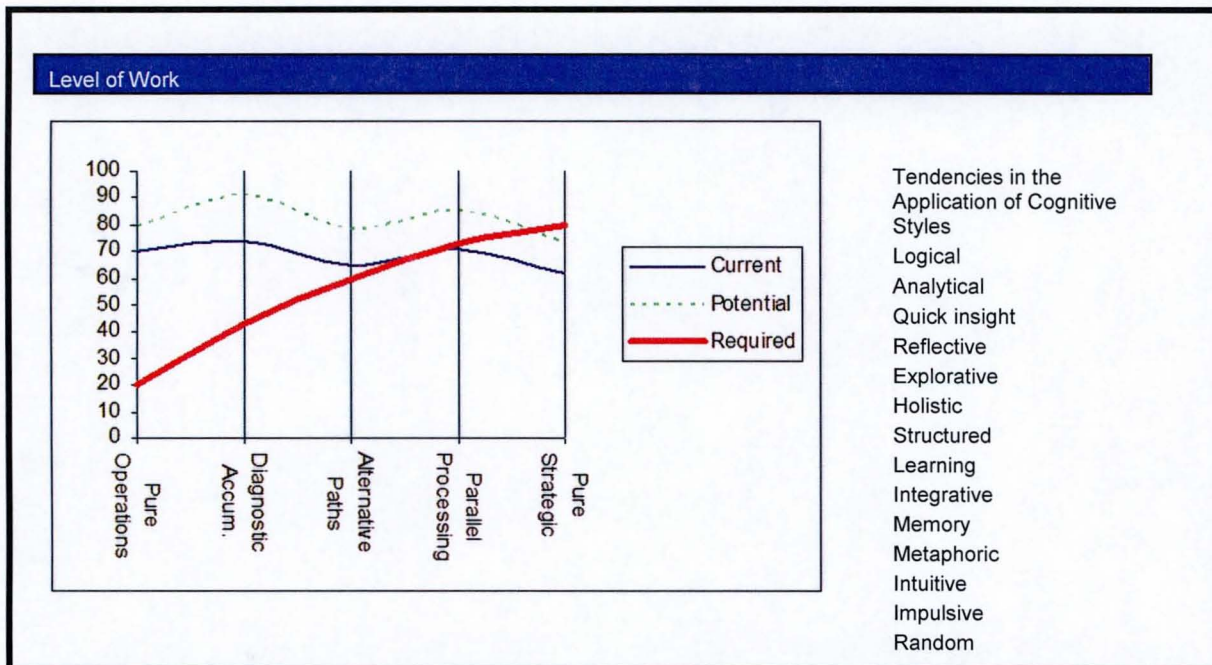


Figure 3. Extract from a CPP candidate report showing the candidate's work-level profile.

Application of CPP results

The CPP generates information about an individual's cognitive capabilities. This information is used mostly in organisational settings for various decisions relating to employees, such as placement, promotion, and career planning and employee development. The level of work profile for each test taker is used to inform management about the level of work to which a given individual should be placed – whether it be initial placement from outside the organisation, or further placement of existing employees through promotion, demotion or transfers (Magellan, 2007).

Concluding remarks

This section has discussed Jaques' (1998) stratified systems theory of organisational design. Particularly emphasised focus on has been the levels of work component of the expansive theory, where the significance of matching employees to the levels of work complexity to which they are most suited was discussed. The methods of determining an employee's suitability for a given level of work complexity were also discussed. A theoretical model showing the relationship between levels of work and value systems was also presented. Criticism of the whole SST model of designing organisations was also profiled.

Conclusion

The purpose of this chapter has been to provide a conceptual framework for investigating the hypotheses in the present study namely, that values held by individuals are related to the level of work in which they can successfully perform and can thus be used to place them at their appropriate levels of work. In order to do this, the state of knowledge in the broad conceptual areas of psychological assessment in general, values/value orientations and organisational design (with a specific bias to Jaques' SST theory of OD) were presented. The present study therefore seeks to add a new dimension to this current state of knowledge by finding empirical answers to the following questions emanating from the literature review:

1. In as much as it has been proven that there is a relationship between one's cognitive abilities and the level of work to which the same individual is most suited, can personal values/value systems held by employees also have a similar relationship with employees' level of work profiles ?
2. In as much as cognitive abilities have been used to predict employee success in a given level of work, can personal values/value systems held by employees be used along the same lines to predict person –work level match in the interests of eventual on-the job success ?

The following chapter will outline the research method employed to find answers to these questions.

CHAPTER 3: METHOD

Introduction

This chapter will discuss the method employed to investigate the research hypotheses. It will outline the research design, describe the research participants, and give details on the metric properties of the research instruments. It will close by summarising the procedure followed to collect and analyse data.

Research design

Design

A descriptive research design was chosen to investigate the hypotheses in the present study. It was chosen on the basis of its suitability for relational analysis conducted in the present study (Easterby-Smith, Thorpe, & Lowe, 2002). Essentially, the study set to describe and interpret the statistical relationship between employee performance on the VO and the CPP.

Predicting intermediate criterion

While most predictive studies predict final/ultimate criterion, which is usually on the job performance in occupational settings, the present study departed from this traditional practice by predicting intermediate criterion (Anastasi & Urbina, 1997). There are certain assumptions that are made in every case where an intermediate criterion is used. These assumptions relate to how the intermediate criterion eventually links with the ultimate criterion. These assumptions are summarised below in Figure 4:

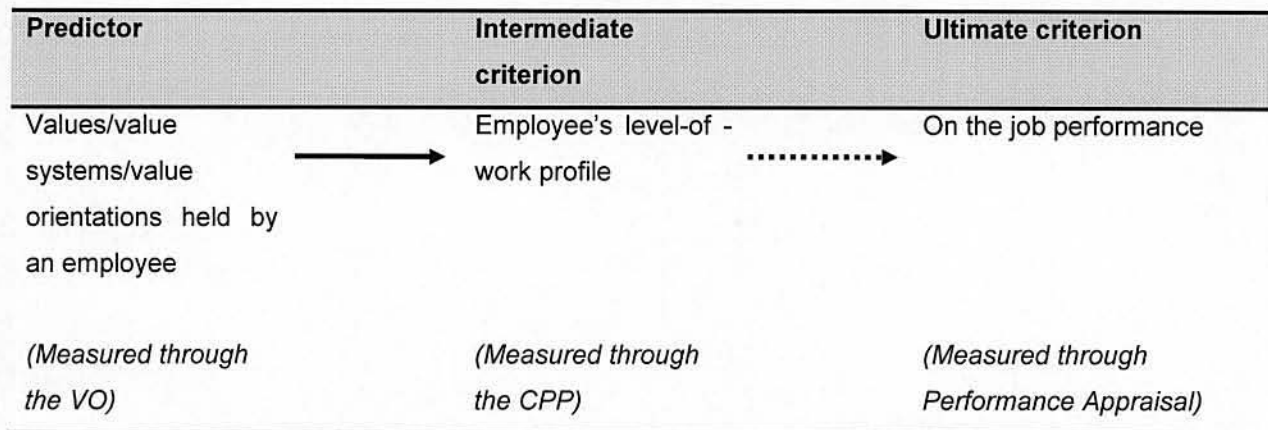


Figure 4. The relationship between the predictor and the criterion in the present study.

The above diagram shows that the present study does not concern itself with the ultimate criterion, being on-the job performance. Instead, the study predicts intermediate criterion, being an employee's level of work profile, which in turn can be used to predict on the job performance in a separate study altogether. The study therefore, assumes that when there is a good match between an individual's level of work profile (as measured by the CPP) and the actual level of work to which is placed, this will lead to high on the job performance assuming that all other variables that affect the ultimate criterion are held constant. Anastasi and Urbina (1997) discuss this practice of using intermediate criterion such as performance on a training programme, to inform actual on-the-job performance, and concludes that it is better to predict intermediate criterion than ultimate criterion, given that ultimate criterion is affected by many other factors that may be difficult to isolate in one study, and also because data on ultimate criterion is hardly readily available.

Sample

A convenient sample was chosen for purposes of data collection. The participants in the study were chosen by virtue of having taken both psychological measures– the VO and the CPP to enable comparisons to be made in line with the objectives of the study. Effectively, all the employees or potential employees from various organisations who had taken both tests through Magellan Consulting were included in the sample.

Participants

Description of the sample

Secondary data covering a biographically and characteristically mixed sample of 399 participants was made available by Magellan Consulting. Table 7 describes the sample.

Table 7

Description of the sample (N = 399)

Variable	Category	n	n (%)
Nationality	South African	399	100%
Gender	Male	219	55%
	Female	180	45%
Age	Various age groups ranging from 21 to 65. Average age was 38.		
Racial composition	Blacks	153	38%
	Whites	103	26%
	Indians	56	14%
	Coloureds	87	22%
Industry	Other	16	4%
	Banking	60	15%
	Insurance	88	22%
	Telecommunications	104	26%
	Retail	132	33%
Highest educational levels	Matric	84	21%
	College Diploma	165	41%
	Graduate	103	26%
	Postgraduate	47	12%
Levels of work	Level1: Operational employees	40	10%
	Level2: Supervisory employees	100	25%
	Level3: Middle Management	140	35%
	Level4: Senior Management	100	25%
	Level5: Executive Management	20	5%

All the participants were either employees or potential employees of various companies drawn from various industries. They were assessed for commercial purposes by Magellan Consulting on both measures (VO and CPP), either for selection or career management purposes. Participants were drawn from various

occupational levels within the organisation – ranging from operational staff to executive management, and covering all staff levels – from new entrants to experienced employees. Participants were also demographically mixed, by age, race and gender – generally being representative of the demographic profile of South Africa. Participants also had varied educational backgrounds, but the majority (79%) had a minimum of a diploma level education.

Measuring Instruments

Descriptive information on both measuring instruments was given in the literature review chapter. This section will focus on the metric properties of the two measuring instruments used in the present study.

Metric properties of the Value Orientations measure

Development and norms

The VO is a South African developed measure. Its norms were generated on a demographically mixed group of 258 South African adults taken from occupational settings (employees of various companies). The norm sample was biographically mixed to reflect the general biographical composition of the country. In comparison to the majority of imported measures, it can be argued that the VO is in a better position for cultural appropriateness in the South African context (Magellan, 2007).

Administration, scoring and reporting

The VO is a self-reporting, computer administered instrument with 45 items. Each value statement (item) has four alternative answers, to which the test taker attaches a certain weight on a comparison basis. The weight given for each alternative answer will depend on the importance attached to that alternative answer by the test taker in comparison to the other three alternative answers. This process of assigning weights on a comparison basis is the process which eventually reflects the test taker's preferred and rejected value systems. Each of the 45 items has a total weight of 10, meaning that when added up, the sub-weights for each of the four alternative answers against each item must be equal to 10 (Figure 5). Scoring and reporting is done automatically by a computer programme to produce a ± 11 page report showing the individual's preferred values, rejected values, conflicting values, implications for motivation and leadership and potential for growth and personal change (Magellan,

2005). It is also important to point out that the VO does not produce a single summated score, but rather a score in each of the seven value types i.e a score in the purple value system, red value system, blue value system, orange value system, green value system, yellow value system and turquoise value system. As shown earlier in Figure 2, every test taker will have a score across each of these value systems even though there will be one predominant one. In addition, while there are only seven value types measured by the VO, the actual scores become double that number i.e. 14. This comes about given that against each value, there are always two scores, one representing a score for the acceptance of the value, and another score for the rejection of the same value. Figure 2 illustrates this scoring pattern of the VO and shows that against the predominant purple value system, the candidate has an acceptance score of about 95% of that value, and a rejection score of about 5% of the same value.

Figure 5 is an extract of a completed item from the VO questionnaire, showing the scoring nature of the VO.

I normally accept the authority of:	Weight /10
Those in positions of power	1
Older people	1
Those who have compassion and understanding of others	0
Those who are successful	8

Figure 5. Extract of a completed item from the VO.

(Source: Magellan 2005)

Figure 5 shows that when it comes to the acceptance of authority, this particular test taker by far , accepts the authority of those who are successful (gave it a score of 8 out of 10) compared to those who are in positions of power, older people and those who have compassion and understanding for others. This clearly brings out the scoring pattern of the VO whereby in one value statement, the acceptance of that value, as well as its rejection is measured.

Difference between rejection and acceptance of a value

Each value had scores ranging from 1- 100, with 1 representing the highest level of rejection of that value system, and 100 representing the highest level of acceptance of the same value system. As illustrated in Figure 2, there is a mutual relationship between the acceptance of a value and its rejection – if it is accepted by 80% (value acceptance score), it is by implication, rejected by 20% (value rejection score).

Reliability of the VO

Magellan conducted a study on the internal consistency of the VO using a biographically mixed sample (N=258). Table 8 shows the Cronbach alpha of each of the seven scales of both accepted and rejected values of the VO.

Table 8

Internal consistency of the VO as reported by Magellan

ACCEPT	A	REJECT	α
Purple	0.81	Purple	0.78
Red	0.86	Red	0.74
Blue	0.84	Blue	0.71
Orange	0.83	Orange	0.77
Green	0.83	Green	0.69
Yellow	0.82	Yellow	0.72
Turquoise	0.78	Turquoise	0.73

(Source: Magellan, 2005)

Miles and Bayard (2007) recommend a cut-off point of an alpha of 0.7 as an indicator of a good level of consistency. All the scales are within or above this cut-off point. It can therefore be concluded from these studies that the VO is a reliable measure.

Validity of the VO

Magellan also conducted studies to establish the construct validity of the VO. They based their validation studies on the principles of convergent and discriminant validation of measures to establish its construct validity. The VO was thus compared

with other measures thought to be similar, and those thought to be different in construct. Three measures were compared – the Giotto, the CPP and the Motivational Profile (MP).

For the sake of brevity, the discussion will be limited to the MP, as this instrument also measures a construct close to the construct of values (Magellan, 2005). Table 9 summarises the results of the outcome of the comparison between the VO and the MP.

Table 9

The construct validity of the VO through comparison with the MP

Motivation (MP)	VO (value orientations accepted)						
	Accept Yellow	Accept Orange	Accept Red	Accept Purple	Accept Blue	Accept Green	Accept Turquoise
Life Heart	X	X	Positive correlation expected: NOT FOUND	X	X	X	X
Life Feet	X	Negative correlation expected: FOUND	Positive correlation expected: NOT FOUND	X	Positive correlation expected: FOUND	X	X
Work Heart	X	X	Positive correlation expected: NOT FOUND	X	X	X	X
Work Feet	X	Negative correlation FOUND (but not expected)	Positive correlation expected: NOT FOUND	X	Positive correlation expected: FOUND	X	X
Relationships Attitude	X	Negative correlation expected: FOUND	X	X	Positive correlation expected: FOUND	X	X
Relationships Heart	X	X	Positive correlation expected: NOT FOUND	X	X	X	X
Relationships Feet	X	X	Positive correlation expected: NOT FOUND		Positive correlation expected: NOT FOUND	X	X

(Source: Magellan, 2005). Note. X means that no analysis was conducted.

The findings of these studies show a mixed outcome on the construct validity of the VO when compared with the MP. There is a somewhat strong discriminant correlation between those dimensions of the MP which were seen in construct terms to differ from the VO dimensions. There was also a weak convergent correlation between those scales of the VO which were expected to positively correlate with certain scales of the MP.

For the purposes of the present study, which is located in occupational settings, findings comparing the VO with other measures that assess values in the world of work such as the Work Values Inventory (WVI) could have been more relevant.

Metric properties of the Cognitive Process Profile

Development and norms

Seven norm groups had been developed by the end of 2007. Each norm group has different characteristics – based, for example, on biographical differences, stylistic tendencies and levels of work. Because of the CPP's international use, nationals from other countries, such as England were also included in the later norm groups (Magellan, 2007).

Administration, scoring and reporting

The CPP is a computer administered measure which is presented in the form of an exercise or game divided into eight sub-exercises. The completion of each game requires one to apply his/her cognitive abilities to solve the challenges presented by the game. The ability to do so is captured as the test taker's 'cognitive profile' through the complex intelligence of the computer programme that captures each and every movement the test taker makes as s/he attempts to solve the problem as efficiently and effectively as possible. Each game becomes progressively more challenging. Scoring is automated, and a ± 20 -page report is produced, indicating the test taker's thinking styles, information processing areas, level of work profile (current and potential), areas of strength and areas of development (Magellan, 2007).

Reliability of the CPP

Magellan conducted research on the reliability of the CPP, using two demographically mixed sample groups, one of students, and the other being of working adults, each made up of over 100 participants. These studies are reported below:

Study 1: Internal consistency of the CPP

Table 10 summarises the outcome of the first test conducted by Magellan (2007) to assess the internal consistency of the CPP.

Table 10

Internal consistency of the CPP (N=107)

CPP Processing construct	α
Focusing & Selecting	0.98
Linking	0.98
Structuring	0.98
Transformation	0.98
Retention & Recall	0.98
Metacognition	0.99

(Source: Magellan, 2007).

In all cases, the coefficient alpha was above the recommended cut-off point of 0.7 for good reliability in a measure.

Study 2: Internal consistency of the CPP

Table 11 summarises the outcome of the second test conducted by Magellan to assess the internal consistency of the CPP.

Table 11

Internal consistency of the CPP (N=91)

CPP Processing construct	α
Focusing & Selecting	0.97
Linking	0.98
Structuring	0.96
Transformation	0.98
Retention & Recall	0.97
Metacognition	0.98

(Source: Magellan, 2007).

Again, results indicated high internal consistency of the CPP in this test.

Validity of the CPP

Magellan (2007) also conducted various validation studies to assess the validity of the CPP. While a number of studies are reported by Magellan, only two studies comparing the CPP and the Career Path Appreciation (CPA) will be reported. This is because the CPA also measures the same construct of suitability to given levels of work, as is measured by the levels of work scale of the CPP. These results will indicate if there is any convergent validity, as would be expected. In assessing the reported size of these correlations, reference was made to Miles and Banyard's (2007) guideline on the interpretation of correlation coefficients that: $r = .1$ (minor), $r = .3$ (medium) and $r = .5$ (high).

CPP compared to the Career Path Appreciation (CPA)

Table 12 summarises the results of the two tests conducted to ascertain the construct validity of the VO through comparison with the CPA.

Table 12

CPP compared to the CPA

Studies	<i>r</i>	<i>p</i>
Study 1 (Telecommunications) N=83	.45	0.000
Study 2 (Mixed Industry) N=286	.3	0.05-0.01

(Source: Magellan, 2007).

Statistically significant correlations were found in both studies between the CPA and the CPP. This suggests that the CPP can be regarded as a valid measure of individual work level profiles, particularly given that the CPA has been used successfully worldwide to measure individual work level profiles (Bioss International, 2008).

Permission to use data

The present research utilised secondary assessment data obtained from Magellan Consulting. Magellan collected this data for commercial purposes over a long period

of time, and also holds proprietary rights to it. To obtain the data for academic purposes, a written request was sent to Magellan and, in turn, written authority to have access to the data was granted. A spreadsheet with scores (data) on both measures for the 399 participants was e-mailed through the research supervisor.

Training on assessment measures

The researcher attended a two day CPP user workshop conducted by Magellan. The objective of the workshop was to ensure a competent understanding of the expansive instrument. The researcher passed a competence test on the instrument at the end of the workshop. For the VO, manuals about the instrument were made available by Magellan.

Clearance from the University

After having satisfied departmental requirements to carry out research, written clearance was granted by the University's Faculty Research Committee to proceed with the research accordingly.

Ethical considerations

The challenge of confidentiality is discussed by Steininger, Newell, and Garcia (1984) as one of the main ethical challenges in psychological assessment. The present study had to carefully manage the issue of anonymity of data in line with confidentiality requirements. To ensure this, personal details on the raw data were removed by Magellan before the data was made available.

Data collection

The data supplied was that of 399 participants who were assessed on both instruments – the VO (for value orientations) and the CPP (for levels of work). It showed corresponding value-system scores and level-of-work profile scores.

Data analysis

Data were analysed using SPSS Version 16. Descriptive analysis, correlation analysis, regression analysis and reliability analysis were used to analyse data in pursuit of the objectives of the study.

Conclusion

This chapter has presented the method employed to investigate the hypotheses in the present study. Results of the data analysis will be presented in the following chapter.

CHAPTER 4: RESULTS

Introduction

The objective of the present study was to examine if there is a relationship between an individual's values/value systems as well as the extent to which these values can be used to predict that individual's current and potential level of work profiles. Data obtained through psychological assessment were used to statistically examine these relationships in pursuit of the objectives of the study. This chapter is divided into four sections and will present the outcome of statistical analyses conducted in the study. The first section will present descriptive statistics to profile the characteristics of data used. Results of verification of the scales will be presented in the second section, where the outcome of factor analysis and reliability analysis conducted on the measuring instruments will be presented. The third section will present results of an examination of the nature of association between values and levels of work, done through correlation analysis. The final section will present results of regression analysis, conducted to examine the extent to which values/value systems can predict level of work profiles. All statistical computations were done using SPSS Version 16.

Descriptive statistics

Value Orientations Measure

Descriptive statistics for the values accepted scale

Table 13 summarises the descriptive statistics for the values accepted scale of the VO.

Table 13

Descriptive statistics for the values accepted scale of the VO (N = 399)

Value accepted	Mean	Minimum	Maximum	Median	Mode	Standard Deviation	Skewness	Kurtosis
Purple	50.53	1	90	54	72	24.12	-.469	-.715
Red	44.32	1	90	46	1	22.65	-.232	-.582
Blue	48.28	1	90	50	1	23.53	-.360	-.487
Orange	40.83	1	90	40	1	26.09	.025	-.716
Green	46.15	1	95	49	1	22.36	-.411	-.502
Yellow	39.60	1	90	38	1	23.63	.048	-.958
Turquoise	35.70	1	70	40	40	14.87	-1.124	.654

Scores for accepted values of the VO Measure had a wide range, from 1 – 95. The modal score for all values was 1 except for the extreme end values, purple and turquoise, which had modal scores of 72 and 40 respectively. Mean scores were generally well centred around the median scores, with a small standard deviation for all scores.

The scores had a moderate negative skew (concentration on the right), indicating that most scores were on the upper half of the mean score. The distribution had a generally flat distribution (negative kurtosis), as a result possibly of the very wide data range.

Descriptive statistics for the values rejected scale

Table 14 summarises the descriptive statistics for the values rejected scale of the VO.

Table 14

Descriptive statistics for the values rejected scale of the VO (N = 399)

Value Rejected	Mean	Minimum	Maximum	Median	Mode	Standard Deviation	Skewness	Kurtosis
Purple	40.84	1	90	40	1	23.39	.006	-.798
Red	46.26	1	90	50	1	22.74	-.390	-.598
Blue	39.69	1	90	42	1	23.95	-.007	-.974
Orange	49.09	1	94	50	1	22.77	-.349	-.561
Green	44.53	1	90	44	1	23.30	-.044	-.700
Yellow	50.89	1	100	51	1	23.96	-.212	-.668
Turquoise	43.04	1	90	43	1	22.44	-.204	-.692

Scores for rejected values also had a wide range, from 1 – 100. The modal score in all the values was 1. Mean scores were also generally concentrated around the median mark, with a relatively small standard deviation.

The scores were very close to a normal distribution point, with skewness values close to the zero point (normal distribution). However, a slight negative skew could be seen, to indicative of the fact that, like the scores for accepted values, they are also slightly concentrated on the upper half of the range. The scores also took a flat distribution curve (indicating negative kurtosis), owing also to the wide data range.

CPP (Levels of work scale)

Descriptive statistics for the current work level scale of the CPP

Table 15 summarises the descriptive statistics for the current work level scale of the CPP.

Table 15

Descriptive statistics for the current levels of work scale of the CPP(N = 399)

Mean	Maximum	Minimum	Median	Mode	Standard Deviation	Skewness	Kurtosis
3	4	1	3	2	.99	-.006	-1.08

Current work levels as measured by the CPP ranged from level 1 to level 4 (Maximum level measured by the CPP is level 5), with Level 2 being the most common level. There was a relatively small standard deviation from the mean. Scores took a normal distribution, with skewness levels almost on the zero point. The data distribution however took a flat shape, as seen through a negative kurtosis in the scores.

Descriptive statistics for the potential work level scale of the CPP

Table 16 summarises the descriptive statistics for the potential work level scale of the CPP.

Table 16

Descriptive statistics for the potential levels of work scale of the CPP (N= 399)

Mean	Maximum	Minimum	Median	Mode	Standard Deviation	Skewness	Kurtosis
3	5	1	4	4	.96	-.323	-.76

Potential work levels as measured through the CPP ranged from 1-5 with level 4 being the most common level. Standard deviation of the scores around the mean was also small. Scores for potential work level had a lesser normal distribution than those for current work level, as seen through a higher negative skewness, indicating that most scores were above the mean score. This would be expected, given that generally most people would carry some potential to operate at a higher level of work, and hence score slightly higher on their potential, than on their current level of work. The scores also took a flat distribution shape, as seen through a high negative kurtosis value.

VERIFICATION OF THE SCALES

Factor analysing the VO to establish its construct validity

Exploratory factor analysis using the principal component analysis method of factor extraction was conducted to examine the underlying factors of the VO. The objective of the analysis was to examine the constructs that underlie the VO before using it to test the hypotheses in the study. The varimax factor rotation method using SPSS Version 16 was employed to reduce the predictor measure – the VO into a few factors that summarise and define what it actually measures.

Factor extraction: Eigenvalues for all factors

The Scree plot (Figure 6) visually depicts the outcome of factor extraction on the VO.

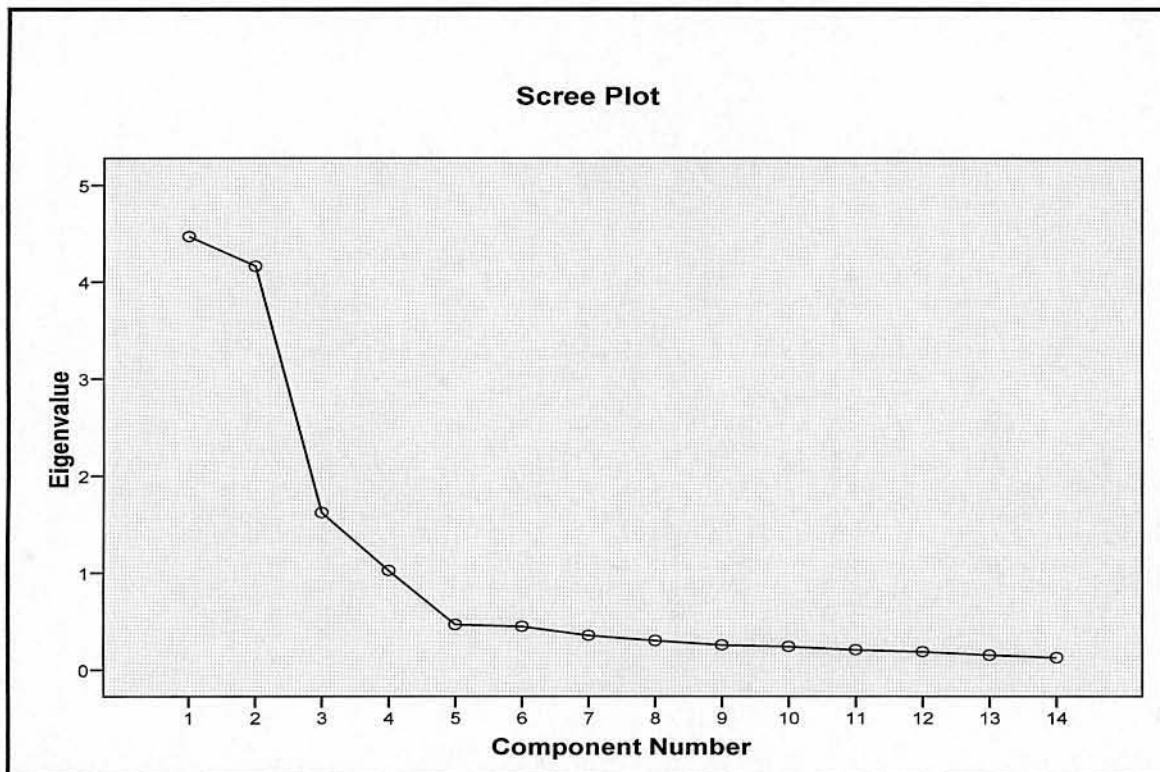


Figure 6. Scree plot of the VO factors

The Scree plot shows the four factors with eigenvalues equal to or greater than 1 that were extracted. It also shows the other factors that have not been extracted (eigenvalues less than 1) in contrast to the extracted ones.

Factor extraction: Variance accounted for by the extracted factors

Table 17 shows the variance accounted for by each factor in the total extraction model after varimax rotation.

Table 17

Variance accounted for by each factor after rotation

Component (Factor)	Rotation sums of squared loadings	
	% of Variance	Cumulative %
1	25.71	25.71
2	23.91	49.62
3	18.41	68.03
4	12.49	80.53

Note: Extraction method: principal component analysis

Factor 1 accounted for a 25.71 % variance. The four factors combined had a high accountability for total variance, at 80.53%.

Factor loadings for each of the factors

The loadings for each of the 14 variables on each of the four extracted factors are presented in Table 18

Table 18

Factor loadings on four factors identified through factor analysis

Variable	Factors			
	1 Rejection: low order	2 Rejection: high order	3 Acceptance: low order	4 Acceptance: high order
P	-.601	.077	.572	.317
R	-.261	.794	-.250	.113
B	-.591	.254	.456	.405
O	.452	.447	-.629	.197
G	.138	-.605	.304	.537
Y	.710	-.124	-.272	.483
T	.107	-.220	.106	.849
XP	.878	.102	-.086	.099
XR	.469	-.481	.566	.295
XB	.876	-.012	-.045	.064
XO	-.159	-.229	.873	.125
XG	.080	.884	.020	-.181
XY	-.531	.471	.560	-.006
XT	.094	.848	-.028	-.204

Reference was made to Kline (1994) in interpreting the significance of the factor loadings. Kline proposes that a factor loading of .3 is moderate while that of .6 is high and further argues that the direction of the loading (whether it is negative or positive) is not material in the interpretation of factors. However, this assertion by Kline becomes debatable when one is dealing with measures that are both reverse scored and bi-polar, such as the VO. Kerlinger (1986) observes that in a bi-polar scale, the direction of the loading carries a significant meaning in that it represents the 'mirror image' of the scale. Thus if one half of the scale has positive loadings the second half will have negative loadings representing the fact that the second half of the scale measured the negative aspects of the first half. A 'red value accepted', therefore, is a bi-polar version of the 'red value rejected', as shown in Figure 2.

Constructing factor components and naming the factors

The variables were grouped in terms of their significant loadings on a factor (only loadings >.3 were included) .Table 19 summarises the outcome of this variable-assignment exercise.

Table 19

Assignment of variables of the VO to factors to which they have the highest loadings

Factor 1 (Rejection of Low Order Values)		Factor 2 (Rejection of High Order Values)		Factor 3 (Acceptance of Low Order Values)		Factor 4 (Acceptance of High Order Values)	
Variable	Loading	Variable	Loading	Variable	Loading	Variable	Loading
XP	.878	XG	.884	XO	.873	T	.849
XB	.876	XT	.848	O	-.629	G	.537
Y	.710	R	.794	P	.572		
P	-.601	G	-.605	XR	.566		
B	-.591	XR	-.481	XY	.560		
XY	-.531			B	.456		
O	.452						

Naming the factors

Kline (1994) proposes that the best way to deduce the name of a factor is by identifying the variable that has the highest significant loading on the factor, and name it accordingly - unless there are several conceptually different variables that load highly into one factor. This principle was applied in naming the factors in the present study, as described below:

Factor 1: Rejection of low order values (acceptance of high order values)

The first factor accounted for 25.71% variance of this factor (Table 17). It was named 'Rejection of low order values' after considering that the rejected low order values (purple and blue) had the highest loading on the factor as shown in Table 19.

Factor 2: Rejection of high order values (acceptance of low order values)

The second factor, which accounted for 23, 91% variance of this factor (Table 17), was named the 'Rejection of higher order values' given that the rejected higher order values (green and turquoise) had the highest loading on this factor (Table 19).

Factor 3: Acceptance of low order values (rejection of high order values)

The third factor accounted for an 18.41% variance in the factor (Table 17). Only two variables had loadings above the recommended 0.6 level. This factor was named last, taking into account the apparent contradiction that arises when two conceptually different variables both load significantly on one factor (Table 19). With the other three factors having been named, the only remaining possible factor name was "acceptance of low order values" which, if reversed, becomes a rejection of higher order values. Using the reverse side of the value supports the naming of the factor as "acceptance of low order values", considering that the reverse side of it, i.e. the rejection of high order values (rejection of the yellow value), had the highest loading on this factor.

Factor 4: Acceptance of high order values (rejection of low order values)

The fourth factor accounted for a 12.50% variance in the factor (Table 17). This fourth factor was not easy to interpret given that only one variable loaded above the 0.6 level (Table 19). It could as well be regarded as not being interpretable. However, it was named 'Acceptance of higher order values' on grounds that it loaded very highly on the highest order value – turquoise (Table 19).

Construct validity of the CPP (Levels of work scale)

Given that the levels of work scale is just a two-variable scale, simple Pearson correlation analysis was conducted between the two variables in order to examine the extent to which they measure the same construct.

Table 20

Correlation between current and potential level of work profiles of the CPP.

	Potential level of work	
	<i>r</i>	<i>p</i> (1- tailed)
Current level of work	.84**	.000

Note. ** Correlation is significant at the 0.01 level (1-tailed).

The Pearson product-moment correlation coefficient between the two variables of the levels of work scale of the CPP were very high, and statistically significant ($p < .001$).

RELIABILITY OF THE MEASURING INSTRUMENTS

Cronbach's Alpha was calculated for both measures to assess their reliability. Measuring instruments should pass reliability testing, in addition to validity testing before they can be used for assessment purposes (Anastasi & Urbina, 1997).

Internal consistency of the Value Orientations Measure

The University of California at Los Angeles (UCLA)'s Department of Academic Technology Services (2008) argues that if a measure is multidimensional such as the VO (As seen through factor analysis), the various scales of a measure should not be combined to assess its internal consistency. Given that multidimensionality implies that they will be measuring different dimensions, UCLA argues that unlike what would be done with a single dimensional scale, internal consistency analysis must be separated along these various scales. When there are different dimensions in a measure internal consistency will naturally be low if all the variables were bundled together for purposes of reliability analysis. Once the different dimensions have been identified through factor analysis, reliability analysis can then be done on each factor, as if the factor was a separate scale/sub scale of the measure. This recommendation was used in the present study to assess the reliability of the VO. In interpreting the results, reference was made to Miles and Banyard (2007) who recommend a minimum cut-off of a Cronbach's alpha of $\alpha=.7$ if a measure/scale is to be considered as reliable.

When computing Cronbach's alpha for these factors, the original scores in each variable making up the factor were also reversed computationally on SPSS, given that the VO is a reverse scored measure. This was done to avoid errors that accompany reverse scored measures when analyzed without this reversal (Field, 2005). Table 21 shows the results of reliability analysis of the VO.

Table 21

Internal consistency of Factor 1 of the VO (N = 399)

Factor/Scale	Cronbach's Alpha
Factor 1 (Rejection of Low Order Values)	.84
Factor 2 (Rejection of High Order Values)	.84
Factor 3 (Acceptance of Low Order Values)	.76
Factor 4 (Acceptance of High Order Values)	.67

Factor/Scale 1

Internal consistency for this scale was quite high, at $\alpha=.84$.

Factor/Scale 2

Internal consistency for this scale was also quite high, at $\alpha=.84$.

Factor/Scale 3

Internal consistency for this scale was also quite high, at $\alpha=.76$

Factor/Scale 4

At $\alpha=.67$, internal consistency for this factor was slightly lower than the recommended cut-off point of $\alpha=.7$. This could be attributed to the fact that they were too few variables making up this scale. Cronbach's alpha is affected by the number of variables/items in a measure with the general rule being that the fewer the variables, the lower the alpha value (Field, 2005).

Internal consistency of the CPP (Levels of work scale)

Given that both variables of the CPP were uni-dimensional, they were bundled together as one factor for purposes of internal consistency analysis. Table 22 shows these results.

Table 22

Internal consistency of the levels of work scale of the CPP (N = 399)

Scale	Cronbach's Alpha
Current & Potential Levels of Work	.91

Internal consistency for the levels of work scale of the CPP was very high, with an alpha value of $\alpha=.91$.

THE ASSOCIATION BETWEEN VALUES AND LEVEL OF WORK PROFILES

The first hypothesis in the present study was that there is a positive linear relationship between an individual's values systems and his/her levels of work profile. Pearson product-moment correlation coefficient was computed to test this hypothesis and to determine if there is a relationship between these variables, the direction of that relationship and its strength (Miller, Acton, Fullerton & Maltby, 2002).

Two sets of tests were conducted, with the first test examining the relationship between accepted value orientations and levels of work (both current and potential), and the second test examining the relationship between rejected value orientations and levels of work (also both current and potential levels).

In interpreting the results of the analysis, reference was made to Miles and Banyard (2007) who argue that when it comes to understanding the magnitude of the association between variables using Pearson correlation coefficient : $r = .1$ means low correlation, $r = .3$ means medium correlation and an $r = .5$ means high correlation

In both cases, statistical significance levels were set for a one-tailed test in line with the recommendations by Kinnear and Gray (2000) who argue that such a decision is appropriate if the hypotheses are directional (as it is in the present study). Using a one-tailed significance test extends significance levels up to .05 (5%).

Test 1: Is there an association between accepted values and one's level-of-work profile?

Table 23 shows the results of the first test to examine the relationship between accepted values and levels of work.

Table 23

Correlation between accepted value orientations and level of work profiles (N = 399)

Value accepted	Current level		Potential level	
	<i>r</i>	<i>p</i> (1- tailed)	<i>R</i>	<i>p</i> (1- tailed)
Accepted Purple	-.18**	.000	-.16**	.002
Accepted Red	-.02	.735	-.04	.485
Accepted Blue	-.16**	.001	-.15**	.002
Accepted Orange	.18**	.000	.10*	.044
Accepted Green	.12**	.016	.12**	.019
Accepted Yellow	.23**	.000	.18**	.000
Accepted Turquoise	.06	.245	.02	.638

Note. ** Correlation is significant at the 0.01 level (1-tailed).

* Correlation is significant at the 0.05 level (1-tailed).

Existence of a relationship

The results show that there is a linear association between accepted value orientations and levels of work (in both current and potential levels).

Strength of the relationship

For current levels of work, five out of seven variables of the predictor scale (VO) had statistically significant relationships with the outcome variable: current levels of work ($p < .001$). When the outcome variable was changed to potential levels of work, a similar pattern was observed where by the same variables still maintained statistical significance above the $p < .05$ level. However, all correlations coefficients were below the medium correlation cut-off point of $r = .3$ as recommended by Miles and Banyard (2007).

Direction of the relationship

Lower order values (purple, red and blue) had a negative (inverse) association with both current and potential levels of work while higher order values (orange, green, yellow and turquoise) had a positive association with both forms of levels of work.

Test 2: Is there an association between rejected values and one's level-of-work profile?

The results of the second test mirrored those of the first in terms of the existence of a linear association and the general strength of the association between rejected value orientations and levels of work. However the direction of the relationship between the variables were reversed in the second test, as shown in Table 24.

Table 24

Correlation between rejected value orientations and level of work profiles (N = 399)

Value rejected	Current level		Potential level	
	<i>r</i>	<i>p</i> (1- tailed)	<i>r</i>	<i>p</i> (1- tailed)
Rejected Purple	.14**	.005	.08	.115
Rejected Red	.03	.564	.03	.544
Rejected Blue	.17**	.001	.15**	.003
Rejected Orange	-.11*	.025	-.08*	.091
Rejected Green	-.08	.113	-.09*	.074
Rejected Yellow	-.22**	.000	-.17**	.000
Rejected Turquoise	-.06	.263	-.05	.307

Note. ** Correlation is significant at the 0.01 level (1-tailed).

* Correlation is significant at the 0.05 level (1-tailed).

Existence of a relationship

The results show that there is a linear association between accepted value orientations and level of work profiles, (in both current and potential levels).

Strength of the relationship

For current levels of work, four out of seven variables of the predictor scale (VO) had statistically significant relationships with the outcome variable current levels of work ($p < .05$). When the outcome variable was changed to potential levels of work, the same number of variables with statistical significance of $p < .05$ was retained. The purple value which was previously insignificant, however, became significant, while the green value which was previously insignificant had a significant contribution in relation to potential levels of work. Again, all correlation coefficients were below the medium correlation cut-off point of $r = .3$.

Direction of the relationship

The nature of the direction of association between the variables was reversed in the second test. In the first test accepted lower order values had a negative association with levels of work. However, when these values were rejected in the second test, they had a positive relationship with level of work profiles. Further, the higher order values, which previously had a positive relationship when rejected in the first test, now assumed a negative relationship with levels of work when rejected in the second test.

VALUES AS PREDICTORS OF LEVEL-OF- WORK PROFILES

After having established that an association exists between value orientations and levels of work in the previous section, the aim of this section was to examine whether values can be used to predict suitable levels of work complexity. The second hypothesis in the study states that values can be used to predict levels of work. Two-step stepwise regression analysis was employed to test this hypothesis, and to assess the ability of value orientations to predict level of work profiles.

The stepwise method of variable entry was chosen, given that there was no previous research in this area to refer to for guidance on the possible relationship between value orientations and levels of work (Field, 2005). Significance levels were also set for a one-tailed test in line with the recommendations by Kinnear and Gray (2000) who argue that this should be the case for testing a directional research hypothesis such as the one in the present study.

For purposes of hypothesis testing, the predictor variable (values) was separated into two subscales (lower order values and higher order values). The criterion was also separated into two sub-scales (current level of work and potential level of work). Four tests were conducted on a rotational basis in order to assess the particular scales that account for a relationship between the predictor and the criterion (suitability for a given level of work). In all the tests, a two-step (two model) stepwise method of predictor variable entry was used. In the first step lower order values were entered as the independent variable, while in the second step all seven values inclusive of both lower order and higher order one were entered as the independent variable.

Direct hypothesis testing was done using Fisher's (F) ratio. In interpreting F ratios, reference was made to Lehman (1995, p.338) who argues that "when the null hypothesis is true, the value of F should be about 1.0, while it should be greater than 1.0 (towards infinity) when the null hypothesis is false". The outcome of the four tests is reported below.

Test 1: Can accepted value orientations be used to predict one's current level-of-work profile?

Table 25 reports the results of the first regression test to examine the extent to which accepted values can be used to predict an individual's current level of work profile.

Table 25

Ability of accepted values to predict current level of work profiles (N = 399)

	<i>R</i>	<i>R</i> ²	<i>R</i> ² Change	<i>F</i>	<i>df</i>	<i>p</i>
Set of variables entered						
Step 1 (P)	.18	.03	.03	13.25	1, 397	.000
Step 2 (P, Y)	.25	.06	.03	13.03	2, 396	.000

Note. Predictor- accepted value orientations; Criterion- current level-of- work profiles

Of the three variables entered in the first model, only one (purple) was retained. It accounted for a 3% variance in current level of work profiles. In the second model, only two variables (purple and yellow) were retained. With the retention of yellow in the second model, *R*² changed by a further 3%, resulting in the total of 6% variance in level of work profiles being accounted for by accepted value orientations. The ability of accepted values to predict current level of work profiles by a 6% margin was statistically significant, *F* (2, 396) = 13.03, *p* < .001.

Test 2: Can accepted value orientations be used to predict one's potential level-of-work profile?

Table 26 reports the results of the second regression test to examine the extent to which accepted values can be used to predict potential level of work profiles.

Table 26

Ability of accepted values to predict potential level of work profiles (N = 399)

	<i>R</i>	<i>R</i> ²	<i>R</i> ² Change	<i>F</i>	<i>df</i>	<i>p</i>
Set of variables entered						
Step 1 (P)	.16	.02	.02	9.85	1, 397	.002
Step 2 (P, G)	.22	.05	.02	10.11	2, 396	.000

Note. Predictor: accepted value orientations, Criterion: potential level-of- work profiles

In the second test, the same predictor variables used in the first test were maintained. The outcome variable, however, was changed from current to potential levels of work. To assess if accepted values can be used to predict an individual's potential level of work profile, a similar method of variable entry was used as in the first test. The first model accounted for 2% variance in potential levels of work, while the final model accounted for a 5% variance. Only one lower order value (p) was retained in the first model, while in the final model, only one higher order value (g) was added and retained. A relatively similar trend in respect of the first test was seen here, in that one low order value, together with one high order value (being g-value in this case) were retained to account for variance in potential work levels. The ability of accepted values to predict potential level of work profiles by a 5% margin was statistically significant, $F(2, 396) = 10.11, p = .002$.

Test 3: Can rejected value orientations be used to predict one's current level-of-work profile?

Table 27 reports the results of the third regression test to examine the extent to which rejected values can be used to predict current level of work profiles.

Table 27

Ability of rejected values to predict current level of work profiles (N = 399)

	<i>R</i>	<i>R</i> ²	<i>R</i> ² Change	<i>F</i>	<i>df</i>	<i>p</i>
Set of variables entered						
Step 1 (XB)	.17	.03	.03	11.87	1, 397	.001
Step 2 (XB, XY)	.23	.05	.02	11.07	2, 396	.000

Note. Predictor-rejected value orientations; Criterion - current level-of- work profiles

In the first model one lower order value was retained (rejected red value). One value was also retained from the second model (rejected y), with the final model retaining these two variables of the predictor measure. The first model accounted for a 3% variance while the second model caused a 2% change in R^2 to result in the whole

model accounting for just 5% prediction in the outcome variable (current work level). This model therefore suggests that rejected value orientations can account for 5% variance in current level of work profiles. The ability of rejected values to predict current levels of work by a 5% margin was statistically significant, $F(2, 396) = 11.07$, $p < .001$.

Test 4: Can rejected value orientations be used to predict one's potential level-of-work profile?

Table 28 reports the results of the fourth regression test to examine the extent to which rejected values can be used to predict potential levels of work.

Table 28

Ability of rejected values to predict potential level of work profiles (N = 399)

	<i>R</i>	<i>R</i> ²	<i>R</i> ² Change	<i>F</i>	<i>df</i>	<i>p</i>
Set of variables entered						
Step 1 (XB)	.15	.02	.02	9.22	1, 397	.003
Step 2 (XB, XY)	.19	.04	.01	7.51	2, 396	.001

Note. Predictor-rejected value orientations; Criterion- potential level-of- work profiles

When the outcome variable was changed from current to potential levels of work, the same variables as in the prediction of current level of work profile were retained, in the same manner for both models. However, the final model had a lower prediction ability of 4%, and an even lower. In terms of statistical significance, the ability of rejected values to predict potential level of work profile by a 4% margin was significant, $F(2, 396) = 7.51$, $p = .001$.

Conclusion

This chapter has presented results of tests and analysis conducted to investigate the hypotheses in the present study. These were, firstly, the verification of the scales; secondly, an analysis of the reliability of the measures; thirdly, correlation analysis between values and levels of work; and finally, regression analysis tests to examine the ability of values to an individual's suitable level of work. The following chapter will interpret and discuss the implications of these results.

CHAPTER 5: DISCUSSION, IMPLICATIONS, LIMITATIONS AND RECOMMENDATIONS

Introduction

The hypotheses in the present study were that there is some association between an individual's values and his or her level-of-work profile, and that as a result, personal value-orientations can be used to determine the level of work complexity to which an employee should be assigned. To test these hypotheses, scores from a biographically mixed sample of 399 participants on two instruments, one that measures levels of work and the other that measures value orientations, were examined statistically. The results of this examination were presented in the previous chapter. This chapter will interpret these results in the context of the current state of knowledge in this area as presented in a literature review; discuss the implications of the findings; identify the limitations of the study; and proffer recommendations for further knowledge development in this area.

METRIC PROPERTIES OF THE MEASURING INSTRUMENTS

Multidimensional nature of the VO

Factor analysis indicates that the VO is a multidimensional measure, with four underlying constructs (factors) to which all the 14 variables can be reduced. These factors are identified as; rejection of higher order values; rejection of lower order values; acceptance of lower order values; and acceptance of higher order values. However, as no records of similar previous studies were found, these results have no reference point for purposes of comparison. The results, however, do point to the fact that, in terms of construct validity, the VO is a valid measure of value orientations. These findings support validation studies conducted by Magellan (2005). It can, thus, be concluded that the VO is a valid measure of value orientations as it purports to be,

albeit in a multidimensional manner. This finding assists by providing a better understanding of the VO given that it is a relatively new psychological measure.

Uni-dimensional nature of the levels of work scale of the CPP

The results of correlation analysis on the levels of work scale of the CPP brings out its uni-dimensionality ($r=.84$). This means that there is very minimal construct difference between current levels of work and potential levels of work. This could perhaps be as a result of the metric properties of the scale used to measure levels of work, where differences between an individual's current and potential levels of work differed by not more than 2 arithmetic points. For example, an individual would have a current level of 4, and a potential level of 5, while in some cases there were no changes in terms of an individual's current and potential levels of work. This uni-dimensionality also further explains the very high internal consistency of the scale ($\alpha=.91$) as will be discussed in the following section.

Reliability of the Value Orientations Measure

The high alpha coefficients of the four scales of the VO factor analysis (.84, .84, .76 and .67) indicate that the VO is a reliable measure of personal value orientations. Findings in the present study support earlier findings by Magellan (2005), whose studies reported high reliability coefficients of between .69 and .86 using a relatively similar sample size ($N=258$). The examination of the ability of the VO to predict level of work profiles in pursuit of the objectives of the study can, therefore, be made from a confident position, given that the predictor measure (VO) is a reliable measure.

Reliability of the CPP (levels of work scale)

The high alpha for the levels of work scale of the CPP reflects a high correlation between the variables in this scale - current and potential levels of work. Previous studies done by Magellan (2005) also indicated high reliability of the CPP as a whole, with minimum alpha scores of $\alpha=.98$ for all the 15 scales (including the levels of work scale). In the present study, reliability analysis was restricted only to the levels of work scales as the other scales were not relevant to the objectives of the study. The high alpha of $\alpha=.91$ found in the present study corroborates findings by Magellan (2005), confirming the overall reliability of the CPP and its levels of work scale.

THE ASSOCIATION BETWEEN VALUES AND LEVEL- OF- WORK PROFILES (Hypothesis 1)

Lower order values and levels of work

If a relationship between two variables is negative, this implies that a high score in one variable corresponds with a low score on the other variable, and vice versa. On the other hand, a positive correlation between two variables indicates that a high score in one variable corresponds with a high score in the other variable (Miller, Acton, Fullerton & Maltby, 2002). The negative correlation between accepted value orientations and level of work profiles in the first test indicates that when lower order values are accepted (meaning an increased score in lower order values), suitability for higher level work decreases (hence the inverse correlation coefficient). This finding was also confirmed in the second test, whereby when the same lower order values were rejected (meaning a lower score in lower order value orientations), suitability for higher order value orientations increased. Figure 7 is a graphical exemplification of this relationship.

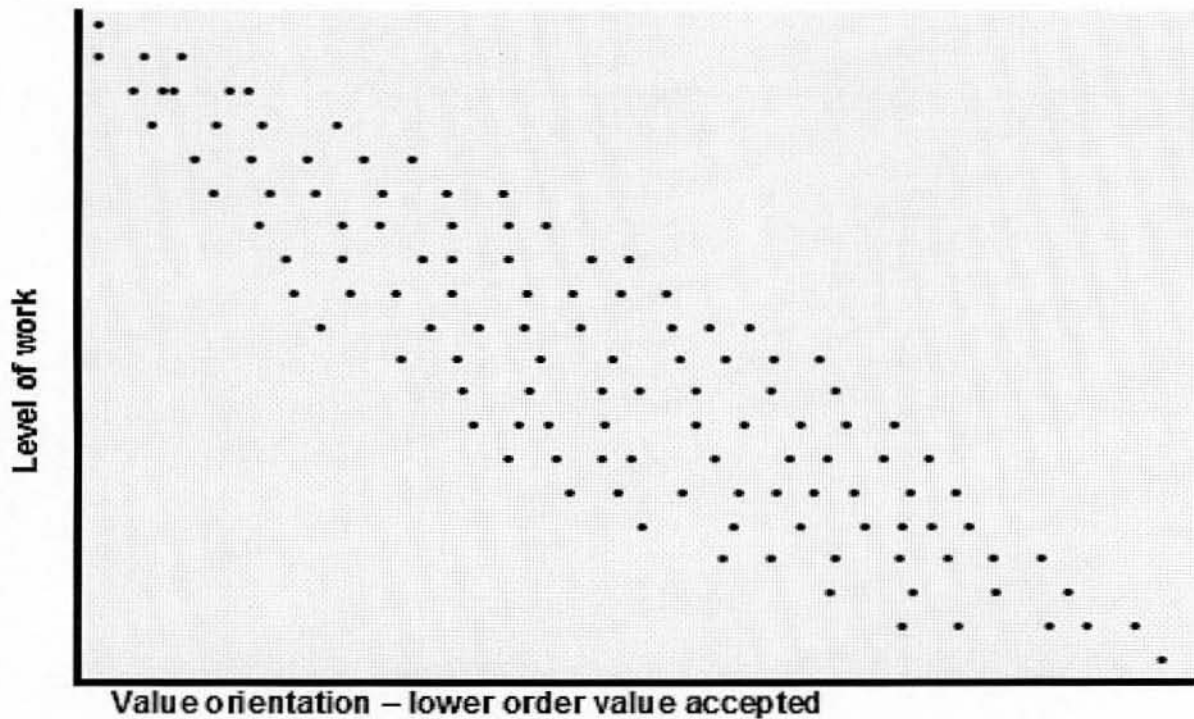


Figure 7. Exemplification of the relationship between lower-order values and level of work profiles.

(NB* Figure 7 is not based on actual data, but is a graphical reflection of what a statistical computation could have looked like)

Informed by correlation coefficients between these two variables, the graph shows that when an employee increasingly accepts lower order values (internally focused values), his or her work-level profile increasingly declines – thus the person becomes increasingly suitable to do well in lower, rather than higher levels of work. Alternatively, the graph can be interpreted as implying that when an employee increasingly rejects lower order value orientations, his or her level of work profile also progressively increases in the direction of suitability for higher levels of work.

This finding indicates that when employee placement decisions are made with an ultimate view to facilitate better performance, consideration of the individual's value orientations should be made to create a better person-job fit. Those who strongly hold or accept the lower order values of purple, red and blue (whose defining characteristic are preference for dependence, paternalism and an internal, narrow and survivalist

view of the world), should ideally be placed at lower levels of work. However, given that the VO was found to have limited predictive abilities on an employee's work level profile, it would be recommended that values should be considered in addition to other methods that have traditionally been used to decide whether an employee will cope with the demands of a given level of work. These methods would include cognitive tests and previous performance records.

Higher order values and levels of work

Miller, Acton, Fullerton and Maltby's (2002) proposition that when correlation coefficients are positive, the implications on findings are that an increase in the score on the predictor variable (values) correspondingly attracts an increase in the score on the criterion variable (work-level profile) was used. This relationship between higher order value orientations and levels of work is exemplified by means of a graph in Figure 8.

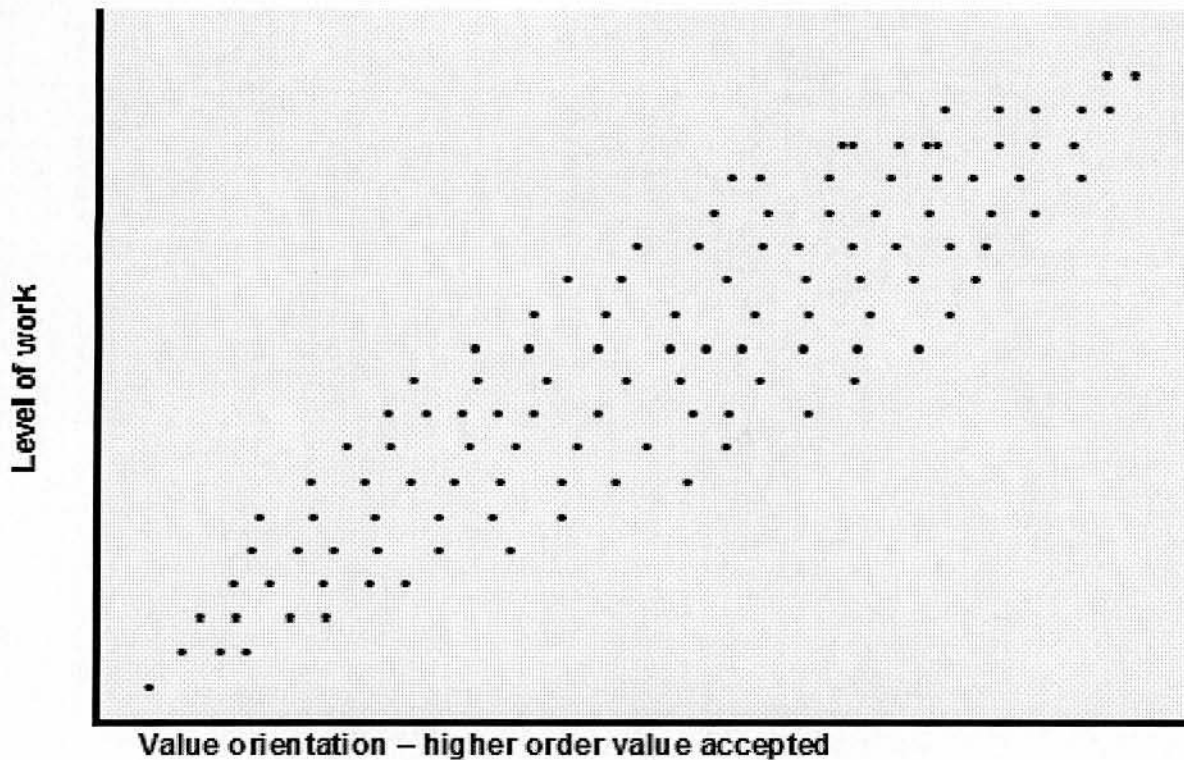


Figure 8. Exemplification of the relationship between higher order values and level of work profiles.

(NB* Figure 8 is not based on actual data, but is a graphical reflection of what a statistical computation could have looked like)

The graph shows that as higher order values are increasingly accepted (acceptance of externally focused values), an employee's work-level profile also progressively goes up towards higher levels of work. As discussed in the literature review, higher order value orientations (orange, green, yellow and turquoise) are characterised by a holistic, global, integrative and autonomous (self dependence) view of the world. This finding, therefore, supports the view that when recruiting or placing employees with a view to achieve a perfect person–job fit, consideration must be given to the employee's value orientations. Thus, those who score high on high order values (i.e accept high order values) should ideally be placed in higher levels of work, granted that other considerations are also taken note of..

The similarity between current and potential levels of work

Both levels of work (current and potential) display similar statistical relationships with the predictor variable (value orientations). Controlling either of the variables (current or potential) did not result in a material change in the significance, strength and direction of association between predictor and the criterion. This finding means that value orientations can be used to make selection and placement decisions in relation to both an employee's current and potential levels of work. This finding departs slightly from Jaques' (1998) view of the role of values in predicting job success, as discussed in the literature review. He sees potential work suitability (potential level of work), as being a function primarily of cognitive abilities, with the role of values being restricted only to current work capability (current work level).

Low strength of association between values and levels of work

While most correlations are statistically significant ($p < .05$), they are all below the medium cut-off point of $r = .3$ as recommended by Miles and Banyard (2007). This indicates that while the tests established the existence of an association between value orientations and levels of work, this association remains in the weak category. From the perspective of applying this finding, the implication is that while values need to be considered as the study shows, they should be considered in addition to other traditional methods that are usually used to place employees at appropriate levels of work, owing to their low correlation with individual level of work profiles.

THE ABILITY OF VALUES TO PREDICT LEVEL-OF-WORK PROFILES (Hypothesis 2)

Can accepted values be used to predict current level-of-work profiles?

While the total variance in current levels of work attributable to accepted value orientations is relatively small at 6%, it is statistically significant, $F(2, 396) = 13.03$, $p < .001$, and therefore supports the acceptance of the second hypothesis in the present

study. Therefore, it can be argued that although with only limited predictive power, accepted value orientations can be used to predict an employee's level of work profile.

Can accepted values be used to predict potential level-of-work profiles?

As in the first test the statistical significance of the abilities of accepted values to predict potential levels of work, $F(2, 396) = 10.11, p = .002$, support the upholding of the second research hypothesis in the present study. Thus the second test shows that accepted value orientations can be used to inform decisions about the potential level of work to which an individual can fit well. As indicated in the first test, for an individual's potential work level to be predicted using his/her value orientations, reference will have to be made to the results of correlations analysis where it was shown that those who accept high order value orientations have a higher propensity of doing well in higher levels of work, while the opposite is true for those who accept lower order values.

Can rejected values be used to predict current level-of-work profiles?

High statistical significance of rejected values to predict current levels of work, $F(2, 396) = 11.07, p < .001$, further supports the acceptance of the second research hypothesis in the present study. This test gives evidence as to the ability of rejected value orientations to account for a 5% variance in current levels of work. Combined with the results of correlation analysis which showed that rejecting lower order values has a positive association with levels of work - meaning that those who reject low order values (or accept high order values) are more likely to do well in higher level jobs or do poorly in lower level jobs - this model can be used in the recruitment and placement of employees at appropriate levels of work. However, as earlier noted, in practice, the final placement decision would involve the use of other assessment methods to account for the remainder of the variance.

Can rejected values be used to predict potential level-of-work profiles?

The results in this test are reflective of the other three tests, where while the strength of the VO's predictive abilities is low (4%), it remains statistically significant, $F(2, 396) = 7.51, p=.001$. Again, the results of this test indicate that rejected value orientations are an acceptable predictor of potential level of work profiles, where, referring again to the correlation analysis to see the direction of the relationship between these variables, it would be seen that rejecting low order values improves a general fit in higher levels of work.

IMPLICATIONS: APPLICATION OF FINDINGS

Implication for organisations designed on the SST model

Jelinek, Litterer and Miles (1981) emphasise the importance of ensuring that an organisation is well designed if it is to be efficient and effective. While organisation design experts such as Jelinek et al present various tools for ensuring a perfect organisational design, Jaques came up with the SST theory as a complete and integrated method of ensuring effective organisational design. The present study focused on just one component of the theory – the levels of work component - and found out that for purposes of matching employees to the right levels of work, values/value-orientations should be taken into account to minimise a person–job mismatch, with the ultimate negative consequences on the ultimate criterion being poor on the job performance. As Bioss International (2008) reports, many successful organisations in South Africa (Implats, Old Mutual, Edcon) have successfully been designed on the basis of Jaques' SST theory. Wintermans (1994) gives evidence of his company's (Canadian Tire Acceptance Limited) significant growth of 18% over a six year period. This is attributable largely to the re-design of the organisation on the basis of the SST. However, for an organisation designed on the basis of the SST to report similar levels of success as reported by Wintermans, the SST model itself has to be implemented well and clearly. The present study generates vital findings regarding the successful implementation of the SST model of organisational design by showing that values/value systems or value orientations held by employees should be measured, and taken into account when placement and promotion decisions are

made. This should be done with a view of ensuring that there is a match between the employee, and the level of work complexity to which that employee is initially placed or subsequently promoted to. The findings of the present study will further assist HR Managers to enjoy greater efficiencies for their organisations by going beyond the traditional practice of relying mainly on cognitive abilities to match employees to their appropriate levels of work.

Implication for organisations not designed on the SST model

The findings of the present study do not confirm or dispute whether the SST model is the right model for designing an organisation; they merely show how to derive greater benefits from it when implemented. As reported in the literature review, the model has been criticised for promoting bureaucracy (Ross, 1992), especially in the context of modern management thinking where flatter organisational structures are being recommended as opposed to the bureaucratic ones (Malone, 2004).

However, it is noticeable that even those organisations not designed on the SST model can still make use of the findings of the present study. In fact, all organisations, whether designed on the SST or not, have to make employee placement decisions (Placement means both initial placement at the conclusion of the recruitment process, or subsequent placement by way of promotion or transfer). People placement decisions should always be guided by the need to ensure optimal employee performance (Armstrong, 2006). Optimal performance in given job is a function of factors to do with the job on the one hand, and with the person on the other. Thus, HR Managers will find the findings of the present study relevant to employee placement in general by raising their consciousness on the need to understand, and consider issues of values in relation to the job being filled in the ultimate interest of optimal employee performance. As noted in the literature review, areas of focus when placing people have traditionally been on cognitive abilities, and skills and knowledge (Zunker, 1994).

Comparison of present findings with previous studies

Confirmation of the role of values in explaining social behaviour

The findings of the present study confirm assertions by Rokeach (1973) regarding the general construct of values. He stated that values do account for behaviour under given circumstances. It can be implied from the findings of the present study that because those who hold lower order values do not fit well in upper levels of work complexity, their behaviour when placed in roles of such complexity can be predicted. It can further be predicted that they are likely to be frustrated, demotivated, and may even resign their positions due to a mismatch between their values and the work contexts to which they would have been placed.

Other studies done on the role of values in the world of work

No similar studies were found with regards to the relationship between value orientations and Jaques' levels of work concept. Much literature on the SST (Gordon, 1969; Ross, 1992; Wintermans, 1994) has tended to focus on the merits of using the concept in general, whether it works or not, without particular attention being paid to the dimension of the levels of work component of the total system. Regarding values/value orientations, a similar trend was also found with regards to value orientations, where no particular study examining how they relate to Jaques' SST model (levels of work) was found.

However, a number of studies that look at the role of values or value orientations in the world of work in general were found. These will be discussed below with the intention of drawing parallels to the context of the present study.

Zhan, Straub, and Kusyk, (2007) carried out a cross-cultural study on value orientations to assess their impact on management / leadership styles. Zhan et al discovered that those who held what they termed 'socio-affective values', which can be equated to lower order values in the present study, tended to exhibit a leadership style which emphasised networking, power-sharing and consultation. Considering the characteristics of levels of work as described in the literature review, it may be argued that these individuals would do well in lower levels of work where such styles of

leadership are more appropriate. They conclude by emphasising the general importance of considering values in the placement of managerial employees. In particular, their findings can also be seen to support the findings of the present study by giving some evidence to the existence of a relationship between certain value orientations and suitability to operate at certain levels of work, depending on the constraints placed by each level of work complexity.

Nyambegera, Daniels, and Sparrow (2001) carried out studies aimed at understanding the relationship between value orientations and motivation in Kenya. Their study is particularly comparable to the present one in that it also predicted performance on an intermediate criterion (motivation), while in the present study; an individual's work level profile was used as the intermediate criterion. They found that individual value orientations accounted for 19% of variance in motivation. A parallel can be drawn between their findings and the findings in the present study. There is evidence of the role of values in predicting certain work-related outcomes, that being motivation in their case, and an individual's work-level profile in the present study. Their findings thus corroborate the conclusion of the findings in the present study that values/value systems should be taken into account in understanding factors that account for behaviour and performance in the world of work.

Dolan, Richley, Garcia and Lingham (2008, p.35) discuss the concept of management by values (MBV). They note that "whereas values were once considered by managers as too soft to be included in any serious approach to management, they have now become a central part of discussions of organisational strategy and change". While their primary concern was general business/organisational values, they do draw a link with individual value orientations and bring out its importance in managerial success. In addition, while their assertions were not based on empirical proof of the importance of considering these 'soft issues', the present study does support the view taken by managers in their study to consider values in the overall process of management, particularly people management – as it was found that these values affect the levels of work in which people are most suited to perform adequately.

LIMITATIONS OF THE STUDY

Limitations relating to metric qualities of the measuring instruments

Limitations of self-report inventories

By virtue of being a self-report measure, the VO is prone to the limitation of the 'faking good' and 'faking bad' associated with all self-report measures. A number of studies (Hirsh & Peterson, 2008; Motl, McAuley, Christine & DiStefano, 2004) found this problem to be common to most self-report measures. The implication for the present study would therefore be that the measurement of values could have measurement errors relating to this limitation, where participants simply 'faked' value orientations which they thought would put them in a better standing. 'Faking good' is particularly problematic in occupational/work settings where participants strive to present themselves in the best possible light in anticipation of positive outcomes that usually accompany good assessment results in the workplace such as promotion (Foxcroft & Roodt, 2001). It is therefore further recommended that other instruments that assess value orientations such as the Work Values Inventory (WVI), as discussed in the literature review, be used for purposes of corroborating findings in the present study.

Limitations of computerised measures

Both measures used in the present study are computerised measures. As discussed in the literature review, computer administered measures have certain limitations that lower their reliability and validity, as has been shown in studies (Schulenberg & Yutrzenka, 2004; Kveřton, Jeliřnek, Voborřil and Klimusova , 2007).

This becomes particularly so in the South African context where these tests were conducted, given that computer literacy is still generally low. Thus, there is some probability that the data collected has errors reflecting the limitations of computerised measures, particularly the CPP whose administration as a computerised game requires significantly good levels of computer literacy.

ALTERNATIVE INTERPRETATION OF FINDINGS

The problem of fluidity of values

One major limitation that affects perhaps all studies on value orientations is the fluidity on the construct. Value orientations are affected by the external environment, meaning that one's current value orientations can change given a change of certain exogenous circumstances that influence value orientations. Rokeach (1973) points out that while the value system does not change significantly the priority ordering of the individual values in the system does change with changes in circumstances. This characteristic of values presents a problem in the application of the findings of a study of this nature. The findings imply that someone who accepts primarily lower order values could hold higher order values in a different context. Socially and economically, the contexts under which jobs found in lower levels (e.g. cleaner) are held is significantly different from the context under which roles of higher levels are held (e.g. CEO). Therefore, if a person moves up the levels of work, his or her values may change accordingly as a result of changes in context. As a result, those in higher level roles will be found generally to subscribe to higher order values while those in lower level roles will display lower order values depending on their contexts. The present study is, however, not able to take into account this limitation which needs to be confirmed by longitudinal. Therefore, while the present study concludes that those employees who hold lower order values are better suited for lower levels of work, and vice versa, it may well be that the relationship between these variables is in the opposite direction, whereby the reason why the employees in lower levels of work hold lower order values is because of their lower-level work context. This problem of fluidity of values could provide an alternative explanation and interpretation of the findings in the present study.

Inability to establish causality

The present study fails to establish causality between values/value orientations and levels of work. While the study is able to confirm the existence of some linear association between values and levels of work, and also confirm the ability of values to account for some variance in levels of work, the design employed fails to indicate if

the relationship is causal or not. Thus, it cannot be determined with certainty that values 'cause' one's work-level profile, as is indicated in the previous discussion. It may as well be that levels of work 'cause' the measured values, and not the other way round as concluded in the present study. To be able to do this, the study would have had to make use of multiple predictor variables instead of just one as one done in the present study. It is thus recommended that further studies designed with an ability to establish causality between values and levels work should be conducted as a way of further extending knowledge in this area.

CONTRIBUTION OF STUDY TO ORGANISATIONAL PSYCHOLOGY

As discussed in the literature review, the assessment of psychological characteristics of individuals/employees in occupational settings has been of concern to organisational psychologists for a long time (Anastasi & Urbina, 1997). However, focus has tended to be on cognitive and personality assessment to solve the problem of finding 'the right person for the right job'. As a result, far more instruments have been developed in these areas compared to the area of values and value orientations (Rokeach, 1973).

However, there is increasing realisation of the importance of values in the world of work (Dolan, Richley, Garcia & Lingham 2008; Nyambegera, Daniels, and Sparrow, 2001). The importance of the 'soft' issues in the world of work becomes even more apparent if one considers changes in the world of work relating to changes in the way work is organised, issues of work-life balance in general, and changing views about the psychological contract of employment (Malone, 2004).

Given the limited research on the role of values and value orientations and its relationship with various work-related criterion, the findings of the present study bring new empirical knowledge to the science of industrial psychology. These can also be applied by practicing industrial psychologists and HR practitioners, especially in the

new world of work where such 'softer issues' will have greater significance than the traditional 'hard issues' (Malone, 2004).

RECOMMENDATIONS

Based on the findings of the association between values and levels of work, the present study recommends that employees' values/value orientations should be considered in relation to their placement in organisations (initial or subsequent placement), with the ultimate aim of ensuring their success on the job. This recommendation appears to be applicable to both those organisations that are designed on the SST model and those that are not, given that all organisations seek optimal performance from their employees.

However, the recommendation does not call for a total departure from other methods that have traditionally been used in employment placement decisions, such as cognitive abilities and acquired knowledge and skills. Instead, organisations should, in addition to these methods, also measure value orientations and consider the results as part of the total battery of assessing employees for suitability to given roles, dependent on the level of work at which those roles are placed. This position is informed by the magnitude of the association between values and levels of work found in the present study. When such an association was found, it was in the low-medium category, implying that other factors also need to be considered to account for the remainder of the variance that determines an employee's levels of work profile.

Seeing that there was no previous research on the exact subject of the present study, it is recommended that further research on the relationship between value orientations and levels of work be conducted. Different measuring instruments should be used to counter the limitations of the present study. Preferably, such an alternative study should be on a longitudinal basis so that it can be established whether value systems change when an employee moves across levels of work over time. This would help answer the question of causality that could not be answered in the present study.

CONCLUSION

The aim of the present study was to investigate first, whether there is an association between values systems subscribed to by employees and their work-level profiles and secondly, the extent to which the same value systems can be used to predict success on an intermediate criterion – being the individual's work-level profile. The study confirms both hypotheses: that there is an association between values and levels of work, and also that to a limited extent, values can be used to predict work-level profiles. The study particularly cautions that despite the VO having displayed some predictive abilities for individual level-of-work profiles; such predictive abilities are very low in magnitude.

To arrive at the above conclusion, the study began by discussing in the literature review chapter, the current state of knowledge in the fields of values/value systems and Jaques' levels of work theory of organisational design and psychological assessment.

The method employed to investigate the hypotheses was presented in the third chapter. The results of the study which indicated that there is a relationship between value orientations and level of work profiles and also that values can be used to predict levels of work, albeit on a limited scale, were presented in the fourth chapter. These results were discussed in the fifth chapter where parallels were drawn to other related studies and recommendations for the consideration of values in all people placement decisions at work (initial and subsequent placement) also made.

Some of the limitations of the study were also discussed, including recommendations for further research to validate the findings. The present study has thus brought to the fore empirical knowledge that can be used for both the economic benefit of organisations and the personal benefit of the employees who work in them as regards the role of personal values in the world of work.

REFERENCES

- Aiken, L.R. (1994). *Psychological testing and assessment*. Boston: Allyn and Bacon.
- Anastasi, A. & Urbina, S. (1997). *Psychological testing* (7th ed.). Washington, DC: Prentice Hall International.
- Armstrong, M. (2003). *A Handbook of human resource management practice*. London: Kogan Page.
- Armstrong, M.(2006). *A Handbook of human resource management practice*. London: Kogan Page.
- Athey, R. (2004). *It's 2008: Do you know where your Talent is? Why acquisition and retention strategies don't work*. New York: Deloitte Development.
- Banard, A., Rothman, S., & Meiring, D.(2008).The cross-cultural application of the Social Axioms Survey in the South African Police Services. *South African Journal of Industrial Psychology*, 34, 1-9.
- Bioss International.(2008). *Products and services*. Retrieved October 18, 2008, from <http://www.bioss.co.za/Phase2/Products/Default.asp?ProductList= PS>
- Cascio, W.F. (2003). *Managing human resources: Productivity, quality of work life, profits* (6th ed.). Boston: McGraw-Hill.
- Cason, K. (1997). Creating the requisite organisation. *CMA Magazine*, 71, 24 -24. Retrieved August 08, 2008, from the EbscoHost database.
- Dolan, L., Richley, B. A., Garcia,S., & Lingham,T.(2008). Managing by values. *European Business Forum*, 32, 32-39.
- Easterby-Smith, M., Thorpe, R., & Lowe, A.(2002). *Management research: An introduction*. London: Sage.
- Edenborough, R. (2005). *Assessment centre methods in recruitment, selection and performance: A manager's guide to psychometric testing, interviews and assessment centers*. London: Kogan Page.
- Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage.
- Foxcroft, C., & Roodt, G.(Eds.).(2001). *An introduction to psychological assessment in the South African context*. Cape Town: Oxford University Press.
- Goodstein, L. & Prien, E.P.(2006). *Using individual assessments in the workplace: A practical guide for HR professionals, training and managers*. San Francisco: Pfeiffer.

- Hair, J.F., Babin, B., Money, A.H., & Samouel, P.(2003). *Essentials of business research methods*. Hoboken, NJ: Wiley.
- Hirsh, J.B. & Peterson, J.B. (2008). Predicting creativity and academic success with a "Fake-Proof" measure. *Journal of Research in Personality* doi:10.1016/j.jrp.2008.04.006.
- Hugo, A., & Van Vuuren, L.J. (1996). A cross-cultural analysis of work values and moral reasoning. *South African Journal of Industrial Psychology*, 22, 12-18.
- Jane, C. (1997). Requisite organisation. *Business Quarterly*, 61, 79-79. Retrieved August 01, 2008, from the EbscoHost database.
- Jaques, E. (1998). *Requisite organisation* (3rd ed.). Arlington: Cason Hall.
- Jelinek, M., Litterer, J.A. & Miles, R. (1981). *Organisations by design, theory and practice*. New York: Business Publications.
- Jensen, A.R. (1977). An Examination of culture bias in the Wonderlic Personnel Test. *Intelligence*, 1, 51-64.
- Kerlinger, F.N.(1986). *Foundations of behavioural research*. New York: CBS Publishing.
- Kinneer, P.R., & Gray, C.D. (2000). *SPSS for Windows made simple*. London: Psychology Press Ltd.
- Kline, P (2000). *Handbook of psychological testing* (2nd ed.). London: Routledge.
- Kline, P. (1994). *An easy guide to factor analysis*. London: Routledge
- Kveřton, P., Jeliřnek, M., Voborřil, D., & Klimusova, H.(2007). Computer-based tests: the impact of test design and problem of equivalency. *Computers in Human Behaviour*, 23, 32–5.
- Lehman, R. (1995). *Statistics in the behavioural sciences*. Los Angeles: Brooks/Cole Publishing.
- Lemos, N.M. (1994). *Intrinsic values – concept and warrant*. New York: Cambridge University Press.
- Louw, D.A., & Edwards, D.J.A. (1997). *Psychology: An introduction for students in Southern Africa*. Johannesburg: Heinemann.
- Magellan Consulting. (2007). *CPP Research Manual*. Johannesburg: Cognadev.
- Magellan Consulting. (2007). *The Cognitive Process Profile*. Retrieved May 16, 2008, from <http://www.cognadev.com/how-assessment-cpp.asp>

- Magellan Consulting. (2007). *Example of a report*. Retrieved May 16, 2008, from <http://www.cognadev.com/reports/cpp.xls>
- Magellan Consulting. (2005). *VO Feedback Manual*. Johannesburg: Cognadev.
- Mahar,D., Coburn,B., Griffin,N., Hemeter,F., Potappel,C.,Turton,M., & Mulgrew,K. (2006). Stereotyping as a response strategy when faking personality questionnaires. *Personality and Individual Differences*, 40,1375–1386.
- Malone, T. W. (2004). *The future of work: How the new order of business will shape your organisation, your management style and your life*. Boston:Harvard Business School Press.
- Mello, J.A. (2002). *Strategic human resource management*. Cincinnati:Thomson learning.
- Miles, J., & Banyard, P.(2007). *Understanding and using statistics in psychology: A practical introduction*. Los Angeles: Sage.
- Miller, L.R., Acton, C., Fullerton, D.A., & Maltby,J.(2002). *SPSS for social scientists*. New York: Palgrave Macmillan.
- MVC Associates International.(2008). *Products and services*. Retrieved October 18, 2008, from <http://www.mvcinternational.com/html/services.html>
- Motl, R.W.,McAuley, E., & DiStefano, C. (2004). Is social desirability associated with self-reported physical activity? *Preventive Medicine*, 40, 735–739.
- Monte, J.E., & Fagan, J.F. (1988). Racial differences in IQ: Item analysis of the Stanford- Binnet at 3 Yrs. *Intelligence*, 12, 315 –332.
- Morris, D, & Brandon, J. (1993). *Re-engineering your business* . New York: R.R . Donneley and Sons.
- Najder, Z. (1975). *Values and evaluations*. Oxford: Carendon Press.
- Nyambegera, M, Daniels, K. & Sparrow, P. (2001). Why fit doesn't always matter – the impact of HRM and cultural fit on job involvement of Kenyan employees. *Applied Psychology: An International Review* ,50,109-140.
- Nicholas, L. (Ed.). (2003). *Introduction to Psychology*. Cape Town: University of Cape Town Press.
- Pauls C.A., & Crost N.W.(2004).Effects of faking on self-deception and impression management scales. *Personality and Individual Differences*, 37, 1137–1151.
- Rokeach, M. (1973).*The nature of human values*. New York: Free Press.
- Ross, A. (1992).The long view of leadership. *Canadian Business Review*, 65, 46-46. Retrieved August 01, 2008, from the EbscoHost database.

- Schulenberg, S.E., & Yutrzenka, B. A. (2004). Ethical issues in the use of computerized Assessment. *Computers in Human Behaviour*, 20, 477–490.
- Steininger, M., Newell, J.D., & Garcia, L.T. (1984). *Ethical issues in psychology*. Illinois: Dorsey Press.
- Tuckder, E., Kao, T., & Verma, N. (n.d.). *Next-generation talent management: Insights on how workforce trends are changing the face of talent management*. London: Hewitt Associates.
- University of California Los Angeles (UCLA), Department of Academic Technology Services. (2008, November). *What does Chronbach's alpha mean?* Retrieved October 14, 2008, from <http://www.ats.ucla.edu/stat/Spss/faq/alpha.html>
- Ulrich, D., & Brockbank, W. (2005). *The HR value proposition*. Boston: Harvard Business School Press.
- Wintermans, J. (1994). The problem of 'articulate incompetence'. *Canadian Business Review*, 21, 46-46. Retrieved August 01, 2008, from the EbscoHost database.
- Wijndaele, K., Matton, L., Duvigneaud, N., Lefevre, J., Duquet, W., & Thomis, M. et al. (2007). Reliability, equivalence and respondent preference of computerized versus paper-and-pencil mental health questionnaires. *Computers in Human Behaviour*, 23, 1958–1970.
- Zhan, Y., Straub, C. & Kusyk, S. (2007). Making a life or making a living? : Cross-cultural comparisons of business students' work and life values in Canada and France. *Cross Cultural Management: An International Journal*, 14(3), 174-195.
- Zunker, V.G. (1994). *Career counselling: Applied concepts of life planning*. Pacific Grove: Brooks Publishing.

APPENDIX

APPENDIX: Correlation matrix of the VO and the CPP(Levels of work scale)

The matrix of Pearson product moment inter-correlations between the variables of the VO scale and variables of the levels of work scale of the CPP (N=399)

	P	R	B	O	G	Y	T	XP	XR	XB	XO	XG	XY	XT	Current work level	Potential work level
P	1.00															
R	0.12	1.00														
B	0.68	0.25	1.00													
O	-0.51	0.40	-0.36	1.00												
G	0.22	-0.49	0.08	-0.30	1.00											
Y	-0.42	-0.19	-0.37	0.52	0.33	1.00										
T	0.19	-0.21	0.20	-0.01	0.55	0.40	1.00									
XP	-0.57	-0.14	-0.40	0.50	0.06	0.64	0.14	1.00								
XR	0.10	-0.58	-0.02	-0.27	0.64	0.36	0.46	0.30	1.00							
XB	-0.49	-0.13	-0.53	0.40	0.18	0.62	0.12	0.71	0.35	1.00						
XO	0.59	-0.29	0.45	-0.63	0.42	-0.23	0.22	-0.26	0.55	-0.19	1.00					
XG	-0.02	0.59	0.07	0.33	-0.60	-0.14	-0.27	0.10	-0.44	0.01	-0.25	1.00				
XY	0.61	0.34	0.69	-0.37	-0.18	-0.58	-0.10	-0.43	-0.22	-0.46	0.44	0.34	1.00			
XT	-0.06	0.57	0.02	0.39	-0.55	-0.12	-0.32	0.08	-0.41	-0.01	-0.27	0.76	0.27	1.00		
Current work level	-0.18	-0.02	-0.16	0.18	0.12	0.23	0.06	0.14	0.03	0.17	-0.11	-0.08	-0.22	-0.06	1.00	
Potential work level	-0.16	-0.04	-0.15	0.10	0.12	0.18	0.02	0.08	0.03	0.15	-0.08	-0.09	-0.17	-0.05	0.84	1.00