

A FACTOR ANALYSIS OF THE CAREER ADAPT-ABILITIES INVENTORY

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Submitted in partial fulfilment of the requirements for the degree of

Magister Artium
in Counselling Psychology
in the
Faculty of Health Sciences
Nelson Mandela Metropolitan University

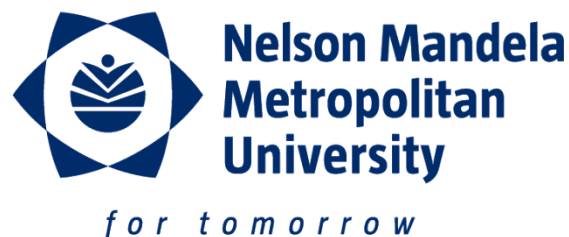
July 2011

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In accordance with Rule G4.6.3, I hereby declare that the above-mentioned treatise is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

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Acknowledgements

I would like to extend my sincerest gratitude towards those who have played a significant role in the production of this study:

- Professor Mark Watson, for his comprehensive supervision, expertise and continuous support. A special thank you for his patience and for providing timely feedback.
- Professor Kobus Maree, who constantly provided efficient and comprehensive feedback as a co-supervisor, as well as for providing invaluable guidance with regard to the statistical aspects of this study.
- Mr Danie Venter, for the excellent manner in which he assisted with the statistics pertaining to this study.
- My husband, Johan, for his never-ending support, love and inspiration. Thank you for always believing in me and the sacrifices you have made in order for me to accomplish my goals. This treatise is dedicated to you.
- My parents and family, who have consistently remained supportive and interested throughout my studies.
- All the participants of the study.
- My Heavenly Father, who has blessed me with the ability and opportunity to conduct this study.

Table of Contents

	Page
Acknowledgements	iii
List of Figures	viii
List of Tables	ix
List of Appendixes	x
Summary	xi
Chapter 1 Introduction	1
The New World of Work	1
South African Context	2
The Future of Career Development Theory	3
Purpose of the Study	5
The Structure of the Study	7
Chapter 2 Career Development Theory	9
Historical Overview of Career Theory	9
Early career development theory	9
Career theory: 1950 to 1979	10
Career theory: 1980 to late 1990s	13
Super's Life Span, Life-Space Theory of Career Development	13
Self	14
Life-span and life-space	15
Life-span	15
Life-space	18
Career maturity and adaptability	20
Career Construction Theory	23
Life structure	25

Vocational personality	26
Life themes	28
Career adaptability	30
Dimensions of career adaptability	32
Career concern	34
Career control	35
Career curiosity	36
Career confidence	37
Career construction theory propositions	38
Refocusing the goals of career intervention	41
Evaluation of career construction theory	45
Summary	47
Chapter 3 Research Review	48
Career Adaptability Research	49
Conceptualisations of the Construct of Career Adaptability	51
Career Adaptability Research Review	53
Adolescents	53
Tertiary students	56
Employees and job seekers	60
Measures of Career Adaptability	63
South African Research on Career Adaptability	67
South African Factor Analytic Research	67
Exploratory factor analysis	68
Confirmatory factor analysis	69
Applying both EFA and CFA	69

	Summary	70
Chapter 4	Methodology	71
	Aims and Objectives	71
	Research Design	72
	Measure	73
	Participants and Sampling Procedure	76
	Sampling size requirements	76
	Sampling procedure	77
	Sampling characteristics	79
	Data Analysis	82
	Quantitative data analysis	82
	Exploratory factor analysis	82
	Confirmatory factor analysis	86
	Qualitative data analysis	89
	Summary	91
Chapter 5	Results	92
	Internal Reliability	92
	Descriptive Statistics	93
	Exploratory Factor Analysis	94
	Measures of intercorrelations	95
	Communalities	96
	Factor extraction	97
	Factor rotation	99
	Five factor rotations	99
	Discussion of the factor pattern matrix	105

Confirmatory Factor Analysis	107
Measurement models	107
Estimates of the degree of fit	110
Qualitative Results	111
Items and word content	111
Themes emerging from participants' comments	112
Theme 1: Comprehension and clarity of the CAI	113
Theme 2: Enhanced understanding of self	113
Theme 3: Structure, length and layout of the CAI	114
Summary	114
Chapter 6 Discussion, Limitations and Future Research	116
Discussion of Results	116
Exploratory factor analysis findings	116
Confirmatory factor analysis findings	118
Qualitative results	119
Limitations of Research	120
Recommendations for Further Research	121
Conclusion	122
References	124
Appendixes	
Appendix A: Letter of Motivation to Participants	147
Appendix B: Informed Consent Form	148
Appendix C: Questionnaire Booklet	151
Appendix D: Item Frequency Counts, Means and Standard Deviations	155
Appendix E: Item Correlation Matrix	159
Appendix F: Categorising of Themes	165

List of Figures

Figure 1:	Outline of Study	8
Figure 2:	The Life Career Rainbow	17
Figure 3:	Archway of Career Determinants	19
Figure 4:	Scree Plot	99
Figure 5:	Measurement Model A	108
Figure 6:	Measurement Model B	109
Figure 7:	CAI Factor Structure Obtained by EFA	117

List of Tables

Table 1:	Career Adaptability Dimensions	33
Table 2:	Items changed on the Career Adapt-Abilities Inventory	76
Table 3:	Frequency Distribution: Age	80
Table 4:	Demographic Composition	80
Table 5:	Guidelines for Identifying Significant Factor Loadings based on Sample Size	85
Table 6:	Internal Reliability Coefficients of CAI Scales and Section C1.1	93
Table 7:	Descriptive Statistics for CAI Scales and Section C1.1	93
Table 8:	Summary of Responses for CAI Scales and Section C1.1	94
Table 9:	Correlations among CAI Scales	95
Table 10:	Communalities	96
Table 11:	Total Variance Explained	97
Table 12:	Five Factor Rotated Pattern Matrix: Iteration One	101
Table 13:	Five Factor Rotated Pattern Matrix: Iteration Two	102
Table 14:	Five Factor Rotated Pattern Matrix: Iteration Three	103
Table 15:	Five Factor Rotated Pattern Matrix: Iteration Four	104
Table 16:	Factor Structure Obtained by EFA sorted by Item Numbers	106
Table 17:	Fit Indices for Measurement Models A and B	110
Table 18:	Summary of Words and Items viewed by Participants as Unclear	112

List of Appendixes

Appendix A: Letter of Motivation to Participants	147
Appendix B: Informed Consent Form	148
Appendix C: Questionnaire Booklet	151
Appendix D: Item Frequency Counts, Means and Standard Deviations	155
Appendix E: Item Correlation Matrix	159
Appendix F: Categorising of Themes	165

Summary

In understanding the importance of career adaptability in an individual's career development, career counsellors require a valid assessment technique for measuring career adaptability. The Career Adapt-Abilities Inventory (CAI) was originally developed by Mark Savickas (2008) as a measure of career adapt-abilities. The present study forms part of an international collaboration investigating the psychometric properties and construct validity of the CAI.

The aims of the present study involved the following: conducting exploratory factor analysis in order to determine whether interrelationships within the items of the CAI can be explained by the presence of unobserved variables; conducting confirmatory factor analysis in an attempt to confirm the hypothesised factor structures of the CAI; and to explore and describe South African university students' perceptions of the underlying constructs of the CAI in terms of the language usage and comprehension of the inventory's item content. A sample of South African first-year university students were employed in this current study.

In an exploratory factor analysis of the CAI, preference was given to the a priori criterion forcing the extraction of five factors. The oblique rotation method was employed using the OBLIMIN method provided by the statistical package in order to derive the simplest and most interpretable factor structure. Exploratory factor analysis supported a five factor solution after the fourth iteration, reflecting the underlying dimensions of Curiosity, Concern, Confidence, Cooperation and Control. These factors support the five scales presented by Savickas (2008). Confirmatory factor analyses were subsequently performed in order to test both the original CAI factor model as well as the factor model that emerged through exploratory factor analysis. After using several goodness-of-fit indices, it can be concluded that the inventory items adequately represent the five CAI scales based on the value obtained using the Root Mean Square Error of Approximation index. The factor model derived

through EFA demonstrated a slightly better fit when compared to the original CAI factor model using other fit indices.

In terms of the qualitative findings of this current study, participants indicated that the meaning of several items were unclear to them causing comprehension difficulty. Items 8 and 50 were marked by participants several times and can be viewed as the items causing most difficulty with regard to comprehension, with participants pointing out the words ‘keeping upbeat’ (item 8) and ‘conscientious’ (item 50). Participants were also asked to provide additional comments with regard to the readability, comprehension and applicability of the CAI. On investigation of these comments, three main themes were generated relating to: the comprehension and clarity of the CAI; the CAI enhancing participants’ understanding of themselves; and the structure, length and general layout of the CAI.

In essence, the current study provided useful information regarding the psychometric properties of the CAI using a sample of South African first-year university students. Factor analyses provided some support for the validity of the CAI while the qualitative results provided aspects for consideration in making the CAI more applicable for South African usage. Moreover, a foundation has been laid for further research to be conducted in South Africa regarding the validity and applicability of the CAI for South African populations.

Keywords: Career adaptability, Career Adapt-abilities Inventory, exploratory factor analysis, confirmatory factor analyses, South Africa, university students.

Chapter One

Introduction

This research study focuses on the psychometric properties of the Career Adapt-Abilities Inventory (CAI) as well as describing South African university students' perceptions of the underlying constructs of the CAI in terms of the language usage and comprehension of the inventory's item content. This chapter will introduce the concept of a new world of work characterised by constant change as well as focusing on the South African context in which the research was conducted. Thereafter, a discussion will follow on the need for a career development theory that addresses the changes that individuals will encounter. Lastly, the motivation for conducting this study will be addressed, followed by an outline of the structure of the study.

The New World of Work

The world of work is changing to such an extent that one can see pervasive change in the kinds of work people are doing as well as the way they are doing it (Blustein, 1997; Furnham, 2000). In today's society a person's career path may not be as clearly defined as in previous generations and career will have different meanings for different individuals. Changes in work practice as a result of globalisation, advances in technology, economic instability and shifting demographics are having a significant impact on the nature of working life at present (Hearne, 2007). For instance, McNair et al. (2004) state that two-thirds of people in the workforce experience job changes, with one in five making two or more changes over a five year period. Furthermore, while the likelihood of career change declines with age, one third of people in their sixties are likely to change again before retirement.

Changing political, economic, technological and socio-cultural environments have had a profound impact on how workers define today's world of work (Friedman, 2005). Even more challenging is that these changes have recently accelerated to present a world with added

complexity and uncertainty (Pryor & Bright, 2003). Change has now become a constant as individuals contemplate the new genre of work (Buchner, 2007). Hearne (2007) adds that people now have to rethink their careers on a continuous basis and thus they require the necessary skills to adapt and manage career change across the lifespan. Even though traditional forms of work engagement exist where length of service, geographical mobility and a steady climb up the corporate ladder are evident, it does not imply that these structures are not experiencing similar challenges to become more adaptable. Organisations that are more adaptable have recently placed emphasis on the new relationships between the worker and the organisation. New relationships are forged with less control and less bureaucratic structures to optimise the relationship on equal grounds (Gratton, 2004; Hock, 2005). Sustainability of these relationships is fostered by constructing learning organisations with more flexible structures and learning climates (Ortenblad, 2004).

South African Context

The South African work environment has been characterised by enormous economic and socio-political change since 1994 when South Africa was reabsorbed into the dynamics of the global economic arena. South African organisations are under constant pressure to deal with rapid technology transfer, more immediate, direct and intense international competition, the intensified pressure for social and economic transformation, black economic empowerment, and change to the legislative framework as it applies to organisations, as well as the eroding impact on productivity of HIV and Aids (Van Tonder, 2005).

Furthermore, post-apartheid changes within South African labour markets include the promotion of an equitable workforce, which in turn creates new opportunities for all employees and entrepreneurs. However, even though the labour market welcomes initiatives from the public and private sector to create jobs for designated groups, it faces the challenge of high unemployment rates together with skills shortages in high growth environments such

as professional and managerial occupations (Moja & Cloete, 2001). Apart from these and other demographic pressures and changes, other factors propelling the change in the world of work in South Africa include circumstances of poverty and inequality, declining growth, unemployment, high inflation and a low demand for labour (Finnemore, 1999).

The Future of Career Development Theory

While traditional life-stage career development theory (Super, 1953; Super, Savickas & Super, 1996) remains highly relevant, it may no longer adequately explain the career development process of individuals requiring lifelong guidance in a constantly changing labour market. In addition, such theory may not fully address the fundamental aspects of individuals who have to manage complex life roles, unemployment, redundancy, ill-health and retirement. In the light of changing work environments, Guichard (2007) noted that the focus in career counselling needs to expand beyond the issue of career choice to a focus on clients' self-construction. According to Savickas (2006), new paradigms and models are required in career counselling that enable clients to draw meaning from the role of work in their lives, negotiate a lifetime of job changes and self manage their careers in the future.

An approach that has come to the fore in career counselling during the last two decades is that of constructivism. Constructivism enables clients to become more active agents in their own lives (McMahon & Patton, 2006; Reid, 2006; Savickas, 1997, 2006). The search for meaningful work relates to constructivism with its emphasis on deriving meaning from experience. As part of their career development, individuals can construct careers that are personally meaningful and self-managed. To have meaningful careers, individuals will need to reflect on their experiences and make the changes necessary to keep their careers aligned with their values and interests (Patton, 2000; Savickas, 2000). Career construction theory (Savickas, 2002, 2005), which forms the theoretical underpinning of this current research study, is philosophically grounded in the constructivist approach. Amundson (2005) states

that people need to construct meaning in their lives through their decisions and their actions. The goal of career counselling is thus to help people describe and critically re-evaluate their personal career constructions (Amundson).

Career adaptability is an important cornerstone of career construction theory (Savickas, 2002) and denotes individuals' readiness and resources for handling current and anticipated tasks, transitions, and traumas in their occupational roles that, to some degree, alter their social integration (Savickas, 1997). From a practical point of view, career adaptability functions as a self-regulatory strategy enabling individuals to implement their self-concepts in occupational roles. Career adaptability is also viewed as a psychosocial process of self-regulation in response to the need to adapt to disequilibrium occasioned by developmental tasks, occupational traumas, and career transitions. Individuals shape their own development through self-regulation. This includes setting and pursuing goals relative to dealing with changes in the work role and restoring equilibrium (Savickas, 2008).

In essence, career adaptability implies that individuals can deal with change and that they have the capacity to adapt to it. Change could include regular career transitions that are becoming commonplace in today's world of work. Savickas (1997) presented a definition of career adaptability in which he conceptualised it as "the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions" (p. 254).

Further, the construct of career adaptability comprises four dimensions: concern, control, curiosity, and confidence. Thus, the adaptive individual is conceptualised as becoming concerned about their career future, taking control of trying to prepare for a vocational future, displaying curiosity by exploring possible selves and future scenarios, and strengthening the confidence to pursue aspirations (Savickas, 2005). Savickas further matches competencies such as planning, decision-making, self- and environmental exploration as well as problem

solving to career adaptability. The term ‘adapt-abilities’ was coined more recently by Savickas (2008) and refers to the resources that shape adapting behaviours (the doing) which produce adaptation (solving the problems, improved fit) that leads to adaptation outcomes such as development, success, satisfaction, and stability.

As stated earlier in the chapter, individuals need to constantly adapt to the changing nature of work. Duffy (2010) noted that this needs to happen even prior to full-time employment as in the case of the sample used in this current study, i.e. South African first-year university students. Career adaptability is important throughout one’s career but it is mostly triggered by career transitions (Klehe et al., 2011). The transition students make from high school to university is an example of a major career transition. Super, Savickas and Super (1996) have suggested that university students are confronted with many career-related tasks and that they have to adjust to a much less structured educational experience compared to high school. Further, they have to manage these career-related tasks in the context of family, peer, and educational institution expectations (Creed, Fallon, & Hood, 2009). Increasingly university students’ career adaptability is thus a central goal of career construction counselling (Savickas, 2010).

Purpose of the Study

In the preceding discussion it is apparent that a new paradigm exists in terms of the world of work and the need for individuals to become career adaptable. To assist individuals manage their working lives and encourage organisations to provide career counselling, a new model of career adaptability has been formulated (Savickas & Hou, 2010) together with the construction of a new measure of career adaptability i.e., the Career Adapt-Abilities Inventory (CAI, Savickas, 2008). In South Africa, career counsellors are confronted with a number of complex socio-cultural factors such as poverty, HIV and Aids and education inequality. According to Maree, Ebersöhn and Molepo (2006), career counselling in South

Africa is still largely facilitated by career counsellors from privileged backgrounds. The danger exists that career counsellors may “silence clients during career facilitation” (Maree, Ebersöhn, & Molepo, p. 51) due to cultural ignorance and career counsellors’ isolation from the rich diversity of African indigenous methods of healing. In addition, the bulk of psychometric assessments used by career counsellors in South Africa are mostly based on western principles and therefore not sensitive to the diverse South African population (Maree, Ebersöhn, & Molepo).

The current research study forms part of other international work on career adaptability and aims to address the concern mentioned in the previous paragraph by investigating the construct validity of the CAI as well as exploring its applicability to a South African sample. Given the newness of the CAI’s development, the need for research to validate its use in South Africa seems imperative. In order to assess whether the CAI is a legitimate measure of career adapt-abilities, and whether the instrument’s items and scales are measuring what they are intended to measure, the internal factorial validity of the instrument will be assessed by the current researcher. The present study also adds to the limited volume of psychometric research conducted on career measures in South Africa to date. Determining the validity of the CAI is of vital importance with regard to evaluating the utility of the CAI as an assessment tool and as a counselling aid for use within the South African context without merely adapting the CAI for South African populations.

This current study is conducted within an international collaboration where tertiary and high school students are used as samples. In the light thereof it seemed appropriate to the current researcher to limit the sample in this study to the equivalent of the sample groups used in international research studies on career adaptability. Subsequently, sampling in this current study was limited to first-year university students and not generalised to the wider South African population. The research aims for this present study include determining

whether interrelationships within the items of the CAI can be explained by the presence of unobserved variables as well as attempting to confirm the hypothesised factor structures of the CAI by conducting exploratory and confirmatory factor analyses respectively. Even though a strong quantitative approach was taken in the current study, qualitative aspects also form part of the study. The qualitative component of this current study focused on the applicability of the CAI to a South African sample of first-year university students with regard to language usage and comprehension of the inventory's item content.

The Structure of the Study

Figure 1 presents a diagrammatic presentation of the layout of the current study starting with this chapter that serves as an introduction. The focus of Chapter Two is an in-depth discussion on career construction theory (Savickas, 2001, 2002, 2005; 2009; 2010) which forms the theoretical foundation for this current study. Career construction theory advanced Super's (1957) theory on career development and thus a section has also been included on Super's life-span, life-space theory which is preceded by a historical overview of earlier career theories. Past research conducted on career adaptability is highlighted in Chapter Three, while Chapter Four discusses the research method used in this study. The results of the study and a discussion of such results are provided in Chapter Five. Lastly, Chapter Six discusses the implications of this study, some of the study's limitations, as well as offering some recommendations in terms of future research.

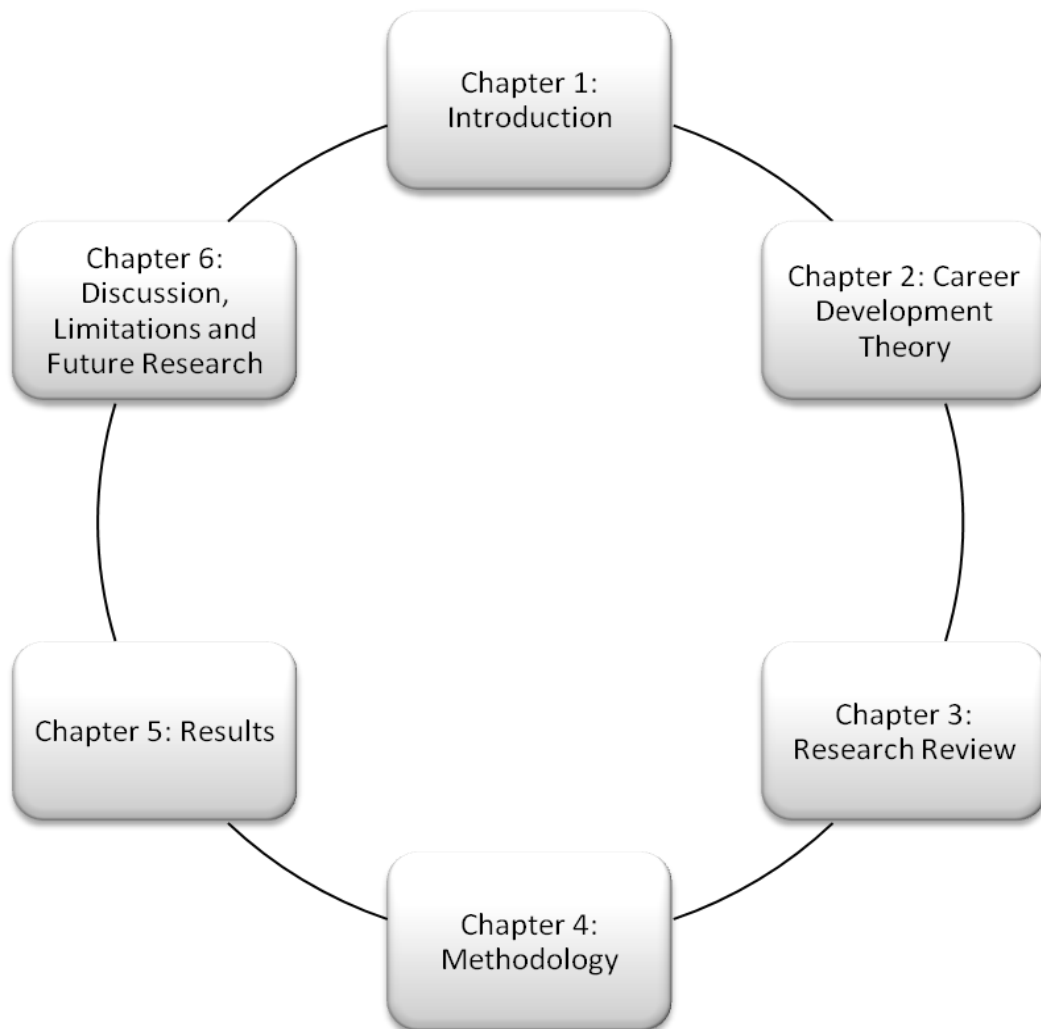


Figure 1 Outline of the Study

Chapter Two

Career Development Theory

Career theories have broadened, new career theories have been proposed, and the world of work has undergone dramatic and irreversible change in recent decades (Amundson, 2005; Brown, 2002; Patton & McMahon, 2006). According to Watson and Stead (2006), career theories provide parameters within which we can understand career behaviour and choice, and from which we can hypothesise about the meaning of such behaviour and choice. Career theories allow us to predict future career behaviour as well as impacting on future career choice. They also provide career counsellors with the means to identify, interpret and assist clients in their career goals (Watson & Stead, 2006). The main focus of this treatise will be on Career Construction Theory (Savickas, 2005). In preparation for a more detailed discussion of this theory, several underlying theories will be overviewed.

Historical Overview of Career Theories

Early career development theory. Parsons (1909) is credited with being the founder of vocational guidance. He identified three elements of career selection: self-knowledge, knowledge of the world of work and “true reasoning on the relations of these two groups of facts” (Parsons, p. 5). Patton and McMahon (2006) state that, in terms of today’s thinking about career development, Parson’s view of career selection was simplistic. Trait-and-factor theory has been criticised by other theorists. Isaacson and Brown (1993) are of the opinion that the theory does not account for the broad range of individual differences in every occupational group. Criticism has also been levelled at trait-and-factor theory for failing to “adequately consider and define the universe of variables that impinge on the occupational choice-making process and define causal relationships among traits and variables (such as socio-economic status)” (Brown, 1990, p. 346).

Furthermore, Zunker (1994) was critical of the failure of the theory to account for growth and change in traits such as interests, values, aptitudes, achievements, and personality characteristics. However, much of the current work in career counselling and career education for career choice remains structured around the three classic elements of trait-and-factor theory. McDaniels and Gysbers (1992, p. 32) add that “trait-and-factor theory, as it is understood today, continues to undergird counselling for career development.”

Career theory: 1950 to 1979. Perhaps the greatest departure from trait-and-factor formulations was the movement towards conceptualising career choice as a developmental process. Ginzberg, Ginsberg, Axelrad and Herma’s (1951) theory of the development of career choice in early adulthood was a forerunner of other developmental models such as that of Tiedeman and O’Hara (1963). Tiedeman and O’Hara’s theory has been regarded, in turn, as a “bridge between the early developmental formulations of Ginzberg and his group and the work of Super” (Osipow, 1973, p. 94). It is Super and his colleagues (Super, 1953, 1957; Super, Crites, Hummel, Moser, Overstreet, & Warnath, 1957), however, who emerged as the major proponents of career development theory in the middle of the last century.

The 1950s was characterised by a burgeoning of new theoretical formulations about career behaviour and the career choice process. This growth in theory building was a response to the atheoretical base provided by trait-and-factor theory and the existing limited conceptualisation of the career choice process. Crites (1969) criticised the theories developed during the 1950s as being poorly constructed, noting that the major contribution of theories prior to the 1940s was in the development of psychometric instruments. Osipow (1973) takes a less severe stance when he states that the theory building of this decade gave rise to much research and revision in the decades that followed.

During the 1960s and 1970s some career theories became more clearly established on the map, other theories appearing on it for the first time, as well as theories suffering a decline.

Among the latter was the trait-and-factor approach in its original formulation. Criticisms of the trait-and-factor approach persisted throughout the 1960s and focused largely on the atheoretical nature of this approach, as well as its inability to explain the process of career choice (Hackett, Lent, & Greenhaus, 1991). Despite attempts by some theorists to revise their theories and respond to valid criticisms (e.g. Roe & Klos, 1969), most found it difficult to operationalise their concepts. In addition, Osipow (1973) criticised these theories for the pathological perspective of career behaviour that they proposed.

Paradoxically, the decline in the trait-factor approach to career choice signalled strong growth in modifications of this approach. Dawis, England, and Lofquist (1964) and their associates developed a theory of work adjustment that was firmly based on the tenets of the trait-and-factor approach and that also attempted to address criticism which had been levelled against trait-and-factor's original formulations. Dawis and Lofquist (Dawis, Lofquist, & Weiss, 1968; Lofquist & Dawis, 1969) continued to develop their theory throughout the 1960s.

The most dominant career theorists throughout the 1960s and 1970s were John Holland and Donald Super. Hackett et al. (1991) state that Holland's (1973) theory emerged as "the most visible and highly researched theoretical perspective since 1971" (p. 9). Holland's theory described the career decision maker in terms of six personality (interest types) which are categorised as Realistic, Investigative, Artistic, Social, Enterprising and Conventional. These six types are "theoretical organizers for understanding how individuals differ in their personality, interests and behaviours" (Spokane, 1996, p. 40). Holland's theory was critiqued for not adequately addressing the career development needs of women and of racial, ethnic, and other groups. In addition, Zunker (1994) added that Holland's theory remains descriptive, with little emphasis on the developmental process that leads to career choice.

Research undertaken during these decades challenged various aspects of Holland's original formulations. Holland was criticised for not offering a comprehensive description of his theory, in general, and of his personality types, in particular. Holland (1973, 1985) responded by offering two revisions of his theory, although the criticism that he failed to explain the career developmental process over the lifespan satisfactorily remained inadequately addressed. While Holland's (1985) theory offered measurable constructs, his instrumentation has also been severely criticised mainly for its perceived gender bias (Betz, 1977).

Donald Super (1969, 1972) continued to develop and refine his career developmental approach throughout the 1960s and 1970s. During these decades, career theory was increasingly moving away from earlier conceptualisations of career choice as an event towards an emphasis on the process of choice itself. Super's contributions at this time challenged existing conceptualisations of career choice as a static, point-in-time event. His conceptualisation of career as a dynamic process moved career theory forward from its focus on understanding an individual's present career behaviour towards a more holistic time perspective in which the individual's past and future career behaviour were also taken into account. The growth in career developmental theory resulted in new career concepts such as career stages, developmental tasks and career maturity. Super's theory will be discussed in more detail later in the chapter.

Hackett et al. (1991) believe that the major theoretical development of the 1970s was the emergence of a social learning theory of career decision making. This theory (Krumboltz, Mitchell, & Jones, 1976; Mitchell, Jones, & Krumboltz, 1979) examines career decision making in terms of factors that impact on this process. Specifically, Krumboltz and his associates have identified the importance of the genetic factors with which an individual is

born, the environmental conditions in which an individual exists, and the learning experiences an individual has been exposed to.

Career theory: 1980 to late 1990s. The 1980s through to the late 1990s has seen the expansion and refinement of major career theories, such as those of Holland and Super, as well as the emergence of new theories. Much of the theoretical development over this time has focused on a broader, more holistic conceptualisation of career and career development. There has also been an increasing sensitivity towards the context (or environment) in which an individual's career development takes place.

During the 1980s career theories based on social learning and social cognitive theories expanded more. For instance, Hackett and Betz (1981) developed a theory of career self-efficacy in order to understand how beliefs about the self influence the career development of women. Social cognitive career theory (SCCT; Lent, Brown, & Hackett, 1996) is based on cognitive perspectives of career behaviour. It attempts to identify and conceptualise factors that influence the interaction between individuals and their environments (Watson & Stead, 2006). Lent et al. (1996) state that SCCT is closely related to the theoretical developments of both Krumboltz's social learning theory as well as Hackett and Betz's career self-efficacy theory.

Super's Life Span, Life Space Theory of Career Development

Donald E. Super's work spanning from 1953 to 1996 can be seen as one of the most prominent career development theories of the previous century. It is a well-respected theory that provides a basis for the understanding of the construct of career concerns as moderated by the various stages of development of an individuals' life. Seen as a segmented theory by many, it may nonetheless be regarded as one of the most inclusive theories describing the factors affecting an individual's career (Salomone, 1996). Developmental psychology was a major influence on Super's early work which emphasised life stages and vocational tasks

(Patton & McMahon, 2006). The other major influence was self-concept theory, referred to as the “keystone” (Super, 1990, p. 221) of Super’s theory. Super believed that the development of a vocational self-concept is a part of life stage development, and that occupational choice is an attempt to implement one’s vocational self-concept.

While Super’s work is most often associated with developmental theorists, his later work (Super, 1980, 1990, 1992) is actually far more comprehensive, and “brings together life-stage psychology and social role theory to convey a comprehensive picture of multiple-role careers, together with their determinants and interactions” (Super, Savickas, & Super, 1996, p. 126). Super’s major contributions to career development theory will be discussed as these will serve the purpose of setting the stage for the discussion on career construction theory which updates and advances Super’s theory.

Self. The concept of self is a major focus of Super’s theory because it is in self that the processing of the life-span, life-space information occurs. Super (1990) referred to the individual as the “socialised organiser of his or her experience” (p. 221). Super believed that the self and an individual’s role self-concepts are “the culminating products of the interaction of the person and the environment” (Super, 1992, p. 42). Super, Savickas and Super (1996) described the importance of conceptions of the self in relation to career choice and adjustment. Conceptions of self may be objective (vocational identity) or subjective (occupational self-concept). The acknowledgement of subjective processes in the career development process was a significant deviation from the trait and factor traditions of objective and quantifiable data (Patton & McMahon, 2006).

Vocational identity (sometimes described as occupational identity) refers to the combination of traits which apply to an individual and which may be observed by self or others and assessed through instruments such as interest inventories (Super, Savickas & Super, 1996). Descriptions generated by these means provide a point of comparison with

others in an objective way. While vocational identity is an objective concept, occupational self-concept refers to the personal meaning individuals ascribe to their traits, for example how particular traits have developed. Occupational self-concept develops over time as a result of interaction between a number of factors, such as aptitudes and the opportunity to see or perform certain roles (Patton & McMahon, 2006). Self-concept implementation describes the process of an individual choosing an occupation that matches their image of themselves. The satisfaction that individuals derive from work is related to the extent to which they are able to implement their self-concepts (Patton & McMahon, 2006).

Life-span and life-space. The terms ‘life-span’ and ‘life-space’ represent the content and process of career development. Life-span represents the process of career development throughout life and relates Super’s stages of career development to recognised life stages. Life-space represents the roles individuals play during their lives and takes into account the context of their life. Super (1980, 1990) depicted his life-span, life-space approach using diagrams of a ‘life-career rainbow’ and an ‘archway model’ both of which will be discussed later. In reviewing Super’s work, it is useful to examine his concepts of life-span and life-space in more detail.

Life-span. Super (1980, 1990, 1992) illustrates the concept of life-span using the diagram of a rainbow, termed the ‘life-career rainbow’. The outside of the rainbow, as shown in Figure 2, illustrates ages and stages of life. As depicted on the diagram, Super’s five vocational development stages termed Growth, Exploration, Establishment, Maintenance, and Decline correspond with the life stages of childhood, adolescence, adulthood, middle adulthood, and old age, and their approximate chronological ages. Each life-stage is named to reflect “the nature of its principal life-stage task” (Super, Savickas, & Super, 1996, p. 131). More recently, the term disengagement has been favoured over the term decline (Super,

1992; Super, Savickas & Super, 1996). Each of these developmental stages will now be discussed.

The Growth Stage is characterised by the exploration by children of the world around them. During this stage individuals attend school, develop work habits, gain more control over their lives and become future oriented (Super, Savickas, & Super, 1996). As a result, they may identify with role models, and they begin to develop interests and an awareness of their abilities. Fantasy and play help them develop concepts of themselves in adult roles (Patton & McMahon, 2006).

The Exploratory Stage is the developmental time when career choices are narrowed and individuals frequently have selected and embarked on training or education to prepare them for their chosen vocation. It is during this stage that a vocational identity develops. This stage involves three career development tasks. The first task during this stage is that of crystallisation, the cognitive process of forming a career goal on the basis of career information and awareness of traits such as interests and values. The next task, specification, involves the actual selection of a specific career. Implementation is the task that follows where individuals train for their selected vocation and begin employment.

The next stage is that of Establishment during which time the individual gains employment. The first task is to stabilise their position in the organisation through becoming familiar with its culture and performing satisfactorily (Super, Savickas, & Super, 1996). Once stabilised in an occupation, the next task for the individual is to consolidate his/her position. Some individuals may also choose the task of advancement or promotion and seeking higher levels of responsibility.

Maintenance, the fourth stage, is characterised by “preserving the place one has made in the world of work” (Super, 1992, p. 44). Prior to entering this stage, individuals may evaluate their occupation and may decide to change organisations or occupations. If this is

the case they then recycle through the stages of exploration and establishment, in other words a minicycle. Those who do not change enter the stage of maintenance. The tasks of this stage include holding on, keeping up and innovating (Patton & McMahon, 2006).

The final stage, Decline or Disengagement, is associated with planning for retirement, possible reduction of workload and eventual retirement. It is important to remember that Super saw the ages of transitions between stages as flexible and that individuals may recycle through stages. This he referred to it as minicycles (Super, 1990) which could occur as a result of a planned or unplanned change. For example, an individual who experiences disestablishment in a particular occupation may undergo new growth and become ready to change occupations. In this instance, the individual has reached the point of maintenance but now recycles through exploration in search of a new and different position (Zunker, 1994).

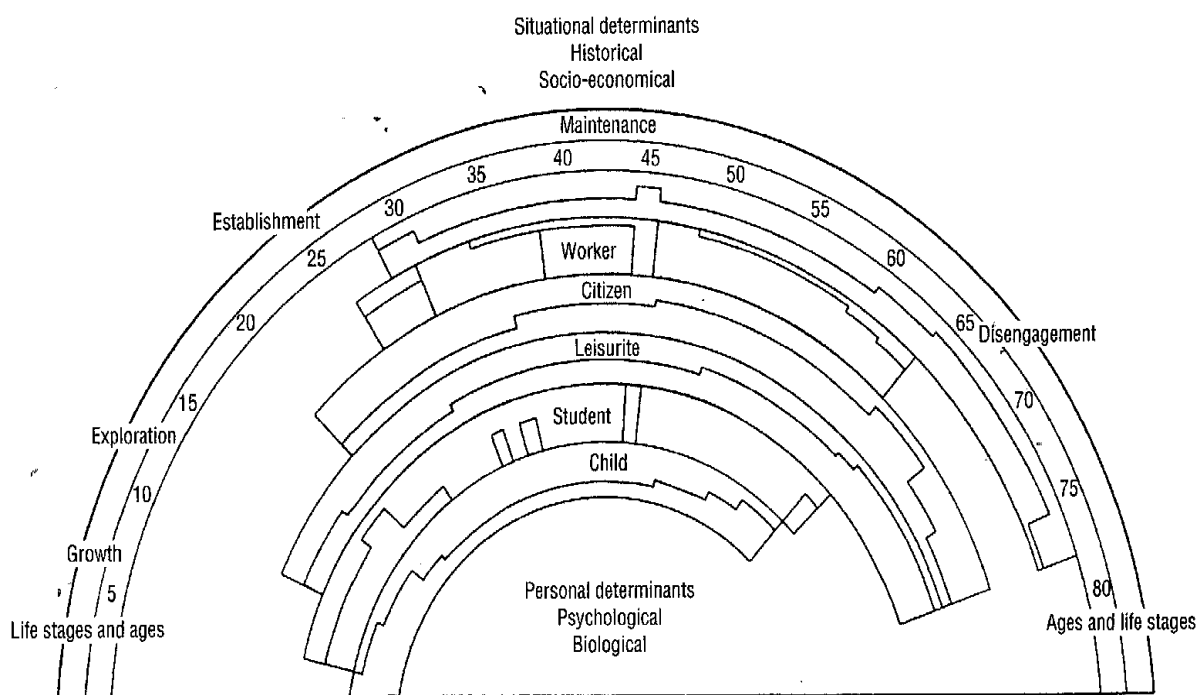


Figure 2 The Life Career Rainbow

Note. From D.E. Super, M.L. Savickas & C.M. Super. (1996). The life-span, life-space approach to career development. In D. Brown, L. Brooks, and Associates (Eds.), *Career choice and development* (3rd Ed., pp. 121-178). San Francisco, CA: Jossey-Bass.

Life-space. Super (1980) revised the ‘life-career rainbow’ which took the form of a segmental model of career development or better known as the “Archway Model” (Super, 1990, p. 201). This updated model set out to specifically acknowledge the multifaceted nature of career development and the contributions of many theorists.

The life-career rainbow (see Figure 3) presents a longitudinal dimension of the life span, referred to as a ‘maxicycle’ as well as corresponding major life stages, labelled ‘minicycles’. A second dimension added by Super is ‘life space’ or the roles played by individuals as they progress through developmental stages, such as child, student, leisurite, citizen, worker, spouse, homemaker, parent, and pensioner. These roles are experienced in the following theatres or contexts: home, community, school (college and university), and workplace. This conceptual model leads to some interesting observations: (1) because people are involved in several roles simultaneously within several theatres, success in one role facilitates success in another; and (2) all roles affect one another in the various theatres (Zunker, 1994).

Super played an instrumental role in setting vocational roles into the broader context of an individual’s life and, in doing so, emphasised the importance of role salience, a concept Super (1990) described as “the constellation of positions occupied and roles played by a person” (p. 218). Super believed that the life-career rainbow can be used to “focus on the concept and measurement of role salience” (p. 218) and that it demonstrates the importance of the major life roles to an individual as well as the relationship between the work role and other life roles. Life-role salience became the “pivotal construct” in Super’s theory (Savickas, 1997, p. 251) in that it allowed for roles other than the work role to be central in an individual’s life. The life roles regularly interact with each other. For example, conflict between roles could occur when a less satisfying role takes time away from a more satisfying role, or alternatively roles may compensate in that satisfaction not found in one role is provided in another.

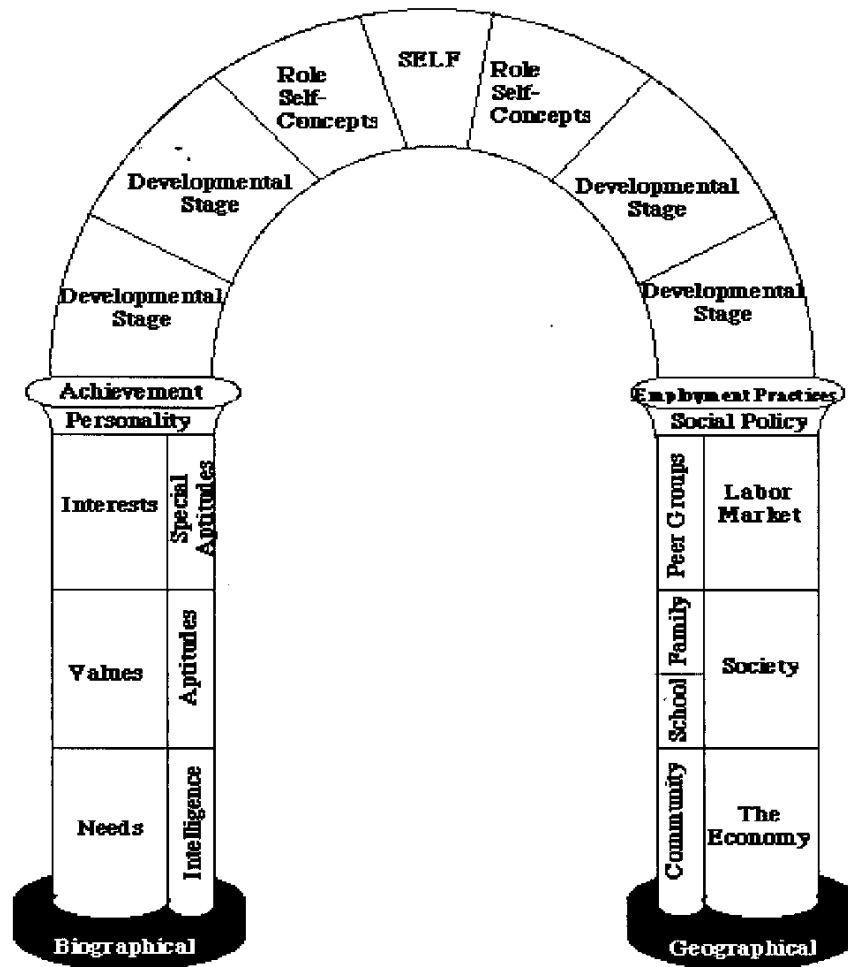


Figure 3 Archway of Career Determinants

Note. From D.E. Super. (1990). Archway of career determinants. In D.Brown and L.Brooks (Eds.), *Career choice and development* (2nd Ed.). San Francisco: Jossey-Bass.

In the archway model, Super (1990) introduced the concepts of 'personal determinants' and 'situational determinants' which are the range of factors which could impact on career decision-making. Personal determinants are represented on the left column of the archway and include personal factors such as interests, values, needs, intelligence, special aptitudes, and aptitudes. Situational determinants are represented on the right column of the archway and include contextual factors such as peer group, school, family, community, society, the

labour market, and the economy. Developmental stages and role self-concepts are also included on the archway model on each side of the keystone. The keystone of the archway is the individual self in whom all the variables are brought together.

Career maturity and adaptability. Super's concept of career maturity can also be considered a major contribution to career developmental theories (Zunker, 1994). As early as 1964 Super described the concept of career maturity as implying a planning orientation to occupational choice rather than a knowledge of career preferences, and he identified a need for an appropriate conceptualisation and measure of career maturity in later life stages. Later Super defined maturity as the ability to cope with career development tasks that confront an individual (Super, 1977). Super differentiated between career adjustment which is retrospective and indicates present success, and career maturity which is prospective, leading to desired results (Super, 1977).

Career or vocational maturity, a term used interchangeably by Super (1990), was defined by Super) as "the individual's readiness to cope with the developmental tasks with which he or she is confronted because of his or her biological and social developments and because of society's expectations of people who have reached that stage of development. The readiness is both affective and cognitive" (p. 213). In brief, Super described it as the "readiness to make career decisions" (Freeman, 1993, p. 261), suggesting that the attitudes of individuals and their knowledge of the world of work and of life stages may be used as measures of career maturity. Attitudes constitute the affective domain of career maturity and include "career planning, or planfulness; and career exploration, or curiosity" (Super, p. 213).

The five basic dimensions of career maturity are planfulness, exploration, information, decision-making and reality orientation. Planfulness and exploration are the attitudinal dimensions of career maturity, whereas knowledge about careers and decision-making are cognitive dimensions (Savickas, 1997). Although these dimensions do not change in

adulthood, the content and related tasks of each of these differ for adults. Adults, for instance, explore different information than adolescents (Super, 1977). Adolescents should have more diversified knowledge and information of different careers as one component of vocational maturity. For adults, though, 'vocational maturity' involves knowledge of information only within their given field (Super, 1977; Super & Kidd, 1979). The type of career information required is dependent on the chosen occupational field, the individual's life stage, subculture and work role salience (Super & Kidd).

Following from the above, the vocationally mature adult could be described as someone who:

1. has completed the tasks of the exploration stage, and who is performing the task of a current stage, whether such tasks are those of establishment, maintenance or decline;
2. is exploring career information regarding his or her situation, and is aware of or values and uses his or her resources;
3. has sufficient information about the different life stages and tasks with proper coping behaviours and opportunities;
4. understands and applies constructive decision-making principles; and
5. displays accurate reality orientation in terms of self-knowledge, consistent occupational preferences, clear and certain vocational self-concepts, and career goals that are appropriate to work experience (Super & Kidd, 1979).

Since one of the cognitive components of career maturity, specifically decision-making ability, may remain unchanged in adulthood, and since the attitudes required for coping with the various developmental tasks may also remain unchanged, Super (1981) regarded the career maturity construct as inappropriate for adults. Super (1983) preferred the term career adaptability for adults. This term still maintains the five basic components of career maturity. Career adaptability is defined as the ability to cope with changing work and working

conditions (Super, Thomson, & Lindeman, 1988) or to successfully complete the appropriate career development tasks (Super et al., 1992). Adaptability is subject to the reciprocal impact of individuals and their environments, as seen in the processes of assimilation and accommodation (Niles, Anderson, & Goodnough, 1998).

The construct of career maturity denotes the fact that adolescents could peak at a level of maturity, as displayed in their career-related competencies and attitudes (Lew, 2003). The construct of career adaptability, on the other hand, implies an ability that may either improve or deteriorate during the life span (Super et al., 1992). In other words, an adolescent may become progressively more mature in terms of careers, whereas an adult may, due to psychosocial circumstances, be less or more adaptable during different stages in their careers. Adult career development may initially progress but then begin to fluctuate and eventually decline (Super et al., 1988). According to Super et al. (1988), the adult career is characterised not only by the entry into, training for and working in an occupation, but related also to the setbacks faced whilst working and the adaptability required to cope with changing world circumstances.

Adaptability, along with learning and decision-making, is seen as the linking construct for integrating the various segments of Super's theory from a functionalist point of view. It relates to all four perspectives in Super's theory, namely the roles of individual differences, career development, the self-concept and the social, historical and social contexts of career-related behaviour and attitudes. Savickas (1997) emphasised the importance of the model of adaptability and proposed that career adaptability replace career maturity as the central construct in career development theory.

Career Construction Theory

More recently Savickas (2001, 2002, 2005) has updated and advanced Super's (1957) theory on career development by developing a theory of career construction. This theory incorporates Super's innovative ideas into a contemporary vision of careers by using social constructionism as a metatheory within which to conceptualise the central concepts of career development theory (Hartung, 2007). Indeed Savickas' theory, first proposed in 2001, could be regarded as the first theory of career development proposed in the 21st century. Savickas' work reflects both the need for career theory to update in order to remain relevant in the 21st century, as well as the influence of the constructivist worldview (Patton & McMahon, 2006).

The premise of career construction theory is that career denotes a reflection on the course of one's career behaviour, not career behaviour itself. This reflection can focus on actual events such as one's occupation (objective career) or on their meaning (subjective career). From this perspective, a subjective career is a reflexive project that transforms individuals from actors of their career to subjects in their own career story (Savickas, 2002).

Career construction theory seeks to retain and renovate the best concepts and research from 20th century career models for use in the 21st century world of work. Savickas (2005) states that instead of measuring personality traits as realist concepts and trying to prove construct validity, the theory concentrates on how individuals use what they have. In replacing scores with stories, career construction theory focuses on how individuals use their vocational personality to adapt to a sequence of job changes while remaining faithful to themselves and recognisable to others. The theory does this by focusing on the meaning that structures an individual's career as it plays out across the ten or more different jobs that a worker today can expect to occupy during her or his working life.

Career construction theory addresses how the career world is made through personal constructivism and social constructionism. It asserts that we construct representations of

reality, but we do not construct reality itself. Furthermore, the theory views careers from a contextualist perspective, one that sees development as driven by adaptation to an environment rather than by maturation of inner structures. Viewing careers from a constructionist and contextual perspective focuses attention on interpretive processes, social interaction, and the negotiation of meaning. Careers do not unfold - they are constructed as individuals make choices that express their self-concepts and substantiate their goals in the social reality of work roles (Savickas, 2002).

According to career construction theory, individuals construct their careers by imposing meaning on their vocational behaviour and occupational experiences. Whereas the objective definition of career denotes the sequence of positions occupied by a person from school through retirement, the subjective definition used in career construction theory is not the sum of work experience but rather the patterning of these experiences into a cohesive whole that produces a meaningful story. In telling career stories about their work experiences, individuals selectively highlight particular experiences to produce a narrative truth by which they live. Counsellors who use career construction theory listen to clients' narratives for the story lines of vocational personality type, career adaptability, and life theme (McMahon, 2006).

Career construction theory updates and advances the life-span, life-space approach offered by Super (1957; 1990). It accomplishes this by attending to four fundamental dimensions of career behaviour and its development: (1) Life structure, which comprises the constellation of work and other roles that configure a person's life; (2) career adaptability strategies, which entail the coping mechanisms individuals use to deal with developmental tasks and environmental changes that accrue over their life source; (3) thematic life stories, which encompass the motivation, drives and strivings that pattern a life; and (4) personality style, which constitutes the abilities, needs, values, interests and other traits that characterise

a person's self-concept (Hartung, 2007). The four dimensions of career construction theory will be discussed in more depth in the sections below.

Life structure. Super (1990) recognised that while making a living through work, people live a life within a constellation of roles played out in various cultural domains or 'theatres'. Building on this idea, career construction theory designates social roles as one cornerstone for comprehending vocational behaviour and its meaning to the individual. The theory thereby reinterprets career choice and development to conceptualise work as situated within a web of social roles that individuals enact and that form the basis of the human life structure (Richardson, 1993; Super & Sverko, 1995). This view moves career practice from a psychological model to a psychosocial model (Hartung, 2007).

Rather than giving priority to the work role, career construction theory attends to the relative importance that individuals ascribe to roles in family, play and leisure, school, work, community and other domains over the life span. Prevailing cultural value orientations, the changing nature of work, the growing diversity of society, a global economy and market place, and occupational and other barriers influence individuals' levels of role salience and role viability (Richardson, 1993).

People differ about which roles are most important and worthwhile for them in terms of the extent to which they behaviourally participate, emotionally invest, and anticipate realising core values in roles. Personal, structural and cultural factors, such as gender expectations, social class, discrimination, personal choice and family expectations influence role commitment and role participation (Cook, 1994; Fitzgerald & Betz, 1994). Shifting the prevailing view of life roles as competing and contentious to viewing activities in these domains as complementary and convergent characterises the life structure component of career construction theory. The theory recognises that cultural forces shape how individuals

comprehend and experience work relative to the manifold contexts of human development (Hartung, 2007).

Vocational personality. Career construction theory considers personality development and the utility of person-environment psychology as a cornerstone of the theory (Hartung, 2007). By attending to individual differences in vocational traits, career construction theory seeks to improve practice in augmenting, not replacing, person-environment fit theories (Parsons, 1909) that match people to occupations. While career construction theory reconceptualises some aspects of these foundational formulations about vocational personality types and work adjustment, it concentrates instead on the implementation of vocational self-concepts, thus providing a subjective, private and idiographic perspective for comprehending careers to augment the objective, public, and nomothetic perspective for understanding careers (Savickas, 2005).

Vocational personality is defined as an individual's career-related abilities, needs, values, and interests (Savickas, 2006). Before these characteristics are expressed in occupations, they are rehearsed in activities such as household chores, games, hobbies, reading, and studying. The range of personality dispositions, particularly as they relate to work roles, is well described by Holland's (1997) taxonomy. Holland's RIASEC (Realistic, Investigative, Artistic, Social, Enterprising and Conventional) model, composed of trait complexes organised into types, offers a useful approach for appraising individual differences and for describing occupational groups. The objective perspective of types and traits does not recognise, however, the significance of subjective experience nor seek to understand behaviour from the individual's own point of view (Savickas, 2005).

Career construction theory underlines Holland's (1997) explanation that his inventories indicate a degree of *resemblance* to prototypes. In career construction theory, these interest types simply bear a resemblance to socially constructed clusters of attitudes and skills – they

have no reality or truth value outside of themselves. The RIASEC hexagon reflects regulated similarities in environments that produce personality patterns of six types among individuals with heterogeneous potentials. Thus, career construction theory views interests as a relational phenomenon that reflects emergent and socially constituted meanings and leads to a person's reputation among a group of people (Hogan & Holland, 2003). Moreover, interests are viewed as dynamic processes, not as stable traits (Savickas, 2005).

Accepting the pre-eminence of Holland's typology enables career construction theory to concentrate on bridges between personality and work, especially how individuals build and cross their own bridges. Thus, career construction theory concentrates on self-extensions, not on the self-organisation reflected in career personality types, nor on the social organisation of occupations. Accordingly, the life theme and self-concept perspectives of career construction theory complement the objective perspective by eliciting and interpreting clients' subjective conceptions of themselves and their world. These personal ideas and feelings about self, work, and life reveal purpose – and purpose rather than traits composes the life themes that control behaviour, explain behavioural continuity, sustain identity coherence, and foresee future action (Hartung, 2007).

From the perspective of the theory, the family of origin shapes personality, which the individual subsequently develops in society by participating in roles situated primarily within the contexts of the school and the community. Individuals practice and hone these traits and shape their personality by engaging in common culturally-scripted and family-reinforced activities of childhood and adolescence. As personality style consolidates, individuals express their self-concepts in the work role through the occupations that they enter. This process of self-concept implementation begins, typically, in adolescence with an initial exploration of the world of work through part-time jobs. Some occupations, certainly, will allow individuals to express their personalities and implement their self-concepts more fully

than will other occupations, depending on the degree of fit or congruence, between vocational personality style and work environment (Holland, 1997).

Vocational personality ‘traits’ that the individual develops, in the form of interests and other characteristics, represent adaptive coping strategies (Savickas, 2002). These coping strategies are active rather than passive in nature. Career construction theory consequently views interests and other traits as dynamic, fluid and subjectively experienced possibilities for adaptation to the social world rather than stable, static and objectively tangible entities (Hartung, 2007).

Life themes. Csikszentmihalyi and Beattie (1979) offered the following definition of a life theme: “A life theme consists of a problem or a set of problems which a person wishes to solve above everything else and the means the person finds to achieve a solution” (p. 48). The life theme component of career construction theory emerged from Super’s (1951) postulate that, in expressing career preferences, individuals put into occupational terminology their ideas of the kinds of people they are. In entering an occupation, individuals seek to implement a concept of themselves and, after stabilising in an occupation, they seek to realise their potential and preserve self-esteem. This core postulate leads to the conceptualisation of occupational choice as implementing a self-concept, work as a manifestation of selfhood, and career development as a continuing process of improving the match between the self and situation. From this perspective of the self, work provides a context for human development and an important location in each individual’s life (Richardson, 1993).

Most individuals, regardless of their social-economic status find opportunities in work to both express themselves and to matter to their community (Savickas, 2006). However, rather than choose among attractive options, some individuals may have to take the only occupation that is available to them, often an occupation that grinds on the human spirit because its tasks are difficult, tedious, and exhausting. Nevertheless, the work they do can be meaningful to

them and matter to their community. Savickas's (2005) own experience with clients from diverse cultures resulted in him stating that career construction theory can be used to help most individuals create deeper meaning and broader mattering in their daily work as well as assist them to find better ways to implement their self-concepts and advance their life projects despite painful pasts and social barriers to career adaptation.

The narrative component of career construction theory addresses the subject matter of work life and focuses on the *why* of vocational behaviour. Career stories reveal the themes that individuals use to make meaningful choices and adjust to work roles. By dealing with the *why* of a career, along with the *what* and *how*, career construction seeks to be comprehensive in its purview. Although the content and process of careers are both important, studying vocational personality and career adaptability as separate variables misses the dynamics of the open system that cuts across self-organisation (i.e., personality) and self-extension (i.e., adaptability) to integrate them into a self-defined whole (Savickas, 2006). The essential meaning of career and the dynamics of its construction are revealed in self-defining stories about the tasks, transitions, and traumas an individual has faced. The stories guide adaptation by evaluating opportunities and constraints as well as by using vocational personality traits to address developmental tasks, occupational transitions, and personal traumas. In telling their stories, clients are constructing a possible future. Clients seem to tell counsellors the stories that they themselves need to hear because, from all their available stories, they narrate those stories that support current goals and inspire action (McMahon, 2007).

Unlike the RIASEC types and adaptability dimensions, career stories fully contextualise the self in time, place, and role. Career stories express the uniqueness of an individual in her or his particular context. Furthermore, the separate career stories told by an individual are unified by integrative themes that arrange the discrete experiences of work life into a plot.

By consciously organising and binding together these discrete experiences, a unifying life theme patterns lived experience with a meaningful coherence and long-term continuity. That pattern becomes a fundamental and essential way of existing because it provides a way for individuals to see themselves and what is important in the world. Thus, in career construction theory, pattern is the primary unit of meaning (Savickas, 2005).

Career adaptability. Savickas (2006) refers to adaptability as the attitudes, competencies and behaviours that individuals use in fitting themselves to work that suits them. While vocational personality types emphasise the occupational content of career, adaptability emphasises the coping processes through which individuals connect to their communities and construct their careers. Career adaptability deals with *how* an individual constructs a career whereas vocational personality deals with *what* career they construct (Savickas, 2009).

Career construction theory conceptualises development as driven by adaptation to an environment rather than by maturation of inner structures. Accordingly, career adaptability differs from Super's (1955) earlier conception of career maturity, which refers to an individual's degree of career development relative to an individual's peers. Super's view of development assumed that individuals move in an orderly and normative sequence toward a desirable end state of maturation and, in that process, they become more complete as they unfold and elaborate their latent potentials. An individual's career maturity can be operationally defined by comparing the developmental tasks being encountered to those that society expects an individual to be encountering at a particular stage of life. This view was more useful when society provided stable and orderly environments that fostered some uniformity in development. However, today's turbulent society is unable to prompt orderly development, thus forcing individuals to respond to a wide range of external influences that can push development in various directions (Collin, 1997).

In the past thirty years, adaptability has often been mentioned in the career literature – thus the concept is not new. Yet, the definition of adaptability has varied. Originally, the term *adaptability* mostly referred to the transitions that people have to make between different career stages or the balance that individuals seek between their work and their personal environment (Goodman, 1994). Savickas (1997) defined career adaptability as “the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and work conditions” (Savickas, 1997, p. 254). The second part of this definition reflects, in particular, the continual need to respond to novel situation, whereas the first part refers to the traditional concept of career maturity (Van Vianen, De Pater, & Preenen, 2009).

Furthermore, career adaptation involves adjusting to work changes that include mastering career development tasks, dealing with occupational traumas, and negotiating occupational transitions. Career construction theory views adaptation to these tasks, trauma, and transitions as fostered by five principle types of coping behaviours: orientation, exploration, establishment, management and disengagement. These constructive activities form a cycle of adapting that is periodically repeated as new transitions appear on the horizon. As each transition approaches, individuals can adapt more effectively if they meet the change with growing awareness, information-seeking followed by informed decision-making, trial behaviours leading to a stable commitment projected forward for a certain time period, active role management, and eventually forward-looking disengagement (Savickas, 2008). Career adaptability is viewed as a psychosocial process of self-regulation in response to the need to adapt to disequilibrium occasioned by developmental tasks, occupational trauma and career transitions. Individuals shape their own development through self-regulation which is setting and pursuing goals relative to dealing with changes in the work role and restoring equilibrium (Savickas).

Savickas (2008) coined the term ‘adapt-abilities’ which refers to the resources that shape adapting behaviours (the doing) which produce adaptation (solving the problems, improved fit) that leads to adaptation outcomes such as development, success, satisfaction, and stability. Viewing career construction as a series of attempts to implement a self-concept focuses attention on the sequence of matching decisions. Accordingly, career construction theory focuses on neither the person nor the environment as in the famous person-environment formula. Instead, it focuses on the dash (-) of that symbol, asserting that building a career is a psychosocial activity, one that synthesises self and society. More accurately, the theory focuses not on a dash, but on the series of dashes that build a career. With a changing self (P) and changing situations (E), the matching process is never really completed. The series of changing preferences should progress, through successive approximations, toward a better fit between worker (P) and work (E). The overriding goal towards which career adaptation moves is a situation in which the occupational role substantiates and validates the individual’s self-concept (Savickas, 2005).

Dimensions of career adaptability. Four dimensions form part of career adaptability, each named according to its function: concern, control, curiosity, and confidence (Savickas, 2002). These four dimensions represent general adaptive resources and strategies that individuals use to manage critical tasks, transitions, and traumas as they construct their careers. At the intermediate level, the model articulates a distinct set of functionally homogenous variables for each of the four general dimensions. Each set of intermediate variables includes the specific attitudes, beliefs, and competencies – the ABCs of career construction – which shape the concrete coping behaviours used to master developmental tasks, negotiate occupational transitions, and resolve personal traumas. Savickas (2008) conceptualized adaptive individuals as:

1. Becoming *concerned* about their future as a worker.
2. Increasing personal *control* over their vocational future.
3. Displaying *curiosity* by exploring possible selves and future scenarios, and
4. Strengthening the *confidence* to pursue their aspirations.

Table 1 illustrates the dimensions of career adaptability. The first column indicates the career questions that individuals need to ask themselves. The second column lists the career problems arising from negative responses to the questions. The third column lists the adaptability dimension associated with positive responses to the questions. The following columns list the dispositions, competencies, coping behaviours, and relationship orientations that compose each dimension. The final column lists the primary type of career intervention that addresses each career problem and attempts to turn it into an adaptive strength.

Table 1

Career Adaptability Dimensions

Career Question	Career Problem	Adaptability Dimension	Attitudes and Beliefs	Competence	Coping Behaviours	Relationship Perspective	Career Intervention
Do I have a future?	Indifference	Concern	Planful	Planning	Aware Involved Preparatory	Dependent	Orientation Exercises
Who owns my future?	Indecision	Control	Decisive	Decision making	Assertive Disciplined Willful	Independent	Decisional training
What do I want to do with my future?	Unrealism	Curiosity	Inquisitive	Exploring	Experimenting Risk-taking Inquiring	Interdependent	Information seeking activities
Can I do it?	Inhibition	Confidence	Efficacious	Problem solving	Persistent Striving Industrious	Equal	Self-esteem building

Note. From M.L.Savickas. (2005). The theory and practice of career construction. In S.D. Brown and R.W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42-70). Hoboken, NJ: John Wiley.

The four dimensions of career adaptability, i.e., career concern, control, curiosity and confidence, will each be discussed in more detail in the subsections below.

Career Concern. An individual's concern about his or her own vocational future is the first and most important dimension of career adaptability. The fundamental function of career concern in constructing careers is reflected by the prime place given to it by prominent theories of career development, denoted by names such as Ginzberg's 'time perspective', Super's 'planfulness', Tiedeman's 'anticipation', Crites' 'orientation', and Harren's 'awareness' (Savickas, Silling, & Schwartz, 1984). Career concern essentially means to be orientated towards the future, in other words, it is important to prepare for tomorrow. Attitudes of planfulness and optimism foster a sense of concern because they dispose individuals to become aware of the career tasks and transitions to be faced and the choices to be made in the imminent and distant future. Career concern makes the future feel real as it helps an individual remember the past, consider the present, and anticipate the future career (Savickas, 2008).

Career construction is fostered by the individual first realising that his or her present career situation evolved from past experiences and then connecting these experiences through the present situation to a preferred future. A belief in the continuity of experience allows individuals to connect their present activities to their occupational aspirations and visions of possible selves. This sense of continuity allows individuals to envision how today's effort builds tomorrow's success. Planful attitudes and a belief in continuity incline individuals to engage in activities and experiences that promote competencies in planning, which include the skill of sequencing their activities along a time line that spans from the present situation to a desired future (Savickas, 2005).

A lack of career concern is called 'career indifference' and it reflects an absence of planning and pessimism about the future. This apathy can be addressed by career interventions designed to foster a forward-looking orientation and an awareness of the career development tasks and transitions on the horizon (Savickas, 2010).

Career control. Control over an individual's own career future is the second most important dimension in career adaptability. The fundamental function of control in constructing careers is reflected by the vast amount of research on topics such as decision making, assertiveness, locus of control, autonomy, self-determination, effort attributions, and agency (Blustein & Flum, 1999), as well as the widespread advice to younger workers in a knowledge-based society and mobile labour market that they act as “free agents”, “independent contractors”, and “me incorporated” (Savickas, 2005, p. 54).

Career control means that individuals feel and believe that they are responsible for constructing their careers (McIlveen, 2008). Individuals may consult with significant others while constructing their careers, but they still own their career. Individuals display attitudes of assertiveness and decisiveness while engaging in career development tasks and negotiating career transitions, instead of procrastinating and avoiding them. The belief that individuals own their own future and should construct it instead of leaving it to chance, leads individuals to realise that they are responsible for their own lives, whether they view themselves from a collectivist perspective or an individualist perspective (Hughes & Thomas, 2005; Leong & Hartung, 2000). Although the range of options in a collectivist context may be narrower, the alternatives still must be explored to avoid losing the ‘I’ in the ‘they’. Savickas (2005) states that individuals who encounter a narrower range of options exercise career control by exploring the limited number of possibilities to make them personally meaningful and by fine-tuning conferred choices to enact them uniquely.

A lack of career control is often called ‘career indecision’. Career interventions designed to foster decisive attitudes and decisional competencies can help individuals to choose. Career counselling interventions, in general, help individuals to enhance the ability to decide by clarifying their choices and what is at stake (Savickas, 2010).

Career curiosity. This dimension refers to inquisitiveness about occupational information and, moreover, learning how one goes about integrating into the world-of-work (McIlveen, 2008). The fundamental function of curiosity in constructing careers is reflected by the extensive coverage given to it by prominent theories of career development under the rubrics of exploration and information-seeking behaviour as well as in their direct products, namely self knowledge and occupational information (Savickas, 2008).

Curiosity produces a fund of knowledge with which to make choices that fit self to situation. Systematic exploration and reflection on random exploratory experiences move individuals from naive to knowledgeable as they learn how the world works. Belief in the value of being open to new experience and experimenting with possible selves and various roles prompts individuals to try new things and to have adventures. Attitudes and dispositions that favour exploration and openness lead to experiences that increase competence in both self-knowledge and career information. Individuals who have explored the world beyond their own neighbourhoods have more knowledge about their abilities, interests, and values as well as about the requirements, routines, and rewards of various careers. This broader fund of information brings realism and objectivity to subsequent choices that will match self to situations (Savickas, 2005).

A lack of career curiosity can lead to naiveté about the work world and inaccurate images of the self. This lack of realism can be addressed by career interventions designed to provide information. Career counselling interventions in general, especially those involving test interpretation and career information, help people learn about themselves and the work world. Career unrealism is addressed by interventions such as clarifying values, discussing extrinsic versus intrinsic rewards, engaging in job simulations, shadowing workers, practicing goal setting, learning how to explore, reading career pamphlets, working part-time, and volunteering at community institutions (Savickas, 2005).

Career confidence. The fourth dimension of career adaptability is confidence. Self-confidence denotes the anticipation of success in encountering challenges and overcoming obstacles (Rosenberg, 1989). Career choices require solving complex problems. It takes confidence to do what is required to master these problems. The fundamental role of confidence in constructing careers is reflected in the extensive scholarship on self-esteem, self-efficacy, and encouragement in theories of career development. In career construction theory, career confidence deals with acquiring a problem-solving ability and self-efficacy beliefs to successfully execute a course of action needed to make and implement suitable educational and career choices (Hartung, Porfeli, & Vondracek, 2008). Career confidence, according to Savickas (2005), arises from solving problems encountered in daily activities such as household chores, schoolwork, and hobbies. Moreover, recognising that a person can be useful and productive at these tasks increases feelings of self-acceptance and self-worth. Broader exploratory experiences reinforce the confidence to try more things.

A lack of career confidence can result in career inhibition, self-consciousness, and timidity in approaching the future. The relationship dimension of the career counselling process builds self-confidence. A working alliance with a counsellor enhances the client's self-acceptance and self-regard (Hartung, Porfeli, & Vondracek, 2008). Career inhibition is addressed by interventions designed to increase feelings of confidence (Dinkmeyer & Dreikurs, 1963) and self-efficacy (Betz & Schifano, 2000) through role modelling, success acknowledgement, encouragement, anxiety reduction, and problem-solving training.

In theory, adolescents should approach the tasks of the exploration stage with a concern for the future, a sense of control over it, the curiosity to experiment with possible selves and explore social opportunities, and the confidence to engage in designing their career future and executing plans to make it real. In reality, development along the four dimensions of adaptability progresses at different rates, with possible fixations and regressions. Delays

within or disequilibrium among the four developmental lines produces problems in crystallising career preferences and specifying career choices, problems that career counsellors identify as indifference, indecision, unrealism, and inhibition. Comparing development among the four dimensions is a useful way to assess career adaptability and to understand the antecedents of career decision-making difficulties and work adjustment problems. More importantly, it provides a counselling plan with specific goals and associated strategies (Savickas, 2005).

Career construction theory propositions. The ten propositions in Super's original (1953) statement of career development theory have been repeatedly modified for clarity over time and expanded to incorporate new research (Bell, Super, & Dunn, 1988; Super & Bachrach, 1957; Super, 1981, 1984, 1990; Super, Savickas, & Super, 1996). The developmental theory of constructing careers is an expanded version of Super's theory of career development. Savickas (2002) updated Super's suggestion that "self-concept theory might better be called personal construct theory" (Super, 1984, p. 207). Savickas (2002) conserved that "career construction theory adheres to the epistemological constructivism that says we construct representations of reality but diverges from the ontologic constructivism that says we construct reality itself" (p. 154).

A second important update of Super's propositions is the switch from an organismic worldview to a contextualist worldview – one more attuned to conceptualising development as driven by adaptation to an environment than by maturation of inner structures. Careers do not unfold, they are constructed. Viewing careers from a constructivist and contextual perspective has prompted several innovations, the most noticeable being the replacement of the maintenance stage in career development theory with the management stage in career construction theory (Savickas, 2002).

The three components of vocational personality, career adaptability, and life themes structure the 16 propositions (Savickas 2005, p. 45-46) that appear below. These propositions express the current statement of career construction theory, one that incorporates, revises, and expands Super's initial (Super, 1953), definitive (Super, 1984), and final (Super, 1990) statements of his career development theory. Savickas's propositions are enumerated in the following text:

1. A society and its institutions structure an individual's life course through social roles.
The life structure of an individual, shaped by social processes, consists of core and peripheral roles. Balance among core roles such as work and family promotes stability whereas imbalances produce strain.
2. Occupations provide a core role and a focus for personality organisation for most men and women, although for some individuals this focus is peripheral, incidental, or even non-existent. Then other life roles such as student, parent, homemaker, leisurite, and citizen may be at the core. Personal preferences for life roles are deeply grounded in the social practices that engage individuals and locate them in unequal social positions.
3. An individual's career pattern is determined by the parents' socioeconomic level and the person's education, abilities, personality traits, self-concepts, and career adaptability in transaction with the opportunities presented by society.
4. People differ in career characteristics such as ability, personality traits, and self-concepts.
5. Each career requires a different pattern of characteristics, with tolerances wide enough to allow some variety of individuals in each career.
6. People are qualified for a variety of careers because of their personal characteristics and career requirements.
7. Career outlets depend on the extent to which individuals find in their work roles adequate outlets for their prominent career characteristics.

8. The degree of satisfaction people attain from work is proportional to the degree to which they are able to implement their career self-concepts. Job satisfaction depends on establishment in a type of career, a work situation, and a way of life in which people can play the types of roles that growth and exploratory experiences have led them to consider congenial and appropriate.
9. The process of career construction is essentially that of developing and implementing career self-concepts in work roles. Self-concepts develop through the interaction of inherited aptitudes, physical make-up, opportunities to observe and play various roles, and evaluations of the extent to which the results of role playing meet with the approval of peers and supervisors. Implementation of career self-concepts in work roles involves a synthesis and compromise between individual and social factors. It evolves from role playing and learning from feedback, whether the role is played in fantasy, in the counselling interview, or in real-life activities such as hobbies, classes, clubs, part-time work, and entry jobs.
10. Although career self-concepts become increasingly stable from late adolescence forward, providing some continuity in choice and adjustment, self-concepts and career preferences do change with time and experience as the situations in which people live and work change.
11. The process of career change may be characterised by a maxicycle of career stages characterised as progressing through periods of growth, exploration, establishment, management, and disengagement. The five stages are subdivided into periods marked by career development tasks that individuals experience as social expectations.
12. A minicycle of growth, exploration, establishment, management, and disengagement occurs during transitions from one career stage to the next as well as each time an

individual's career is destabilised by socioeconomic and personal events such as illness and injury, plant closings and company layoffs, and job redesign and automation.

13. Career maturity is a psychological construct that denotes an individual's degree of career development along the continuum of career stages from growth through disengagement. From a societal perspective, an individual's career maturity can be operationally defined by comparing the developmental tasks being encountered to those expected based on chronological age.
14. Career adaptability is a psychosocial construct that denotes an individual's readiness and resources for coping with current and anticipated tasks of career development. The adaptive fitness of attitudes, beliefs, and competencies – the ABCs of career construction – increases along the developmental lines of concern, control, conception, and confidence.
15. Career construction is prompted by career developmental tasks, career transitions, and personal traumas and then produced by responses to these life changes.
16. Career construction, at any given stage, can be fostered by conversations that explain career developmental tasks and career transitions, exercises that strengthen adaptive fitness, and activities that clarify and validate vocational self-concepts.

Refocusing the goals of career intervention. According to McCash (2008, p. 6), exploration and research about careers should empower clients by helping them to focus on “life purposes and meanings and the more prosaic matters of achieving these ends.” Career construction theory proposes both a way of thinking about building a career and designing a life. The theory emphasises the portraits, narratability, and biographicity of individuals' lives as they make their lives and worlds through stories (Savickas, 2009). Patton (2007) highlights the relationship between client and counsellor as the core component of constructivist career counselling, wherein counselling entails a meaning-making process

through which the client creates his or her life with the assistance of a co-creator – the counsellor (Bujold, 2004; Collin & Young, 1986; Peavy, 2000; Reid, 2006).

While adolescents have internalised influences from their parents and incorporated identity fragments from their role models, students and emerging adults must assemble these micro-narratives into a macro-narrative with some degree of unity, purpose, and continuity. In short, students must create an autobiography that both expresses their personal truths and transports them into the future (Savickas, 2009).

Furthermore, Savickas (2009) suggests that if students define themselves and their worlds through stories, some portion of a career education (career guidance) curriculum should stimulate their story telling. It should prompt students to elaborate, refine and validate their stories; extend these stories into the future and populate the stories with details and particulars that make both them and their stories more realistic. Erikson (1968) explained that students must confront the crisis of identity formation versus role confusion with efforts to integrate their inner experiences and outer world into a meaningful psychosocial niche. McMahon (2007) states that clients come to career counsellors wanting something more than what their current life stories can offer them. Clients come in the hope of gaining new stories, revised stories, stories of hope and possibility, and stories invested in new meaning

The career counsellor should assist students to elicit stories of self-making, preferred work theatres and career scripts and encourage students to assemble these micro-narratives into a life portrait, that is a higher-level macro-narrative that incorporates all the partial stories (Savickas, 2009). The goal is to articulate and elaborate a narrative thread in the scramble of students' experiences and thereby reduce that complexity to something that students can begin to understand.

As students compose a life portrait, they may then lift it up for contemplation and reflection as they plan career scenarios and outline intended courses of action. Students

should indicate in their scenarios how they will use the affordances of academic curricula and university experiences to build a career and design a life. The scenario must concretely state how they intend to make educational/career choices and formulate tentative commitments. Whether achieved orally in transformational dialogues or in life-writing exercises, the goal is the same – to contribute to a process of career guidance that prompts further self-making, career building, and life design (Savickas, 2009).

Developing a life-design intervention model and methods requires a fundamental shift in paradigm. The new paradigm for counselling must produce specific knowledge and skills to analyse and cope with ecological contexts, complex dynamics, non-linear causalities, multiple subjective realities and dynamic modelling (Savickas et al., 2009). The task then for career counsellors is to assist individuals to re-author new and preferred stories for their lives and relationships (Morgan, 2000) that are more satisfying, empowering and filled with hope and to facilitate experience of these new stories (Combs & Freedman, 1994). Savickas et al. (2009) identified five shifts in thinking necessary to develop a new paradigm for life designing and building in the 21st century:

1. From traits and states to context

During the 20th century research and psychologists focused on stable personality traits and ability factors to characterise a person as well as an occupation. Person and career profiles were used to diagnose the best ‘person-environment-fit’ and prescribed to clients (Holland, 1973). Counsellors often used measures and normative profiles. However, these methods are insufficient to describe clients as living entities who interact with and adapt to their manifold contexts. Professional identities should be seen as changing patterns derived from client stories rather than as static, abstract, and oversimplified profiles of client test scores (Savickas et al., 2009).

2. From prescription to process

Career counsellors have to face the fact that information about traditional career paths becomes more and more questionable and hazardous. The second shift in career models and counselling methods is to focus on strategies for survival and the dynamics of coping, rather than adding information or content. Counsellors need to discuss with clients 'how to do' not 'what to do'.

3. From linear causality to non-linear dynamics

Traditional scientific reasoning is linear and deductive. It may be very useful and efficient to apply a general law (i.e., all human beings must die) to a single case (i.e., X is a human being) and deduce a foreseeable consequence (i.e., therefore X will die). By similar reasoning many traditional career counsellors believed in a general law, basing their practice on the assumption that aptitudes and interests of an individual enable them to predict future career development. The third shift necessary as proposed by Savickas et. al. (2009) is to broaden the perspective from simple advice for career decision making to an expertise in co-construction as well as more holistic life design.

4. From scientific facts to narrative realities

Understanding clients' own construction of their multiple subjective realities through analysis of their narratives offers the advantage of keeping close to their own language and not only understanding their actual situation but also its roots (Savickas, 2005; Savickas, et. al., 2009). Accordingly, the fourth shift needed is to focus on clients' ongoing construction and re-construction of subjective and multiple realities.

5. From describing to modelling

The fifth shift in career models and counselling methods includes focusing on modelling fractal patterns, striving to forecast emerging stable configurations of variables, rather than any single outcome variable in the evaluation of counselling (Dauwalder, 2003).

The life-design counselling framework implements the theories of self-constructing (Guichard, 2005) and career construction (Savickas, 2005) that describe vocational behaviour and its development. Thus the framework is structured to be life-long, holistic, contextual, and preventive. The life-designing framework for counselling interventions aims to increase clients' adaptability, narratability, and activity. Adaptability addresses change while narratability addresses continuity. Together adaptability and narratability provide individuals with the flexibility and fidelity of selves that enables them to engage in meaningful activities and flourish in knowledge societies (Savickas et. al., 2009).

Evaluations of career construction theory. In general, evaluation of career construction theory concludes that it provides a useful description of career behaviour and its development; one that incorporates research findings from the mainstreams of psychology and sociology and summarises these results in the form of propositions (Borgen, 1991; Hackett, Lent, & Greenhaus, 1991; Osipow & Fitzgerald, 1996). These two strengths relate to the theory's greatest weakness. Although it easily incorporates mainstream research and comprehensively describes career development, the theory's propositions lack the fixed logical form needed to test its validity and generate new hypotheses (Betz, 1994; Brown, 1990; Swanson & Gore, 2000). More often than not, the theory is invoked retrospectively to explain and interpret research findings, not to structure a study prospectively (Hackett, Lent, & Greenhaus, 1991). Nevertheless, the theory does successfully provide a cogent framework for post hoc interpretation and integration of empirical facts (Savickas, 2002).

Most reviews of the empirical research on the theory (for example, Hackett & Lent, 1992; Osipow & Fitzgerald, 1996) reach three conclusions: (1) the data generally support the model; (2) the developmental segment is well documented; and (3) data relative to the self-concept segment generally agree with the theory. The data about success in earlier tasks

predicting success in later tasks have been viewed more equivocally (Hackett & Lent, 1992), yet the problems of selecting appropriate predictive validity criteria for these studies suggest that the results are stronger than first believed (Savickas, 1993).

Savickas (2002) is of the opinion that in the field of career construction theory three topics merit priority for future research. First, there is a pressing need for a project that delineates specific aspects of the career self-concept and how they relate to career behaviour (Betz, 1994; Super, 1990). This project would aim to improve definitional specificity and organisational parsimony among the self-concept dimensions and metadimensions. For example, Savickas states such work could investigate how career self-efficacy relates to career self-concept metadimensions such as self-esteem, clarity, consistency, and realism. It should also relate career self-concepts to career identities by building on the foundation of contemporary research about identity style. Finally, it could prompt a switch from studying self-concept to investigating the process of self-conceptualising by applying the narrative paradigm of career as story (Savickas, 1998).

A second research priority calls for a linguistic explication and operational definition of career adaptability (Savickas, 1997). This construct has improved the theory in recent years, from envisioning mainly a maxicycle to involving minicycles of growth, exploration, establishment, management, and disengagement, linked in a series within the maxicycle. With the addition of the adaptability construct, the process of transition through re-exploration and re-establishment merits greater attention. Discontinuities in psychosocial adaptation frame the dialectic of development, which occurs when encounters between an individual's thesis and society's antithesis produce a new synthesis (Savickas, 2002).

The third research priority requires extensive attention to diverse groups as well as socioeconomic factors (Osipow & Fitzgerald, 1996). The original statement of career development theory (Super, 1953) was formulated during an era when many men spent a

career in one company and women worked as homemakers or in gender segregated occupations. Accordingly, practitioners have, on occasion, rightly criticized the theory for emphasising white men to the neglect of women and racial-ethnic minorities (Savickas, 2002).

To continue enhancing the usefulness of career construction theory, research and reflection must identify its biases and rectify the resulting distortions. Similar to the careers it conceptualises, the theory itself must continue to innovate, not stagnate (Savickas, 2002).

Summary

This chapter has provided an overview of career development theory by discussing the historical development and expansion of career theories. Emphasis was placed on Super's (1980; 1990) life-span, life-space theory and his major contributions which Savickas (2001; 2002; 2005) incorporated in developing a theory of career construction. The cornerstones of career construction theory were discussed extensively in order to provide the reader with a sound understanding of the theory which forms the theory basis of this current research study. Life structure, vocational personality, life themes and career adaptability together form central components of career construction theory. The dimension of career adaptability was particularly emphasised and expanded on. While Chapter Two provided a theoretical understanding of career construction theory and career adaptability, the next chapter will focus on past research conducted on the construct of career adaptability by providing the reader with a research overview.

Chapter Three

Research Review

This chapter contextualises the present study within the extant body of research on career adaptability and aims to provide an overview of international and national research on career adaptability. As early as 1979 the term ‘career adaptability’ was introduced by Super and Knasel as a substitute for the concept of ‘career maturity’ when examining adult career development. Career adaptability has since been suggested as a key competency in career success in general (e.g., Blustein, 1988; 1992; 1997; Stumpf, Colarelli, & Hartman, 1983; Zikic & Hall, 2009). Despite the importance of this construct, relatively little empirical research has been completed and published to date on the topic of career adaptability.

The present researcher searched a wide range of databases for research studies on career adaptability, starting with the search engine Google. Thereafter, databases such as EbscoHost, Academic Search Complete, ERIC, Humanities International Complete, MasterFILE Premier, Emerald, SAGE, ScienceDirect, as well as PsychINFO were searched. The researcher first searched for all available research related to the Career Adapt-Abilities Inventory (CAI; Savickas, 2008). Although reference is made to Savickas’ measure of career adaptability in the Abstracts of the 27th International Congress of Applied Psychology (Mrowinski, Kyrios, & Voudouris, 2010), no published studies on the CAI itself were found. Subsequently, the researcher focused the search on research relating to career adaptability in general. The sample population used in this current study consists of first year university students. However, in order to expand the research review on career adaptability, career adaptability research as it applies to other sample populations were also reviewed. Consequently, this research review focuses on career adaptability and adaptable behaviour as it applies to tertiary students as well as to adolescents, employees and unemployed individuals.

Career construction theory and career adaptability (Savickas, 1997; 2002; 2005) form the theoretical foundation of this current study. Hence, an attempt was made to focus on research which conceptualised career adaptability in terms of Savickas' definition of the construct. However, a section has been included in this chapter that serves the purpose of highlighting to the reader other conceptualisations of career adaptability as well as similar constructs that have been researched. The chapter also provides an overview of how the present research forms part of other international research projects on career adaptability. With regard to South African research, the current research is one of several studies presently being conducted in South Africa on career adaptability. Other South African research on career adaptability will be elaborated on later in the chapter. However, it should be noted that no completed and published South African studies on career adaptability are available at present.

The exploration of the Career Adapt-Abilities Inventory (CAI; Savickas, 2008) in terms of factor analytic techniques is the main focus of the present research. Given the use of factor analytic techniques in this study, an attempt was made to explore similar South African career research where factor analysis was applied. The researcher concludes this chapter with a short review of such research with specific emphasis on the type of factor analysis used in the different studies.

Career Adaptability Research

In a follow-up to Super's pioneering work on life-span career development, a group of psychologists from 15 countries, including South Africa, met in Berlin in 2008 to launch the International Career Adaptability Project led by Mark Savickas and Frederick Leong from the United States of America. The current research forms part of this international project which aims to investigate the reliability and validity of the CAI (Savickas, 2008). After refining the CAI, the Career Adaptability International Collaborative plans to use the inventory in studies to further test and refine the theoretical model of career adaptability across the life-span and

subsequently devise interventions that foster adaptive responses to life role transitions. Even though no published studies on the CAI itself were found, it is noted by Leong (October, 2010) in the unpublished outline of the International Career Adaptability Project (presented at the Indian School of Business in Gachibowli, India) that the CAI was tested with 400 high school students in Phase One of the United States project. No other biographical information regarding this sample is provided. In this preliminary study conducted in the USA, the factor structure obtained through exploratory factor analysis supported the four factor theoretical model (i.e., concern, control, curiosity and confidence). Phase Two of the USA project will examine the consequences or outcome variables related to career adaptability among a group of university students.

The CAI has also been used in research conducted in Iceland, Portugal, Brazil, Holland and France. In Iceland, Vilhjálmssdóttir, Jónsson, Einarsdóttir, and Kjartansdóttir (2010) translated the CAI into Icelandic and investigated the psychometric qualities and applicability of the CAI. Their results indicated that the CAI had sound reliability and that the results of a factor analysis were satisfactory. Other researchers such as Duarte and Lassance (2010) have investigated the applicability of the CAI for use in Portugal and Brazil, while Van Vianen, Koen and Klehe (2010) investigated career adaptability within the context of reemployment in Holland. In France, Pouyaud, Soidet, Vignoli and Dosnon (2010) also investigated the construct validity of the CAI. These studies were all mentioned in electronic presentations published in the Abstracts of the 27th International Congress of Applied Psychology (Mrowinski, Kyrios, & Voudouris, 2010) held in Melbourne, Australia, in July 2010. Hence, limited information is available on these unpublished studies at this point in time.

Lima and Duarte (2010) have noted that a counselling version of the CAI has been developed. The counselling version of the CAI was answered by 43 psychology final year and recently graduated psychology students via e-mail. The aim was to investigate if the CAI

items were good indicators of career adaptability assessment in a counselling context. Thus, reliability and validity analyses with this particular version of the CAI were performed. High reliability was demonstrated through Cronbach's Alpha coefficients, with values between 0.72 and 0.82. Further analysis was carried out by means of hierarchical cluster analysis, rank analysis and principal component analysis. The results supported a major factor of adaptability and items were regarded as good indicators of career adaptability assessment, although several items were identified for possible elimination or revision.

In the following sections, research related to career adaptability will be reviewed in terms of sample populations used, the nature of the research aims and results, as well as the measures used to assess career adaptability. Career adaptability has been conceptualised by past research in a number of ways, thus it is important to understand how researchers conceptualise career adaptability as it applies to their research. This issue is reviewed in the next subsection of the chapter.

Conceptualisations of the Construct of Career Adaptability

An initial search for career adaptability in general delivered a vast amount of studies on the topic. However, not all of these studies conceptualised the construct in terms of Savickas's (1997; 2002; 2005) work. As stated earlier in the chapter, a deliberate attempt was made by the present researcher to only include studies that incorporated Savickas' conceptualisation of career adaptability.

Even when researchers acknowledge Savickas' work as part of their own understanding of the construct of career adaptability, they may add other dimensions to the construct within the context of their own research, or they may reject some of the dimensions described by Savickas. For example, Kenny and Bledsoe (2005) suggested career outcome expectations, career planning, school identification, and perceptions of educational barriers as components of career adaptability. On the other hand, Zikic and Klehe (2006) emphasised only two

dimensions of career adaptability, namely career exploration and career planning. Duffy and Blustein (2005) operationalised career adaptability as career decision self-efficacy and career choice commitment in their study examining the relationship between spirituality, religiousness, and career adaptability. Their results indicated that individuals who have a strong spiritual relationship with a higher power and who are religious due to intrinsic motivation tend to be more confident in their ability to make career decisions and are open to exploring a variety of career options.

Career adaptability has also been defined by Rottinghaus, Day and Borgen (2005) as “a tendency affecting the way an individual views his or her capacity to plan and adjust to changing career plans... especially in the face of unforeseen events” (p. 5). Researchers such as McArdle, Waters, Briscoe and Hall (2007) have defined career adaptability in relation to other constructs. Hence, the latter authors viewed career adaptability, together with career identity and human and social capital, as dimensions of employability. In many of the initial research studies reviewed, career adaptability has been referred to by researchers as a personal attribute. Van der Vyver (2009), for example, conceptualised adaptability in terms of Bridgstock (2006) and Mirvis and Hall’s (1996) definition of adaptability as an attribute and attitude that is needed to facilitate constant learning, an ability to identify and respond to changes in the job market, and the ability to survive and prosper in a world that is constantly changing.

In addition to other interpretations and conceptualisations of career adaptability, similar terms were also found in the literature. For instance, Ito and Brotheridge (2005, p. 5) refer to “career resilience” and “workforce flexibility”. O’Connel, McNeely and Hall (2008, p. 248) refer to personal adaptability as “one attribute that is important in dealing with change and taking charge of career direction”. The latter authors further referred to the term “individual adaptability” (p. 249) as “a personal quality that is important in handling ambiguity, dealing

with uncertainty and stress, and in working outside traditional temporal and geographic boundaries” (p. 249).

The above subsection has highlighted other conceptualisations of career adaptability and illustrated that some authors have added their own dimensions to those offered by Savickas (2002). Career adaptability research as it pertains to Savickas’ conceptualisation of career adaptability will now be reviewed. In some of these studies reference is made to the four career adaptability dimensions (Savickas, 2001; 2005), i.e. career concern, career control, career curiosity and career confidence, while other studies incorporated Savickas’ (1997) earlier work and refer to career adaptability strategies, namely self-exploration, environmental exploration, career planning and decision-making.

Career Adaptability Research Review

The present researcher reviewed research with the purpose of identifying common themes that have emerged from their findings. The studies reviewed have sampled adolescents, tertiary students and adults (employees and job seekers). These sample populations will be used as subheadings in order to group together extant research on career adaptability as it relates to a particular population.

Adolescents. According to Hirschi (2010), childhood and the adolescent years mark the dawn of a career development process that involves developmental tasks and transitions. Career adaptability is viewed by Hirschi (2009) as a central construct in adolescent career development. Adolescents must acquire the rudiments of career adaptability to envision a future, make educational and career decisions, explore self and occupations, and solve problems (Hartung, Porfeli, & Vondracek, 2008).

Factors influencing career adaptability in adolescents were the focus of some research studies. However, limited studies have been published on the latter topic. Hirschi (2009) argues that more research regarding the influence of career adaptability on adolescent career

development is important. An example of a study that examined factors influencing career adaptability amongst adolescents is that of Kenny and Bledsoe (2005). These authors examined the contributions of four relational factors to career adaptability among urban high school students. These factors included family support, teacher support, close friend support and peer beliefs. The researchers aimed to increase knowledge of relational factors that enable urban youth to face the challenges of the urban context and subsequently achieve adaptive career development. Participants included 322 ninth graders (male and female students). The participants' ages ranged from 12 to 17 years and they represented a diverse population in terms of race. The outcome of this study confirmed other extant research in identifying relational support as an important contributor to career adaptability among ethnic minority youth (e.g., Flores & O'Brien, 2002; Kenny et al., 2003). Emotional support from family, teachers, and close friends was found to significantly contribute to career adaptability. Students who perceived more support also reported higher levels of career adaptability. This finding collaborates that of Cao and Zeng (2008) and Ross and Broh (2000) who suggest that high school students are more capable of adapting to the work world when supported by those close to them. Gender was found to be not significant in contributing to career adaptability in Kenny and Bledsoe's (2005) study.

Hirschi (2009) also investigated predictors of career adaptability together with their effect on sense of power and life satisfaction in Swiss high school students. A total of 330 high school students from five different schools in a rural area in the German speaking part of Switzerland were sampled. All students were in the eighth grade with their ages ranging from 12 to 16 years. The sample included almost an equal amount of girls and boys. Fifty-seven students had an immigration background, mostly from South-Eastern Europe, while the others were Swiss nationals. The results of the study indicated that gender and age did not affect career adaptability development. Predictors of career adaptability for Swiss high

school students included goal decidedness and capability beliefs over the course of one school year. Adolescents with an immigration background showed considerably less increase in career adaptability than Swiss adolescents. Furthermore, parental educational level as a form of human capital did not affect the development of career adaptability in Swiss adolescents. Positive emotional disposition and supportive social context beliefs also emerged as significant predictors of career adaptability.

The study also investigated the effect of career adaptability on the development of sense of power and on well-being in terms of more life satisfaction as components of positive youth development. Career adaptability was found by Hirschi (2009) to be a predictor of sense of power in that greater adaptability over time significantly predicted the development of a sense of power and showed an expected significant positive relation to life satisfaction. Whereas Kenny and Bledsoe (2005) and Hirschi have reported that gender and age did not affect career adaptability development, Patton and Creed (2001) investigated correlates of career adaptability in college and high school students and found that aspects of career adaptability relate to gender and age, as well as to another variable that they named as work experience.

In another study conducted by Hirschi (2010), 269 adolescents in the seventh grade from a rural area in the German-speaking part of Switzerland were sampled. Their ages ranged from 12 to 16 years old and both girls and boys formed part of the sample. In this study, the influence of context, age, and career adaptability on Swiss adolescents' career aspirations were explored. The outcome of this study revealed that career adaptability in career decision-making explained a small but significant 1.8% variance above and beyond age. Further, Hirschi found that adolescents in scholastically lower classes demonstrated a higher degree of career adaptability but not more realistic, stable, or coherent career aspirations than students in scholastically advanced classes. Most secondary schools in Switzerland divide high school

students into different school tracks. This separation is mainly based on the general scholastic achievement of a student in elementary school. School-types with advanced requirements (i.e., scholastically advanced classes) open up more career possibilities and allow high school students to attend general high schools after taking an entry examination that directly prepares them for later college education. Students in classes with basic requirements (i.e., scholastically lower classes) are limited to directly entering college education. Early career decisions taken by this latter group of students lead to preparing for work at an earlier stage compared to students attending scholastically advanced classes. This finding serves as a possible explanation as to why such students engage in more career adaptable behaviour at an earlier stage with specific reference to planfulness and career exploration as strategies of career adaptability.

The studies reviewed above illustrate that factors such as relational and emotional support contribute to career adaptability (Hirschi, 2009; Kenny & Bledsoe, 2005). Other factors predicting career adaptability in adolescents include goal decidedness and capability beliefs (Hirschi). In turn, career adaptability was also found by Hirschi to influence other aspects of adolescent development positively, such as sense of power and life satisfaction. Career adaptability research related to tertiary students will be discussed in the following subsection.

Tertiary students. Super, Savickas and Super (1996) state that university students are confronted with many career related tasks. One of these career tasks, as noted by Creed, Fallon and Hood (2009), includes the adjustment university students have to make to a less structured educational experience compared to that of high school. Strategies associated with career adaptability (e.g., self- and environmental exploration, career planning and decision making) (Savickas, 2002) become relevant and important as tertiary students organise their future careers (Yousefi et al., 2011). According to Duffy (2010), tertiary students are at a

career developmental point where the building of career-related skills such as career adaptability is critical. Hence, this particular sample population is relevant for studying career adaptability.

Efforts have been made to understand what predicts the career adaptability of tertiary students. For example, Duffy (2010) aimed to examine one potential predictor of career adaptability, i.e. sense of control, and explore its direct relation to career adaptability. The importance of sense of control as a predictor of career adaptability was emphasised previously by Blustein et al. (2008) who stated that individuals may not feel the need to adapt to their career if they feel they have little control over their lives. Duffy (2010) noted that other important predictors of career adaptability may not relate as strongly if individuals endorse a low sense of personal control. First year students, which included almost half male and half female students from a university in the United States, were sampled. The findings from Duffy's study suggest that individuals who evidence a greater sense of personal control may be able to more easily navigate the world of work by proactively adjusting themselves to fit expectations and thus displaying greater levels of career adaptability.

Social support has been identified as enhancing career adaptability among adolescents (Hirschi, 2009; Kenny & Bledsoe, 2005) and similarly it has been found to increase career adaptable behaviour in tertiary students. For instance, students who feel supported are goal oriented, have a high sense of personal power, are able to explore the world of work and feel confident in their career decision-making (Creed, Fallon, & Hood, 2009; Duffy & Blustein, 2005) and, consequently, they display career adaptable behaviour.

The relationship between career adaptability and other variables was the focus of some studies reviewed. Creed, Fallon and Hood (2009) examined the relationship between career adaptability and career concerns among tertiary students. Further, they tested whether a higher-order construct of career adaptability could be represented by the strategies of

exploration of self and environment, career planning and career decision-making, as well as by general self-regulation (Savickas, 1997). This study confirmed Savickas' suggestion that the career adaptability variables of planning, exploration and decision-making as well as a general measure of self-regulation were interrelated and could be represented by a higher-order factor, labelled career adaptability. Their results also suggest that when measuring career adaptability these domains need to be considered. Further, it was found that the career adaptability dimensions of decision-making and self-exploration were negatively associated with career concerns, and that decision-making mediated the relationship between goal-orientation and career concerns.

In a similar study conducted by Yousefi et al. (2011), the relationship among career adaptability and career concerns, social support and goal orientation were examined. Yousefi et al. sampled 307 full-time students from a public university in Isfahan, Iran, and included a fair representation of both male and female students. The results of their study indicated that career concerns and goal orientation are predictors of career adaptability. Support from others did not emerge as a significant contributor to career adaptability among this sample of students from Iran, a finding which contradicts the findings of Creed, Fallon, and Hood (2009) and Duffy and Blustein (2005).

New economy careers, characterised by temporary, part-time, portfolio, and self-employed work, have emerged in response to economic and labour market changes brought about by rapid advances in technology and globalisation (Platman, 2004). Creed, MacPherson, and Hood (2010) studied predictors of new economy career orientation in an Australian sample of university students from a social science faculty. The majority of the participants were women (72.92%). The age range was from 17 to 25 years and most were working part-time as well. New economy career orientation was found to be moderately associated with career adaptability, disposition, and environmental support. The planning

dimension of career adaptability predicted one aspect of a boundaryless career (i.e., mobility preference), while social support predicted a second (i.e., boundaryless mind-set). The authors hypothesised that proactive disposition would be positively associated with career adaptability and that an increase in career adaptability would be associated with higher new economy career orientation. This was partially supported by their results, with proactive disposition associated with career adaptive strategies (including planning and self- and environmental exploration and the use of decision-making principles).

Examining measures of career adaptability was the focus of other tertiary student research reviewed. Hartung and Borges' (2005) study involved 100 students (63 women, 37 men) enrolled in a six-year combined BS/MD degree at an American medical school. The aim of their study was to examine the validity of using stories to appraise career dispositions and problems associated with career adaptability. The outcome of the study indicated that the career adaptability dimensions of concern, control, curiosity and confidence (Savickas, 2002) could be identified by means of stories derived from Thematic Apperception Test cards. Another study that focuses on a potential measure of career adaptability is that of Rottinghaus, Day and Borgen (2005). These authors used The Career Futures Inventory as a measure of positive career planning attitudes with the purpose of providing initial results on its development and validation. After conducting factor analyses on the data obtained from a sample of 658 university students (417 women, 241 men), the results revealed three subscales, namely career adaptability, career optimism and perceived knowledge.

The studies conducted on career adaptability pertaining to tertiary students have involved different research aims. Predictors of career adaptability (e.g. Duffy, 2010) and the relationship of career adaptability to other variables (Creed, Fallon & Hood, 2009; Creed, MacPherson & Hood, 2010; Yousefi et al., 2011) were the focus of some of the research reviewed. However, due to the limited research available on career adaptability the findings

of these studies are sample specific and cannot be generalised. Research on career adaptability using employees and job seekers as sample populations will be explored next.

Employees and job seekers. Career adaptability is central to achieving career effectiveness in a changing climate and it is important in enabling individuals to manage and cope with shifting career demands. In order to be career adaptable, an individual needs to be able to deal with the unexpected and manage change. This involves the ongoing learning of new skills and procedures, transferring skills from one context to another, dealing appropriately with ambiguity, treating new situations as opportunities rather than barriers, being self-aware, and reflecting on one's own actions (Hall, 2004; Pulakos, Arad, Donovan, & Plamondon, 2000). Career adaptability is also viewed by some authors (e.g., Arthur, 1994; Hall, 1996; London, 1993) as a quality that enhances employability within and outside of an organisation. However, an organisational change may also imply a change for employees in the form of a career transition. Career transitions, in turn, can trigger employees' career adaptability (Savickas, 1997; Zikic & Klehe, 2006) and promote career behaviours aimed at coping with external and internal career demands that help individuals become independent career actors who self-manage their careers. Pulakos et al. (2000) believe that employers are increasingly seeking employees who reflect career adaptable behaviour.

The different dimensions of career adaptability, or career adaptable strategies as termed by some authors (e.g., Koen et al., 2011), have been studied by some as a holistic construct, while others have focused on one or more dimensions in their research. For instance, Ebberwein et al. (2004), Klehe et al. (2011), and McArdle et al. (2007) have focused specifically on the dimensions of self-exploration and environmental exploration (encompassed as one dimension, namely career exploration) as well as planning in their work. Klehe et al. studied career adaptability within the context of organisational restructuring and downsizing. Their sample included employees from a privatised Dutch

technical service organisation undergoing strategic downsizing. The outcome of this study indicated that the planning dimension of career adaptability positively predicted employees' loyalty to an organisation. Career exploration, on the other hand, was found to negatively predict employees' loyalty to an organisation. The study further implied that redundancy fostered employees' career adaptive behaviours, while job insecurity inhibited their career planning. The career exploration dimension of career adaptability was high particularly among redundant and dissatisfied employees. Career planning was primarily initiated by redundancy and was inhibited by participants' job insecurity, suggesting that worries about their jobs inhibited the planning of future career goals.

Koen et al. (2011) and McArdle et al. (2007) pointed out that career adaptability contributes to reemployment and job search strategies. Koen et al. studied the dimensions of career adaptability and how each dimension contributes to reemployment. A total of 248 job seekers participated in the study after they were contacted via the database of a large reemployment agency in the Netherlands. The results indicated that the four dimensions of career adaptability (i.e., planning, decision-making, exploration, and confidence) represent job seekers' preparation and mental readiness to use different job-search strategies, which in turn positively influences their reemployment outcomes and subsequent job search strategies. Their results, along with other research (e.g., Zikic & Klehe, 2006), emphasised that career adaptability dimensions (specifically career decision making and career confidence) are positive predictors of reemployment quality.

McArdle et al. (2007) also sampled unemployed individuals in their study of 416 Australians. Career adaptability in relation to promoting re-employment, together with other factors such as career identity and human and social capital, were the focus of their research. The outcome of their study supported Koen et al.'s (2011) findings in that career adaptability enhanced employability in individuals and subsequently added to re-employment. The

planning dimension of career adaptability was emphasised in this study and Savickas' (1997) 'planfulness' was regarded by these authors as an important quality assisting individuals in re-employment. In this regard, Klehe et al. (2011) state that planning allows employees to envision a possible future and to maintain a sense of control over their situation by directing their actions in line with their plans.

Career transitions require individuals to re-evaluate their goals, attitudes, identity, and routines (Ashforth & Saks, 1995) and, thus, call for career adaptability, the "readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions" (Savickas, 1997, p. 254). Even though Flum and Blustein (2000) have noted that career adaptability is important throughout one's career, it is mostly triggered by career transitions. Blustein et al. (2002) investigated career adaptability retrospectively in terms of the school to work transition and the impact of social class. Interviews were conducted with ten men and ten women. The findings from their study indicate that social class played an important role in the participants' school-to-work transition. Individuals from a higher socioeconomic status cohort expressed greater interest in work as a source of personal satisfaction, higher levels of self-concept crystallisation, greater access to external resources, and greater levels of career adaptability compared with their lower socioeconomic status counterparts. Ebberwein et al. (2004) identified contextual challenges which may influence employees' career adaptability in relation to adult career transition. Interviews were conducted with 18 individuals who had lost their jobs through no fault of their own. This study found financial resources, or the lack thereof, and family life to strongly influence how an individual copes with a career transition such as job loss.

The studies discussed in this subsection illustrate that factors such as organisational restructuring, downsizing and redundancy can foster employees' career adaptive behaviours

(Klehe et al., 2011). Career adaptability was also pointed out by Koen et al. (2011) and McArdle et al. (2007) as an important factor in the job search and re-employment process. Even though career transitions such as the latter examples can be viewed by some individuals as negative, career adaptability strategies can be strengthened in such situations. Research on career adaptability relating to employees and job seekers needs further attention in terms of empirical research. Dix and Savickas (1995) have called for future studies to focus attention on coping responses or behaviours necessary for one to handle the career change tasks at hand. Others have cited a need for a practical understanding of career adaptability as it relates to how individuals are to engage in adult career transition (Heppner, 1998; Savickas, 1997). The subsection that follows considers measures, other than the CAI, that were used by past researchers in order to measure career adaptability.

Measures of Career Adaptability

So far this chapter has provided an overview of extant research conducted on career adaptability in terms of particular sample populations and the nature of the research conducted. This section provides the reader with an overview of measures that have been used to assess career adaptability pertaining to the studies discussed in earlier subsections of the chapter. Duffy (2010) has noted that most studies on career adaptability have explored components of career adaptability and have failed to use a single instrument that encapsulates the general construct. With the exception of Hartung and Borges (2005) and Duffy, researchers have measured career adaptability by assessing each dimension of the construct separately. Creed and Patton (2003), as well as Rogers, Creed and Glendon (2008), add that the different dimensions of career adaptability have been assessed by a variety of existing career measures.

Therefore, individual career adaptability dimensions and not their shared variance appear to have been the most common way to conceptualise and measure the multidimensional

construct of career adaptability in past research. The results obtained from these different measures, nevertheless, have provided researchers with some insight into career adaptability as is evident in this subsection. The different types of measures incorporated by previous research to assess career adaptability and/or the different dimensions of it will be discussed. Thus this subsection focuses primarily on the different measures used and less on the outcome of the research in order to avoid a repetition of information already provided in earlier subsections of the chapter.

Thematic Apperception Test cards (TAT; Murray, 1943) were used by Hartung and Borges (2005) to elicit narratives for content analysis in order to identify personality dispositions and the career adaptability dimensions of concern, control, curiosity and confidence (Savickas, 2002). The TAT cards were used in order to determine if a story-based assessment method could be used to reliably indicate career personality types and career adaptability dimensions. Independent raters identified identical career adaptability dimensions from TAT stories more than 47% of the time. The results of this study provided support for using TAT cards in order to identify career adaptability dimensions.

Two studies incorporated The Career Futures Inventory (CFI; Rottinghaus, Day, & Borgen, 2005) in order to measure career adaptability. Rottinghaus, Day and Borgen investigated career adaptability by focusing primarily on the planning dimension of the construct and used the CFI to measure positive career planning attitudes. The CFI is theoretically based on Savickas' (1997) career adaptability construct and Scheier and Carver's (1985) dispositional optimism construct. For the purpose of Rottinghaus, Day and Borgen's study the initial version of the CFI was modified to more directly assess the career domain and to minimize content overlap with general optimism. Additional items were added to enhance the theoretical connection with career adaptability. The final version of the

CFI consisted of 25 items. Duffy (2010) also used the CFI but only incorporated its career adaptability subscale in order to measure career adaptability.

Self- and environmental exploration as career adaptability dimensions were measured by Creed, Fallon and Hood (2009) and Yousefi et al. (2011) using two subscales of the Career Exploration Survey (Stumpf, Colarelli, & Hartman, 1983). Self-exploration was measured with five items and the subscale measuring environmental exploration consisted of six items. Klehe et al. (2011) and Koen et al. (2011) used Zikic and Klehe's (2006) version of the Career Exploration Survey to also assess self- and environmental exploration with five and six items respectively. The Career Salience Scale (Greenhaus, 1971) was incorporated by Creed, Fallon and Hood (2009) and Yousefi et al. (2011) to measure the planning dimension of career adaptability. The latter authors used the career planning and thinking subscale of the Career Salience Scale consisting of eight items to measure planning. Other research studies such as those of Koen et al. (2011) and Klehe et al. (2011) have used Gould's (1979) Career Planning Scale to measure the planning dimension of career adaptability.

The Career Development Inventory (CDI; Seifert & Eder, 1985; Super et al., 1981) was used by Hirschi (2009; 2010) in two separate studies to assess the career exploration and planning dimensions of career adaptability. Career exploration was measured with the career exploration scale of the CDI which consisted of 26 items. High school students had to indicate on a five point likert scale whether they would consult different sources of information for their career development (e.g., my father, my teacher, job shadowing) and how much useful information they have already obtained from these sources. Answers ranked from none to high with higher scores indicating more active career exploration. Career planning was assessed by Hirschi (2009; 2010) using the career planning subscale of the CDI consisting of 22 items. Again high school students were asked to indicate on a five

point likert scale how much they thought about different activities concerning career planning, how much time they had invested in thinking about career relevant questions in comparison to classmates, and how much knowledge about preferred occupations they possessed. Answers ranked from “very few to a lot” (Hirschi, 2009; p. 149) with higher scores indicating more engagement in career planning. The CDI, and specifically its career planning subscale, were also used by Kenny and Bledsoe (2005) to measure planning as a dimension of career adaptability. In their study, this particular subscale consisted of twenty items assessing engagement in career planning activities and self-reported career knowledge.

The measures referred to thus far in this subsection of the chapter were predominantly used to measure the planning and self- and environmental exploration dimensions of career adaptability. Other dimensions of career adaptability such as career decision making were measured by Hirschi (2009) using the Career Maturity Inventory (CMI; Crites, 1973; Seifert & Stangl, 1986). Specifically, the career decidedness/commitment subscale of the CMI consisting of 12 items was used to measure career decision-making. Other measures such as Germeijs and De Boeck’s (2003) Career Indecision Scale was used by Koen et al. (2011) to measure decision-making, while Yousefi et al. (2011) and Creed, Fallon and Hood (2009) used the sixteen item indecision subscale of the Career Decision Scale (Osipow, 1987) to measure decision-making. A six-item job search self-efficacy scale was used by Koen et al. (2011) to measure confidence as a dimension of career adaptability. This measure of confidence was applicable to Koen et al.’s study which focused on career adaptability within the context of job search strategies used in most job search research (Ellis & Taylor, 1983; Van Ryn & Vinokur, 1992).

This subsection of the chapter has provided an overview of other measures used by researchers to measure career adaptability and/or dimensions of career adaptability. The

following subsection will discuss South African research on career adaptability presently being conducted.

South African Research on Career Adaptability

The present research study is one of several research projects being conducted on career adaptability in South Africa. Whereas the current study focuses primarily on the psychometric properties of the CAI, three other studies are using the CAI to explore career adaptability and the methods of life-design counselling in South Africa (Maree, 2010). Each study uses mixed methods of quantitative and qualitative research to describe and explore the meaning and measurement of career adaptability. The first study focuses on the impact of life-design counselling on an adolescent from a minority group who has passed grade twelve and experienced a need for career counselling. The second study examines the career adaptability of grade eleven students identified as potential leaders. The third study investigates the career adaptability needs of adolescents in a psychiatric institution. Each of the three studies uses an Afrikaans version of the CAI. These research projects all represent postgraduate research currently being conducted at the University of Pretoria.

Together with this present study, the results of the above studies will indicate the reliability and initial validity of the South African version of the CAI. As stated, the current research study focuses on the psychometric properties of the CAI using factor analytic techniques. Given this, it would be beneficial to explore other South African research on career measures that have used factor analysis. The next subsection of the chapter will highlight such studies with the emphasis placed on the type of factor analysis applied.

South African Factor Analytic Research

As stated, this subsection will provide a brief overview of South African research on career measures that have incorporated factor analytic techniques as part of their data analyses. The aim is not to report on the results obtained in these studies but to provide a

general overview of the rationale behind the different types of factor analyses applied. Thus the studies will be reviewed in terms of the type of factor analysis that has been incorporated, namely exploratory and confirmatory factor analyses. The type of factor analysis applied depends primarily on the specific research aims of the studies reviewed and in some instances both exploratory and confirmatory factor analyses were employed.

Exploratory factor analysis (EFA). Some South African career studies have used EFA exclusively. An example of such a study is that of Dobson (1993) who employed exploratory descriptive factor analysis in her study of the Life Role Inventory (Langley, 1990). The factor analysis employed in this study was used to arrive at a simple factor structure of the Life Role Inventory for South African university students, which was then compared with the theory on which the instrument was based. The results were also used to compare the resultant factor structure to those established in studies of the original Salience Inventory (Nevill & Super, 1986) in order to determine to what extent the South African Life Role Inventory was a true reflection of the original instrument.

A specific type of EFA, principal components analysis, was conducted by Southgate (2005) on three career measures, i.e. Blau's (1989) Career Commitment Scale, Greenhaus' (1971) Career Salience Scale, and Kanungo's (1982) Job Involvement Questionnaire. Watson, Foxcroft and Stead (1991) subjected the Career Decision Scale (Osipow, 1994) to exploratory factor analysis. Stead and Watson (1993a) used EFA to investigate and compare the factor structures of the Career Decision Scale, the Career Decision Profile (Jones, 1989) and the Career Factors Inventory (Chartrand, Robbins, Morrill, & Boggs, 1989). A more recent study is that of Creed, Patton and Watson (2002) who factor analysed the Career Decision-Making Self-Efficacy Scale-Short Form (Taylor & Betz, 1983) with the purpose of investigating cross-cultural equivalence amongst Australian and South African high school students.

Confirmatory factor analysis (CFA). Whereas the above South African career studies focused on EFA techniques to investigate the factor structure of particular career measures, other South African studies have used CFA in order to examine the construct validity of a particular career measure. For example, De Bruin and Bernard-Phera (2002) used maximum likelihood confirmatory factor analysis in their study in which the Career Development Questionnaire (CDQ; Langley, du Toit & Herbst, 1992) and the Career Decision-Making Self-Efficacy Scale (CDMSES; Taylor & Betz, 1983) were administered to 202 Grade 12 students from a low socioeconomic area in South Africa. The results of this confirmatory factor analyses provided support for the construct validity of the CDQ and the CDMSES as measures of career maturity and career decision-making self-efficacy respectively. Schultheiss and Stead (2004) also subjected their data to maximum likelihood confirmatory factor analysis when they investigated the construct validity of the Career Myths Scale (Stead & Watson, 1993b) among South African adolescents. Evidence of the construct validity of the Career Myths Scale was provided. The Career Resilience Questionnaire (Fourie & Van Vuuren, 1998) was investigated by means of an oblique multiple groups CFA in a study conducted by De Bruin and Lew (2000). Stead and Watson (1992) and Watson, Brand, Stead, and Ellis (2001) investigated the construct validity of the Commitment to Career Choice Scale (Blustein, Ellis, & Devenis, 1989) and the Career Decision-Making Self-Efficacy scale respectively using CFA.

Applying both EFA and CFA. In a South African study conducted by Lew (2001), both EFA and CFA were used to investigate the psychometric properties of three measures, namely the Adult Career Concerns Inventory (Super, Thompson & Lindeman, 1988), the Career Attitudes and Strategies Inventory (Holland & Gottfredson, 1994), and the Career Resilience Questionnaire (Fourie & Van Vuuren, 1998). The sample population included 202 adults in the age group ranging from 25 to 48 years. The participants were enrolled for a

Masters of Business Administration programme at a South African university. The factor analyses served the purpose of elucidating the conceptual meanings of the constructs of career concerns, career status and career resilience in adult career adjustment.

The above review of South African studies provided examples of research conducted using either exploratory or confirmatory factor analysis or both. However, most of the studies only focused on one type of factor analysis instead of incorporating both EFA and CFA, as in the case of the current research study. Whereas EFA only explores the data and provides the researcher with information about how many factors are needed to best represent the data, CFA enables the researcher to test how well the measured variables represent the constructs. Thus, it was beneficial to perform both EFA and CFA in the present study with the results providing potentially richer information to the researcher regarding the psychometric properties of the CAI.

Summary

This chapter has provided an overview of previous research conducted on the construct of career adaptability. The studies were reviewed in terms of sample populations, the nature of the studies (with specific reference to their research aims and subsequent results obtained), as well as the questionnaires used to measure career adaptability. Furthermore, the researcher overviewed other South African research on career adaptability as well as highlighting for the reader the use of factor analytic techniques in previous research studies conducted in South Africa on career measures. The next chapter will discuss the research methodology of this study.

Chapter Four

Methodology

The career adaptability construct was discussed in Chapter Two and the use of the Career Adapt-Abilities Inventory (CAI; Savickas, 2008) to measure career adaptability was introduced in Chapter Three. This chapter aims to describe the research methodology used in the current study. The study forms part of both national and international research projects which are currently being conducted pertaining to career adaptability. The psychometric properties of the CAI are presently being investigated in various countries. The primary focus of this research study has been to explore the psychometric properties of the CAI in terms of factor analytic techniques, but also to investigate the suitability of the inventory to a South African population which will be described in greater depth later in the chapter.

In this chapter the aims and objectives for the study are firstly outlined as well as the research design that was utilised. A subsection follows which provides a description of the measures used for the study. The sample used for this study is described in terms of sampling size, sampling requirements as well as the sampling procedure that was employed. Lastly, a data analysis section was included which describes the specific quantitative and qualitative statistical methods used.

Aims and Objectives

Due to the newness of Savickas' (2008) CAI, the overall objective of this study was to explore its psychometric properties by means of factor analyses. As stated earlier, the study also investigated the applicability of the CAI to a South African population, particularly with regard to language usage and comprehension.

The following aims contribute to the overall objective of the study:

1. To determine whether interrelationships within the items of the Career Adapt-Abilities Inventory can be explained by the presence of unobserved variables by conducting exploratory factor analysis on a sample of South African university students.
2. To attempt to confirm the hypothesised factor structure of the Career Adapt-Abilities Inventory by conducting confirmatory factor analysis on a sample of South African university students.
3. To explore and describe South African university students' perceptions of the underlying constructs of the Career Adapt-Abilities Inventory in terms of the language usage and comprehension of the inventory's item content.

Research Design

Huysamen (1993) defined the research design of a study as the plan or blueprint which offers a framework according to which data will be collected to investigate the stated aims in the most economical manner. A triangulated research approach has been applied as this allowed the researcher to approach the research from both a quantitative and qualitative perspective. The research methodology is thus considered as triangulative in nature as it involves quantitative aspects, i.e., descriptive statistics, correlations between the five dimensions, and the factor analytic procedures that have been conducted, as well as a qualitative component which accounts for the written comments provided by the research participants on the language, readability and comprehension of the inventory. Participants were given the opportunity to write comments on the inventory (this pertains to section C of the questionnaire) after they had completed the inventory.

In terms of the quantitative aspect of the study, the CAI was subjected to both exploratory and confirmatory factor analyses to provide much needed baseline information regarding the internal construct validity of the inventory. Factor analysis can be defined

generally as a method for simplifying complex sets of data (Kline, 1994). Furthermore, factor analysis is a multivariate statistical technique that is used to investigate correlations among variables. It provides a means for summarising the observed correlations as a smaller group of latent constructs or factors, thus defining the underlying dimensions of data, but it also reflects the contribution made by each observed variable in explaining the dimensions of a measuring instrument (Hair, Anderson, Tatham, & Black, 1995). Broadly speaking, factor analysis provides the tools for analysing the structure of the interrelationships (i.e., correlations) among a large number of variables (e.g., test scores, test items, questionnaire responses) by defining sets of variables that are highly interrelated. These groups of variables (factors), which are by definition highly intercorrelated, are assumed to represent dimensions within the data (Hair, Black, Babin, & Anderson, 2010).

Measure

As stated earlier, a measure developed by Mark Savickas (2008) was used in the present study, namely the CAI. Savickas (2008), in his report on the CAI, stated that field trials have been conducted with the inventory using school and college students as well as adult subjects. In an attempt to investigate how different response formats would work, Savickas explored four response formats using adult subjects. In the first response format the questionnaire asked participants to indicate how often they conducted the behaviours listed in the inventory, i.e. always, frequently, sometimes, seldom, and never. The second format asked participants to rate the items regarding their abilities. Participants were told that the list of items represent strengths that people use to build their careers. Usually an individual emphasises certain strengths over others. Participants then had to rate themselves accordingly with 5 as strongest, 4 as very strong, 3 as strong, 2 as somewhat strong, and 1 as not strong. The third response format varied from very able to not yet able. The fourth response format asked participants to compare themselves to other people ‘from better than most other people’ to

‘not as good as most other people’. Savickas found that the strength format worked best, i.e. the second response format evaluated.

The CAI has eleven items for each of five scales that assess career adapt-abilities. These scales (interchangeably referred to as dimensions) include Concern, Control, Curiosity, Cooperation and Confidence. These scales are modelled on career construction theory and the four dimensions of adaptability: concern, control, curiosity, and confidence. Savickas added a fifth dimension namely cooperation; he refers to these scales as the five “Cs”. The scoring key for the inventory is as follows: Concern (items 1 – 11); Control (items 12 – 22); Curiosity (items 23 – 33); Cooperation (items 34 – 44); and Confidence (items 45 – 55). The total score is calculated by adding all the scores for each of the 55 items as indicated by the participant.

Foxcroft and Roodt (2001) state that the validity of a measure concerns what the test measures and how well it does so. One of the most common and useful classification schemes attempting to categorise the validities underlying measurement is content, face, criterion and construct validity (De Vos et al., 2006). Savickas’ CAI can be described as evidencing content validity due to the representativeness of the content (e.g. items) of the inventory (De Vos et al.). For each of the five scales, 11 items are listed adding up to a total of 55 statements. The inventory also evidences face validity due to the appearance of the instrument indicating that it measures career adapt-abilities. De Vos et al. state that face validity is a desirable characteristic of a measuring instrument. Without it, researchers may encounter resistance on the part of respondents which may, in turn, adversely affect the results obtained. Savickas re-administered the instrument to various participant groups in order to establish criterion and construct validity. Criterion validity involves multiple measurement and is established by comparing scores on an instrument with an external criterion known to, or believed to, measure the concept, trait or behaviour being studied.

Construct validity is concerned with the meaning of the instrument, i.e. what it is measuring and how and why it operates the way it does. It involves not only validation of the measurement itself, but also of the theory underlying it. To establish construct validity, the meaning of the construct must be understood and the propositions the theory makes about the relationships between this and other constructs must be identified (De Vos et al.).

The reliability of a measurement procedure is the stability or consistency of the measurement. In other words, it refers to a measuring instrument's ability to yield consistent numerical results each time it is applied, i.e. it does not fluctuate unless there are variations in the variable being measured (Gravetter & Forzano, 2003). Savickas examined the reliability of the measure by administering it to different groups and ruled out any factors that might influence the stability or consistency of the inventory, e.g. adjusting response formats.

The CAI is a newly constructed questionnaire developed by Savickas (2008) which is not standardised for the South African population. In order to ensure that the inventory is appropriate for a South African sample, the rating scale was changed in order to meet psychometric requirements and the overall layout was adjusted to increase comprehension and readability. Participants were asked to rate each item (career adapt-ability strength) using the following scale: 1= strongly disagree; 2= disagree; 3= neutral; 4= agree; and 5= strongly agree.

The word usage for three items was changed in order to make such items more appropriate for the South African population which is characteristically diverse in terms of culture, language and race. Table 2 illustrates the items that were changed with both the original and revised items listed.

Table 2

Items changed on the Career Adapt-Abilities Inventory

Item number	Original Item	Revised Item
11	Concerned about my career	Being concerned about my career
21	Doing what's best for my family	Considering my family when I make decisions
39	Compromising with other people	Meeting others halfway when we disagree

The Inventory formed part of a booklet comprising three sections. Section A refers to a biographical questionnaire participants needed to complete to obtain data concerning their age, gender, home language, degree enrolled for, and race. Section B refers to the Career Adapt-Abilities Inventory, while Section C includes an evaluation of the inventory. Section C provided space for participants to rate the inventory according to its readability and comprehension, as well as whether the inventory adequately covered the career adaptability concept. The evaluation of the inventory allowed for qualitative data to be collected. Participants were provided with space in Section C to write down the item number with the specific word(s) they did not understand as well as any additional comments regarding the readability, comprehension and applicability of the inventory.

Participants and Sampling Procedure

The research study employed non-probability purposive sampling. This sampling method is practical and cost-effective (De Vos, 2000). The disadvantage of utilising this method is that generalisability is reduced. The sample included first-year university students from a South African tertiary institution.

Sampling size requirements. In factor analysis high subject-variable ratios reduce the influence of sampling error which inflates correlations (Mulaik, 1972) and larger samples yield a better indication of the number of factors to extract (Gorsuch, 1983).

Nonconvergence, as well as negative estimates of variances yielding improper solutions, decreases with increased sample sizes (Boomsma, 1985).

A wide range of recommendations regarding sample size in factor analysis have been made. Gorsuch (1983) recommended five subjects per item, with a minimum of 100 subjects, regardless of the number of items. This recommendation is supported by Hair et al. (2010) who state that a researcher would not factor analyse a sample of fewer than 50, and preferably the sample size should be 100 or larger. The minimum requirement is to have at least five subjects per item. According to Guilford (1954), the sample size should be at least 200, while Cattell (1978) recommended three to six subjects per item, with a minimum sample size of 250. Comrey and Lee (1992) provided the following guidance in determining the adequacy of sample size: 100 would be regarded as poor, 200 as fair, 300 as good, 500 as very good, and 1000 or more as excellent. However, MacCallum, Widaman, Zhang and Hong (1999) argue that the size of a sample or the ratio of the number of participants to the number of variables are not adequate indicators of the stability of factor solutions.

The researcher aimed for as large a sample as possible with due consideration of the recommendation made by Hair et al. (2010) and Gorsuch (1983), i.e., a sample size ratio of 5:1. The CAI has a total of 55 items. Thus, the researcher required a minimum sample of 275. A total of 348 participants completed the CAI in the present study. Twenty-four questionnaires were excluded due to some items left unanswered or when the participant fell outside of the age range of 18 to 25 years. Thus, a total of 324 questionnaires qualified for the data analysis procedure.

Sampling procedure. A Psychology Department lecturer was approached who lectures first-year students. Students enrolled for various qualifications are registered for this module which provided an opportunity for the researcher to collect data from a diverse group in terms of the degree enrolled for. A time and date was agreed on with the lecturer in order to

capture data within the first 30 minutes of the lecture. Two different dates were set by the lecturer for the researcher to administer the inventory. The researcher was present at each data capturing session and was accompanied by postgraduate students who assisted in handing out and collecting the questionnaire booklet. The researcher explained the CAI and the instructions to the postgraduate assistants before data collection to ensure that they were familiar with the CAI and the administration thereof. Assistants were also asked to check whether the questionnaire booklet was completed in full in order to avoid collecting incomplete data as far as possible. Approximately 500 students were present at the two data capturing sessions of which 310 agreed to voluntarily participate. The researcher aimed for as large a sample as possible with due consideration that some of the questionnaire booklets collected might be incomplete. Thus, a third data collection session was arranged with first-year students registered for a National Diploma in Electrical Engineering. All 38 students voluntarily agreed to participate in the study. Given the smaller number of students that were present during this session, the researcher did not require extra assistance.

In all three data collection sessions the researcher explained to potential participants the purpose of the study as well as the ethical considerations prior to them completing the questionnaire booklet. Students were informed that their responses would remain confidential and that participation in the study was completely voluntary. The researcher emphasised that participants should answer all questions as honestly as possible. A letter of motivation was handed out to each potential participant explaining the above (see Appendix A). Students who agreed to participate were asked to complete and sign a consent form (see Appendix B). Thereafter, students completed the Biographical Questionnaire (see Appendix C, Section A), the Career Adapt-Abilities Inventory (see Appendix C, Section B which contains sample items) and the last part of the questionnaire booklet pertaining to the evaluation of the inventory (see Appendix C, Section C). Furthermore, a non-participating

psychologist was asked to be present at the data collection sessions in the event of the inventory triggering any negative memories.

Although the researcher approached the students as a group, participants completed the questionnaire booklets on their own. Participants were informed that the study met the ethical standards of the tertiary institution involved (permission was obtained from the Faculty Research, Technology and Innovation Committee (FRTI) prior to commencing with the study) and that should they request feedback they would need to identify themselves by means of writing their names on the questionnaire booklet rather than remaining anonymous.

Sample characteristics. Gorsuch (1997) recommends variety within the sample of participants in terms of the constructs being measured. In this particular study, the participants were not selected with respect to potential high or low scores on any of the variables, and may be seen as a convenience sample. However, the students who participated had to fall within the age range 18 to 25 and were excluded when they did not fall within this age range. The age limit was set in order to clearly define the sample population. Also, students who participated had to be first-year university students. Again, this requirement was set to clearly define the sample as well as to provide results (both quantitative and qualitative) which only pertain to first-year university students and thus cannot be generalised. Both male and female students agreed to participate in the study.

The minimum age of the participants was 18 years with a maximum age of 25 years. The mean age was calculated as 19.81 years, with a standard deviation of 1.70 and a median of 19.00. Quartile 1 and Quartile 3 was calculated as 19.00 and 21.00 respectively. The frequency distribution related to the age of the participants is represented in Table 3 below.

Table 3

Frequency Distribution: Age

Age	Participants	Percentage	Cumulative	
18	69	21%	69	21%
19	105	32%	174	54%
20	66	20%	240	74%
21	42	13%	282	87%
22	9	3%	291	90%
23	17	5%	308	95%
24	8	2%	316	98%
25	8	2%	324	100%
Total	324	100%		

Table 4 illustrates the demographic composition of the sample in terms of gender, home language, degree or diploma enrolled for, race and the subsequent frequency distribution.

Table 4

Demographic Composition

Variable	N	%
Gender		
Female	238	73%
Male	86	27%
Total	324	100%
Home Language		
Afrikaans	67	21%
English	132	41%

Table 4 (continued)

Xhosa	102	31%
Other	23	7%
Total	324	100%
<hr/> Enrolled degree or diploma		
BA General	72	22%
B Social Work	83	26%
BA Psychology	62	19%
B Education	24	7%
B Media studies	9	3%
B Cur	23	7%
B Human Movement		
Sciences	11	3%
BSc	2	1%
NDip Electrical Engineering	38	12%
Total	324	100%
<hr/> Race		
Black	135	42%
Coloured	66	20%
Indian	13	4%
White	106	33%
Other	4	1%
Total	324	100%

Data Analysis

Quantitative data analysis. This subsection provides an overview of the different statistical data techniques that were used in order to investigate the characteristics of the items from the CAI. Before any factor analytic techniques were applied the internal reliability of the CAI was measured. Cronbach's coefficient alpha was used as a way to measure the internal reliability of the five scales, viz., Concern, Control, Curiosity, Cooperation and Confidence. Frequency counts were conducted on each of the items to determine the frequency with which respondents had chosen each of the five options available to them. Descriptive statistics for the five scales were also conducted.

An evaluation section for the CAI was set out in Section C of the questionnaire booklet. Descriptive statistics were also performed on items 1.1 – 1.4 in Section C where students had to rate the CAI using the 5 point response scale previously described. The internal reliability for the evaluation of the CAI was also measured as well as frequency counts.

Exploratory factor analysis. The first aim of the study was to conduct exploratory factor analysis (EFA) which provided the tools for analysing the structure of the interrelationships (correlations) among the inventory items by defining sets of variables that are highly interrelated, known as factors (Hair, Black, Babin, & Anderson, 2010). R factor analysis was used to achieve this purpose, i.e., analysing a set of variables to identify the factors that are latent (not easily observed) with the use of a correlation matrix as the basic data input. Exploratory factor analysis allows for the determination of how observed variables share common variance-covariance characteristics and so relates to factors (Schumacker & Lomax, 1996). It is also useful for discerning the multivariate structure of the data collected on an instrument (Floyd & Widaman, 1995). Furthermore, factor analysis allows for two distinct outcomes: data summarisation and data reduction. In summarising the data, factor analysis derives underlying dimensions that, when interpreted and understood, describe the data in a

much smaller number of concepts than the original individual variables. Data reduction extends this process by deriving an empirical value (factor score) for each factor and then substituting this value for the original value.

Factor analysis usually involves three steps: (1) computing the inter-correlations between the variables, (2) extracting initial factors, and (3) rotating the factors to obtain a clearer picture of the factors (Murphy & Davidshofer, 1994). For the purposes of this research, principle component factor analysis was conducted which considers the total variance and derives factors that contain small proportions of unique variance (Hair et. al., 2010). Specifically, with component analysis, unities (values of 1.0) are inserted in the diagonal of the correlations matrix so that the full variance is taken into account in the factor matrix.

Correlations between the scales as well as the correlation matrices of the items were inspected to identify whether there were large correlations that suggest common variance shared by the test items that justifies the use of factor analysis (Nunnally & Bernstein, 1994). Diekhoff (1992) states that several of the variables should have correlations of at least 0.30 to warrant factor analysis. If visual inspection reveals no substantial number of correlations greater than .30, then factor analysis is probably inappropriate. The Bartlett test of sphericity was also conducted which is a statistical test for the presence of correlations among variables. It provides the statistical significance that the correlation matrix has significant correlations among at least some of the variables. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) was also used to quantify the degree of intercorrelations among the variables. This index ranges from 0 to 1, reaching 1 when each variable is perfectly predicted without error by the other variables. The measure can be interpreted with the following guidelines: .80 or above, meritorious; .70 or above, middling; 60 or above, mediocre; 50 or above, miserable; and below .50, unacceptable (Kaiser, 1974). Hair et al. (2010) state that an

overall MSA value of above .50 should be obtained before proceeding with the factor analysis.

In terms of deciding on the number of factors to extract the researcher relied on several criteria. The most commonly used technique is the latent root criterion. The rationale for the latent root criterion is that any individual factor should account for the variance of at least a single variable if it is to be retained for interpretation. With component analysis each variable contributes a value of 1 to the total eigenvalue. Thus, only the factors having latent roots or eigenvalues greater than 1 are considered significant. All factors with latent roots less than 1 are considered insignificant and are disregarded. Using the eigenvalue for establishing a cut-off is most reliable when the number of variables is between 20 and 50 (Hair et al., 2010).

Another criterion that was used involved the scree test criterion. The scree test is used to identify the optimum number of factors that can be extracted before the amount of unique variance begins to dominate the common variance structure (Cattell, 1966). The scree test is derived by plotting the latent roots against the number of factors in their order of extraction, and the shape of the resulting curve is used to evaluate the cut-off point. Over and above these two criteria, the importance of what the theory states on the number of factors the inventory contains was considered. Thus, the researcher also made use of the a priori criterion. This criterion is used when the researcher already knows how many factors to extract before undertaking the factor analysis. This approach was used by the researcher because the number of factors or scales is known to be five on the CAI. However, consideration was given to the outcome of the other criteria described.

Hair et al. (2010) state that factor rotation is perhaps the most important tool in interpreting factors. The simplest case of rotation is an orthogonal factor rotation in which the axes are maintained at 90 degrees. When not constrained to being orthogonal, the rotational procedure is called an oblique factor rotation. Oblique factor rotation was

employed in this study and the OBLIMIN method provided by the statistical package was incorporated. Oblique factor rotation was used due to it being more appropriate where most of the variables are presumably related to each other (Child, 1990).

In interpreting factors, a decision must be made regarding the factor loadings worth consideration and attention. The following guideline (see Table 5) is offered by Hair et al. (2010) in terms of identifying significant factor loadings based on sample size.

Table 5

Guidelines for identifying significant factor loadings based on sample size

Factor loading	Sample size needed for significance
.30	350
.35	250
.40	200
.45	150
.50	120
.55	100
.60	85
.65	70
.70	60
.75	50

Note. From J.F. Hair, W.C. Black, B.J. Babin, and R.E. Anderson. (2010). *Multivariate data analysis*. (7th Ed.). New Jersey: Prentice Hall.

In terms of the sample size of 324 for this study, a factor loading of 0.30 was considered statistically significant. The pattern matrix was inspected to report on all significant loadings for a variable on all the factors as well as highlighting those variables which were found to

have more than one significant loading which is referred to as cross-loading. If a variable persisted in cross-loading, it became a candidate for deletion. Once all the significant loadings have been identified, the researcher identifies variables that lacked at least one significant loading. Each variable's communality, i.e., the total amount of variance an original variable shares with all other variables, was also examined. Variables that had no significant loading and/or when cross-loading occurred, were omitted in some instances before recalculating the loadings until a well defined factor structure was obtained for the remaining variables.

Confirmatory factor analysis. The second aim involved performing confirmatory factor analysis (CFA) in order to test how well the items on the CAI represent the five factors (scales), i.e., Concern, Control, Curiosity, Cooperation and Confidence. Exploratory factor analysis explores the data and provides information about how many factors are needed to best represent data. With exploratory factor analysis, all measured variables are related to every factor by a factor loading estimate. The distinctive feature of exploratory factor analysis is that the factors are derived from statistical results, not from theory. However, with confirmatory factor analysis the number of factors that exist for a set of variables and which factor each variable will load on must be specified before the results can be computed. Thus, confirmatory factor analysis was applied to test the extent to which a known theoretical pattern of factor loadings on prespecified factors represents the actual data and thus enables one to either 'confirm' or 'reject' a preconceived theory (Hair et al., 2010). Confirmatory factor analysis was carried out for both the original factor model of the CAI as well as for the factor model that emerged through exploratory factor analysis.

The process that was followed in performing confirmatory factor analysis applies to both factor models, i.e. the original factor model and the exploratory factor model. The process starts with listing all the factors and their items that will comprise the measurement model.

The degrees of freedom (*df*) are also computed. Hair et al. (2010) define the degrees of freedom as the number of bits of information available to estimate the sampling distribution of the data after all model parameters have been estimated. In structural equations modelling (SEM), degrees of freedom are the number of nonredundant covariances/correlations (moments) in the input matrix minus the number of estimated coefficients. In computing the degrees of freedom one attempts to maximise the degrees of freedom available while still obtaining the best-fitting model. Each estimated coefficient ‘uses up’ a degree of freedom. A model can never estimate more coefficients than the number of nonredundant correlations or covariances, meaning that zero is the lower bound for the degrees of freedom for any model.

The AMOS (Analysis of Moment Structures) statistical program (Hair et al., 2010) was used to perform confirmatory factor analysis. Subsequently the degree of fit of the actual values of the observable variables and the hypothesised structures of the latent variables was estimated. Goodness-of-fit (GOF) indicates how well the specified model reproduces the observed covariance matrix among the indicator items, i.e. the similarity of the observed and estimated covariance matrices (Hair et al., 2010). Several goodness of fit indices were employed to determine how well the models fit the data and to make proper decisions about model rejection (Child, 1990). The relevant degree of fit of the two measurement models (original model and model derived from EFA) were investigated by means of the chi-square (χ^2) statistic, the root mean square error of approximation (RMSEA), the Tucker Lewis Index (TLI), Comparative Fit Index (CFI) and Akaike’s Information Criteria (AIC).

The chi-square statistic is a fundamental measure of differences between the observed and estimated covariance matrices. The implied null hypothesis of structural equation modelling (SEM) is that the observed sample and SEM estimated covariances matrices are equal, meaning that the model fits perfectly. The chi-square value increases as differences

(residuals) are found when comparing the two matrices. With the chi-square test, the researcher then assessed the statistical probability (p -value) that the observed sample and SEM estimated covariance matrices are actually equal in a given population. A relatively small chi-square value and corresponding large p -value is preferred which indicates no statistically significant differences between the two matrices and supports the idea that a proposed theory fits reality. When used as a goodness of fit measure low chi-square values are ideal to support the model as representative of the data (Hair et al., 2010). However, the chi-statistic has two mathematical properties that are problematic. Due to the chi-square statistic being a mathematical function of the sample size and the difference between the observed and estimated covariances matrices, the chi-square value increases as the sample increases even if the differences between matrices are identical. The chi-square statistic is also likely to be greater when the number of observed variables increases. Although larger sample sizes are often desirable, the increase in sample size itself will make it more difficult for those models to achieve a statistically insignificant goodness of fit. Also, as more indicators are added to a model it will consequently make it more difficult in using chi-square to assess model fit. For these reasons, the chi-square goodness of fit test is often not used as the sole goodness of fit measure.

The RMSEA is a measure that attempts to correct for the tendency of the chi-square statistic to reject models with a large sample or a large number of observed variables (Reise, Widaman, & Pugh, 1993). The RMSEA together with the chi-square statistic are absolute fit indices which are direct measures of how well a model reproduces the observed data and provides the most basic assessment of how well the theory fits the sample data. Lower RMSEA values indicate better fit, but the question of what is a 'good' RMSEA value is debatable. For this study a RMSEA value .07 or smaller was used as an indication of reasonable fit (Hair et al., 2010).

Incremental fit indices differ from absolute fit indices in that they assess how well the estimated model fits relative to some baseline model. The most common baseline model is referred to as a null model, one that assumes all observed variables are uncorrelated. It implies that no model specification could improve the model, because it contains no multi-item factors or relationships between them (Hair et al., 2010).

Two incremental fit indices were incorporated, namely the Tucker Lewis Index and the Comparative Fit Index (CFI). The Tucker-Lewis index is indicative of how well the covariances among the indicators are represented by common factors. Values of 0.90 and greater are regarded as satisfactory. When the index indicates unsatisfactory fit, there are by implication more complex interrelations among the observed variables than can be explained by the latent variables (Tucker & Lewis, 1973). The CFI is normed so that values range between 0 and 1, with higher values indicating better fit. CFI values above .90 are usually associated with a model that fits well (Hair et al., 2010).

Akaike's Information Criteria (AIC) is another measure of the goodness of fit that was incorporated. The AIC is not a test of the model in the sense of hypothesis testing but rather a test between models and can be seen as a tool for model selection with the one having the lowest AIC being the best (Burnham & Anderson, 2002). Due to two models being subjected to confirmatory factor analysis, AIC provides some indication of which model offers the best fit.

Qualitative data analysis. The third aim for this study involved exploring and describing South African university students' perceptions of the underlying constructs of the CAI in terms of the language usage and comprehension of the inventory's item content. As stated earlier, descriptive statistics were performed on items 1.1 to 1.4 in Section C where participants gave the inventory a rating using a response scale. Furthermore, participants were provided with the opportunity to write down any items that were unclear to them and

the specific word(s) in the items that they did not understand. The words that respondents identified were summarised in table format as well as the corresponding item number and the number of respondents who indicated that the item and/or word is unclear to them. Respondents were also asked to write any additional comments regarding the readability, comprehension and applicability of the CAI. In order to analyse the data in a way that met the aims of this research, Tesch's (1990) model of content analysis was used. The central idea in content analysis is that the numerous trends of the collected data are reduced and reclassified into fewer content categories without losing the participants' original meaning (Bailey, 1989; Neumann, 2000; Miles & Huberman, 1994; Tyson, 1995). This entails reading through the data repeatedly and breaking it down into themes, sub-themes and categories, and then rebuilding it again through elaborating and interpreting (Terre Blanche & Durrheim, 1999). Even though Tesch's model is often associated with analysing data obtained from interviews, the model served as a useful guide in clarifying the procedure in which the qualitative data gathered in this research study needed to be analysed.

The eight steps outlined by Tesch were broadly followed in the present study. Tesch (1990) emphasises the initial step of reading thoroughly through the information gathered in order to gain an overall impression of the data. The second step involves selecting certain material from the raw data for the identification of emerging themes. The next step is to elaborate on the data discussed above by considering similar themes in the remaining data and identifying new themes. After new themes have been identified, the data is reviewed and coded according to categories. Names in the form of descriptive wording are then selected for the various identified themes and categories. After the selection of descriptive wording comes the abbreviation of these category and theme names to create thematic labels. The seventh step comprises assembling all the data in one place according to the identified themes

and categories. Finally, Tesch recommends that the researcher re-code the existing data if necessary.

In the present study all comments were typed out verbatim and emerging themes were identified and summarised. This was done in accordance with Tesch's model by composing a list of similar themes which emerged during the reading of the comments provided by the participants. The list of comments were analysed in a table format and coded according to the different themes. Thus, a table was designed and each comment was then grouped according to a specific theme by marking each comment in the appropriate column titled according to different themes that were identified.

Summary

This chapter has provided an overview of concepts related to the methodology of this study and emphasized the data analytic procedures followed. The results of the study and the interpretation thereof are described in the following chapter.

Chapter Five

Results

The Career Adapt-Abilities Inventory (CAI; Savickas, 2008) has been subjected to both quantitative and qualitative data analytic procedures in the present study. In this chapter the results obtained will be discussed. Firstly, the results pertaining to the quantitative data analysis will be described. These include the internal reliability (Cronbach's coefficient alpha) of the five scales from the CAI, namely Concern, Control, Curiosity, Cooperation and Confidence. The internal reliability for section C1.1 of the inventory, which pertains to the ratings provided by respondents in evaluating the CAI, will also be provided. Frequency counts will be reported which indicate the frequency with which respondents chose each of the five options available to them. A subsection will also report the descriptive statistics obtained for the five scales and section C1.1 as well as the correlations between the scales. Thereafter, the results emanating from the exploratory and confirmatory factor analyses of the CAI are reported and discussed.

Secondly, qualitative results will be discussed. In this second subsection the researcher will summarise the items and the words from these items which were unclear to respondents in terms of readability and comprehension. Respondents also provided additional comments regarding the readability, comprehension and applicability of the CAI. These comments will be reported on in terms of themes that were identified and summarised.

Internal Reliability

Cronbach's alpha (α) was used to measure the reliability of the five scales from the CAI as well as for section C1.1. Table 6 below documents the reliability coefficients obtained. According to the reliability coefficients, all the CAI scales as well as section C1.1 have satisfactory reliability. The alpha coefficients range from 0.79 to 0.83 and fall within the acceptable Cronbach's alpha value of 0.7 or higher (Field, 2009). The Curiosity and

Confidence scales show the highest reliability (0.83) with the Cooperation and Control scales showing the lowest reliability (0.79). The high internal reliability that was achieved for all five scales as well as for section C1.1 indicates that the items of the corresponding scales/section measure the variable that they are supposed to measure.

Table 6

Internal Reliability Coefficients of CAI Scales and Section C.1.1

Scale	α
Concern	0.82
Control	0.79
Curiosity	0.83
Cooperation	0.79
Confidence	0.83
Section C1.1	0.80

Descriptive Statistics

The frequency counts, means and standard deviations for each CAI item as well as for items pertaining to section C1.1 may be found in Appendix D. Table 7 below indicates the descriptive statistics for the five CAI scales and for section C1.1 (evaluation of CAI).

Table 7

Descriptive Statistics for CAI Scales and Section C1.1

	N	Mean	SD	Minimum	Quartile 1	Median	Quartile 3	Maximum
Confidence	324	3.99	0.49	2.27	3.71	4.05	4.27	5.00
Control	324	3.99	0.50	1.45	3.64	4.00	4.36	5.00
Concern	324	3.91	0.51	1.91	3.62	3.91	4.27	5.00
Cooperation	324	3.80	0.56	1.36	3.45	3.82	4.27	4.82
Curiosity	324	3.78	0.54	1.64	3.45	3.82	4.18	5.00
Evaluation (C1.1)	295	4.29	0.58	2.25	4.00	4.50	4.75	5.00

Table 7 indicates that of the 324 participants only 295 completed section C1. A possible reason for this could be due to research assistants not thoroughly checking that participants completed the entire research booklet. Another reason may include time constraints on the part of the participants who were unable to complete this last section of the research booklet. The participants used the following rating scale in completing the CAI: 1 = none; 2 = weak; 3 = moderate; 4 = strong and 5 = very strong. For section C1, the following response scale was applied: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree and 5 = strongly agree. The mean and median for all scales and section C1.1 are relatively high. (For the purpose of this study, this indicates that participants rated themselves in the ‘moderate’ to ‘very strong’ category most often when completing the CAI and using the ‘agree’ and ‘strongly agree’ responses scales for section C1.1.) This is also evident when examining Appendix D which indicates the frequency counts for each item. Table 8 emphasises this as well by indicating the number of participants (expressed in percentages) that responded to the scales using None/Weak, Moderate or Strong/Very Strong.

Table 8

Summary of Responses for CAI Scales and Section C1.1

	None/Weak		Moderate		Strong/VS	
Confidence	4	1%	38	12%	282	87%
Control	2	1%	40	12%	282	87%
Concern	5	2%	43	13%	276	85%
Cooperation	8	2%	67	21%	249	77%
Curiosity	4	1%	73	23%	247	76%
C1.1	2	1%	22	7%	271	92%

Exploratory Factor Analysis

In this subsection the results obtained from the statistical procedures carried out during exploratory factor analysis will be reported and discussed.

Measures of intercorrelations. Intercorrelations between the five CAI scales were obtained (see Table 9) with $p < .001$. There were statistically significant positive correlations between scales with a correlation value of 0.3 or more considered statistically significant (Hair et al., 2010). These are printed in bold in Table 9. The highest correlations were obtained between the Concern and Control subscales ($r = 0.71$). Relatively low correlations were obtained between Concern and Cooperation ($r = 0.27$) and Curiosity and Cooperation ($r = 0.29$).

Table 9

Correlations among CAI scales

	Concern	Control	Curiosity	Cooperation	Confidence
Concern	1.00				
Control	0.71	1.00			
Curiosity	0.64	0.59	1.00		
Cooperation	0.27	0.31	0.29	1.00	
Confidence	0.56	0.61	0.57	0.38	1.00

* $p < 0.001$

The item correlation matrix can be found in Appendix E. A total of 1485 correlations can be observed. A total of 1207 (81.3%) statistically significant correlations were calculated for r equal to or greater than 0.109 ($n = 324$). Practically significant correlations were identified for r equal to or greater than 0.300. The total amount of practically significant correlations is 248 (16.7%).

The value of significance obtained by the Bartlett's Test of Sphericity is 0.000 which is less than 0.5 and indicates that sufficient correlations exist among the variables (Field, 2009). The approximate chi-square value is 6933.87 with a df value of 1485. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is another measure that was used to quantify the degree of intercorrelations among the variables. The KMO value should exceed 0.50 as a

bare minimum (Kaiser, 1974). A value of 0.89 was obtained which can be considered as “great” according to Field (2009, p. 647). The value obtained also suggests that the sample size of 324 is adequate for factor analysis (Field, 2009).

Communalities. Principal component factor analysis was used as the extraction method to calculate the total amount of variance an item shares with all the other items from the CAI. Table 10 below shows the communalities before and after extraction. Before extraction, the initial communality all the items shared with each other was 1.00. The column labelled ‘Extraction’ reflects the common variance after extraction. The minimum communality was obtained by item 41 (0.55) and the maximum communality was obtained by item 38 (0.75)

Table 10

Communalities

Item	Extraction	Item	Extraction	Item	Extraction
1	.61	25	.72	49	.64
2	.61	26	.71	50	.63
3	.62	27	.70	51	.65
4	.65	28	.58	52	.61
5	.70	29	.63	53	.61
6	.61	30	.66	54	.61
7	.70	31	.63	55	.66
8	.61	32	.65		
9	.68	33	.65		
10	.71	34	.73		
11	.68	35	.68		
12	.63	36	.73		
13	.65	37	.74		
14	.66	38	.75		
15	.66	39	.60		
16	.62	40	.60		
17	.62	41	.55		
18	.61	42	.63		
19	.65	43	.56		
20	.62	44	.67		
21	.66	45	.62		
22	.61	46	.65		
23	.67	47	.65		
24	.64	48	.60		

Factor extraction. The extraction criteria used by the researcher were discussed in Chapter Four, i.e., latent root criterion, scree test criterion and a priori criterion. Table 11 lists the eigenvalues associated with each component (i.e., factor) before and after extraction as well as the percentage of variance. According to the latent root criterion 16 factors should be considered for factor extraction due to the eigenvalues being greater than 1. Factor 1 shows the highest percentage of variance and consequently explains 22.5% of the total variance.

Table 11

Total Variance Explained

Component	Initial Eigenvalues			Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.38	22.50	22.50	12.38	22.50	22.50
2	3.55	6.45	28.95	3.55	6.45	28.95
3	2.50	4.55	33.50	2.50	4.55	33.50
4	2.10	3.82	37.32	2.10	3.82	37.32
5	2.02	3.68	40.99	2.02	3.68	40.99
6	1.54	2.80	43.79	1.54	2.80	43.79
7	1.44	2.63	46.42	1.44	2.63	46.42
8	1.36	2.47	48.89	1.36	2.47	48.89
9	1.24	2.26	51.15	1.24	2.26	51.15
10	1.18	2.15	53.30	1.18	2.15	53.30
11	1.13	2.05	55.35	1.13	2.05	55.35
12	1.07	1.94	57.29	1.07	1.94	57.29
13	1.04	1.90	59.19	1.04	1.90	59.19
14	1.04	1.89	61.08	1.04	1.89	61.08
15	1.01	1.83	62.91	1.01	1.83	62.91
16	1.00	1.82	64.73	1.00	1.82	64.73
17	.89	1.63	66.36			
18	.88	1.60	67.96			
19	.84	1.52	69.48			
20	.79	1.44	70.93			
21	.79	1.43	72.36			
22	.75	1.37	73.73			
23	.73	1.32	75.05			
24	.71	1.28	76.33			
25	.66	1.21	77.54			
26	.65	1.18	78.72			
27	.63	1.14	79.87			
28	.62	1.13	80.99			
29	.61	1.11	82.10			

Table 11 (Continued)

30	.59	1.08	83.18
31	.57	1.04	84.22
32	.54	.99	85.21
33	.53	.96	86.17
34	.51	.93	87.10
35	.51	.92	88.02
36	.48	.88	88.90
37	.47	.86	89.76
38	.43	.78	90.54
39	.41	.75	91.29
40	.40	.72	92.01
41	.39	.71	92.72
42	.39	.70	93.42
43	.37	.67	94.09
44	.36	.66	94.75
45	.33	.61	95.36
46	.32	.58	95.94
47	.31	.55	96.49
48	.30	.54	97.03
49	.28	.50	97.53
50	.26	.47	98.00
51	.25	.46	98.46
52	.25	.45	98.91
53	.23	.41	99.32
54	.20	.36	99.68
55	.18	.32	100.00

The next criterion involved the scree plot criterion. Figure 4 below illustrates the eigenvalue plot for the scree plot criterion which suggests that six factors could be considered for extraction. The latent root and scree plot criteria were both considered in deciding on the number of factors to extract. However, since the life design group of international researchers (Savickas, 2009) had already decided on the number of factors for the CAI, namely five factors, preference was given to this a priori criterion before performing factor analysis. Several oblique rotation methods were performed forcing the extraction of five factors respectively in order to derive the simplest and most interpretable factor structure.

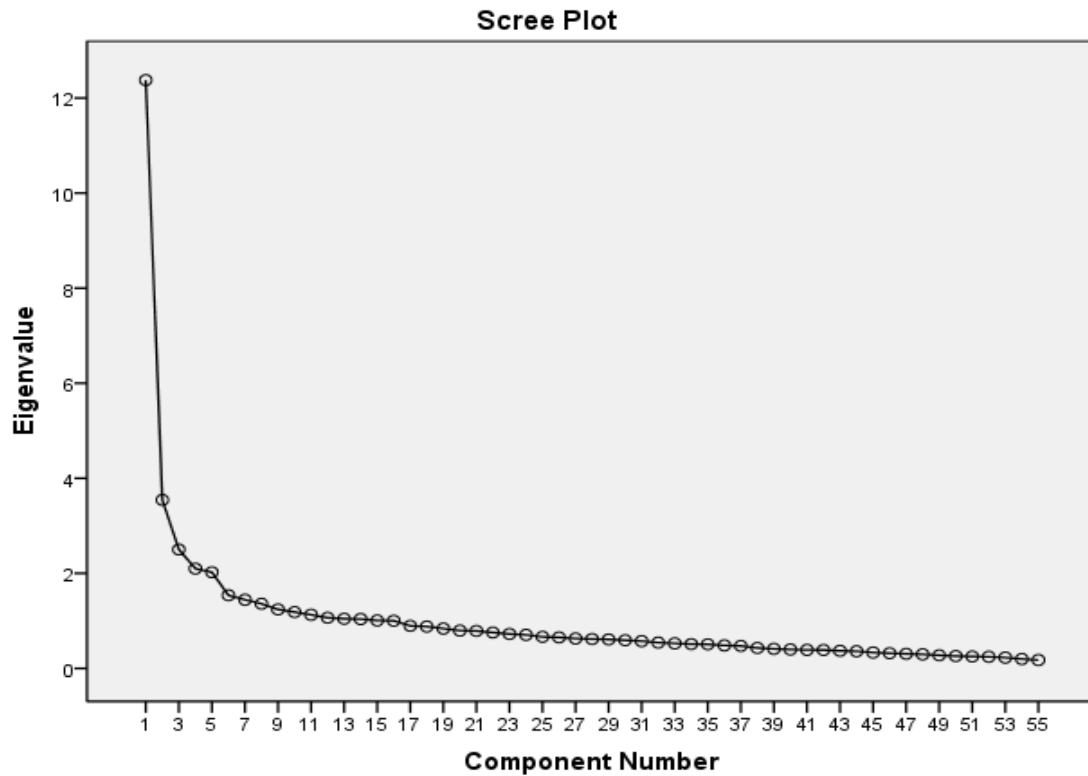


Figure 4 Scree Plot

Factor rotation. As stated, the oblique rotation method was employed using the OBLIMIN method provided by the statistical package. The pattern matrix for five factor rotations will now be discussed.

Five factor rotations. The factor pattern matrix obtained using a five factor rotation is shown in Table 12 after the first iteration. The items that cross-loaded ($> .30$) are highlighted in the column to the right with an 'x' as well as item 8 that loaded insignificantly (< 0.30). Loadings equal to or greater than 0.30 are printed in bold in Table 12. This also applies to Tables 13 to 16. The items that cross-loaded include items 2, 15, 22, 25, 46 and 49. These items were retained during iteration two in order to investigate whether these items would persist in cross-loading during the next iteration where subsequently only item 8 was omitted due to an insignificant loading (< 0.30). Even though a number of cross-loadings were identified, items 22, 25 and 49 displayed loadings where one loading can be considered

significantly higher compared to the other loading and thus the negative effect of cross-loadings are minimised by the higher loading occurring.

A second iteration (see Table 13) was conducted with item 8 omitted due to its insignificant loading on the first iteration. During iteration two all items loaded significantly. However, cross loadings occurred for items 2, 15, 22, 46 and 49. Due to items 22, 46 and 49 loading significantly higher on one factor compared to a lower loading on another factor, only items 2 and 15 were eliminated during the third iteration.

Table 14 illustrates the pattern matrix obtained after iteration three. During this iteration item 16 had insignificant loadings (.27 and .29) on factors two and five respectively. Cross loadings occurred for items 22, 23, 46 and 49. However, the negative effect thereof is again reduced due to these items producing loadings where one of the loadings load higher on a factor compared to the other loadings obtained for these items. These items were thus retained during the fourth iteration while item 16 was omitted due to insignificant loadings.

Table 15 displays the fourth and last iteration conducted. The pattern matrix shows a distinct clustering of factor loadings. No insignificant loadings were obtained. Cross loadings were obtained for items 22, 23, 25, 46 and 49. However, these items were retained due to the loadings that occurred for these items consisting of one loading that loaded significantly higher on a factor compared to the other loading obtained by these items.

Table 12

Five Factor Rotated Pattern Matrix: Iteration One

Items	Factor					Cross-loadings > 0.3	Insignificant loadings < 0.3
	1	2	3	4	5		
31	.70						
29	.66						
24	.65						
30	.61						
26	.61		.20				
28	.60						
32	.59						
27	.54						
23	.46		-.22	.29			
33	.45	-.25	.20				
10	.47						
34	.44			-.34	.29		
55		.65	-.27				
54		.62					
50		.62					
47		.61					
52		.54					
45		.53					
46		.50	.40			x	
51	.21	.49					
53	.26	.48					
41		.35					
16		.30		.28			
08	.22	.25					x
13			.70				
03			.63				
21			.62		.24		
09			.58				
14		.29	.53				
05			.52				
07			.49				
06	.25		.44				
11		-.28	.43	.26			
15		.40	.41			x	
02			.39	.36		x	
01	.23	.21	.32				
17				.63			
04				.61			
20				.60			
22			.32	.55		x	
49		.33		.55		x	
18				.54			
25		-.27	.30	.51		x	
12			.21	.47			
48				.44	.23		
19	.22			.32			
37					.78		
36					.74		
35					.71		
38					.70		
39				-.23	.64		
43	-.28		.24		.57		
40					.50		
42					.48		
44				-.33	.35		

Table 13

Five Factor Rotated Pattern Matrix: Iteration Two

Items	Factor					Cross-loadings > 0.3
	1	2	3	4	5	
31	.70					
29	.66					
24	.66					
30	.61					
26	.61	.20				
28	.60					
32	.58					
27	.54					
23	.46	-.22			.29	
33	.45		-.25			
10	.44					
34	.44			.29	-.35	
13		.70				
03		.63				
21		.62		.23		
09		.57				
14		.53	.29			
05		.56				
07		.50				
06	.25	.43				
11		.42	-.27		.26	
15		.42	.39			x
02		.39			.36	x
01	.22	.32	.21			
55		-.22	.65			
54			.62			
50			.62			
47			.61			
52			.54			
45			.53			
46		.40	.50			x
51	.22		.50			
53	.26		.48			
41			.35			
16			.30		.29	
37				.78		
36				.74		
35				.71		
38				.70		
39				.64	-.23	
43	-.28	.24		.57		
40				.50		
42				.48		
44				.35	-.33	
17					.63	
04					.61	
20					.60	
22		.32			.55	x
49			.33		.54	x
18					.54	
25		.294	-.27		.52	
12		.206			.47	
48				.23	.44	
19	.22				.32	

Table 14

Five Factor Rotated Pattern Matrix: Iteration Three

Items	Factor					Cross-loadings > 0.3	Insignificant loadings < 0.3
	1	2	3	4	5		
31	.69						
24	.67						
29	.65						
30	.63						
26	.60						
28	.59						
32	.57						
27	.54						
23	.49		-.22		.31	x	
10	.45						
33	.42	-.20	.23				
34	.41		.21	.29	-.36		
54		.65					
55		.64	-.25				
47		.64					
50		.63					
45		.58					
52		.58					
51	.22	.52					
53	.25	.51					
46		.51	.39			x	
41		.36					
13			.70				
03			.64				
21			.62	.23			
09			.60				
14		.22	.52				
05			.50				
07			.49				
06	.25		.44				
11		-.26	.42		.23		
01	.22	.22	.31				
37				.78			
36				.75			
35				.71			
38				.70			
39				.64	-.22		
43	-.29	.21	.24	.56			
40				.51			
42				.48			
44				.34	-.34		
48				.22	.41		
12			.23		.47		
25		-.24	.29		.47		
04					.62		
49		.32			.54	x	
16		.27			.29		x
19	.22				.32		
17					.65		
22			.34		.54	x	
20					.62		
18					.54		

Table 15

Five Factor Rotated Pattern Matrix: Iteration Four

Items	Factor					Cross-loadings > 0.3
	1	2	3	4	5	
31	.68					
24	.67					
29	.66					
30	.64					
28	.59					
26	.59					
32	.57					
27	.53					
23	.49	-.22			.30	x
10	.46					
33	.41	.23				
34	.41	.21		.29	-.36	
13		.70				
03		.64				
21		.62		.24		
09		.61				
14		.52	.22			
05		.51				
07		.50				
06	.24	.49				
11		.43	-.26		.22	
01	.22	.31	.22			
54			.69			
50			.63			
47			.63			
55		-.25	.63			
45			.58			
52			.58			
51	.22		.52			
53	.25		.51			
46		.39	.50			x
41			.35			
37				.78		
36				.75		
35				.71		
38				.70		
39				.64	-.21	
43	-.29	.25	.20	.57		
40				.51		
42				.47		
44				.34	-.32	
17					.65	
04					.62	
20					.62	
49			.31		.54	x
18					.53	
22		.34			.53	x
12		.22			.48	
25		.30	-.23		.46	x
48				.22	.43	
19	.22				.33	

Discussion of the factor pattern matrix. From Table 15 it is evident that almost all the items had significant loadings on a factor with the exception of items 22, 23, 25, 46 and 49 which had significant loadings on more than one factor. However, as stated in the previous section, these items had one loading which loaded significantly higher compared to the other loadings obtained by these items on a particular factor. Theoretically, one should recall that the CAI consists of five scales, i.e., Concern, Control, Curiosity, Cooperation and Confidence. Each scale contains 11 items and the composition of each scale is as follow: Concern (items 1 to 11); Control (items 12 to 22); Curiosity (items 23 to 33); Cooperation (items 34 to 44); and Confidence (items 45 to 55). Table 16 provides a summary of the five factor structure obtained by exploratory factor analysis (iteration four; see Table 15) with the items sorted by number. The highest loading obtained by an item is printed in bold to highlight on which factor or scale it loads more significantly.

The original CAI scale consisted of a total of 55 items. After conducting EFA, a total of 51 items were retained after items 2, 8, 15 and 16 were eliminated during the analysis due to insignificant loadings and/or cross-loadings. Given the results of the exploratory factor analysis and theoretical considerations, the factors may be defined as follow:

Factor 1: Curiosity (items **10**, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33 and **34**)

Factor: 2: Concern (items 1, 3, 5, 6, 7, 9, 11, **13**, **14** and **21**)

Factor 3: Confidence (items **41**, 45, 46, 47, 50, 51, 52, 53, 54 and 55)

Factor 4: Cooperation (items 35, 36, 37, 38, 39, 40, 42, 43 and 44)

Factor 5: Control (items **4**, 12, 17, 18, 19, 20, 22, **25**, **48** and **49**)

The item numbers printed in bold indicate those items which originally did not form part of the particular scale when compared to the original scale composition.

Table 16

Factor Structure obtained by EFA sorted by Item Numbers

Item	Factor				
	1	2	3	4	5
01	.22	.31	.22		
03		.64			
04					.62
05		.51			
06	.24	.44			
07		.50			
09		.61			
10	.46				
11		.43	-.26		.22
12		.22			.48
13		.70			
14		.52	.22		
17					.65
18					.53
19	.22				.33
20					.62
21		.62		.24	
22		.34			.53
23	.49	-.22			.30
24	.67				
25		.30	-.23		.46
26	.59				
27	.53				
28	.59				
29	.66				
30	.64				
31	.68				
32	.57				
33	.41	.23			
34	.41	.21		.29	-.36
35				.71	
36				.75	
37				.78	
38				.70	
39				.64	-.21
40				.51	
41			.35		
42				.47	
43	-.29	.25	.20	.57	
44				.34	-.32
45			.58		
46		.39	.50		
47			.63		
48				.22	.43
49			.31		.54
50			.63		
51	.22		.52		
52			.58		
53	.25		.51		
54			.65		
55		-.25	.63		

Confirmatory Factor Analysis

As stipulated in Chapter Four, the second aim of this study involved performing confirmatory factor analysis (CFA) in order to test how well the items on the CAI represent the five factors (i.e., scales), namely, Concern, Control, Curiosity, Cooperation and Confidence. CFA was carried out for both the original factor model of the CAI as well as for the factor model that emerged through EFA. The original CAI model will be referred to as ‘Model A’ while ‘Model B’ will refer to the factor model derived through EFA. The results obtained for these analyses will be discussed simultaneously for both models in the subsections to follow.

Measurement models. Developing the overall measurement model is the first step in conducting CFA. For both Models A and B the measurement model to be tested is specified. Visual diagrams depicting the measurement model for Models A and B are shown in Figures 5 and 6. For Model A (Figure 5) 55 observed (endogenous) and 60 unobserved (exogenous) variables exist which add up to a total of 115 variables. Each of the five constructs is indicated by eleven measured items. Model A can be described as an overidentified model due to it having more unique covariances (i.e., 1540) than parameters (i.e., 120) to be estimated and it has 1420 degrees of freedom. For Model B (Figure 6) a total of 107 variables exist which is composed of 51 observed and 56 unobserved variables. The constructs Concern, Confidence and Control each contain 10 items, while Curiosity and Cooperation consists of 12 and 9 items respectively. Model B can also be described as overidentified due to it having more unique covariances (i.e., 1326) than parameters (i.e., 112) to be estimated and it has 1214 degrees of freedom.

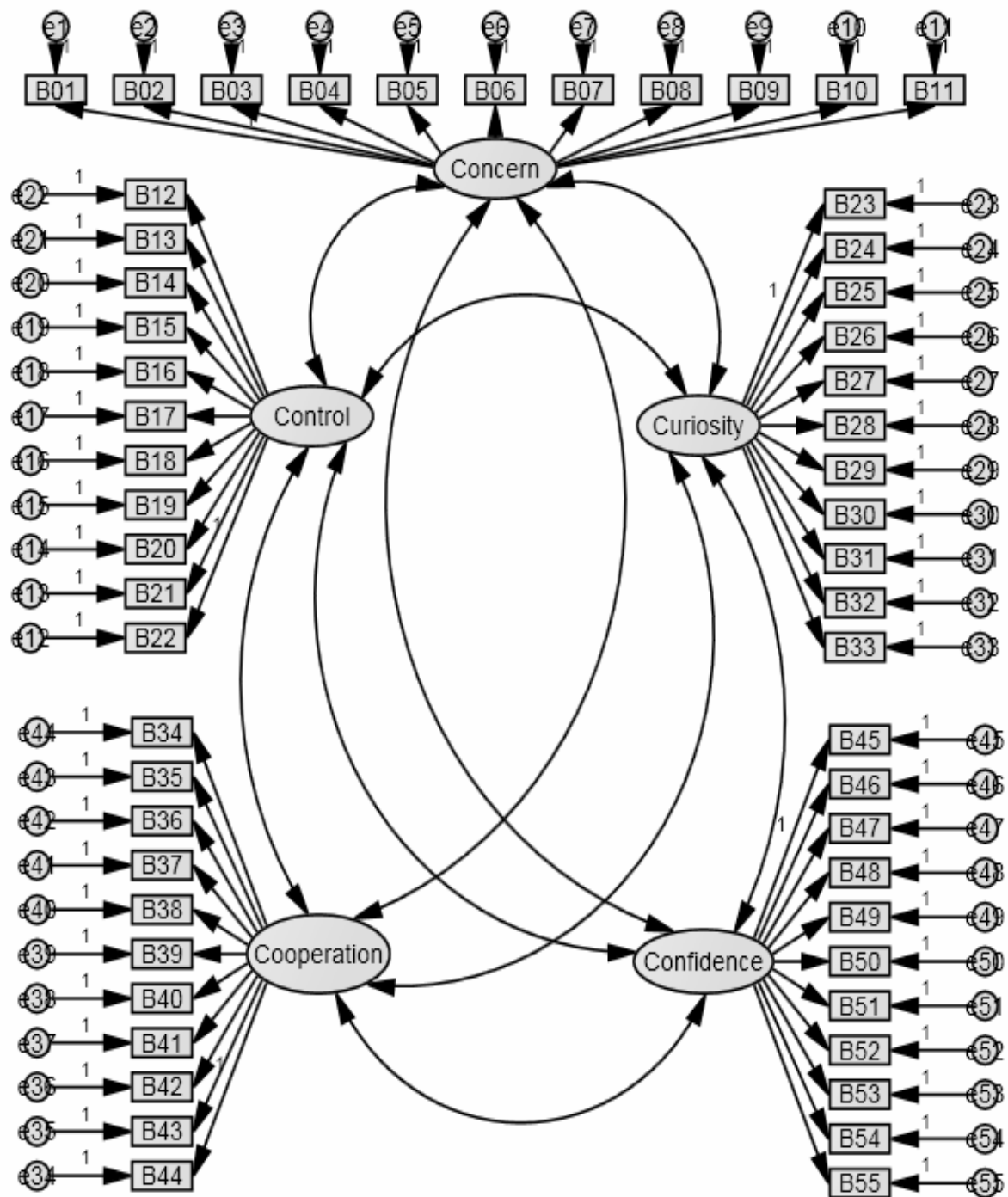


Figure 5 Measurement Model A

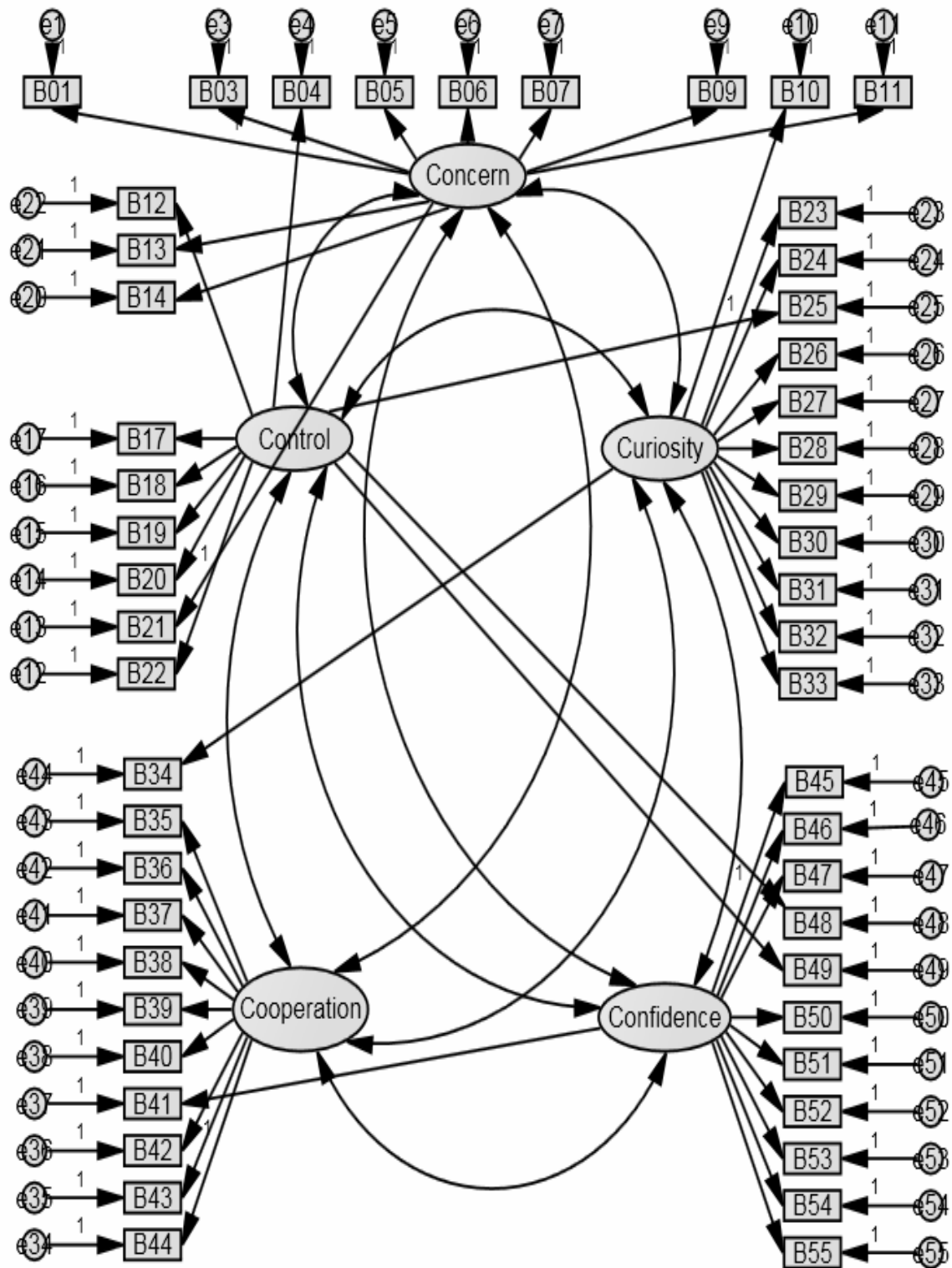


Figure 6 Measurement Model B

Estimates of the degree of fit. In Chapter Four, the researcher discussed the goodness of fit indices that were employed to determine how well the models fit the data. The values obtained by these indices for the two measurement models are summarised in Table 17.

Table 17

Fit Indices for Measurement Models A and B

Index	Model A (Original Model)	Model B (Derived through EFA)
Chi-square (χ^2) statistic	2884.83 $df = 1420$ ($p = 0.000$)	2347.43 $df = 1214$ ($p = 0.000$)
Root Mean Square Error of Approximation (RMSEA)	0.057	0.054
Tucker Lewis Index (TLI)	0.74	0.78
Comparative Fit Index (CFI)	0.751	0.79
Akaike's Information Criteria (AIC)	3124.83	2571.43

The chi-square statistics for both Models A and B indicate poor fit due to a large χ^2 value and a small p value which for both models failed to exceed 0.05. The RMSEA value for both models indicate good fit due to meeting the target of smaller or equal to 0.07. The model derived through EFA (Model B) obtained a marginally better fit. The TLI and the CFI indicated poor fit for both models due to values obtained for both models being lower than 0.90 for both indices with values of 0.90 or higher usually associated with a model that fits well. As stated in Chapter Four, the AIC is not a test of the model itself, but rather a test between models and can be seen as a tool for model selection with the one having the lowest AIC being the best (Burnham & Anderson, 2002). Inspection of the AIC values indicate that Model B shows a better fit compared to Model A.

Based on the values obtained by the fit indices, the conclusion can be made that Model B can be associated with a slightly better fit compared to Model A. Both Models A and B showed poor fit with some of the indices, i.e., χ^2 statistic, TLI and CFI; however, Model B showed better fit when using the RMSEA and AIC.

Qualitative Results

The third aim of this study involves exploring and describing South African university students' perceptions of the underlying constructs of the CAI in terms of the language usage and comprehension of the inventory's item content. The qualitative findings will be discussed in the sections to follow and will provide a summary and discussion of the items and word content that were viewed by participants as unclear in terms of comprehension and language usage. Furthermore, themes that emerged from the additional comments provided by participants in terms of the readability, comprehension and applicability of the inventory will be discussed.

Items and word content. Table 18 below provides a summary of the word(s) that caused comprehension difficulty for the participants. The first column indicates the number of times an item was viewed by the participants as unclear, with the specific item number listed in the middle column and the specific word or phrase that was unclear in the last column. Item 8 can be seen as the item causing the most difficulty for participants in terms of comprehension. A total of 22 participants marked this item as unclear with specific reference to the phrase 'keeping upbeat'. The word 'conscientious' from item 50 is also viewed by a considerable number of participants (n= 20) as not easy to comprehend. One participant was unsure of the specific context item 44 refers to which reads 'Hiding my true feelings for the good of the group'. Even though 14 items were indicated by participants as unclear in terms of the word usage, a majority of these items were only listed by a small percentage of the 295 participants who completed section C1 (evaluation section of the

questionnaire booklet). Thus, the question arises whether these items can truly be seen as problematic in terms of the word usage with only a few individuals who struggled to understand the meaning of the words/phrases of the specific item. However, it is worth noting that items 8 and 15 which were omitted during the process of EFA due to insignificant and cross loadings, were also viewed by participants as problematic in terms of comprehension and readability.

Table 18

Summary of Words and Items viewed by Participants as Unclear

Number of times mentioned	CAI item	Word(s)
22	8	Keeping upbeat
20	50	Conscientious
9	6	Vocational
5	10	Anticipating
3	42	Going along with the group
2	28	Probing
2	39	Meeting halfway
1	15	Persistent
1	23	Exploring my surroundings
1	31	Considering my alternatives
1	34	Becoming less self-centred
1	35	Acting
		Hiding my feelings for the
		good of the group (in what
1	44	context?)
		Feeling pride in a job well
1	48	done.

Themes emerging from participants' comments. The last part of Section C was reserved for participants to write additional comments on the CAI regarding readability, comprehension and the applicability of the CAI. As discussed in Chapter Four, the

researcher used Tesch's (1990) model in analysing the data. Appendix F illustrates how the comments were categorised according to the different themes. Investigation of these comments generated three types of themes. The first theme relates to the comprehension and clarity of the CAI and includes both positive and negative comments. Theme two relates to participants' perceptions that the CAI enhanced their understanding of themselves. The third theme also included both positive and negative comments and relates to the structure, length and general layout of the CAI. Each theme will now be discussed in more detail.

Theme 1: Comprehension and clarity of the CAI. This theme generated the most comments from all the participants and was highlighted 59 times by participants. The comments were mostly positive (51 incidents) and emphasised that the CAI was received by participants as 'understandable', 'clear' and 'easy to answer'. Some participants commented furthermore that the inventory was 'user-friendly' and 'straight forward'. However, eight comments pointed out that the CAI was viewed by some participants as 'unclear' and 'confusing'. Participants commented that they were unsure of the meaning of the word 'inventory', that the items were 'a bit broad' and that they did not understand the instructions and how to answer the inventory. One participant highlighted that it 'would have been helpful to explain abilities like negotiating or mediating in tough situations – the context is unclear.' Others felt that some of the items were repeated and that the level of English is 'too high' for those students who are English second language speakers.

Theme 2: Enhanced understanding of self. This theme was generated by a total of 19 comments received. The comments written involved statements such as 'this CAI made me realise the kind of person I really am, and will help in making decisions in life.' Participants also commented that the CAI made them think about their strong and weak points and 'the impact I have on other people while interacting with them'. One participant stated that the CAI made him/her think about his/her career and 'what I need to do to have a good career.'

Theme 3: Structure, length and layout of the CAI. Fourteen comments underlined this theme. Of these comments, six were supportive of a good inventory structure while eight comments indicated that participants felt that the structure and length of the inventory needed to be altered. One participant made the suggestion that the items could be grouped into subsections while another participant commented that the scale did not match the questions and that a more appropriate scale could have been used. Unfortunately the participant did not suggest an alternative form of scale to be used as it would have been interesting to note what type of scale would have been viewed more appropriate by the student. Some participants commented that the CAI did not take a lot of time to complete, while others felt it was too long and that a repetition of items occurred – specifically pointing out items 2 and 25 which read ‘Thinking about what my future will be like’ and ‘Imagining what my future will be like’ respectively.

Summary

Chapter Five summarised and discussed the quantitative and qualitative results obtained through data analyses procedures. The findings of the EFA analysis of the CAI yielded a discussion on the structure of the interrelationships (i.e., correlations) among the inventory items and subsequently a factor structure was obtained through employing the oblique rotation method using the OBLIMIN method. Thereafter confirmatory factor analysis was conducted and the model fit was investigated for both the original factor model of the CAI as well as for the factor model that emerged through EFA. The findings from the CFA suggested that the EFA factor model shows slightly better fit compared to the original CAI model.

The qualitative results aimed to provide a summary of participants’ perceptions of the CAI in terms of readability and comprehension. Specific items and corresponding word content that were identified by participants were summarised and discussed, and themes that

emerged from comments written by participants were highlighted. In the following chapter, a conclusion of all research findings will be made, as well as a discussion regarding the limitations of the study and recommendations for further research.

Chapter Six

Discussion, Limitations and Future Research

Broadly speaking, the primary objective of this study was to investigate the psychometric properties of the Career Adapt-Abilities Inventory (CAI; Savickas, 2008) as well as qualitatively examine its suitability to a South African population of first-year university students. The study aimed to examine the factor structure of the CAI by conducting exploratory factor analysis as well as confirming the hypothesised factor structures of the CAI by means of confirmatory factor analysis. With regards to the qualitative component of the study, the researcher explored and described South African university students' perceptions of the underlying constructs of the CAI in terms of its language usage and the comprehension of its item content. The quantitative and qualitative results obtained were presented and discussed in Chapter Five. This chapter begins by summarising the results as well as discussing their implications. Further, the limitations of this study will be addressed followed by recommendations for future research of the CAI.

Discussion of the Results

A summary of the results obtained will be discussed in the following subsections as well as their implications.

Exploratory Factor Analysis (EFA) Findings. The first aim of the current study was to determine whether interrelationships within the items of the CAI can be explained by the presence of unobserved variables by conducting exploratory factor analysis on a sample of South African university students. The results indicated high internal reliability for all five scales of the CAI with alpha coefficients ranging from 0.79 to 0.83. Most of the CAI scales were found to share common variance with each other with correlations of 0.3 or more that were calculated for $p < 0.001$. The high correlations amongst the scales suggest that the scales are measuring the same construct, namely career adapt-abilities. However,

correlations below 0.3 were found between Concern and Cooperation (0.27) and Curiosity and Cooperation (0.29).

A pattern matrix (see Tables 12 to 15) was obtained for each of the four iterations that were performed using a five factor solution during EFA. During iteration four, a distinct clustering of factor loadings were obtained resulting in a good, simple factor structure. After the CAI was subjected to EFA on a sample of first-year university students, the factor structure illustrated in Figure 7 was supported.

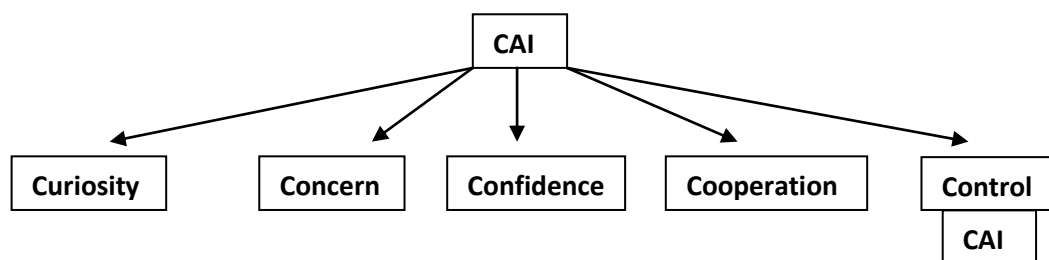


Figure 7 CAI Factor Structure obtained by EFA

The underlying theoretical structure of the five scales of the CAI (i.e., Curiosity, Concern, Confidence, Cooperation and Control) has thus been supported by this study. These factors support the five scales presented by Savickas (2008). In terms of the number of inventory items, 51 items were retained while items 2, 8, 15 and 16 were eliminated due to insignificant loadings and/or cross loadings. The subsequent scale composition derived from the fourth and final iteration is as follows:

Factor 1: Curiosity (items 10, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33 and 34)

Factor: 2: Concern (items 1, 3, 5, 6, 7, 9, 11, 13, 14 and 21)

Factor 3: Confidence (items 41, 45, 46, 47, 50, 51, 52, 53, 54 and 55)

Factor 4: Cooperation (items 35, 36, 37, 38, 39, 40, 42, 43 and 44)

Factor 5: Control (items 4, 12, 17, 18, 19, 20, 22, 25, 48 and 49)

The first aim of this study was met by performing EFA which yielded a factor structure of the CAI by means of identifying underlying interrelationships between CAI items. The

factor structure obtained through EFA confirms Savickas' (2008) description of the CAI with reference to its five scales and item composition.

Confirmatory Factor Analysis (CFA) Findings. An attempt to confirm the hypothesised factor structures of the Career Adapt-Abilities Inventory by conducting confirmatory factor analysis on a sample of South African university students was the second aim of this study. Various fit indices were used by the present researcher in order to accomplish this aim. However, the various fit indices available and the lack of consistent guidelines can tempt researchers to 'pick and choose' an index that provides the best fit evidence in one specific analysis and a different index in another analysis (Hair et al., 2010). Furthermore, fit indices such as the χ^2 GOF test statistic tend to reject models with a large sample. In the current research the Root Mean Square Error of Approximation (RMSEA) was used in an attempt to correct for this tendency associated with the χ^2 GOF test statistic. In addition to the RMSEA, four other GOF indices were used to provide adequate evidence of model fit and thus avoid the pitfall of choosing one specific GOF index that provides adequate fit.

Confirmatory factor analysis was carried out for both the original factor model of the CAI (Model A) as well as for the factor model that emerged through EFA (Model B). CFA was performed in order to test how well the items on the CAI represent the five factors by means of several goodness of fit (GOF) indices. Both Models A and B demonstrated poor fit to the data when using indices such as the χ^2 statistic, Tucker Lewis Index (TLI) and Comparative Fit Index (CFI). The TLI, however, often indicates poor fit for models with low correlations. On the other hand, both models indicated a good fit with the data in terms of the values obtained using the RMSEA index. In terms of the Akaike's Information Criteria (AIC) values obtained for both models, Model B showed a better fit. The CFA findings suggest that Model A demonstrates a relatively good fit in terms of the RMSEA, thus

supporting the construct validity of the original CAI factor model. However, Model B shows a marginally better fit based on the RMSEA index and the AIC, with the latter being a test between Models A and B. In answer to the second aim of this study, it seems that the inventory items adequately represent the five CAI scales based on the RMSEA value, while the factor model derived through EFA demonstrates a slightly better fit.

Qualitative results. The third aim of this study involved exploring and describing South African university students' perceptions of the underlying constructs of the CAI in terms of the language usage and comprehension of the inventory's item content. Fourteen items, namely items 6, 8, 10, 15, 23, 28, 31, 34, 35, 39, 42, 44, 48 and 50, were indicated by participants as causing comprehension difficulty. Many of these items were only marked by five or less participants, while items 8 and 50 were marked several times. The latter items, 'Keeping upbeat' (item 8) and 'conscientious' (item 50), were indicated by participants as unclear in terms of the meaning of the words.

Participants provided additional comments with regard to the readability, comprehension and applicability of the Inventory. An investigation of these comments generated three types of themes which related to: (1) the comprehension and clarity of the CAI; (2) participants' perception that the CAI enhanced their understanding of themselves; and (3) the structure, length and general layout of the CAI. Even though the CAI was experienced by many participants as 'easy to answer', 'user-friendly' and 'straight forward', several participants indicated that the CAI was 'unclear' and 'confusing'. Specifically, some participants commented that they were unsure of the meaning of the word 'inventory', that the items were 'a bit broad' and that they did not understand the instructions and how to answer the inventory.

Participants also felt that the CAI was lengthy and could be shortened. Reference was made to the repetition of certain items, for example, items 2 and 25 which read 'Thinking

about what my future will be like’ and ‘Imagining what my future will be like’ respectively. Even though the above comments were provided by a small percentage of the total sample that participated in this study, the comments need to be considered in order to make the CAI more applicable for South African students. Positive commentary on the CAI included participants’ perceptions that the CAI added to their understanding of themselves. Comments were made that the CAI helped them to identify their strong and weak points and triggered thoughts about their career, for example ‘the impact I have on other people while interacting with them’ and ‘what I need to do to have a good career.’

In summary, this study provided useful information regarding the psychometric properties of the CAI using a sample of South African first-year university students. The EFA results yielded a five-factor model representing Savickas’ (2008) theoretical dimensions of career adaptability. However, four items were deleted along the process of factor rotations. Even though the results obtained through CFA suggest that the factor model derived through EFA demonstrates a better fit with the data compared to the original CAI factor structure, the high internal reliability that was achieved for all five scales indicates that the items of the corresponding scales measure the variable (i.e., career adapt-abilities) that they are supposed to measure. The qualitative results also provided useful information that needs to be considered when modifying the CAI for South African use. Furthermore, reconsidering the word usage for items 8 and 50 and clarifying items 2 and 25 could add to the reliability and validity of the instrument for use in South Africa.

Limitations of Research

A limitation of this study is the inability to generalise from the present results. The measuring instrument was administered to a group of first-year university students which limits the generalisability of the results to other sample populations. However, the choice of sample seems appropriate when taking into account that Savickas (2008) employed college

and high school students as his samples during the original development of the CAI. Thus, the sample used in this study resembles the samples used in international research. Furthermore, the sample represented first-year university students from one particular South African tertiary institution and thus results cannot be generalised to all South African university students. Given the demographic differences in students from different universities in South Africa in terms of race, language and socioeconomic backgrounds, this further limits the generalisability of the results.

Even though an attempt was made by the researcher to thoroughly explain concepts pertaining to the research study as well as to provide instructions on how to complete the CAI, more concise and less theoretical definitions of the constructs ‘career adaptability’ and ‘adapt-abilities’ could have been offered to participants prior to their participation. In retrospect, this could have provided participants with a better understanding of what it is the CAI aims to measure. Another limitation includes the large amount of students present at two of the data capturing sessions. Even though the researcher was accompanied by postgraduate research assistants, the researcher found it problematic to ensure that all students were sufficiently informed regarding the completion of the questionnaire booklet.

Furthermore, a possible limitation associated with GOF indices used in this study with reference to the often debateable question what constitutes an adequate or good fit, was overcome by using several fit indices.

Recommendations for Further Research

A few areas can be identified for future research, particularly if the limitations of the preceding subsection are considered. Since the CAI was primarily administered to university students from one South African tertiary institution, a representative sample of different universities in South Africa would ensure greater generalisability of results. Furthermore,

there is a need for the replication of this study to other South African populations such as adolescents and employees.

Exploring potential gender or culture-based differences may also yield interesting results. Future research would benefit from comparing data obtained from male and female participants as well as different cultural groups by correlating scores obtained on different CAI scales. In order to further validate the use of the CAI, additional factor analytic methods may also be considered.

Section C, as part of the questionnaire booklet which was handed out to participants, served the purpose of allowing for qualitative data to be collected based on participants' perceptions of the CAI in terms of its readability, comprehension and applicability. It is recommended that future researchers conduct individual interviews with participants in order to collect such data. This will allow for researchers to clarify any comments made by participants by asking additional questions which will ensure comprehensive qualitative data collection.

Conclusion

The present study was exploratory in nature and served as a preliminary investigation of the psychometric properties of the CAI and its applicability to a South African sample. The aims of the present study have been achieved in that a five factor structure was obtained through EFA which supports the five CAI scales (Curiosity, Concern, Confidence, Cooperation and Control) suggested by Savickas (2008). Also, CFA results suggest that inventory items represent the five CAI scales, while the factor model derived through EFA demonstrates a slightly better fit. In addition, the qualitative data collected will assist in making the CAI more applicable for South African usage.

In conclusion, career adaptability is emerging as a new research focus within the South African career psychology field. The current study has added to both national and

international research conducted on the construct of career adaptability and its measurement. The findings of this study provide a platform for future research and increase the confidence with which career counsellors use the CAI as an instrument in career developmental counselling.

References

- Amundson, N. (2005). The potential impact of global changes in work for career theory and practice. *International Journal for Educational and Vocational Guidance*, 5(2), 91-99.
- Arthur, M. B. (1994). The boundaryless career: A new perspective for organizational inquiry. *Journal of Organizational Behavior*, 15, 295-306.
- Ashforth, B. E., & Saks, A. M. (1995). Work-role transitions: A longitudinal examination of the Nicholson model. *Journal of Occupational and Organizational Psychology*, 68, 157-175.
- Bailey, K. D. (1989). *Methods of social research*. New York: Free Press.
- Bell, A. P., Super, D. E., & Dunn, T. B. (1988). Understanding and implementing career theory: A case study approach. *Counseling and Human Development*, 20, 1-19.
- Betz, N. E. (1977). Vocational behaviour and career development, 1976: A review. *Journal of Vocational Behavior*, 11, 129-152.
- Betz, N. E. (1994). Self-concept theory in career development and counseling. *The Career Development Quarterly*, 43, 32-42.
- Betz, N. E., & Schifano, R. S. (2000). Evaluation of an intervention to increase realistic self-efficacy and interests in college women. *Journal of Vocational Behavior*, 56, 35-52.
- Blau, G. J. (1989). Testing generalisability of a career commitment measure and its impact on employee turnover. *Journal of Vocational Behaviour*, 35, 115-127.
- Blustein, D. L. (1988). The relationship between motivational processes and career exploration. *Journal of Vocational Behavior*, 32, 345-357.
- Blustein, D. L. (1992). Applying current theory and research in career exploration to practice. *The Career Development Quarterly*, 41, 174-184.
- Blustein, D. L. (1997). A context rich perspective of career exploration across the life roles. *Career Development Quarterly*, 45, 260-274.

- Blustein, D. L., & Flum, H. (1999). A self-determination perspective of interests and exploration in career development. In M. L. Savickas & A. R. Spokane (Eds.), *Vocational interests: Meaning, measurement, and counseling use*. Palo Alto, CA: Davies-Black.
- Blustein, D. L., Chaves, A. P., Diemer, M. A., Gallagher, L. A., Marshall, K. G., Sirin, S., & Bhati, K. S. (2002). Voices of the forgotten half: The role of social class in the school-to-work transition. *Journal of Counselling Psychology*, 49(3), 311-323.
- Blustein, D. L., Ellis, M. V., & Devenis, L. E. (1989). The development and validation of a two-dimensional model of commitment to the career choice process. *Journal of Vocational Behavior*, 35, 342-378.
- Boomsma, A. (1985). Nonconvergence, improper solutions, and starting values in LISREL maximum likelihood estimation. *Psychometrika*, 50(2), 229-242.
- Bordin, E. S., Nachmann, B., & Segal, S. J. (1963). An articulated framework for vocational development. *Journal of Counseling Psychology*, 10, 107-1116.
- Borgen, F. H. (1991). Megatrends and milestones in vocational behaviour: A 20-year counseling psychology retrospective. *Journal of Vocational Behavior*, 39, 263-290.
- Bridgstock, R. (2006). *Follow your (employable) bliss*. Proceedings of the AACCC06 International Careers Conference, Australia, Sydney.
- Brown, D. (1990). Summary, comparison, and critique of the major theories. In D. Brown & L. Brooks (Eds.). *Career choice and development: Applying contemporary theories to practice* (2nd ed., pp. 338-363). San Francisco: Jossey-Bass.
- Brown, D. (2002). *Career choice and development* (4th ed.). San Francisco: Jossey-Bass.
- Buchner, M. (2007). The protean career attitude, emotional intelligence and career adjustment. Unpublished master's thesis, University of Johannesburg, Johannesburg, South Africa.

- Bujold, C. (2004). Constructing career through narrative. *Journal of Vocational Behavior*, 64, 470-484.
- Burnham, K. P., & Anderson, D. R. (2002). *Model selection and multimodel inference: A practical information-theoretic approach* (2nd edition.). New York: Springer-Verlag.
- Cao, K., & Zeng, Y. (2008). Relationship between social support, psychological control and subjective well-being of college students. *Chinese Journal of Clinical Psychology*, 16, 195-197.
- Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1, 245-276.
- Cattell, R. B. (1978). *The scientific use of factor analysis*. New York: Plenum.
- Chartrand, J. M., Robbins, S. B., Morrill, W. H., & Boggs, K. (1990). Development and validation of the career factors inventory. *Journal of Counseling Psychology*, 37(4), 491-501.
- Child, D. (1990). *The essentials of factor analysis*. London: Cassell Education.
- Collin, A. (1997). Career in context. *British Journal of Guidance and Counselling*, 25, 435-446.
- Collin, A., & Young, R. A. (1986). New directions for theories of career. *Human Relations*, 39, 837-853.
- Combs, G. & Freedman, J. (1994). Narrative intentions. In Hoyt, M. F. (Ed.), *Constructive therapies* (pp. 67-92). London: The Guilford Press.
- Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis*. New Jersey: Lawrence Erlbaum Associates.
- Cook, E. P. (1994). Role salience and multiple roles: A gender perspective. *Career Development Quarterly*, 43, 85-95.

- Creed, P. A., & Patton, W. (2003). Predicting two components of career maturity in school based adolescents. *Journal of Career Development, 29*, 277-290.
- Creed, P. A., Fallon, T., & Hood, M. (2009). The relationship between career adaptability, person and situation variables, and career concerns in young adults. *Journal of Vocational Behavior, 74*, 219-229.
- Creed, P. A., MacPherson, J., & Hood, M. (2010). Predictors of “new economy” career orientation in an Australian sample of late adolescents. *Journal of Career Development, 000*(00), 1-21.
- Creed, P. A., Patton, W., & Watson, M. B. (2002). Cross-cultural equivalence of the Career Decision-Making Self-Efficacy Scale short form: An Australian and South African comparison. *Journal of Career Assessment, 10*(3), 327-342.
- Crites, J. O. (1969). *Vocational psychology*. New York: McGraw-Hill.
- Crites, J. O. (1973). *Theory and research handbook for the career maturity inventory*. Monterey, CA: McGraw Hill.
- Csikszentmihalyi, M., & Beattie, O. V. (1979). Life themes: A theoretical and empirical exploration of their origins and effects. *Journal of Humanistic Psychology, 19*, 45-63.
- Dauwalder, J. P. (2003). Quality in educational and vocational guidance at the beginning of the 21st century: Some introductory statements. In R. Kunz, J. P. Dauwalder, & J. Renz (Eds.), *Quality development in vocational counselling and training* (pp. 22-25). Zurich, Switzerland: SVB.
- Dawis, R. V., England, G. W., & Lofquist, L. H. (1964). A theory of work adjustment. *Minnesota Studies in Vocational Rehabilitation, XV*, 1-27.
- Dawis, R. V., Lofquist, L. H., & Weiss, D. J. (1968). A theory of work adjustment (a revision). *Minnesota Studies in Vocational Rehabilitation, XXIII*, 1-14.

- De Bruin, G. P., & Bernard-Phera, M. J. (2002). Confirmatory factor analysis of the Career Development Questionnaire and the Career Decision-Making Self-Efficacy Scale for South African high school students. *South African Journal of Industrial Psychology*, 28(2), 1-6.
- De Bruin, G. P., & Lew, C. C. (2000). Construct validity of the Career Resilience Questionnaire. *South African Journal of Industrial Psychology*, 28(1), 67-69.
- De Vos, A. S. (2000). *Research at grass roots: A primer for the caring professions*. Pretoria: Van Schaik.
- De Vos, A. S., Strydom, H., Fouché, C. B., & Delport, C. S. L. (2006). *Research at grass roots for the social sciences and human service professions* (3rd ed.). Pretoria: Van Schaik.
- Diekhoff, G. (1992). *Statistics for the behavioral sciences: Univariate, bivariate, and multivariate*. Dubique, IA: Win, C. Brown.
- Dinkmeyer, D. C., & Dreikurs, R. (1963). *Encouraging children to learn: The encouragement process*. Upper Saddle River, NJ: Prentice Hall.
- Dix, J. E., & Savickas, M. L. (1995). Establishing a career: Developmental tasks and coping responses. *Journal of Vocational Behavior*, 47, 93-107.
- Dobson, Y. K. (1993). *A factor analysis of the life role inventory*. Unpublished master's treatise, University of Port Elizabeth, Port Elizabeth, South Africa.
- Duarte, M. E., & Lassance, M. C. (2010). Career adaptability in Portugal and Brazil: Test of a model and measure. In V. Mrowinski, M. Kyrios, & N. Voudouris (Eds.), *Abstracts of the 27th international congress of applied psychology* (p. 152). Melbourne, Australia: Australian Psychological Society.
- Duffy, R. D. (2010). Sense of control and career adaptability among undergraduate students. *Journal of Career Assessment*, 18(4), 420-430.

- Duffy, R. D., & Blustein, D. L. (2005). The relationship between spirituality, religiousness, and career adaptability. *Journal of Vocational Behavior*, 67, 429-440.
- Ebberwein, C. A., Krieshok, T. S., Ulven, J. C., & Prosser, E. C. (2004). Voices in transition: Lessons on career adaptability. *The Career Development Quarterly*, 52, 292-308.
- Ellis, R. A., & Taylor, M. S. (1983). Role of self-esteem within the job search process. *Journal of Applied Psychology*, 68, 632-640.
- Erikson, E. (1968). *Identity: Youth and crisis*. New York: Norton.
- Field, A. (2009). *Discovering statistics using SPSS (and sex and drugs and rock 'n' roll)* (3rd Ed.). Los Angeles: Sage.
- Finnemore, M. (1999). *Introduction to labour relations in South Africa*. Port Elizabeth: Butterworths.
- Fitzgerald, L. F., & Betz, N. E. (1994). Career development in cultural context: The role of gender, race, class and sexual orientation. In M. L., Savickas & R. W. Lent (Eds.), *Convergence in career development theories: Implications for science and practice* (pp. 103-117). Palo Alto, CA: Consulting Psychologists Press.
- Flores, L. Y., & O'Brien, K. M. (2002). The career development of Mexican American adolescent women: A test of social cognitive career theory. *Journal of Counselling Psychology*, 49, 14-27.
- Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment*, 7(3), 286-299.
- Flum, H., & Blustein, D. L. (2000). Reinvigorating the study of vocational exploration: A framework for research. *Journal of Vocational Behavior*, 56, 380-404.
- Fourie, C., & Van Vuuren, L. J. (1998). Defining and measuring career resilience. *Journal of Industrial Psychology*, 24(3), 52-59.

- Foxcroft, C., & Roodt, G. (2001). *An introduction to psychological assessment in the South African context*. Oxford University Press Southern Africa: Cape Town.
- Freeman, S. (1993). Donald Super: A perspective of career development. *Journal of Career Development, 19*, 255-264.
- Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. New York: Farrar Straus and Giroux.
- Furnham, A. (2000). Work in 2020: Prognostications about the world of work 20 years into the millennium. *Journal of Managerial Psychology, 15*(3), 242-254.
- Gelatt, H. B. (1962). Decision-making: A conceptual frame of reference for vocational development. *Journal of Counseling Psychology, 9*, 240-245.
- Germeijs, V., & De Boeck, P. (2003). A measurement scale for indecisiveness and its relationship to career indecision and other types of indecision. *European Journal of Psychological Assessment, 18*, 113-122.
- Ginzberg, E., Ginsberg, S., Axelrad, S., & Herma, J. (1951). *Occupational choice: An introduction to a general theory*. New York: Columbia University Press.
- Goodman, J. (1994). Career adaptability in adults: A construct whose time has come. *The Career Development Quarterly, 43*, 74-84.
- Gorsuch, R. L. (1983). *Factor analysis*. Hillsdale, NJ: Lawrence Erlbaum.
- Gorsuch, R. L. (1997). Exploratory factor analysis: Its role in item analysis. *Journal of Personality Assessment, 68*(3), 532-560.
- Gould, S. (1979). Characteristics of career planners in upwardly mobile occupations. *Academy of Management Journal, 22*, 539-550.
- Gratton, L. (2004). *The democratic enterprise: liberating your business with freedom, flexibility and commitment*. London: Prentice Hall.

- Gravetter, F. J., & Forzano, L. B. (2003). *Research methods for the behavioral sciences*. Belmont, CA: Wadsworth.
- Greenhaus, J. H. (1971). An investigation of the role of career salience in vocational behaviour. *Journal of Vocational Behavior*, 1, 209-216.
- Guichard, J. (2005). Life-long self-construction. *International Journal for Educational and Vocational Guidance*, 5, 111-124.
- Guichard, J. (2007, September). Life-long self-construction: A core issue of vocational psychology in a globalized world. In J. Guichard (Ed.), *Vocational guidance and diversity across the world*. Invited symposium presented at IAEVG international conference, Padua, Italy.
- Guilford, J. P. (1954). *Psychometric methods*. New York: McGraw Hill.
- Hackett, G., & Betz, N. E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior*, 18, 326-329.
- Hackett, G., & Lent, R. W. (1992). Theoretical advances and current inquiry in career psychology. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (2nd ed., pp 419-451). New York: Wiley.
- Hackett, G., Lent, R. W., & Greenhaus, J. H. (1991). Advances in vocational theory and research: A 20-year retrospective. *Journal of Vocational Behavior*, 38, 3-38.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analysis with readings*. Englewood Cliffs: Prentice Hall.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis*. (7th ed.). New Jersey: Prentice Hall.
- Hall, D. T. (1996). Protean careers of the 21st century. *Academy of Management Executive*, 11(1), 8-16.

- Hall, D. T. (2004). The protean career: A quarter-century journey. *Journal of Vocational Behavior, 65*, 1-13.
- Hartung, P. J. (2007). Career construction: Principles and practice. In K. Maree (Ed.), *Shaping the story: A guide to facilitating narrative counselling* (pp. 103-119). Pretoria: Van Schaik Publishers.
- Hartung, P. J., & Borges, N. J. (2005). Toward integrated career assessment: Using story to appraise career dispositions and adaptability. *Journal of Career Assessment, 13*(4), 439-451.
- Hartung, P. J., Porfeli, E. J., Vondracek, F. W. (2008). Career adaptability in childhood. *The Career Development Quarterly, 57*, 63-74.
- Hearne, L. (2007, July). *Career counselling across the lifespan*. Paper presented at the International Association for Counselling, University College Cork, Ireland.
- Heppner, M. J. (1998). The career transitions inventory: Measuring internal resources in adulthood. *Journal of Career Assessment, 6*, 135-145.
- Hershenson, D. B., & Roth, R. M. (1966). A decision process model of vocational development. *Journal of Counseling Psychology, 13*, 368-370.
- Hirschi, A. (2009). Career adaptability development in adolescence: Multiple predictors and effect on sense of power and life satisfaction. *Journal of Vocational Behavior, 74*, 145-155.
- Hirschi, A. (2010). Swiss adolescents' career aspirations: Influence of context, age, and career adaptability. *Journal of Career Development, 36*(3), 228-245.
- Hock, D. (2005). *One from many: Visa and the rise of chaordic organization*. San Francisco: Berret Koehler.
- Hogan, J., & Holland, B. (2003). Using theory to evaluate personality and job-performance relations: A socioanalytic perspective. *Journal of Applied Psychology, 88*, 100- 112.

- Holland, J. L. (1959). A theory of vocational choice. *Journal of Counseling Psychology*, 6, 35-44.
- Holland, J. L. (1973). *Making vocational choices: A theory of careers*. Englewood Cliffs, NJ: Prentice Hall.
- Holland, J. L. (1985). *Making vocational choices: A theory of careers* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Holland, J. L. (1997). *Making vocational choices* (3rd ed.). Odessa, F. L.: Psychological Assessment Resources.
- Holland, J. L., & Gottfredson, G. D. (1994). *Career attitudes and strategies inventory: An inventory for understanding adult careers*. Odessa, Florida: Psychological Assessment Resources.
- Hoppock, R. (1957). *Occupational information*. New York: McGraw-Hill.
- Hughes, C., & Thomas, T. (2005). Individualism and collectivism: A framework for examining career programs through a cultural lens. *Australian Journal of Career Development*, 14(1), 41-50.
- Huysamen, G. K. (1993). *Methodology for the social and behavioural sciences*. Johannesburg: International Thompson Publishing.
- Isaacson, L. E., & Brown, D. (1993). *Career information, career counselling, and career development* (5th ed.). New York: Allyn & Bacon.
- Ito, J. K., & Brotheridge, C. M. (2005). Does supporting employees' career adaptability lead to commitment, turnover, or both? *Human Resource Management*, 44(1), 5-19.
- Jones, L. K. (1989). Measuring a three-dimensional construct of career indecision among college students: A revision of the vocational decision scale – the career decision profile. *Journal of Counseling Psychology*, 36, 477-486.

- Kaiser, H. F. (1974). Little Jiffy, Mark IV. *Educational and Psychology Measurement*, 34, 11-117.
- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology*, 67(3), 341-349.
- Kenny, M. E., & Bledsoe, M. (2005). Contributions of the relational context to career adaptability among urban adolescents. *Journal of Vocational Behavior*, 66, 257-272.
- Kenny, M. E., Blustein, D., Chaves, A., Grossman, J., & Gallagher, L. A. (2003). The role of perceived barriers and relational support in the educational and vocational lives of urban high school students. *Journal of Counselling Psychology*, 20, 142-155.
- Klehe, U., Zikic, J., Van Vianen, A. E. M., & De Pater, I. E. (2011). Career adaptability, turnover and loyalty during organizational downsizing. *Journal of Vocational Behavior*, 1-13.
- Kline, P. (1994). *An easy guide to factor analysis*. London: Routledge.
- Koen, J., Klehe, U., Van Vianen, A. E. M., Zikic, J., & Nauta, A. (2011). Career adaptability, turnover and loyalty during organizational downsizing. *Journal of Vocational Behavior*, 79(1), 217-229.
- Krumboltz, J. D., Mitchell, A. M., & Jones, G. B. (1976). A social learning theory of career selection. *The Counseling Psychologist*, 6, 71-80.
- Langley, R. (1990). *Manual: The life role inventory*. Pretoria: Human Sciences Research Council.
- Langley, R., Du Toit, R., & Herbst, D. L. (1992). *Manual for the Career Development Questionnaire*. Pretoria: Human Sciences Research Council.
- Lent, R. W., Brown, S. D., & Hackett, G. (1996). Career development from a social cognitive perspective. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development* (3rd ed., pp. 373-421). San Francisco, CA: Jossey-Bass.

- Leong, F. T. L., & Hartung, P. J. (2000). Adapting to the changing multicultural context of career. In A. Collin & R. A. Young (Eds.), *The future of career* (pp. 212-227). Cambridge, UK: Cambridge University Press.
- Leong, F. T. L. (October, 2010). *International career adaptability project: An overview and future directions*. Paper presented at the Indian School of Business, Gachibowli, India.
- Lew, C. C. (2001). *A factor analytic study of adult career concerns, career status and career resilience*. Unpublished master's thesis, University of Johannesburg, Johannesburg, South Africa.
- Lima, M. R., & Duarte, M. (2010). A preliminary study for adaptability assessment in career counselling: Contribution to the paradigm for career construction. In V. Mrowinski, M. Kyrios, & N. Voudouris (Eds.), *Abstracts of the 27th international congress of applied psychology* (pp. 1390-1391). Melbourne, Australia: Australian Psychological Society.
- Lofquist, L. H., & Dawis, R. V. (1969). *Adjustment to work*. New York: Appleton-Century-Crofts.
- London, M. (1993). Relationships between career motivation, empowerment, and support for career development. *Journal of Occupational and Organizational Psychology*, 66, 55-69.
- MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, 4(1), 84-99.
- Maree, K. (2010). Career adaptability in South Africa: Test of a model and measure. In V. Mrowinski, M. Kyrios, & N. Voudouris (Eds.), *Abstracts of the 27th international congress of applied psychology* (p. 153). Melbourne, Australia: Australian Psychological Society.
- Maree, K., Ebersöhn, & Molepo, M. (2006). Administering narrative career counselling in a diverse setting: Trimming the sails to the wind. *South African Journal of Education*, 26(1), 49-60.

- McArdle, S., Waters, L., Briscoe, J. P., & Hall, D. T. (2007). Employability during unemployment: Adaptability, career identity and human and social capital. *Journal of Vocational Behavior*, 71, 247-264.
- McCash, P. (2008). *Career studies handbook: Career development learning in practice*. York, UK: The Higher Education Academy.
- McDaniels, C., & Gysbers, N. C. (1992). *Counselling for career development: Theories, resources and practice*. San Francisco: Jossey-Bass.
- McIlveen, P. F. (2008). *An investigation into my career chapter: A dialogical autobiography*. Unpublished doctoral dissertation, Queensland University of Technology, Australia.
- McMahon, M. & Patton, W. (2006). *Career counselling: Constructivist approaches*. Oxon: Routledge.
- McMahon, M. (2007). Life story counselling: Producing new identities in career counselling. In K. Maree (Ed.), *Shaping the story: A guide to facilitating narrative counselling* (pp. 63-71). Pretoria: Van Schaik Publishers.
- McNair, S., Flynn, M., Owen, L., Humphreys, C., & Woodfield, S. (2004). *Changing work in later life: A study of job transitions*. Retrieved from www.niace.org.uk/crow/research-crow-survey.htm
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Mirvis, P., & Hall, D. (1996). Psychological success and the boundaryless career. In M.B. Arthur & D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 237-255). New York: Oxford University Press.
- Mitchell, A. M., Jones, G. B., & Krumboltz, J. D. (1979). *Social learning theory of career decision making*. Cranston, RI: Carroll.

- Moja, T., & Cloete, N. (2001). Vanishing borders and new boundaries. In J. Muller, N. Cloete, & S. Badat (Ed.), *Challenges of globalisation: South African debates with Manuel Castells* (pp. 244-270). Cape Town, South Africa: Maskew Miller Longman.
- Morgan, A. (2000). *What is narrative therapy? An easy to read introduction*. Adelaide, Dulwich Centre Publications.
- Mrowinski, V., Kyrios, M., & Voudouris, N. (2010). *Abstracts of the 27th international congress of applied psychology*. Melbourne, Australia: Australian Psychological Society.
- Mulaik, S. A. (1972). *The foundations of factor analysis*. New York: McGraw Hill.
- Murphy, K. R., & Davidshofer, C. O. (1994). *Psychological testing: Principles and applications* (3rd ed.). New Jersey: Prentice-Hall International.
- Murray, H. A. (1943). *Thematic Apperception Test: Manual*. Cambridge, MA: Harvard University Press.
- Neumann, W. L. (2000). *Social research methods: Qualitative and quantitative approaches* (4th ed.). Needham Heights: Allyn and Bacon.
- Nevill, D. D. & Super, D. E. (1986). *The Salience Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Niles, S. G., Anderson, W. P., & Goodnough, G. (1998). Exploration to foster career development. *The Career Development Quarterly*, 46, 262-275.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York McGraw Hill.
- O'Connell, D. J., McNeely, E., & Hall, D. T. (2008). Unpacking personal adaptability at work. *Journal of Leadership & Organizational Studies*, 14(3), 248-259.
- Ortenblad, A. (2004). The learning organization: Towards an integrated model. *The Learning Organization*, 11(2), 129-144.

- Osipow, S. H. (1973). *Theories of career development* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Osipow, S. H. (1987). *Career decision scale manual*. Odessa, FL: Psychological Service Assessment Resources.
- Osipow, S. H., & Fitzgerald, L. F. (1996). *Theories of career development* (4th ed.). Boston: Allyn & Bacon.
- Parsons, F. (1909). *Choosing a vocation*. Boston, MA: Houghton-Mifflin.
- Patton, W. (2000). The nexus between vocational education and career education: In competition or each defining a place for the other? *Australian Journal of Career Development*, 9(3), 34-39.
- Patton, W. (2007). Connecting relational theory and the systems theory framework: Individuals and their systems. *Australian Journal of Career Development*, 16(3), 38-46.
- Patton, W., & Creed, P. A. (2001). Perspectives on Donald Super's construct of career maturity. *International Journal of Educational and Vocational Guidance*, 1, 1-18.
- Patton, W., & McMahon, M. (2006). *Career development and systems theory: connecting theory and practice*. Rotterdam: Sense.
- Peavy, R. V. (2000). A sociodynamic perspective for counselling. *Australian Journal of Career Development*, 9(1), 17-24.
- Platman, K. (2004). Portfolio careers and the search for flexibility in later life. *Work, Employment and Society*, 18, 573-600.
- Pouyaud, J., Soidet, I., Vignoli, E., & Dosnon, O. (2010). Career adaptability in France: Test of a model and measure. In V. Mrowinski, M. Kyrios, & N. Voudouris (Eds.), *Abstracts of the 27th international congress of applied psychology* (p. 153-154). Melbourne, Australia: Australian Psychological Society.

- Pryor, R. G. L., & Bright, J. E. H. (2003). Order and chaos: A twenty-first century formulation of careers. *Australian Journal of Psychology*, 55(2), 121-128.
- Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, D. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology*, 85, 612-624.
- Reid, H. L. (2006). Usefulness and truthfulness: Outlining the limitations and upholding the benefits of constructive approaches for career counselling. In M. McMahon & W. Patton (Eds.), *Career counselling: Constructivist approaches* (pp. 30-41). London: Routledge.
- Reise, S. P., Widaman, K. F., & Pugh, R. H. (1993). Confirmatory factor analysis and item response theory: Two approaches for exploring measurement invariance. *Psychological Bulletin*, 114(3), 552-556.
- Richardson, M. S. (1993). Work in people's lives: A location for counseling psychologists. *Journal of Counseling Psychology*, 40, 425-433.
- Roe, A. (1956). *The psychology of occupations*. New York: Wiley.
- Roe, A., & Klos, D. (1969). Occupational classification. *The Counseling Psychologist*, 1, 84-92.
- Rogers, M. F., Creed, P. A., & Glendon, I. A. (2008). The role of personality in adolescent career planning and exploration: A social cognitive perspective. *Journal of Vocational Behavior*, 73, 132-142.
- Rosenberg, M. (1989). *Society and the adolescent self-image*. Middletown, CT: Wesleyan University Press.
- Ross, C. E., & Broh, B. A. (2000). The role of self-esteem and the sense of personal control in the academic achievement process. *Sociology of Education*, 73, 270-284.

- Rottinghaus, P. J., Day, S. X., & Borgen, F. H. (2005). The career futures inventory: A measure of career-related adaptability and optimism. *Journal of Career Assessment*, 13(1), 3-24.
- Salomone, P. R. (1996). Tracing Super's theory of vocational development: A 40-year retrospective. *Journal of Career Development*, 22, 167-184.
- Savickas, M. L. (1993). Career counseling in the postmodern era. *Journal of Cognitive Psychotherapy: An International Quarterly*, 7, 205-215.
- Savickas, M. L. (1997). Career adaptability: An integrative construct for life-span, life-space theory. *The Career Development Quarterly*, 45, 247-259.
- Savickas, M. L. (1998). Career style assessment and counseling. In T. Sweeney (Ed.), *Adlerian counseling: A practitioner's approach* (4th ed., pp. 329-360). Philadelphia: Accelerated Development Press.
- Savickas, M. L. (2000). Renovating the psychology of careers for the twenty-first century. In A. Collin & R. A. Young (Eds.), *The future of career* (pp. 53-68). Cambridge, UK: Cambridge University Press.
- Savickas, M. L. (2001). Toward a comprehensive theory of career development: Dispositions, concerns, and narratives. In F. T. L. Leong & A. Barak (Eds.), *Contemporary models in vocational psychology: A volume in honor of Samuel H. Osipow* (pp. 295-320). Mahwah, NJ: Erlbaum.
- Savickas, M. L. (2002). Career construction: A developmental theory of vocational behaviour. In D. Brown & Associates (Eds.), *Career choice and development* (4th ed., pp. 149-205). San Francisco: Jossey Bass.
- Savickas, M. L. (2005). The theory and practice of career construction. In S. Brown & R. Lent. (Eds.), *Career development and counselling: putting theory and research to work*. New York: John Wiley.

- Savickas, M. L. (2006). *Career construction theory*. Proceedings of the AACC 15th Annual National Conference, Sydney. Retrieved from www.aacc.org.au
- Savickas, M. L. (2008). *Life-design international research group: Career adaptability project*. Unpublished report made available at the meeting at Humboldt Universität, Berlin.
- Savickas, M. L. (2009). Career studies as self-making and life designing. *Career Research and Development*, 24, 15-17.
- Savickas, M. L. (2010). Vocational counseling. In I. B. Weiner & W. E. Craighead (Eds.), *Corsini's encyclopedia of psychology* (4th ed., pp. 1841-1844). Hoboken, NJ: John Wiley & Sons.
- Savickas, M. L., & Hou, Z. (2010). Career adaptability: Cross-cultural examination of a model and measure. In V. Mrowinski, M. Kyrios, & N. Voudouris (Eds.), *Abstracts of the 27th international congress of applied psychology* (p. 151). Melbourne, Australia: Australian Psychological Society.
- Savickas, M. L., Nota, L., Rossier, J., Dauwalder, J., Duarte, M. E., Guichard, J., . . . Van Vianen, A. E. M. (2009). Life designing: A paradigm for career construction in the 21st century. *Journal of Vocational Behavior*, 75, 239-250.
- Savickas, M. L., Silling, S. M., & Schwartz, S. (1984). Time perspective in career maturity and decision making. *Journal of Vocational Behavior*, 25, 258-269.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4, 219-247.
- Schultheiss, D. E. P., & Stead, G. B. (2004). Construct validity of the Career Myths Scale among South African adolescents. *Journal of Psychology in Africa*, 14(1), 9-15.
- Schumacher, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modelling*. Hillsdale, NJ: Lawrence Erlbaum.

- Seifert, K. H., & Eder, F. (1985). Der fragebogen zur laufbahnentwicklung. [The career development inventory: The German adaptation.] *Zeitschrift für Differenzielle und Diagnostische Psychologie*, 6, 65-77.
- Seifert, K. H., & Stangl, W. (1986). Der fragebogen einstellung zur berufswahl und beruflichen arbeit [The questionnaire attitudes toward career choice and professional work]. *Diagnostica*, 32, 153-164.
- Southgate, N. M. (2005). *An exploration of career salience, career commitment, and job involvement*. Unpublished master's treatise, University of the Witwatersrand, Johannesburg, South Africa.
- Spokane, A. R. (1996). Holland's theory. In D. Brown & L. Brooks (Eds.), *Career choice and development* (3rd ed., pp. 33-74). San Francisco: Jossey-Bass.
- Stead, G. B., & Watson, M. B. (1992). Construct validity of the Commitment to Career Choices Scale among South African university students. *Psychological Reports*, 70(3), 1005-1006.
- Stead, G. B., & Watson, M. B. (1993a). How similar are the factor structures of the Career Decision Scale, the Career Decision Profile, and Career Factors Inventory? *Educational and Psychological Measurement*, 53(1), 281-290.
- Stead, G. B., & Watson, M. B. (1993b). The Career Myths Scale: Its validity and applicability. *International Journal for the Advancement of Counselling*, 16(2), 89-97.
- Stumpf, S. A., Colarelli, S. M., & Hartman, K. (1983). Development of the Career Exploration Survey (CES). *Journal of Vocational Behavior*, 22, 191-226.
- Super, D. E. (1951). Vocational adjustment: Implementing a self-concept. *Occupations*, 30, 88-92.
- Super, D. E. (1953). A theory of vocational development. *American Psychologist*, 8, 185-190.

- Super, D. E. (1955). The dimensions and measurement of vocational maturity. *Teachers College Record*, 57, 151-163.
- Super, D. E. (1957). *The psychology of careers*. New York: Harper & Row.
- Super, D. E. (1969). Vocational development theory. *The Counseling Psychologist*, 8, 185-190.
- Super, D. E. (1972). Vocational development theory: Persons, positions, and processes. In J. M. Whitely & A. Resnikoff (Eds.), *Perspectives on vocational development* (pp. 13-34). Washington, DC: American Personnel & Guidance Association.
- Super, D. E. (1977). Vocational maturity in mid-career. *Vocational Guidance Quarterly*, 25, 297.
- Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior*, 16, 282-298.
- Super, D. E. (1981). A developmental theory: Implementing a self-concept. In D. H. Montrass & C. J. Shinkman (Eds.), *Career development in the 1980s: Theory and practice* (pp. 28-42). Springfield, IL: Charles C. Thomas.
- Super, D. E. (1982). *Self-concepts in career development: Theory and findings after thirty years*. Paper presented to the International Association for Applied Psychology, Scotland.
- Super, D. E. (1983). The history and development of vocational psychology: A personal perspective. In W. B. Walsh & S. H. Osipow (Eds.), *Handbook of vocational psychology: Foundations* (Vol 1, pp. 5-37). Hillsdale, NJ: Erlbaum.
- Super, D. E. (1984). Career and life development. In D. Brown & L. Brooks (Eds.), *Career choice and development* (pp. 192-234). San Francisco: Jossey-Bass.

- Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development* (2nd ed., pp. 197-261). San Francisco: Jossey-Bass.
- Super, D. E. (1992). Toward a comprehensive theory of career development. In D.H. Montross & C.J. Shinkman (Eds.), *Career development: Theory and practice* (pp. 35-64). Springfield, IL: Thomas.
- Super, D. E., & Bachrach, P. B. (1957). *Scientific careers and vocational development theory*. New York: Teachers College Press.
- Super, D. E., Crites, J. O., Hummel, R. C., Moser, H. P., Overstreet, P. L., & Warnath, C. F. (1957). *Vocational development: A framework for research*. New York: Teachers College Press, Columbia University.
- Super, D. E., & Kidd, J. M. (1979). Vocational maturity in adulthood: Toward turning a model into a measure. *Journal of Vocational Behavior*, 14, 255-270.
- Super, D. E., & Knasel, E. G. (1979). *Development of a model, specifications, and sample items for measuring career adaptability (vocational maturity) in young blue collar worker*. Cambridge, England: National Institute for Career Education and Counselling.
- Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development* (3rd Ed., pp. 121-178). San Francisco: Jossey-Bass.
- Super, D. E., & Sverko, B. (1995). *Life roles, values, and careers: International findings of the work importance study*. San Francisco, CA: Jossey-Bass.
- Super, D. E., Thomson, A. S., & Lindeman, R. H. (1988). *Adult Career Concerns Inventory: Manual for research and exploratory use in counseling*. Palo Alto, CA: Consulting Psychologists Press.

- Super, D. E., Thompson, A. S., Lindeman, R. H., Jordaan, J.-P., & Myers, R. A. (1981). *Career development inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Swanson, J. L., & Gore, P. A. (2000) Advances in vocational psychology theory and research. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (pp. 233-269). New York: Wiley.
- Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22, 63-81.
- Terre Blanche, M., & Durrheim, K. (1999). *Research in practice: Applied methods for the social sciences*. Cape Town: UCT Press.
- Tesch, R. (1990). *Qualitative Research: Analysis types and software tools*. Basingstoke: Falmer.
- Tiedeman, D. V., & O'Hara, R. P. (1963). *Career development: Choice and adjustment*. New York: College Entrance Examination Board.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38(1), 1-10.
- Tyson, K. (1995). *New foundations for scientific, social and behavioral research: The heuristic paradigm*. Boston, MA: Allyn and Bacon.
- Van Der Vyfer, G. (2009). The search for the adaptable ICT student. *Journal of Information Technology Education*, 8, 19-28.
- Van Ryn, M., & Vinokur, A. D. (1992). How did it work: An examination of the mechanisms through which an intervention for the unemployed promoted job-search behaviour. *American Journal of Community Psychology*, 20, 577-597.
- Van Tonder, C. L. (2005, March). *The unacknowledged contribution of organisational change practice to organisational and employee wellness*. Paper presented at the Changing World of Work Conference, Van der Bijlpark, South Africa.

- Van Vianen, A. E. M., De Pater, I. E., & Preenen, P. T. Y. (2009). Adaptable careers: Maximizing less and exploring more. *The Career Development Quarterly*, 57, 298-309.
- Van Vianen, A. E. M., Koen, J., & Klehe, U. C. (2010). Career adaptability in Holland: Test of a model among the unemployed. In V. Mrowinski, M. Kyrios, & N. Voudouris (Eds.), *Abstracts of the 27th international congress of applied psychology* (p. 152-153). Melbourne, Australia: Australian Psychological Society.
- Vilhjálmsson, G. G., Jónsson, F. H., Einarsdóttir, S., & Kjartansdóttir, G. B. (2010). Career adaptability in Iceland: Test of a model and measure. In V. Mrowinski, M. Kyrios, & N. Voudouris (Eds.), *Abstracts of the 27th international congress of applied psychology* (pp. 151-152). Melbourne, Australia: Australian Psychological Society.
- Watson, M. B., Brand, H. J., Stead, G. B., & Ellis, R. R. (2001). Confirmatory factor analysis of the Career Decision-Making Self-Efficacy Scale among South African university students. *South African Journal of Industrial Psychology*, 27(1), 43-46.
- Watson, M. B., & Stead, G. B. (2006). *Career psychology in the South African context*. Pretoria: J.L. van Schaik Publishers.
- Yousefi, Z., Abedi, M., Baghban, I., Eatemadi, O., & Abedi, A. (2011). Personal and situational variables, and career concerns: Predicting career adaptability in young adults. *The Spanish Journal of Psychology*, 14(1), 263-271.
- Zikic, J., & Hall, D. T. (2009). Toward a more complex view of career exploration. *Career Development Quarterly*, 58, 181-191.
- Zikic, J., & Klehe, U. (2006). Job loss as a blessing in disguise: The role of career exploration and career planning in predicting reemployment quality. *Journal of Vocational Behaviour*, 69, 391-409.
- Zunker, V. G. (1994). *Career counselling: Applied concepts of life planning*. (4th Ed.). Pacific Grove, CA: Brooks/Cole.

Appendix A
Letter of Motivation to Participants

Dear Sir/Madam

In line with the requirements for a Master's degree in Counselling Psychology, it is necessary to complete a research treatise as part of my course work. The title of my research is 'A factor analysis of the Career Adapt-Abilities Inventory.' The aim of the research is to assess the factor structure of a new international measure on South African first-year university students.

Information for this study will be gathered in the form of a questionnaire consisting of sections A, B and C. Section A gathers biographical information, while Section B consists of the Career Adapt-Abilities Inventory which measures career adaptability. Section C is an evaluation of the Career Adapt-Abilities Inventory. The questionnaire will be administered in English only. There is no standardised Afrikaans version of the Inventory available at present.

Your responses will remain confidential and participation in this study is completely voluntary. Your identity will not be disclosed under any circumstances, and you are not required to write your name on any of the questionnaires that you complete. You are thus kindly requested to answer all questions as honestly as possible.

Your written informed consent to participate is requested by signing and dating a form and putting your initials against each section to indicate that you understand and agree to the conditions of this research study.

I would like to emphasise that the success of this project depends entirely on your voluntary co-operation. Your participation is valued and greatly appreciated.

Yours sincerely

Ms Ilze Olivier
Researcher

Prof. M.B. Watson
Supervisor

Appendix B Informed Consent Form

PO Box 77000 • Nelson Mandela Metropolitan University
• Port Elizabeth • 6031 • South Africa • www.nmmu.ac.za



**Nelson Mandela
Metropolitan
University**

for tomorrow

Title of the research project	A Factor Analysis of the Career Adapt-Abilities Inventory
Reference number	
Principal investigator	Ms Ilze Olivier
Address	NMMU Department of Psychology PO Box 77000 6031
Postal Code	6031
Contact telephone number	041 5042330

A. DECLARATION BY OR ON BEHALF OF PARTICIPANT (Person legally competent to give consent on behalf of the participant)		Initial
<p>I, the participant and the undersigned I.D. number</p> <p>OR</p> <p>I, in my capacity as of the participant I.D. number</p> <p>Address (of participant)</p>	<p>(full names)</p> <p></p> <p></p> <p></p> <p></p> <p></p>	
A.1 I HEREBY CONFIRM AS FOLLOWS:		
<p>1. I, the participant, was invited to participate in the above-mentioned research project that is being undertaken by</p> <p>of the Department of</p> <p>in the Faculty of</p> <p>of the Nelson Mandela Metropolitan University.</p>	<p>Ms Ilze Olivier</p> <p>Psychology</p> <p>Health Sciences</p>	
<p>2. The following aspects have been explained to me, the participant:</p> <p>1.1 Aim: The researcher is studying the psychometric properties of the Career Adapt-Abilities Questionnaire in terms of factor analytic techniques.</p> <p>The information will be used in:</p> <p>The partial fulfilment of the requirements for the degree MA (Counselling Psychology) in the Faculty of Health Sciences at the Nelson Mandela Metropolitan University.</p>		

2.2	Procedures: I understand that I will be required to complete the provided Questionnaire which consists of a Biographical Information section, the Career Adapt-Abilities Inventory as well as an evaluation of the Career Adapt-Abilities Inventory.	
2.3	Risks: No risks.	
2.4	Possible benefits: As a result of my participation in this study more insight can be gained regarding appropriateness of a career adaptability measure for first-year university students.	
2.5	Confidentiality: My identity will not be revealed in any discussion, description or scientific publications by the investigators.	
2.6	Access to findings: A copy of the research will be placed in the NMMU library. Feedback regarding the results and findings will be provided in the form of generalised feedback on request.	
2.7	Voluntary participation/refusal/discontinuation: My participation is voluntary <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO My decision whether or not to participate will in no way affect my present or future care/employment/lifestyle <input checked="" type="checkbox"/> TRUE <input type="checkbox"/> FALSE	
3.	The information above was explained to me/the participant by <div style="border: 1px solid black; padding: 2px; display: inline-block;">Ms. Ilze Olivier</div> in <div style="display: inline-block; border: 1px solid black; padding: 2px;">Afrikaans</div> <div style="display: inline-block; border: 1px solid black; padding: 2px;">English</div> <input checked="" type="checkbox"/> I am in command of this language. I was given the opportunity to ask questions and all these questions were answered satisfactorily.	
4.	No pressure was exerted on me to consent to participation and I understand that I may withdraw at any stage without penalisation.	
5.	Participation in this study will not result in any additional cost to myself.	

A.2 I HEREBY VOLUNTARILY CONSENT TO PARTICIPATE IN THE ABOVE-MENTIONED PROJECT

Signed/confirmed at

 on 2010

Signature of witness

Full name of witness

B. STATEMENT BY OR ON BEHALF OF INVESTIGATOR(S)

I, Ilze Olivier declare that

- I have explained the information given in this document to

(name of participant)

and/or his/her representative

(name of representative)

- he/she was encouraged and given ample time to ask me any questions;

- this conversation was conducted in

☒ Afrikaans ☐ English ☐

and no translator was used

- I have detached Section D and handed it to the participant

☐ YES ☐ NO

Signed/confirmed at

on 2010

Signature of interviewer	Signature of witness
	Full name of witness

D. IMPORTANT MESSAGE TO PATIENT/REPRESENTATIVE OF PARTICIPANT

Dear participant/representative of the participant

Thank you for your/the participant's participation in this study. Should, at any time during the study:

- an emergency arise as a result of the research, or
- you require any further information with regard to the study, or
- the following occur:

You are unsure about how to complete the questionnaire /

(indicate any circumstances which should be reported to the investigator)

Kindly contact
at telephone number

Ilze Olivier
 041 5042330

Appendix C

Questionnaire Booklet

Section A: Biographical Questionnaire

BIOGRAPHICAL INFORMATION

In order to maximise the usefulness of this research project you are kindly requested to provide answers to the questions below. All information in this questionnaire will be treated as strictly confidential and your information will be processed anonymously. Please cross the box most appropriate to you, or complete the statement in the space provided.

1. Age: _____

2. Gender

Female	Male
--------	------

3. Home Language

Afrikaans	English	Xhosa	Other (specify)

4. Degree enrolled for: _____

5. Race

Black	Coloured	Indian	White	Other (specify)

Section B: Career Adapt-Abilities Inventory

Name (optional): _____

Student number (optional): _____

Different people use different strengths to build their careers. No one is good at everything; each of us emphasizes some strengths more than others. Please rate to what extent you have developed each of the following using the scale below:

1 = None; 2 = Weak; 3 = Moderate; 4 = Strong; 5 = Very Strong

Please circle the appropriate number using the above scale to give your rating.

Sample items for each of the five Career Adapt-Abilities Inventory scales:

Item Number	Concern	Rating				
1	Planning important things before I start	1	2	3	4	5
2	Thinking about what my future will be like	1	2	3	4	5
3	Realising that today's choices shape my future	1	2	3	4	5
	Control					
12	Making decisions by myself	1	2	3	4	5
13	Thinking before I act	1	2	3	4	5
14	Taking responsibilities for my actions	1	2	3	4	5
	Curiosity					
23	Exploring my surroundings	1	2	3	4	5
24	Looking for opportunities to grow as a person	1	2	3	4	5
25	Imagining what my future will be like	1	2	3	4	5
	Cooperation					
34	Becoming less self-centred	1	2	3	4	5

35	Acting friendly	1	2	3	4	5
36	Getting along with all kinds of people	1	2	3	4	5
	Confidence					
45	Performing tasks efficiently	1	2	3	4	5
46	Learning from my mistakes	1	2	3	4	5
47	Being dependable – doing what I say I will do	1	2	3	4	5

Section C: Evaluation of the Career Adapt-Abilities Inventory

1. Please evaluate the Inventory in section B by indicating your level of agreement for each of the following statements using the response scale:

1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree.

	Level of agreement
1.1. The Inventory was easy to read.	1 2 3 4 5
1.2 I was able to comprehend what each Inventory item (ability) meant.	1 2 3 4 5
1.3 The Inventory items adequately cover the career adaptability concept.	1 2 3 4 5
1.4 I understood the words in the Inventory and knew the meaning thereof.	1 2 3 4 5

2. Please indicate which Inventory item(s), if any, was unclear to you using the table below, with the Inventory item (a number between 1 and 55) in the left column:

Item	Word(s) that you did not understand

3. In the space below, please write any additional comments with regard to the readability, comprehension and applicability of the Inventory:

Appendix D

Item Frequency Counts, Means and Standard Deviations

Items	None		Weak		Moderate		Strong		Very Strong		Mean	SD
Concern												
1	3	1%	28	9%	127	39%	117	36%	49	15%	3.56	0.88
2	1	0%	8	2%	38	12%	126	39%	151	47%	4.29	0.79
3	3	1%	13	4%	68	21%	111	34%	129	40%	4.08	0.92
4	1	0%	5	2%	47	15%	120	37%	151	47%	4.28	0.79
5	1	0%	13	4%	86	27%	131	40%	93	29%	3.93	0.86
6	3	1%	11	3%	87	27%	151	47%	72	22%	3.86	0.83
7	1	0%	34	10%	106	33%	124	38%	59	18%	3.64	0.91
8	4	1%	24	7%	141	44%	118	36%	37	11%	3.49	0.84
9	2	1%	14	4%	67	21%	153	47%	88	27%	3.96	0.84
10	5	2%	22	7%	112	35%	140	43%	45	14%	3.61	0.86
11	2	1%	12	4%	41	13%	112	35%	157	48%	4.27	0.86
Control												
12	3	1%	8	2%	53	16%	126	39%	134	41%	4.17	0.86
13	2	1%	21	6%	83	26%	135	42%	83	26%	3.85	0.90
14	1	0%	5	2%	43	13%	138	43%	137	42%	4.25	0.76
15	8	2%	42	13%	107	33%	111	34%	56	17%	3.51	1.00

Appendix D (continued)

16	3	1%	9	3%	43	13%	119	37%	150	46%	4.25	0.86
17	3	1%	7	2%	63	19%	146	45%	105	32%	4.06	0.83
18	3	1%	13	4%	74	23%	157	48%	77	24%	3.90	0.84
19	2	1%	11	3%	74	23%	166	51%	71	22%	3.90	0.79
20	1	0%	10	3%	70	22%	139	43%	104	32%	4.03	0.83
21	8	2%	17	5%	75	23%	104	32%	120	37%	3.96	1.02
22	3	1%	10	3%	77	24%	135	42%	99	31%	3.98	0.87
Curiosity												
23	2	1%	31	10%	110	34%	118	36%	63	19%	3.65	0.92
24	4	1%	17	5%	67	21%	134	41%	102	31%	3.97	0.92
25	1	0%	3	1%	35	11%	106	33%	179	55%	4.42	0.74
26	2	1%	25	8%	112	35%	129	40%	56	17%	3.65	0.87
27	1	0%	17	5%	102	31%	154	48%	50	15%	3.73	0.80
28	2	1%	33	10%	121	37%	118	36%	50	15%	3.56	0.89
29	4	1%	33	10%	121	37%	122	38%	44	14%	3.52	0.90
30	2	1%	20	6%	81	25%	140	43%	81	25%	3.86	0.89
31	1	0%	26	8%	96	30%	141	44%	60	19%	3.72	0.87
32	8	2%	27	8%	109	34%	129	40%	51	16%	3.58	0.94
33	4	1%	20	6%	68	21%	139	43%	93	29%	3.92	0.92

Appendix D (continued)

Cooperation												
34	11	3%	22	7%	126	39%	102	31%	63	19%	3.57	0.99
35	2	1%	10	3%	57	18%	117	36%	138	43%	4.17	0.87
36	6	2%	13	4%	54	17%	105	32%	146	45%	4.15	0.96
37	5	2%	19	6%	66	20%	117	36%	117	36%	3.99	0.97
38	6	2%	8	2%	48	15%	120	37%	142	44%	4.19	0.91
39	9	3%	25	8%	92	28%	129	40%	69	21%	3.69	0.98
40	3	1%	5	2%	47	15%	136	42%	133	41%	4.21	0.81
41	22	7%	42	13%	135	42%	81	25%	44	14%	3.26	1.06
42	26	8%	67	21%	102	31%	87	27%	42	13%	3.16	1.14
43	2	1%	11	3%	69	21%	137	42%	105	32%	4.02	0.85
44	22	7%	48	15%	99	31%	95	29%	60	19%	3.38	1.15
Confidence												
45	0	0%	12	4%	73	23%	178	55%	61	19%	3.89	0.74
46	1	0%	11	3%	62	19%	144	44%	106	33%	4.06	0.83
47	1	0%	8	2%	86	27%	139	43%	90	28%	3.95	0.82
48	1	0%	3	1%	27	8%	103	32%	190	59%	4.48	0.71
49	5	2%	27	8%	51	16%	118	36%	123	38%	4.01	1.01
50	1	0%	8	2%	77	24%	174	54%	64	20%	3.90	0.74

Appendix D (continued)

51	0	0%	12	4%	59	18%	165	51%	88	27%	4.02	0.78
52	1	0%	18	6%	64	20%	162	50%	79	24%	3.93	0.83
53	0	0%	9	3%	76	23%	176	54%	63	19%	3.90	0.73
54	0	0%	9	3%	70	22%	183	56%	62	19%	3.92	0.72
55	2	1%	18	6%	90	28%	133	41%	81	25%	3.84	0.88
Section C	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	SD
1.1	0	0%	1	0%	26	9%	106	36%	162	55%	4.45	0.67
1.2	1	0%	5	2%	33	11%	135	46%	121	41%	4.25	0.75
1.3	0	0%	3	1%	62	21%	130	44%	100	34%	4.11	0.76
1.4	0	0%	6	2%	35	12%	105	36%	149	51%	4.35	0.77

Appendix E
Item Correlation Matrix

	01	02	03	04	05	06	07
01	1.000	.277	.295	.152	.381	.311	.466
02	.277	1.000	.354	.260	.434	.340	.375
03	.295	.354	1.000	.199	.453	.423	.427
04	.152	.260	.199	1.000	.361	.198	.216
05	.381	.434	.453	.361	1.000	.519	.578
06	.311	.340	.423	.198	.519	1.000	.472
07	.466	.375	.427	.216	.578	.472	1.000
08	.212	.208	.129	.243	.163	.190	.334
09	.310	.241	.456	.227	.318	.337	.337
10	.265	.174	.250	.183	.277	.242	.284
11	.130	.317	.354	.076	.312	.238	.289
12	.085	.246	.195	.240	.210	.196	.181
13	.249	.187	.258	.194	.300	.287	.324
14	.201	.176	.319	.212	.304	.285	.278
15	.248	.230	.214	.233	.349	.254	.336
16	.157	.241	.199	.204	.284	.176	.267
17	.162	.158	.168	.315	.201	.183	.205
18	.234	.286	.243	.313	.369	.308	.363
19	.191	.300	.218	.334	.349	.349	.337
20	.126	.173	.138	.368	.233	.177	.152
21	.197	.237	.344	.045	.294	.183	.255
22	.186	.392	.398	.343	.447	.399	.414
23	.161	.150	.132	.240	.267	.209	.185
24	.226	.235	.219	.222	.362	.245	.271
25	.111	.488	.308	.306	.301	.176	.225
26	.303	.248	.223	.123	.352	.366	.297
27	.254	.132	.182	.138	.253	.315	.272
28	.215	.199	.164	.189	.271	.353	.221
29	.226	.231	.250	.221	.300	.291	.280
30	.280	.262	.215	.292	.296	.229	.324
31	.318	.200	.261	.192	.323	.262	.329
32	.217	.194	.255	.160	.311	.241	.267
33	.118	.211	.256	.096	.188	.158	.100
34	.047	.109	.093	-.082	.126	.181	.134
35	.098	.122	.002	.133	.053	.089	.028
36	.125	.069	.001	.059	.001	.042	.005
37	.149	.167	.098	.140	.118	.141	.110
38	.207	.136	.134	.161	.104	.175	.139
39	.203	.052	.086	.068	.052	.007	.123
40	.136	.056	.193	.150	.135	.135	.073
41	.180	.180	.150	.113	.212	.153	.202
42	.111	-.004	-.009	.005	-.001	.080	-.003
43	.121	.204	.171	.141	.137	.053	.123
44	.022	-.030	-.029	.008	-.071	-.054	-.131
45	.204	.229	.163	.154	.202	.215	.174
46	.218	.220	.255	.207	.381	.287	.305
47	.207	.121	.206	.054	.242	.186	.173
48	.049	.215	.069	.229	.118	.171	.148
49	.179	.195	.196	.332	.233	.190	.251
50	.306	.175	.269	.184	.314	.337	.290
51	.231	.279	.197	.200	.284	.272	.284
52	.272	.301	.251	.207	.358	.249	.383
53	.227	.257	.210	.213	.276	.227	.288
54	.281	.199	.146	.199	.268	.173	.259
55	.160	.127	.107	.152	.177	.129	.179

Appendix E (continued)

08	09	10	11	12	13	14	15	16
.212	.310	.265	.130	.085	.249	.201	.248	.157
.208	.241	.174	.317	.246	.187	.176	.230	.241
.129	.456	.250	.354	.195	.258	.319	.214	.199
.243	.227	.183	.076	.240	.194	.212	.233	.204
.163	.318	.277	.312	.210	.300	.304	.349	.284
.190	.337	.242	.238	.196	.287	.285	.254	.176
.334	.337	.284	.289	.181	.324	.278	.336	.267
1.000	.265	.257	.066	.148	.130	.179	.234	.171
.265	1.000	.392	.232	.259	.475	.449	.311	.233
.257	.392	1.000	.263	.179	.253	.265	.244	.281
.066	.232	.263	1.000	.197	.182	.101	.183	.200
.148	.259	.179	.197	1.000	.263	.232	.135	.085
.130	.475	.253	.182	.263	1.000	.446	.376	.104
.179	.449	.265	.101	.232	.446	1.000	.459	.270
.234	.311	.244	.183	.135	.376	.459	1.000	.355
.171	.233	.281	.200	.085	.104	.270	.355	1.000
.261	.137	.175	.078	.296	.116	.221	.109	.228
.272	.306	.259	.271	.179	.198	.275	.229	.315
.266	.318	.342	.199	.225	.223	.310	.279	.231
.221	.224	.144	.143	.214	.160	.226	.158	.197
.027	.313	.134	.241	.147	.312	.375	.248	.125
.240	.326	.220	.318	.364	.270	.316	.230	.320
.280	.105	.277	.123	.239	.052	.184	.196	.214
.163	.227	.315	.132	.181	.106	.228	.173	.247
.156	.324	.137	.396	.266	.167	.225	.138	.198
.191	.339	.256	.138	.175	.238	.194	.268	.152
.232	.317	.371	.124	.165	.229	.271	.288	.132
.251	.207	.326	.144	.153	.173	.189	.182	.281
.295	.283	.351	.181	.173	.127	.212	.179	.268
.257	.321	.316	.146	.212	.098	.194	.197	.324
.234	.332	.279	.108	.107	.177	.209	.136	.215
.233	.234	.207	.138	.083	.147	.255	.176	.180
.081	.171	.119	.245	.097	.146	.135	.036	.093
.161	.184	.220	.109	.081	.175	.111	.070	.079
.127	.107	.113	.084	.160	.064	.085	.128	.127
.132	.130	.118	-.014	.127	.058	.093	.140	.098
.065	.133	.171	.116	.124	.194	.144	.140	.151
.071	.103	.183	.068	.170	.110	.179	.111	.221
.043	.214	.132	.020	.049	.162	.182	.179	.047
.045	.189	.199	.072	.144	.118	.285	.216	.154
.181	.063	.213	.077	.023	.072	.165	.234	.236
.066	.075	.120	.020	.067	.072	.011	-.007	-.031
.121	.169	.084	.096	.125	.150	.251	.144	.187
-.047	.029	.018	-.083	.069	.037	.015	-.037	-.118
.203	.231	.155	.090	.162	.226	.246	.234	.185
.110	.293	.210	.069	.113	.291	.394	.342	.216
.196	.267	.101	.066	.149	.134	.266	.236	.282
.103	.150	.215	.156	.240	.009	.190	.089	.162
.259	.158	.168	.036	.218	.097	.190	.152	.321
.257	.315	.229	.195	.090	.117	.299	.292	.301
.212	.224	.277	.109	.126	.034	.192	.268	.279
.280	.298	.111	.123	.123	.160	.254	.299	.222
.270	.291	.245	.148	.136	.172	.243	.253	.246
.283	.262	.169	.129	.164	.130	.246	.216	.234
.214	.120	.187	.055	.081	.033	.209	.282	.346

Appendix E (continued)

17	18	19	20	21	22	23	24	25
.162	.234	.191	.126	.197	.186	.161	.226	.111
.158	.286	.300	.173	.237	.392	.150	.235	.488
.168	.243	.218	.138	.344	.398	.132	.219	.308
.315	.313	.334	.368	.045	.343	.240	.222	.306
.201	.369	.349	.233	.294	.447	.267	.362	.301
.183	.308	.349	.177	.183	.399	.209	.245	.176
.205	.363	.337	.152	.255	.414	.185	.271	.225
.261	.272	.266	.221	.027	.240	.280	.163	.156
.137	.306	.318	.224	.313	.326	.105	.227	.324
.175	.259	.342	.144	.134	.220	.277	.315	.137
.078	.271	.199	.143	.241	.318	.123	.132	.396
.296	.179	.225	.214	.147	.364	.239	.181	.266
.116	.198	.223	.160	.312	.270	.052	.106	.167
.221	.275	.310	.226	.375	.316	.184	.228	.225
.109	.229	.279	.158	.248	.230	.196	.173	.138
.228	.315	.231	.197	.125	.320	.214	.247	.198
1.000	.441	.314	.375	.006	.316	.283	.214	.181
.441	1.000	.478	.343	.115	.483	.251	.253	.329
.314	.478	1.000	.371	.187	.365	.207	.284	.303
.375	.343	.371	1.000	.148	.379	.210	.160	.223
.006	.115	.187	.148	1.000	.322	.117	.157	.276
.316	.483	.365	.379	.322	1.000	.347	.333	.374
.283	.251	.207	.210	.117	.347	1.000	.494	.207
.214	.253	.284	.160	.157	.333	.494	1.000	.315
.181	.329	.303	.223	.276	.374	.207	.315	1.000
.109	.333	.353	.114	.158	.284	.235	.263	.260
.165	.247	.360	.220	.185	.243	.297	.334	.220
.286	.260	.315	.262	.045	.271	.306	.325	.161
.196	.292	.340	.159	.023	.294	.296	.394	.226
.243	.327	.315	.175	.134	.347	.348	.485	.311
.165	.289	.271	.164	.218	.296	.258	.415	.172
.180	.235	.304	.126	.223	.263	.315	.264	.101
.120	.170	.230	.133	.198	.172	.118	.245	.303
-.063	.075	.093	-.005	.263	.108	.049	.188	.056
.098	.138	.158	.104	.200	.141	.230	.155	.106
.102	.103	.140	.094	.120	.078	.238	.125	.100
.131	.125	.152	.104	.238	.169	.181	.125	.154
.134	.098	.137	.074	.166	.119	.183	.164	.119
.076	.049	.081	.005	.189	.043	.050	.119	.003
.106	.094	.175	.114	.194	.156	.173	.171	.093
.074	.192	.241	.046	.130	.211	.153	.224	.092
.039	-.006	.031	.034	.097	-.025	.022	.023	-.010
.064	.137	.186	.077	.336	.180	.086	.037	.203
-.069	-.154	-.079	-.167	-.013	-.076	-.030	-.055	-.084
.152	.186	.281	.162	.101	.227	.150	.181	.163
.212	.138	.292	.210	.268	.235	.146	.158	.111
.219	.228	.141	.180	.150	.212	.126	.109	.108
.209	.296	.228	.161	.065	.212	.196	.176	.215
.359	.313	.183	.278	.064	.387	.231	.218	.189
.230	.332	.298	.211	.150	.275	.256	.335	.153
.191	.240	.313	.263	.110	.267	.315	.361	.155
.204	.346	.337	.255	.261	.342	.221	.281	.261
.204	.253	.299	.230	.212	.251	.267	.300	.193
.284	.281	.302	.280	.076	.256	.163	.222	.185
.186	.150	.181	.117	.110	.181	.307	.229	.114

Appendix E (continued)

26	27	28	29	30	31	32	33	34
.303	.254	.215	.226	.280	.318	.217	.118	.047
.248	.132	.199	.231	.262	.200	.194	.211	.109
.223	.182	.164	.250	.215	.261	.255	.256	.093
.123	.138	.189	.221	.292	.192	.160	.096	-.082
.352	.253	.271	.300	.296	.323	.311	.188	.126
.366	.315	.353	.291	.229	.262	.241	.158	.181
.297	.272	.221	.280	.324	.329	.267	.100	.134
.191	.232	.251	.295	.257	.234	.233	.081	.161
.339	.317	.207	.283	.321	.332	.234	.171	.184
.256	.371	.326	.351	.316	.279	.207	.119	.220
.138	.124	.144	.181	.146	.108	.138	.245	.109
.175	.165	.153	.173	.212	.107	.083	.097	.081
.238	.229	.173	.127	.098	.177	.147	.146	.175
.194	.271	.189	.212	.194	.209	.255	.135	.111
.268	.288	.182	.179	.197	.136	.176	.036	.070
.152	.132	.281	.268	.324	.215	.180	.093	.079
.109	.165	.286	.196	.243	.165	.180	.120	-.063
.333	.247	.260	.292	.327	.289	.235	.170	.075
.353	.360	.315	.340	.315	.271	.304	.230	.093
.114	.220	.262	.159	.175	.164	.126	.133	-.005
.158	.185	.045	.023	.134	.218	.223	.198	.263
.284	.243	.271	.294	.347	.296	.263	.172	.108
.235	.297	.306	.296	.348	.258	.315	.118	.049
.263	.334	.325	.394	.485	.415	.264	.245	.188
.260	.220	.161	.226	.311	.172	.101	.303	.056
1.000	.477	.394	.429	.284	.361	.336	.252	.188
.477	1.000	.473	.315	.283	.323	.227	.201	.179
.394	.473	1.000	.490	.304	.371	.259	.188	.106
.429	.315	.490	1.000	.449	.360	.369	.225	.130
.284	.283	.304	.449	1.000	.504	.361	.145	.209
.361	.323	.371	.360	.504	1.000	.342	.307	.219
.336	.227	.259	.369	.361	.342	1.000	.372	.279
.252	.201	.188	.225	.145	.307	.372	1.000	.195
.188	.179	.106	.130	.209	.219	.279	.195	1.000
.086	.135	.065	.065	.217	.150	.225	.103	.262
.083	.118	.055	.021	.181	.098	.217	.094	.198
.107	.090	.008	.000	.204	.138	.154	.114	.168
.120	.140	.147	.098	.241	.192	.136	.137	.204
.146	.165	.017	.029	.092	.178	.142	.098	.220
.166	.079	.122	.128	.170	.144	.184	.221	.173
.232	.204	.132	.275	.232	.152	.177	.028	.129
-.019	.063	.018	-.067	-.023	-.026	-.033	.028	.051
.065	.024	-.014	.060	.095	.080	.179	.136	.196
.008	-.031	-.093	-.007	-.090	.002	.013	.068	.080
.289	.242	.225	.302	.193	.201	.254	.190	.162
.148	.204	.207	.218	.160	.218	.200	.133	.134
.246	.161	.192	.198	.149	.095	.132	.069	.113
.046	.225	.141	.139	.195	.141	.059	.140	.090
.162	.262	.215	.221	.265	.187	.086	.041	.035
.347	.320	.344	.380	.289	.283	.207	.119	.102
.213	.292	.318	.327	.345	.259	.247	.140	.178
.255	.279	.252	.327	.276	.259	.303	.150	.119
.307	.280	.291	.290	.357	.324	.331	.163	.170
.257	.276	.283	.263	.260	.198	.259	.173	.065
.165	.180	.209	.272	.347	.176	.241	.018	-.021

Appendix E (continued)

35	36	37	38	39	40	41	42	43
.098	.125	.149	.207	.203	.136	.180	.111	.121
.122	.069	.167	.136	.052	.056	.180	-.004	.204
.002	.001	.098	.134	.086	.193	.150	-.009	.171
.133	.059	.140	.161	.068	.150	.113	.005	.141
.053	.001	.118	.104	.052	.135	.212	-.001	.137
.089	.042	.141	.175	.007	.135	.153	.080	.053
.028	.005	.110	.139	.123	.073	.202	-.003	.123
.127	.132	.065	.071	.043	.045	.181	.066	.121
.107	.130	.133	.103	.214	.189	.063	.075	.169
.113	.118	.171	.183	.132	.199	.213	.120	.084
.084	-.014	.116	.068	.020	.072	.077	.020	.096
.160	.127	.124	.170	.049	.144	.023	.067	.125
.064	.058	.194	.110	.162	.118	.072	.072	.150
.085	.093	.144	.179	.182	.285	.165	.011	.251
.128	.140	.140	.111	.179	.216	.234	-.007	.144
.127	.098	.151	.221	.047	.154	.236	-.031	.187
.098	.102	.131	.134	.076	.106	.074	.039	.064
.138	.103	.125	.098	.049	.094	.192	-.006	.137
.158	.140	.152	.137	.081	.175	.241	.031	.186
.104	.094	.104	.074	.005	.114	.046	.034	.077
.200	.120	.238	.166	.189	.194	.130	.097	.336
.141	.078	.169	.119	.043	.156	.211	-.025	.180
.230	.238	.181	.183	.050	.173	.153	.022	.086
.155	.125	.125	.164	.119	.171	.224	.023	.037
.106	.100	.154	.119	.003	.093	.092	-.010	.203
.086	.083	.107	.120	.146	.166	.232	-.019	.065
.135	.118	.090	.140	.165	.079	.204	.063	.024
.065	.055	.008	.147	.017	.122	.132	.018	-.014
.065	.021	.000	.098	.029	.128	.275	-.067	.060
.217	.181	.204	.241	.092	.170	.232	-.023	.095
.150	.098	.138	.192	.178	.144	.152	-.026	.080
.225	.217	.154	.136	.142	.184	.177	-.033	.179
.103	.094	.114	.137	.098	.221	.028	.028	.136
.262	.198	.168	.204	.220	.173	.129	.051	.196
1.000	.663	.483	.377	.352	.306	.207	.201	.366
.663	1.000	.538	.427	.399	.365	.178	.219	.353
.483	.538	1.000	.713	.479	.312	.187	.296	.377
.377	.427	.713	1.000	.444	.360	.230	.263	.370
.352	.399	.479	.444	1.000	.418	.197	.275	.316
.306	.365	.312	.360	.418	1.000	.168	.152	.309
.207	.178	.187	.230	.197	.168	1.000	.127	.228
.201	.219	.296	.263	.275	.152	.127	1.000	.302
.366	.353	.377	.370	.316	.309	.228	.302	1.000
.190	.123	.094	.108	.209	.118	.011	.231	.155
.188	.092	.180	.302	.165	.141	.256	.120	.263
.055	-.007	.082	.122	.187	.227	.209	.059	.226
.081	.068	.019	.045	.067	.122	.167	.035	.205
.214	.150	.214	.270	.108	.161	.210	.123	.173
.076	.152	.203	.236	.034	.051	.163	.012	.129
.184	.172	.154	.252	.166	.244	.282	.066	.228
.308	.204	.185	.247	.169	.289	.216	.193	.195
.219	.169	.184	.187	.196	.170	.222	.101	.225
.202	.157	.170	.116	.188	.138	.255	.075	.183
.121	.098	.066	.099	.128	.130	.246	-.003	.155
.176	.187	.161	.118	.104	.149	.283	.013	.153

Appendix E (continued)

44	45	46	47	48	49	50	51	52	53	54	55
.022	.204	.218	.207	.049	.179	.306	.231	.272	.227	.281	.160
-.030	.229	.220	.121	.215	.195	.175	.279	.301	.257	.199	.127
-.029	.163	.255	.206	.069	.196	.269	.197	.251	.210	.146	.107
.008	.154	.207	.054	.229	.332	.184	.200	.207	.213	.199	.152
-.071	.202	.381	.242	.118	.233	.314	.284	.358	.276	.268	.177
-.054	.215	.287	.186	.171	.190	.337	.272	.249	.227	.173	.129
-.131	.174	.305	.173	.148	.251	.290	.284	.383	.288	.259	.179
-.047	.203	.110	.196	.103	.259	.257	.212	.280	.270	.283	.214
.029	.231	.293	.267	.150	.158	.315	.224	.298	.291	.262	.120
.018	.155	.210	.101	.215	.168	.229	.277	.111	.245	.169	.187
-.083	.090	.069	.066	.156	.036	.195	.109	.123	.148	.129	.055
.069	.162	.113	.149	.240	.218	.090	.126	.123	.136	.164	.081
.037	.226	.291	.134	.009	.097	.117	.034	.160	.172	.130	.033
.015	.246	.394	.266	.190	.190	.299	.192	.254	.243	.246	.209
-.037	.234	.342	.236	.089	.152	.292	.268	.299	.253	.216	.282
-.118	.185	.216	.282	.162	.321	.301	.279	.222	.246	.234	.346
-.069	.152	.212	.219	.209	.359	.230	.191	.204	.204	.284	.186
-.154	.186	.138	.228	.296	.313	.332	.240	.346	.253	.281	.150
-.079	.281	.292	.141	.228	.183	.298	.313	.337	.299	.302	.181
-.167	.162	.210	.180	.161	.278	.211	.263	.255	.230	.280	.117
-.013	.101	.268	.150	.065	.064	.150	.110	.261	.212	.076	.110
-.076	.227	.235	.212	.212	.387	.275	.267	.342	.251	.256	.181
-.030	.150	.146	.126	.196	.231	.256	.315	.221	.267	.163	.307
-.055	.181	.158	.109	.176	.218	.335	.361	.281	.300	.222	.229
-.084	.163	.111	.108	.215	.189	.153	.155	.261	.193	.185	.114
.008	.289	.148	.246	.046	.162	.347	.213	.255	.307	.257	.165
-.031	.242	.204	.161	.225	.262	.320	.292	.279	.280	.276	.180
-.093	.225	.207	.192	.141	.215	.344	.318	.252	.291	.283	.209
-.007	.302	.218	.198	.139	.221	.380	.327	.327	.290	.263	.272
-.090	.193	.160	.149	.195	.265	.289	.345	.276	.357	.260	.347
.002	.201	.218	.095	.141	.187	.283	.259	.259	.324	.198	.176
.013	.254	.200	.132	.059	.086	.207	.247	.303	.331	.259	.241
.068	.190	.133	.069	.140	.041	.119	.140	.150	.163	.173	.018
.080	.162	.134	.113	.090	.035	.102	.178	.119	.170	.065	-.021
.190	.188	.055	.081	.214	.076	.184	.308	.219	.202	.121	.176
.123	.092	-.007	.068	.150	.152	.172	.204	.169	.157	.098	.187
.094	.180	.082	.019	.214	.203	.154	.185	.184	.170	.066	.161
.108	.302	.122	.045	.270	.236	.252	.247	.187	.116	.099	.118
.209	.165	.187	.067	.108	.034	.166	.169	.196	.188	.128	.104
.118	.141	.227	.122	.161	.051	.244	.289	.170	.138	.130	.149
.011	.256	.209	.167	.210	.163	.282	.216	.222	.255	.246	.283
.231	.120	.059	.035	.123	.012	.066	.193	.101	.075	-.003	.013
.155	.263	.226	.205	.173	.129	.228	.195	.225	.183	.155	.153
1.000	.155	.071	.045	-.017	-.129	-.003	.018	.000	-.053	-.053	-.005
.155	1.000	.309	.333	.252	.229	.395	.363	.434	.306	.356	.284
.071	.309	1.000	.288	.184	.201	.327	.322	.328	.256	.275	.233
.045	.333	.288	1.000	.218	.151	.399	.269	.328	.241	.300	.272
-.017	.252	.184	.218	1.000	.287	.292	.310	.216	.147	.171	.129
-.129	.229	.201	.151	.287	1.000	.382	.297	.342	.267	.323	.259
-.003	.395	.327	.399	.292	.382	1.000	.485	.470	.433	.397	.376
.018	.363	.322	.269	.310	.297	.485	1.000	.468	.407	.380	.382
.000	.434	.328	.328	.216	.342	.470	.468	1.000	.423	.427	.338
-.053	.306	.256	.241	.147	.267	.433	.407	.423	1.000	.506	.466
-.053	.356	.275	.300	.171	.323	.397	.380	.427	.506	1.000	.439
-.005	.284	.233	.272	.129	.259	.376	.382	.338	.466	.439	1.000

Appendix F
Categorising of Themes

Questionnaire	Comment	Theme 1 (+) Understand/clear word content and instructions	Theme 1 (-) unclear word content and instructions	Theme 2 Enhanced understanding of self	Theme 3 (+) Structure and length of CAI / layout	Theme 3 (-) Structure and length of CAI / layout
Q001	The questionnaire was understandable and clear to answer	X				
Q003	This CAI made me realise the kind of person I really am, and will help in making decisions in life.			X		
Q004	Why not section out certain questions to help the reader see what you want from the. Eg. All group work questions could be put in a "working with others" section					X
Q005	This was a very good inventory	X				
Q006	It was clear	X				
Q007	Questions were easy to understand	X				
Q008	Some of the inventory items were a bit broad - it was hard to generalize e.g. No. 33 or 42		X			
Q010	Unsure of the meaning of "inventory". Questionnaire is too long.		X			X
Q012	The questionnaire was a bit confusing. I did not really understand if the items listed were strengths that I had to rate something I could apply my strengths. Just that was a bit unclear for me.		X			
Q013	Questionnaire was well structured. Easy to answer. Made me think about some questions.	X		X	X	
Q017	The Inventory was well structured.				X	
Q020	Everything was clear and understandable.	X				
Q021	The inventory was user-friendly and easy to understand.	X				
Q030	The scale did not match the questions; could have used a more appropriate scale					X
Q035	Questionnaire was straight forward; easy to read; comprehension was good and logically presented. Application of the questionnaire was simple to apply and complete.	X				

Appendix F (continued)

Q037	Inventory is easy to read and fairly simple.	X				
Q041	Did not take a lot of time to complete				X	
Q052	The inventory is easy to understand and it asks important questions that we need to answer as we are approaching a career. It will help us know our strong points as well as the weak points we need to work on.	X		X		
Q056	The inventory enhances your general working capabilities as an individual.			X		
Q060	Inventory made me realize the impact I have on other people while interacting with them.			X		
Q061	The inventory was easy to complete	X				
Q062	The inventory was well structured and logical.				X	
Q067	The questionnaire is interesting - I can determine my weak and strong points.			X		
Q068	I was unsure whether we must answer what we do or what we think is important. The instructions are unclear.		X			
Q072	The inventory was easy to understand and complete	X				
Q074	The questions were straight forward and easy to understand.	X				
Q078	The questionnaire was clear and understandable. There was no "big words".	X				
Q079	Most of the questions have an influence on each other. I understood the majority of the questions.	X				
Q082	It may be helpful to explain abilities like negotiating or mediating in tough situations. Or being able to deal with disappointments but remaining determined and positive. Context is unclear.		X			
Q083	Concise and straightforward	X				
Q085	Easy to read and understand	X				
Q090	The questionnaire was easy to understand	X				
Q092	Clear and concise	X				
Q095	It made me understand my personality more and how I treat other people			X		
Q096	It was easy to understand and read	X				

Appendix F (continued)

Q101	The questionnaire is understandable	X				
Q107	It is easy to understand	X				
Q109	It was easy to read and to understand	X				
Q113	The questionnaire is too vague; questions are repeated		X			
Q114	It was easy and quick	X				
Q116	It made me think			X		
Q127	The inventory was easy to read and to understand	X				
Q132	Less repetition of questions. I found that a lot of the items were similar.					X
Q135	It made me think.			X		
Q137	The inventory was understandable - made me think.			X		
Q138	It was clear and well structured.	X				
Q140	It is clear and simple to complete	X				
Q142	Understandable, straight forward. Liked that there was not a lot of unnecessary usage of words/jargon.	X				
Q159	Questions were easy to understand.	X				
Q161	It is easy to read.	X				
Q168	Everything was clear and understandable.	X				
Q173	It made me think about my future.			X		
Q186	The Inventory is fairly understandable - written in simple English.	X				
Q188	Questions were clear and understandable. Short and direct.	X				
Q192	Straight forward - easy to read.	X				
Q194	Easy to understand.	X				
Q200	I learned new things about myself.			X		
Q205	The instructions were easy to carry out.	X				
Q207	The questionnaire had a nice flow to it.				X	
Q208	It was easy to follow the questions and I understood what was asked.	X				
Q210	The questionnaire made me think about my future and academic life.			X		
Q212	The questionnaire helped me realize what my strengths and weaknesses are.			X		

Appendix F (continued)

Q216	It made me think about my career and what I need to do to have a good career.			X		
Q226	The questionnaire made me think how I handle challenges in everyday life and my personality.			X		
Q241	The inventory is clear and to the point.	X				
Q243	The English is too "high"		X			
Q244	The inventory made me think about myself and how I live my life.			X		
Q252	Clear and understandable.	X				
Q254	I understood all the questions.	X				
Q255	It was easy to understand and not too long.	X				
Q261	The inventory was easy to read.	X				
Q262	The inventory was easy to read and was understandable.	X				
Q269	The inventory was well structured.				X	
Q295	The questionnaire helped me identify my strengths. The questionnaire was clear and direct.	X		X		
Q296	The instructions are clear. The questions is too much - can be limited to about 20 to 25.	X				X
Q297	It is clear and straight forward.	X				
Q298	The English was at times a bit difficult to follow because I am a English 2nd language student.		X			
Q299	The inventory was easy to read, understand and complete.	X				
Q300	Some of the questions were very similar. E.g. "thinking what my future will be like" and "imagining what my future will be like."					X
Q301	Inventory is clearly set out. However, items 2 and 25 were very similar in meaning.	X				X
Q302	It is clear and straight forward.	X				
Q305	The inventory is very applicable to careers. I found the questions related to group work easy to answer.	X				
Q310	Too much items - can be less.					X
Q321	Easy to understand; questions relevant and applicable.	X				
Q324	Evaluate myself in terms of my strengths (abilities).			X		

