

**Socio-demographic characteristics and antecedents associated with the career  
uncertainty of university students**

H. Botha, HonsB.A

20357494

Mini-dissertation submitted in partial fulfilment of the requirements for the degree  
Magister Artium in Industrial Psychology at the North-West University (Potchefstroom Campus)

Supervisor: Prof. K. Mostert

November 2011

## ACKNOWLEDGEMENTS

I would like to thank the wonderful people who supported me throughout the year, without you I would not have been able to achieve this. I would like to sincerely thank the following people:

- Firstly, the Lord for giving me the opportunity to be part of the masters program, providing me with strengths and talents to complete this research project.
- Prof. Karina Mostert, my research supervisor, for your patience and guidance throughout the process. Without your expertise, direction and high expectations this would not have been possible. Thank you for inspiring me, you have showed me how exciting research can be.
- Ian Rothmann Jr. for the time and effort you put into the questionnaire website – I hope that you will continue to teach students to be enthusiastic about statistics. Thank you for offering your assistance in conducting my data analysis.
- Prof. Karina Mostert and Ian Rothmann Jr. for the statistical analysis.
- My friends and family who supported me - for your love and encouragement. Thank you for believing in me and motivating me when I needed it most.
- Crizelle Els, for your advice and willingness to help me in time of need. I appreciate the consideration and kindness you showed me.
- I would like to thank the North-West University personnel who helped with this research project – especially Me. Hester Lombard for your assistance during this research study.
- Kelly Cortes, for your help with the data gathering, you were of great help during this research study. I wish that your dedication and hard work will guide you towards success.
- All the students and hostels involved with this research project, it is greatly appreciated.

## TABLE OF CONTENTS

List of Tables	iv
Abstract	v
Opsomming	vii

### CHAPTER 1: INTRODUCTION

1.1	Problem statement	1
1.2	Research objectives	10
1.2.1	General objective	11
1.2.2	Specific objectives	11
1.3	Research method	11
1.3.1	Literature review	11
1.3.2	Research participants	12
1.3.3	Measuring instruments	12
1.3.4	Research procedure	15
1.3.5	Statistical analysis	15
1.3.6	Ethical considerations	18
1.4	Overview of chapters	18
1.5	Chapter summary	18
	References	19

### CHAPTER 2: RESEARCH ARTICLE

	Abstract	29
	Introduction	30
	Research objective and potential value add	32
	Trends from the research literature	33
	Career uncertainty	33
	Career uncertainty and socio-demographic characteristics	34
	Career uncertainty and personality characteristics	36
	Career uncertainty and career decision-making difficulties	38

## **TABLE OF CONTENTS CONTINUED**

Career uncertainty and student burnout and engagement	40
Career uncertainty and academic performance	42
Research design	42
Research approach	42
Research method	43
Research participants	43
Measuring instruments	45
Research procedure	49
Statistical analysis	49
Results	51
Discussion	61
Limitations and recommendations	65
References	67

## **CHAPTER 3: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

3.1	Conclusions	79
3.2	Limitations of this research	84
3.3	Recommendations	85
3.3.1	Recommendations for practice	85
3.3.2	Recommendations for future research	86
	References	88

## LIST OF TABLES

<b>Table</b>	<b>Description</b>	<b>Page</b>
Table 1	Characteristics of the participants ( $N = 782$ )	44
Table 2	Descriptive statistics and Cronbach alpha coefficients of the measuring instruments	52
Table 3	Product-moment correlations between the study variables	53
Table 4	Pearson Chi-square Calculation to Determine the Associations between Socio-Demographic Characteristics and Participants' Career Uncertainty	55
Table 5	Association between personality characteristics, career decision making, burnout, engagement academic average and career uncertainty	56
Table 6	Logistic regression models predicting certainty and uncertainty	57

## ABSTRACT

**Title:** Socio-demographic characteristics and antecedents associated with the career uncertainty of university students.

**Key terms:** career uncertainty, career indecision, socio-demographic characteristics, personality characteristics, student burnout, student engagement, academic performance, university students.

The changing work environment has caused individuals to revise and change their career decisions. This creates career uncertainty, which has become a widespread problem, particularly for students. When this problem is not addressed, it leads to career indecision, or less optimal choices which could influence career opportunities and quality of life. Career indecision could impact on organisations, resulting in problems such as person-job adjustment, lack of engagement and burnout. Although research on career uncertainty is available internationally, there is limited research on career uncertainty and its antecedents in the South African context. Career uncertainty can have short- and long-term effects on the individual. This study therefore contributes toward the gap in research on the antecedents of career uncertainty. Given that career uncertainty is a problem that individuals are constantly confronted with, it is important that the antecedents of this be investigated.

The objectives of this study were to 1) conceptualise the antecedents of career uncertainty according to the literature; 2) determine if socio-demographic characteristics (gender, career guidance, help from parents, help from other individuals and work experience) are significant predictors of career uncertainty; 3) determine if personality characteristics (self-esteem, self-efficacy and neuroticism) are significant predictors of career uncertainty; 4) determine if career decision-making difficulties are significant predictors of career uncertainty; 5) determine if student burnout and student engagement are significant predictors of career uncertainty; and 6) determine if academic performance is a significant predictor of career uncertainty.

A non-probability quota sample ( $N = 782$ ) was used to investigate antecedents of career uncertainty in a sample of university students. Career uncertainty was measured by one item

consisting of four categories: I am very sure; I know exactly what career I will pursue ( $n = 228$ ), I am fairly sure what career I will pursue ( $n = 416$ ), I am not sure at all which career I will pursue ( $n = 135$ ) and I do not plan to follow a career ( $n = 3$ ). For the objective of the study, categories one and two were grouped together with participants who were fairly certain which career they would follow, while participants in category three represented participants who were uncertain. Category four was not included as only three participants within that category answered. In total, 644 students were (fairly) certain, while 135 were uncertain. These two groups were enclosed as a dependent variable in the logistic regression.

The results of this study showed that work experience influences career uncertainty to some extent. This is supported by previous research. Furthermore, it was found that self-esteem also influences career uncertainty to some degree. However, these two variables were only significant in the first steps of the logistic regression. Furthermore, the results showed that career decision-making difficulties share a significant relationship with career uncertainty. The study also found that significant antecedents of career uncertainty include: a lack of information about the decision-making process; a lack of information about occupations; inconsistent information due to internal conflict; a lack of information about ways of obtaining information; and inconsistent information due to external conflict. In conclusion, exhaustion, cynicism and dedication were also found to be significant antecedents of career uncertainty. Based on these results, this study suggests that student burnout and student engagement influence an individual's level of career uncertainty.

Recommendations were made for practice as well as for future research.

## OPSOMMING

**Titel:** Sosio-demografiese eienskappe en oorsake verbind met die loopbaanonsekerheid van universiteitstudente.

**Sleutel terme:** loopbaanonsekerheid, loopbaanbesluiteloosheid, sosio-demografiese eienskappe, persoonlikheidseienskappe, studenteuitbranding, studentebegeestering, akademiese prestasie, universiteitstudente.

Die veranderende werksomgewing het meegebring dat individue hulle loopbaanbesluite hersien en verander. Dit skep loopbaanonsekerheid, wat veral vir studente 'n algemene probleem geword het. Indien hierdie probleem nie aangepak word nie, lei dit tot loopbaanbesluiteloosheid of minder optimale keuses wat loopbaangeleenthede en lewenskwaliteit kan beïnvloed. Loopbaanbesluiteloosheid kan die organisasie beïnvloed met probleme ten opsigte van persoonberoepaanpassing, gebrek aan begeestering en uitbranding. Hoewel daar internasionaal navorsing oor loopbaanonsekerheid beskikbaar is, is daar beperkte navorsing oor loopbaanonsekerheid en die oorsake daarvan in die Suid-Afrikaanse konteks. Loopbaanonsekerheid kan kort- en langtermynoor sake vir die individu meebring. Dit is juis ten opsigte van hierdie leemte in navorsing oor die oorsake van loopbaanonsekerheid wat hierdie studie 'n bydrae lewer. Siende dat loopbaanonsekerheid 'n blywende probleem is waarmee individue gekonfronteer word, is dit belangrik dat die oorsake daarvan ondersoek moet word.

Die doelwitte van die studie was om 1) die oorsake van loopbaanonsekerheid volgens die literatuur te konseptualiseer; 2) te bepaal of sosio-demografiese eienskappe (geslag, loopbaanvoorligting, hulp van ouers, hulp van ander individue en werkservaring) betekenisvolle voorspellers van loopbaanonsekerheid is; 3) te bepaal of persoonlikheidseienskappe (selfversekerdheid, selfeffektiwiteit en neurotisme) betekenisvolle voorspellers van loopbaanonsekerheid is; 4) te bepaal of moeilikhede om loopbaanbesluite te neem betekenisvolle voorspellers van loopbaanonsekerheid is; 5) te bepaal of studenteuitbranding en -begeestering betekenisvolle voorspellers van loopbaanonsekerheid is; en 6) te bepaal of akademiese prestasie 'n betekenisvolle voorspeller van loopbaanonsekerheid is.



'n Nie-waarskynlikheid-kwotasteekproef ( $N = 782$ ) is gebruik om die oorsake van loopbaanonsekerheid in 'n groep universiteitstudente te ondersoek. Loopbaanonsekerheid is gemeet met een item wat bestaan uit vier kategorieë: ek is baie seker; ek weet presies watter loopbaan ek gaan volg ( $n = 228$ ), ek is redelik seker watter loopbaan ek gaan volg ( $n = 416$ ), ek is gladnie seker watter loopbaan ek gaan volg nie ( $n = 135$ ) en ek beplan nie om 'n loopbaan te volg nie ( $n = 3$ ). Vir die doelwit van hierdie studie is kategorie een en twee saam gegroepeer met deelnemendes wat taamlik seker is watter loopbaan hulle sal volg terwyl kategorie drie bestaan uit deelnemendes wat onseker was. Kategorie vier is nie ingesluit nie omdat slegs drie deelnemendes in daardie kategorie geantwoord het. Hierdie twee groepe is ingesluit as afhanklike veranderlikes in die logistiese regressieanalise.

Die bevindinge van hierdie studie toon aan dat werkservaring loopbaanonsekerheid in 'n mate beïnvloed. Dit word ondersteun deur vorige navorsing. Daar is verder ook bevind dat selfversekerdheid in 'n sekere mate 'n invloed het op loopbaanonsekerheid. Hierdie twee veranderlikes was egter slegs in die eerste stappe van die logistiese regressie betekenisvol. Afgesien hiervan, toon die bevindinge ook dat loopbaanbesluitneming-moeilikhede in 'n betekenisvolle verhouding staan met loopbaanonsekerheid. 'n Gebrek aan inligting oor die besluitnemingsproses, 'n gebrek aan beroepsinligting, teenstrydige inligting weens interne konflik, 'n tekort aan inligting oor die wyses waarop inligting bekom kan word en teenstrydige inligting weens eksterne konflik was almal betekenisvolle oorsake van loopbaanonsekerheid. Ten slotte is bevind dat uitputting, sinisme en toewyding ook as betekenisvolle oorsake van loopbaanonsekerheid beskou kan word. Op grond van hierdie bevindinge, word met hierdie studie voorgestel dat studenteuitbranding en begeestering ook 'n invloed het op individue se vlak van loopbaanonsekerheid.

Aanbevelings is gemaak vir die praktyk sowel as vir toekomstige navorsing.

# **CHAPTER 1**

## **INTRODUCTION**

This mini-dissertation focuses on the socio-demographic characteristics and antecedents associated with career uncertainty of university students. In particular, the aim is to compare students with low and high career uncertainty and to investigate whether socio-demographic characteristics (gender, career guidance, help from parents, help from others, work experience), personality characteristics (self-esteem, self-efficacy, neuroticism), career decision-making difficulties, student burnout, student engagement and academic performance predict career uncertainty.

This chapter gives the problem statement and discusses the research objectives and the research methodology. It concludes with a chapter summary and overview of the chapters.

### **1.1 PROBLEM STATEMENT**

The changing nature of organisations and the labour market has transformed careers and increased the amount of career adjustments individuals have to make over their working lives (Trevor-Roberts, 2006; Zhou & Santos, 2007). Organisations' need for profit has increased and global competition for talent is impacting career opportunities (Colvin, 2006; De Raaf, Dowie & Vincent, 2009; Grobler, Warnich, Carrell, Elbert & Hatfield, 2006). Consequently, finding the right occupation has become more complex and challenging, causing increased career uncertainty (Trevor-Roberts, 2006). Researchers report that career uncertainty and career indecision is a prevailing problem among students (Amir & Gati, 2006; Trevor-Roberts, 2006). However, career uncertainty and career indecision have different meanings and should not be confused as the same term (Jordaan, Smithard & Burger, 2009).

Career uncertainty occurs when the outcome of the decision-making process is influenced by the individuals' emotions before logical reasoning (Gati & Saka, 2001; Gordon & Meyer, 2002). It suggests that career uncertainty occurs as a result of the decision-making process (Elyadi, 2006). On the other hand, career indecision is a developmental process when the individual is unable to make a choice between more than one option (Gati & Saka, 2001; Nauta, 2011; Talib & Aun, 2009). Therefore, career uncertainty is only feelings or an emotion associated with the outcome of the individuals' choice and is a contributing variable of career indecision (Elaydi, 2006; Jordaan et al., 2009). Due to the scarce research available on career uncertainty, both career uncertainty and career indecision will be discussed.

Researchers report that career indecision has become one of the main concerns in the field of behavioural psychology as it is a widespread problem for students (Guay, Senécal, Gauthier & Fernet, 2003; Kelly & Lee, 2002). Although there has been extensive interest since the 1960s, researchers have found that career indecision is still a prevalent problem (Amir & Gati, 2006; Osipow, 1999). The American College Testing Program (ACT, 2008b) reported that 10% of students were undecided about their degree in 2006 and 15% in 2007, whereas 9,80% to 10,80% were undecided in 2008. Gianakos (1999) reported that an estimated 50% of individuals experience career problems. There has also been an increased demand for career counselling to help individuals in the decision-making process (Redwine, 2009). Similarly, Gordon and Meyer (2002) found that 50% of South African students while busy with their studies describe themselves as undecided about their career decisions.

Research in career development began after demographic changes had been brought about by the industrial revolution in the US at the turn of the 20th century. Types of jobs shifted and the need to assist new students and citizens set off the career guidance movement (Thompson, 2001). Research on career indecision started with the theory published by Parsons in 1909. The theory considered three aspects, namely knowing oneself, knowing the job characteristics and forming a decision (Thompson, 2001). The reduction of career indecision became significant between the 1960s and 1970s (Osipow, 1999). Later the focal points of indecision studies were the individuals' lack of self-insight into their own capabilities, fear of commitment and lack of information about different professions (Feldman, 2003). Afterwards studies focused on

decision-making difficulties, the distinction between indecision types and how to determine the consequences (Germeijs, Verschuerin & Soenens, 2006; Oswalt, 2004). Today's changing work environment has made career decision management a never-ending process that requires further knowledge of the problem (Albion & Fogarty, 2002; Osipow, 1999).

Researchers suggest that career uncertainty interferes with career planning and hinders individuals in making successful career decisions (Kelly & Lee, 2002; Lopez & Ann-Yi, 2006). More specifically, in making a career decision individuals realise their ideals and interests that impact on their later life and influence their future career (Fouad, Cotter & Kantamneni, 2009; Guay, Ratelle, Sénécal, Larose & Deschênes, 2006). Difficulty with choosing an occupation can lead to an inaccurate decision that can have short-term and long-term effects on an individual's quality of life (Esters, 2007; Gati & Saka, 2001; Ng & Feldman, 2009). Firstly, career indecision can cause dropout from high school, with some students not being admitted to higher education institutions after leaving school, which leads to poor qualifications (Salami, 2004). Secondly, there can be delay in university graduation, which has financial implications (Feldman, 2003; Gati & Amir, 2010), as the more prolonged a student's studies are due to indecision, the more funds will be needed to complete his or her degree (Essig, 2010; Gordon & Meyer, 2002).

Notably, career uncertainty might have an impact on organisations. Career indecision can influence the individual through lack of requirements for positions and poor adjustment within the workplace (Salami, 2004). This leads career-undecided individuals to change jobs frequently and cause gaps in their employment history. Employers could then question whether the applicant will be valuable to the organisation if career indecision and a negative employment history are evident (Feldman, 2003). Later this might result in unengaged employees; employers will be careful to appoint such an individual (Fouad et al., 2009). Additionally, career indecision lowers individuals' sense of self-efficacy about their career management abilities and has an influence on their employment opportunities (Ng & Feldman, 2009). Thus, career indecision is a main concern in research because it leads to high psychological and financial costs (Gati & Amir, 2010).

Career indecision has been used to describe problems with career development and difficulty in making decisions relating to a career (Gordon & Meyer, 2002; Saka, Gati & Kelly, 2008). The term should not be confused with career uncertainty. Career uncertainty and career indecision are interconnected. To explain the association between the variables, the decision-making process will be explained.

The two perspectives of decision-making are the consequentialist perspective and the nonconsequentialist perspective. The consequentialist perspective explains that decision-making is logical reasoning where the outcomes and consequences of a choice are evaluated. It does not suggest that emotions are absent during the decision-making process but more probably occur as a result of the decision-making process (Elyadi, 2006). Conversely, the nonconsequentialist perspective proposes that individuals respond with their emotions before logical reasoning (cognitive response). Their emotions then influence how they assess the possible outcomes and risks of their choice. Thus the decision-making process is influenced by emotions anticipated and emotions being experienced (Elyadi, 2006). When the emotions occur before logical reasoning, it leads to career uncertainty (Gati & Saka, 2001; Gordon & Meyer, 2002).

Career indecision is a developmental process experienced by students when they have to make a decision about their career (Guay et al., 2006; Nauta, 2011; Talib & Aun, 2009). Career indecision is defined as the individual facing difficulty in the decision-making process and being unable to make a choice towards one option (Gati & Saka, 2001). Career indecision is the incapability to decide on a profession or university major. Otherwise, career uncertainty is “any factor that makes an individual feel uncertain of his/her career future” (Tien, Lin & Chen, 2005, p. 2). Career uncertainty is a contributing variable of career indecision (Jordaan et al., 2009). Indeed, researchers explain that given that career uncertainty is only feelings or emotions about the outcomes of the individual’s choice, it leads to career indecision (Elyadi, 2006; Jordaan et al., 2009). Career uncertainty occurs when individuals experience difficulty during the decision-making process due to a lack of the necessary elements, which then develops into career indecision (Elyadi, 2006; Jordaan et al., 2009; Morgan & Ness, 2003; Tien, 2001). These elements are part of the taxonomy of the career decision-making difficulties developed by Gati, Krausz and Osipow (1996). Although the focus of this study is on career uncertainty, literature

on the antecedents of career uncertainty is very scarce. Since career uncertainty and career indecision are interconnected, an overview of both will be presented in this study.

Individuals who experience career indecision should not be viewed as a homogeneous group. Research provides evidence that the level of career indecision and the problems being experienced are unique to each individual (Gordon & Meyer, 2002). These problems are classified as predictors that provide information to improve career counselling (Lee, 2005; Taylor, 2007). Predictors found in the literature include identity development (Busacca, 2003; Curtis, 1997; Davis, 2001), anxiety (Germeijs, Verchuerin & Soenens, 2006; Johnston, 2007), locus of control (Bacanli, 2006; Feldman, 2003), self-efficacy (Feinstein-Messinger, 2007; January, 2003; Krantz, 2004) and self-esteem (Feldman, 2003; Santos, 2001). External factors identified in the literature include lack of information (Albion & Fogarty, 2002; Talib & Aun, 2009), parental factors (Feinstein-Messinger, 2007; Salami & Aremu, 2007), psychological separation (Keller, 2007; Tokar, Withrow, Hall & Moradi, 2003) and career guidance (Chen, 2008; Essig, 2010; Taylor, 2007). This study will focus on career uncertainty and the following predictors: socio-demographic characteristics (including gender, career guidance, help from parents, help from others and work experience), personality characteristics (self-esteem, self-efficacy, neuroticism), career decision-making difficulties, student burnout, student engagement and academic performance.

According to Guay et al. (2003) it is necessary to consider the association between career uncertainty and socio-demographic characteristics to determine whether these characteristics are only relevant for uncertain individuals. Researchers demonstrate that females experience more career indecision than males (Patton & Creed, 2001, 2002; Talib & Aun, 2009; Zhou & Santos, 2007). According to Zhou and Santos (2007), males experience fewer difficulties in the career decision-making process than females. Career guidance also has an influence on career uncertainty. According to Chen (2008), career guidance helps students with challenges and barriers. Career guidance refers to a process that assists students in making a career decision. This process involves educating students about careers, guiding them towards choices and counselling. However, when students do not receive career guidance, it might lead to uncertainty and boundless career options (Taylor, 2007). Career guidance provides the opportunity for a

facilitative learning process that attempts to engage students in making a decision about their career choice (Maree, Ebersöhn & Vermaak, 2008).

A link with the influence of parents on academic decision-making exists (Guerra & Braungart-Rieker, 1999; Simmons, 2008). Researchers suggest that parents' influence on career decision-making has an effect on the level of career indecision that the student experiences (Feldman, 2003; Simmons, 2008). Therefore the impact of career indecision and contextual factors (e.g. the influence of parents in the decision-making process) needs to be researched (Germeijs & Verschuerin, 2006; Guay et al., 2003; Jonker, 2003). Influence by others also affects students' level of career uncertainty (Mhlongo, 2009; Babin, Grant & Sawal, 2010). Mhlongo (2009) found that students report that their career decisions were influenced by their church and the community. In addition, Myburg (2005) reported that next to parents, relatives and school teachers influenced students' career choices. Work experience has also been associated with the career uncertainty of individuals (Herr, Cramer & Niles, 2004; Naidoo, 1998). Researchers suggest that individuals with work experience have less career indecision compared to individuals with no work experience (Herr et al., 2004; Talib & Aun, 2009). In a study conducted by Creed, Prideaux and Patton (2005), students who were certain about their career decisions had more work experience compared to students who were uncertain.

Researchers have found a relationship between several personality characteristics and career indecision (Bacanli, 2006; Ng & Feldman, 2009), which include self-esteem, self-efficacy and neuroticism. Rosenberg (1965) defined self-esteem as the entirety of all the thoughts and emotions individuals have of themselves. Chamorro-Premuzic, Ahmetoglu and Furnham (2007, p. 259) define self-esteem as "perception of one's worth, value, and importance". Individuals with low self-esteem view themselves critically and at times without value. They are more likely to become frustrated with the experience of choosing a vocation (Keller, 2007). Researchers suggest that individuals with low self-esteem will experience high levels of career indecision (Bacanli, 2006; Creed et al., 2005).

Self-efficacy can be defined as the insight that individuals have into their competence to complete tasks in different circumstances (Judge, Locke, Durham & Kluger, 1998). Chamorro-

Premuzic et al. (2007) define self-efficacy as the level of self-assurance individuals have about the possibility of performing well. Self-efficacy involves goal setting, problem solving and planning (Feldman, 2003; Gianakos, 2001). Students with low self-efficacy are unlikely to set career goals and are not resilient in the face of setbacks. Neither do they take part in career opportunities and gather information about vocations (Argyropoulou, Sidiropoulou-Dimakakou & Besevegis, 2007). According to Creed et al. (2005), individuals who decide on a career have higher levels of self-efficacy.

Neuroticism is an individuals' over-exaggeration or tendency to be emotionally sensitive (Eysenck & Eysenck, 1968). Neuroticism is related to the problem-solving deficiencies, career indecision and type of decision-making of individuals (Chartrand, Rose, Elliot, Marmorash & Caldwell, 1993; Feldman, 2003). Individuals with high levels of neuroticism are cautious about making decisions and become impulsive about diminishing the levels of stress they experience in the decision-making process (McCrae & Costa, 1991). This might lead them to become more undecided about their careers (Feldman, 2003; McCrae & Costa, 1991).

A career choice is a very important choice to make, and some individuals have difficulties with it (Salami & Aremu, 2007). Researchers have found that students experience career uncertainty because they have limited knowledge about their own abilities, occupational possibilities and the world of work. Moreover, these factors can have a direct impact on the level of career uncertainty being experienced (Feldman, 2003; Talib & Aun, 2009). Gati et al. (1996) developed a taxonomy to classify the problems individuals experience with the decision-making process. The taxonomy distinguishes between problems that occur before the decision-making process and those that take place during the process (Morgan & Ness, 2003). The difficulties are divided in three categories: lack of readiness, lack of information and inconsistent information. Lack of readiness occurs before the decision-making process, while the other two categories relate to difficulties during the decision-making process (Morgan & Ness, 2003).

The Career Decision-Making Difficulty Questionnaire developed by Gati and Saka (2001) is based on the above taxonomy. The Career Decision-Making Difficulty Questionnaire includes the following dimensions (Gati & Osipow, 2010):



- *Lack of readiness* includes three categories, namely lack of motivation, indecisiveness and dysfunctional beliefs. Lack of motivation shows a lack of willingness to make a decision or to take part in the decision-making process. Indecisiveness is the general difficulty in making decisions, and dysfunctional beliefs reflects a distorted view of the career decision-making process, irrational beliefs in prospects and dysfunctional thoughts about the decision-making process.
- *Lack of information* includes four categories, namely lack of information about the decision-making process, lack of information about the self, lack of information about occupations and lack of information about ways of obtaining information. Lack of information about the decision-making process reveals a lack of knowledge about how to make sound decisions and the steps needed in the career decision-making process. Lack of information about the self reveals the lack of knowledge an individual has about career preferences, abilities and potential. Lack of information about occupations reflects a lack of information on the existing range of career options, the alternatives and what each alternative's characteristics are. Lack of information about ways of obtaining information reveals a lack of information about ways of obtaining additional information that may assist career decision making.
- *Inconsistent information* consists of three categories, namely unreliable information, internal conflict and external conflict. Unreliable information shows that the individual feels he or she has contradictory information about himself or herself or about the possible options. Internal conflict shows a state of internal confusion that may stem from problems with processing contradictory factors. External conflict reflects a gap between the individual's preferences and the preferences of significant others, or opposing opinions from two significant others (Gati & Osipow, 2010).

The relationship of student burnout and engagement with career uncertainty has hardly ever been researched. Burnout is defined as students who are physically and emotionally worn out from stress, and who have developed a cynical approach towards their studies (Schaufeli, Martínez, Pinto, Salanova & Bakker, 2002). The focus in this study will be on the two core dimensions of burnout, i.e. exhaustion and cynicism. Exhaustion is defined as wearing out, loss of energy, depletion, debilitation and fatigue (Maslach, Leiter & Schaufeli, 2008). Although exhaustion is

often a physical experience, psychological or emotional exhaustion is mostly described as being the central experience of burnout. Cynicism is a negative response to other people, feeling irritable and withdrawing from work (Maslach et al., 2008).

Students experience stress due to increased study demands, their academic responsibilities (Schaufeli, Martínez et al., 2002; Salanova, Schaufeli, Martínez & Bresò, 2009) and difficulty in balancing time demands (Dusselier, Dunn, Wang, Shelley & Whalen, 2005). Researchers found that students cope with stress by distancing themselves from their studies (a cynical attitude) (Latack & Havlovic, 1992). Furthermore, the effects of exhaustion and cynicism (burnout) might influence self-efficacy beliefs (Schaufeli & Salanova, 2007) which are the main predictor of career uncertainty according to Betz and Vuyton's (1997) theory. In a study conducted by Tien et al. (2005), students reported that they feel exhausted and discouraged from their studies while experiencing career uncertainty.

Student engagement is defined as “a positive, fulfilling, and work-related state of mind that is characterized by vigour, dedication and absorption” (Schaufeli, Salanova, González-Romà & Bakker, 2002, p. 75). The core dimensions of engagement, namely vigour and dedication, will be the main focus. Vigour is defined as high energy levels and the mental resilience to be eager and invested in work (Schaufeli, Salanova et al., 2002). Dedication is experienced when an individual finds meaning and is motivated to continue with his or her work (Schaufeli, Salanova et al., 2002). There is limited research on student engagement (Handelsman, Briggs, Sullivan & Towler, 2005), specifically with regard to career uncertainty. The job demands-resources model proposes that lack of resources (e.g. in a study environment) leads to disengagement (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). The amount of resources that individuals have will affect their work engagement directly (Bakker, Hakanen, Demerouti & Xanthopoulou, 2007). Indeed, researchers have demonstrated that job resources are the main reason for reduced levels of commitment, which is a form of disengagement (Bakker, Demerouti, De Boer & Schaufeli, 2003).

Academic performance may also have an influence on the individual's career uncertainty. Students who experience difficulty with academic demands often have poor academic

performance (Kahn, Nauta, Gailbreath, Tipps & Chartrand, 2002; Wortman & Napoli, 1996). Moreover, poor academic demands might influence the career decision-making process of individuals (Borchert, 2002; Kahn et al., 2002). Tien et al. (2005) found in a qualitative study that low grades are responsible for career uncertainty. Their grades affect their acceptance into college and their study preferences. When these scores are low, students might not be accepted into the programme of their choice (Tien et al., 2005).

Career indecision leads to ineffective choices and reduced career opportunities if the problem is not addressed (Germeijs & De Boeck, 2003; Germeijs & Verchuerin, 2006; Lopez & Ann-Yi, 2006). Understanding the antecedents of career uncertainty can be useful for individuals to find their professional purpose (Downing & Nauta, 2009). Not much research on the reasons for and the levels of career indecision has been done in South Africa (Jordaan et al., 2009). The aim of this study is therefore to address the matter by exploring significant predictors of career uncertainty in a sample of university students.

The following research questions emerge through the problem statement:

- What are the antecedents of career uncertainty according to the literature?
- Are socio-demographics (gender, career guidance, help from parents, help from others and work experience) significant predictors of career uncertainty?
- Are personality characteristics (self-esteem, self-efficacy and neuroticism) significant predictors of career uncertainty?
- Are career decision-making difficulties significant predictors of career uncertainty?
- Are student burnout and student engagement significant predictors of career uncertainty?
- Is academic performance a significant predictor of career uncertainty?
- What recommendations can be made for future research?

## **1.2 RESEARCH OBJECTIVES**

The research objectives are divided into a general objective and several specific objectives.

### **1.2.1 General objective**

The general objective of this study is to investigate the antecedents of career uncertainty by comparing students with low and high career uncertainty.

### **1.2.2 Specific objectives**

The specific objectives of this research are to:

- Conceptualise the antecedents of career uncertainty according to the literature.
- Determine whether socio-demographics (gender, career guidance, help from parents, help from others and work experience) are significant predictors of career uncertainty.
- Determine whether personality characteristics (self-esteem, self-efficacy and neuroticism) are significant predictors of career uncertainty.
- Determine whether career decision-making difficulties are significant predictors of career uncertainty.
- Determine whether student burnout and student engagement are significant predictors of career uncertainty.
- Determine whether academic performance is a significant predictor of career uncertainty.
- Make recommendations for future research.

## **1.3 RESEARCH METHOD**

The research method consisted of a literature review and an empirical study. The results were presented in the form of a research article.

### **1.3.1 Literature review**

A complete literature review on career indecision and career uncertainty and possible antecedents were done. The sources that were consulted included EBSCOHOST, Emerald, Science Direct, ProQuest, LexisNexis and SACat. The following keywords were used as search

terms: career uncertainty, career indecision, antecedents, personality characteristics, student burnout, student engagement, university students.

### **1.3.2 Research participants**

The participants consisted of 782 full-time students of a higher education institution. The sample was a non-probability quota sample representing all the faculties of the institution. The population's characteristics differed in gender, age, racial groups (African, Coloured, Indian and White) and year of study (first year to sixth year).

### **1.3.3 Measuring instruments**

*Biographical questionnaire.* The questionnaire was used to gather socio-demographical information on participants, and included questions on gender, academic and historical year and faculty. Additional items were integrated to obtain external predictors. Questions were included about career guidance (e.g. "Did you receive career guidance before you decided on a course of study?"), work experience, (e.g. "Before you chose your degree/possible career, did you already have work experience in that environment?"), help in career decision-making from parents and from others (e.g. "Did your parents or guardians help you to choose a course of study and a possible career?"), external influences (e.g. "Did financial costs influence your decision to follow this specific course of study?"), confidence in studying the right course (e.g. "How confident are you that you are following the right course of study?") and whether students have changed their study course (e.g. "Have you ever changed course of study?").

*Career uncertainty.* This construct was measured with one item (e.g. "To what extent are you sure about which career you will follow after you leave university"). It contained four categories: 1) I am very sure, I know exactly what career I will pursue; 2) I am fairly sure what career I will pursue; 3) I am not sure at all which career I will pursue; and 4) I do not plan to follow a career. For the objective of the study, categories one and two were grouped together for participants who were fairly certain what career they will follow and category three and four for participants who were uncertain.

*Personality characteristics.* Three personality characteristics were incorporated: self-esteem, self-efficacy and neuroticism. Self-esteem was measured with Rosenberg's (1965) Self-Esteem Scale. It consisted of ten items (e.g. "I feel that I have a number of good qualities"). This scale used a five-point Likert response system with *strongly disagree* (1) and *strongly agree* (5). The Cronbach alpha for self-esteem is 0,88 (Judge, Erez, Bono & Thoresen, 2003; Oyler, 2007). *Self-efficacy* was measured with the self-efficacy scale (Judge, Locke, Durham & Kluger, 1998). It consisted of eight items (e.g. "I am strong enough to overcome life's struggles"). Items were scored on a five-point Likert scale ranging from one (strongly disagree) to five (strongly agree). The Cronbach alpha for self-efficacy is 0,89 (Judge et al., 2003; Oyler, 2007). *Neuroticism* was measured with the Eysenck Personality Inventory Neuroticism scale (Eysenck & Eysenck, 1968). It consisted of 12 items (e.g. "Sometimes I feel miserable for no reason"). Items were scored on a five-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). The Cronbach alpha for neuroticism is 0,90 (Judge et al., 2003; Oyler, 2007).

*Career decision-making difficulties.* The Career Decision-Making Difficulty Questionnaire (CDDQ) (Gati & Saka, 2001) was used to determine the difficulties students experience in the decision-making process. The 34-item questionnaire has three clusters, namely lack of readiness, lack of information and inconsistent information. Each broad dimension is divided into subscales.

- Lack of readiness contains three subscales, including *lack of motivation* (three items, e.g. "I know that I have to choose a career, but I don't have the motivation to make the decision now"), *indecisiveness* (four items, e.g. "It is usually difficult for me to make decisions") and *dysfunctional beliefs* (three items, e.g. "I believe there is only one career that suits me").
- Lack of information incorporates four subscales, namely *lack of information about the decision-making process* (three items, e.g. "I find it difficult to make a career decision because I do not know what steps I have to take"), *lack of information about the self* (eight items, e.g. "I find it difficult to make a career decision because I still do not know which occupations interest me"), *lack of information about occupations* (four items, e.g. "I find it difficult to make a career decision because I don't know what careers will look

like in the future”) and *lack of information about ways of obtaining information* (two items, e.g. “I find it difficult to make a career decision because I do not know how to obtain additional information about myself”).

- Inconsistent information includes three subscales, namely *unreliable information* (six items, e.g. “I find it difficult to make a career decision because I constantly change my career preferences”), *internal conflicts* (seven items, e.g. “I find it difficult to make a career decision because I do not like any of the occupation or training programmes to which I can be admitted”) and *external conflicts* (four items, e.g. “I find it difficult to make a career decision because people who are important to me do not agree with the career options I am considering”) (Albion & Fogarty, 2002).

Items were scored on a nine-point Likert scale ranging from one (does not describe me) to nine (describes me well) (Albion & Fogarty, 2002). The reliabilities for the three clusters were: lack of readiness 0,71, lack of information 0,91 and inconsistent information 0,93. The Cronbach alpha for the total scale is reported as 0,94 (Gati et al., 1996).

*Student burnout.* The *Maslach Burnout Inventory-Student Survey* (MBI-SS) (Schaufeli, Martínez, Pinto, Salanova & Bakker, 2002) was used to determine the exhaustion and cynicism levels of the participants. Exhaustion was measured with five items (e.g. “I feel emotionally drained by my studies”) and cynicism with four items (e.g. “I have become less enthusiastic about my studies”). Items were scored on a seven-point frequency rating scale ranging from 0 (never) to 6 (always). The MBI-SS has been validated internationally (Schaufeli, Salanova et al., 2002) and in South Africa (Mostert, Pienaar, Gauche & Jackson, 2007; Pienaar & Sieberhagen, 2005). The reliabilities are 0,79 for exhaustion and 0,73 for cynicism (Pienaar & Sieberhagen, 2005). Mostert et al. (2007) found 0,74 for exhaustion and 0,68 for cynicism.

*Student engagement.* The *Utrecht Work Engagement Scale-Student Survey* (UWES-S) (Schaufeli, Salanova, González-Romà & Bakker, 2002) was used to measure the vigour and dedication levels of the participants. Vigour was measured with five items (e.g. “When I study, I feel like I am bursting with energy”). Dedication was also measured with five items (e.g. “I am enthusiastic about my studies”). Items were scored on a seven-point Likert scale ranging from 0

(never) to 6 (every day). The UWES-S has been validated internationally (Schaufeli, Salanova et al., 2002). Also, in South Africa, Pienaar and Sieberhagen (2005) found reliabilities of 0,77 for vigour and 0,85 for dedication. Similarly, Mostert et al. (2007) reported acceptable Cronbach alphas: vigour is 0,70 and dedication 0,78.

*Academic performance.* The participants' academic marks for the first semester was obtained from the academic administration department of the university. The average of the marks were calculated to assess academic performance.

#### **1.3.4 Research procedure**

Permission to do the research was obtained from the university by writing a letter to the campus registrar and explaining the study and its value to the university. Permission was obtained from the ethical committee to acquire academic records of students. The data was gathered by having the participants complete the questionnaires online on a protected website. The students were informed of the study via e-mail with the link that directed them to a secure website. The importance of the study, the research objectives and the research procedure was explained briefly. The data were given voluntarily and the participants was notified of ethical and privacy issues. They were asked to complete informed consent forms prior to answering the questionnaires. The participants were able to complete the questionnaires in their own time by saving their answers and continuing with the questionnaires later.

#### **1.3.5 Statistical analysis**

The statistical analysis were carried out with the SPSS program (SPSS, 2009). Descriptive statistics (e.g. means, standard deviations) were used to evaluate the data. Cronbach alpha coefficients were used to determine the internal consistency of the variables (Clark & Watson, 1995). To determine the relationship between the constructs, Pearson product-momentum correlation coefficients were used. The statistical significance value was set at a 95% confidence interval level ( $p \leq 0,05$ ). Cut-off points of 0,30 (medium effect) and 0,50 (large effect, Cohen, 1988) were set for the practical significance of the correlation coefficients.



Confirmatory Factor Analysis (CFA) as implemented by means of Mplus 6.1 (Muthén & Muthén, 2007) was used to test the factorial validity of the measuring instruments. The input type was the covariance matrix. The robust maximum likelihood estimator was used to accommodate the lack of multivariate normality in the item distribution (Muthén & Muthén, 2007).

Before conducting the logistic regression, it was important to determine first if there is a relationship between career uncertainty and the set of antecedents. When a relationship is found, an attempt is made to simplify the model by removing some predictors while at the same time maintaining strong prediction. Once a reduced set of predictors is found, the equation can be used to predict outcomes for new cases on a probabilistic basis. Uncertain and certain students were compared for certain socio-demographic characteristics, personality characteristics, career decision-making difficulties, student burnout, student engagement and academic performance using  $\chi^2$  tests ( $p$ -values were obtained from Pearson's chi-square tests) and analysis of variance (ANOVA). Only variables that differ significantly were included in the logistic regression analysis.

Direct logistic regression was used to predict if individuals belong to the career uncertain (coded 0) or career certain (coded 1) category. Logistic regression is a technique for fitting a regression surface to data in which the dependent variable is a dichotomy (Kerlinger & Lee, 2000). The goal of the analysis is to accurately predict the category of the outcome for individual cases. Logistic regression estimates the probability of a certain event occurring (Peng & So, 2002) and is similar to discriminant analysis using a dichotomous dependent variable. Like discriminant analysis equations, logistic regression equations demonstrate relative effects of independent variables on individuals that belong to the group in one of two categories of a dependent variable. However, independent variables with nominal and ordinal scaling are not readily accommodated in discriminant analysis. Besides, linearity and normality statements are more stringent for discriminant analysis. In addition, logistic regression shows results in terms of odds. Consequently, interpretation of logistic regression is less complicated than it is for discriminant analysis.

The accuracy of the logistic regression model was determined by fitting models on the basis of available predictors to the observed data. Thus a model was fit to the data that allows one to estimate values of the outcome variable from known values of the predictor variables. To estimate the fit of the model, attention was given to 1) overall model evaluation; 2) goodness-of-fit statistics; and 3) statistical tests of individual predictors (Field, 2005; Peng & So, 2002).

*Overall model evaluation.* Progress over the baseline was observed by using the likelihood ratio. The log-likelihood is based on summing the probabilities with the predicted and real outcomes (Tabachnick & Fidell, 2001). It is an indicator of how much unexplained information there is after the model was fit. Large values of the log-likelihood indicate poorly fitting statistical models, as the larger the value of the log-likelihood, the more unexplained observations there are.

*Goodness-of-fit statistics.* Goodness-of-fit statistics assess the fit of a logistic model against real outcomes. The inferential goodness-of-fit test is the Hosmer-Lemeshow test (H-L) and is the proportional reduction in the absolute value of the log-likelihood measure. Two additional descriptive measures of goodness-of-fit were used, namely those of Cox and Snell (1989) and Nagelkerke (1991). These indicators are variations of the  $R^2$  concept defined for the ordinary least squares regression model.

*Statistical tests of individual predictors.* The statistical significance (for the inclusion or exclusion from the model) of individual regression coefficients (i.e.  $\beta$ s) were tested using the Wald chi-square statistic and the likelihood-ratio test. Odds ratios (*Exp b*) and 95% confidence intervals (*CIs*) for each group in the model was calculated. A value greater than 1 specifies that as the predictor increases, the odds of the outcome occurring increase. Conversely, a value less than 1 indicates that as the predictor increases, the odds of the outcome occurring decreases (Agresti, 1996).

### **1.3.6 Ethical considerations**

Fair and ethical research is important, therefore participation was voluntary and informed consent, privacy and confidentiality concerns were taken into account. The ethics committee of the institution reviewed the above mentioned before commencement of the research project.

## **1.4 OVERVIEW OF CHAPTERS**

This dissertation consists of three chapters. Chapter 1 is the introductory chapter, Chapter 2 is presented as a research article that discusses the research objectives and results, and Chapter 3 discusses the research conclusions, limitations and recommendations.

## **1.5 CHAPTER SUMMARY**

This chapter discussed the problem statement and research objectives. The measuring instruments and the research method were explained and an overview of the chapters was given. This chapter also included an overview of the chapters that follow.

## REFERENCES

- Agresti, A. (1996). *Introduction to categorical data analysis*. New York: John Wiley and Sons, Inc.
- Albion, M. J., & Fogarty, G. J. (2002). Factors influencing career decision making in adolescents and adults. *Journal of Career Assessment, 10*(1), 91-126.
- Amir, T., & Gati, I. (2006). Facets of career decision-making difficulties. *British Journal of Guidance and Counselling, 34*(4), 483-503.
- Argyropoulou, E. P., Sidiropoulou-Dimakakou, D., & Besevegis, E. (2007). Generalized self-efficacy, coping, career indecision, and career choices of senior high school students in Greece: Implications for career guidance practitioners. *Journal of Career Development, 33*(4), 316-337.
- Babin, A., Grant, K. A., & Sawal, L. (2010). Identifying Influencers in high school student ICT career choice. *Information Systems Education Journal, 8*(26), 1-18.
- Bacanli, F. (2006). Personality characteristics as predictors of personal indecisiveness. *Journal of Career Development, 32*(4), 320-332.
- Bakker, A. B., Demerouti, E., De Boer, E., & Schaufeli, W. B. (2003). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior, 62*(2), 341-356.
- Bakker, A. B., Hakanen, J. J. Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology, 99*(2), 274-284.
- Betz, N. E., & Voyten, K. K. (1997). Efficacy and outcome expectations influence career exploration and decidedness. *Career Development Quarterly, 46*(2), 179-189.
- Borchert, M. (2002). *Career choice factors of high school students*. Unpublished masters dissertation, University of Wisconsin-Stout, Wisconsin, United States of America.
- Busacca, L. A. (2003). *Identity styles and career development during adolescence*. Unpublished doctoral thesis, Kent State University, Kent, United States of America.

- Chamorro-Premuzic, T., Ahmetoglu, G., & Furnham, A. (2007). Little more than personality: Dispositional determinants of test anxiety (the Big Five, core self-evaluations, and self-assessed intelligence). *Learning and Individual Differences, 18*(2), 258-263.
- Chartrand, J. M., Rose, M. L., Elliot, T. R., Marmorash, C., & Caldwell, S. (1993). Peeling back the onion: Personality problem solving, and career decision-making style and correlates of career indecision. *Journal of Career Assessment, 1*(1), 66-82.
- Chen, C. P. (2008). Career guidance for at-risk students via social learning. *Perspectives in Education, 26*(4), 6-16.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309-319.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2<sup>nd</sup> ed.). Orlando, CA: Academic Press.
- Colvin, G. (2006, January 30). Catch a rising star. *Fortune*. Retrieved October 14, 2011, from [http://money.cnn.com/magazines/fortune/fortune\\_archive/2006/02/06/8367928/](http://money.cnn.com/magazines/fortune/fortune_archive/2006/02/06/8367928/)
- Cox, D. R., & Snell, E. J. (1989). *The analysis of binary data* (2<sup>nd</sup> ed.). London: Chapman and Hall.
- Creed, P., Prideaux, L., & Patton, W. (2005). Antecedents and consequences of career decisional states in adolescence. *Journal of Career Behavior, 67*(3), 397-412.
- Curtis, C. (1997). *The relationship of identity to career indecision during adolescence*. New Jersey: Kean University.
- Davis, E. R. (2001). *Levels of career indecision and prominent personality dimensions of high school and community college dual-enrolment students*. Unpublished doctoral thesis. Texas University, Texas.
- De Raaf, S., Dowie, M., & Vincent, C. (2009). *Improving career decision making of young workers: Design of a randomized experiment*. Retrieved October 28, 2011, from [http://www.srdc.org/uploads/careermotion\\_design\\_rpt.pdf](http://www.srdc.org/uploads/careermotion_design_rpt.pdf)
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512.

- Downing, H. M., & Nauta, M. M. (2009). Separation-individuation, explorations, and identity diffusion as mediators of the relationship between attachment and career indecision. *Journal of Career Development, 36*(3), 207-227.
- Dusselier, L., Dunn, B., Wang, Y., Shelley, M. C., & Whalen, D. F. (2005). Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health, 54*(1), 15-24.
- Elaydi, R. (2006). Construct development and measurement of indecisiveness. *Management Decision, 44*(10), 1363-1376.
- Essig, G. N. (2010). Relative effectiveness of information giving and therapeutic assessment models in reducing career indecision. Retrieved August, 31, 2010 from [http://www.purdue.edu/policies/pages/teach\\_res\\_outreach/viii\\_3\\_1.html](http://www.purdue.edu/policies/pages/teach_res_outreach/viii_3_1.html)
- Esters, L. T. (2007). Career indecision levels of students enrolled in a college of agriculture and life sciences. *Journal of Agricultural Education, 48*(4), 130-146.
- Eysenck, H. J., & Eysenck, S. B. G. (1968). *Manual for the Eysenck Personality Inventory*. San Diego, CA: Educational and Industrial Testing Service.
- Feinstein-Messinger, G. (2007). *The nexus among career decision self-efficacy, parental relationship factors, and career indecision among college students from different ethnic and racial groups*. Unpublished doctoral thesis, University of New York, New York.
- Feldman, D. C. (2003). The antecedents and consequences of early career indecision among young adults. *Human Resource Management Review, 13*(3), 499-531.
- Field, A. (2005). *Discovering Statistics Using SPSS*, (2<sup>nd</sup> ed.). London, UK: Sage Publications.
- Fouad, N., Cotter, E. W., & Kantamneni, N. (2009). The effectiveness of a career decision-making course. *Journal of Career Assessment, 17*(3), 338-347.
- Gati, I., & Amir, T. (2010). Applying a systemic procedure to locate career decision-making difficulties. *The Career Development Quarterly, 58*(4), 301-320.
- Gati, I., & Osipow, S. H. (2010). *Abridged professional manual for the career decision-making difficulties questionnaire*. Retrieved November 15, 2011, from <http://go.to.cddq>.
- Gati, I., & Saka, N. (2001). High School students' career-related decision-making difficulties. *Journal of Counseling and Development, 79*(3), 331-340.
- Gati, I., Krausz, M., & Osipow, S. H. (1996). A taxonomy of difficulties in career decision making. *Journal of Counselling Psychology, 43*(4), 510-526.

- Germeijs, V., & De Boeck, P. (2002). A measurement scale for indecisiveness and its relationship to career indecision and other types of indecision. *European Journal of Psychological Assessment, 18*(2), 113-122.
- Germeijs, V., & Verchuerin, K. (2006). High school students' career decision-making process: Development and validation of the study choice task inventory. *Journal of Career Assessment, 14*(4), 449-471.
- Germeijs, V., Verschueren, K., & Soenens, B. (2006). Indecisiveness and high school students' career decision-making process: Longitudinal associations and the meditational role of anxiety. *Journal of Counseling Psychology, 53*(4), 397-410.
- Gianakos, I. (1999). Patterns of career choice and career decision-making self-efficacy. *Journal of Career Behavior 54*(2), 244-258.
- Gianakos, I. (2001). Predictors of career decision-making self-efficacy. *Journal of Career Assessment, 9*(2), 101-114.
- Gordon, L., & Meyer, J. C. (2002). Career indecision amongst prospective university students. *South African Journal of Psychology, 32*(4), 41-47.
- Grobler, P., Warnich, S., Carrell, M. R., Elbert, N. F., & Hatfield, R. D. (2006). *Human Resource Management in South Africa* (3<sup>rd</sup> ed.) London: South-Western cengage learning.
- Guay, F., Senécal, C., Gauthier, L., & Fernet, C. (2003). Predicting career indecision: A self-determination theory perspective. *Journal of Counseling Psychology, 50*(2), 165-177.
- Guay, G., Ratelle, C. F., Senécal, C., Larose, S., & Deschênes, A. (2006). Distinguishing developmental from chronic career indecision: Self-efficacy, autonomy and social support. *Journal of Career Assessment, 14*(2), 1-17.
- Guerra, A. L., & Braungart-Rieker, J. M. (1999). Predicting career indecision in college students: The roles of identity formation and parental relationship factors. *The Career Development Quarterly, 47*(3), 255-266.
- Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *Journal of Educational Research, 89*(3), 185-191.
- Herr, E., Cramer, S., & Niles, S. (2004). *Career guidance and counseling through lifespan: Systematic approaches*. Boston: Allyn and Bacon.
- January, G. (2003). *The relationship between self-efficacy expectations and career-choice*. Unpublished masters dissertation, West Virginia University, Morgantown.

- Johnston, N. M. (2007). *The study and comparison of the level of motivation, attributional style, locus of control, and career indecision between black and white 9<sup>th</sup> grade suburban students*. Unpublished doctoral thesis, University of Central Florida, Orlando, United States of America.
- Jonker, C. S., & Scholtz, P. E. (2003). Die effek van 'n loopbaanbeplanningsprogram op skoolverlaters in 'n voorheen gedepriveerde gemeenskap. *SA Journal of Industrial Psychology*, 29(2), 83-90.
- Jordaan, Y., Smithard, C., & Burger, E. (2009). Comparing levels of career indecision among selected honours degree students at the university of Pretoria. *Meditari Accountancy Research*, 17(2), 85-100.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology*, 56(2), 303-331.
- Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology*, 83(1), 17-34.
- Kahn, J. H., Nauta, M. M., Gailbreath, R. D., Tipps, J., & Chartrand, J. M. (2002). The utility of career and personality assessment in predicting academic progress. *Journal of Career Assessment*, 10(1), 3-23.
- Keller, C. J. (2007). *Career indecision between white American and Asian American students: The influence of psychological separation and adult attachment orientation*. Unpublished doctoral thesis. University of Missouri, Kansas City.
- Kelly, K. R., & Lee, W. (2002). Mapping the domain of career decision problems. *Journal of Career Behavior*, 61(2), 302-326.
- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research* (4<sup>th</sup> ed.). Fort Worth: Harcourt College Publishers.
- Krantz, J. (2004). *An exploration of the relationship of career decision self-efficacy and career indecision to the retention of Africans Americans in higher education*. Unpublished doctoral thesis, University of Memphis, Memphis, United States of America.
- Latack, J. C., & Havlovic, S. J. (1992). Coping with job stress: a conceptual evaluation framework for coping measures. *Journal of Organizational Behavior*, 13(5), 479-508.



- Lee, K. (2005). Coping with career indecision: Differences between four career choice types. *Journal of Career Development, 31*(4), 279-289.
- Lopez, F. G., & Ann-Yi, S. (2006). Predictors of career indecision in three racial/ethnic groups of college women. *Journal of Career Development, 33*(1), 29-46.
- Maree, J. G. Ebersöhn, L. E., & Vermaak, B. (2008). Confronting the effects of unemployment on achievement motivation: The case for postmodern career facilitation. *Perspectives in Education, 26*(3), 55-70.
- Maslach, C., Leiter, M. P., & Schaufeli, W. B. (2008). 'Measuring burnout', In C.L. Cooper & S. Cartwright (Eds.). *The Oxford handbook of organizational well-being* (pp. 86-108). Oxford: Oxford University Press.
- McCrae, R. R., & Costa Jr., P. T. (1991). The NEO personality inventory: Using the five-factor model in counseling. *Journal of Counseling and Development, 69*(4), 367-372.
- Mhlongo, Z. S. (2009). *Family influence on career decision by black first-year students at the university of KwaZulu-Natal: A qualitative study*. Unpublished masters dissertation, University of KwaZulu-Natal, Pietermaritzburg.
- Morgan, T., & Ness, D. (2003). Career decision-making difficulties of first-year students. *The Canadian Journal of Career Development, 2*, 33-39.
- Mostert, K., Pienaar, J., Gauche, C., & Jackson, L. T. B. (2007). Burnout and engagement in university students: A psychometric analysis of the MBI-SS and UWES-S. *South African Journal of Higher Education, 21*(1), 147-162.
- Muthén, L. K., & Muthén, B. O. (2007). *Mplus user's guide* (5<sup>th</sup> ed.). Muthén & Muthén, Los Angeles, CA.
- Myburg, J. E. (2005). An empirical analysis of career choice factors that influence first-year accounting students at the University of Pretoria: a cross-racial study. *Meditari Accountancy Research, 13*(2), 35-48.
- Nagelkerke, N. J. D. (1991). A note on a general definition of the coefficient of determination. *Biometrika, 78*(3), 691-692.
- Naidoo, A. V. (1998). *Career maturity: A review of four decades of research*. Unpublished doctoral thesis, University of Western Cape, Bellville.

- Nauta, M. M. (2011). Temporal stability, correlates, longitudinal outcomes of career indecision factors. Retrieved October 28, 2011 from <http://jcd.sagepub.com/content/early/2011/04/26/0894845311410566>
- Ng, T. W. H., & Feldman, D. C. (2009). Personality, social relationships, and career indecision among college students: The mediating effects of identity construction. *Career Development International, 14*(4), 309-332.
- Osipow, S. H. (1999). Assessing career indecision. *Journal of Career Behavior, 55*(1), 147-154.
- Oswalt, S. M. (2004). *A study of career and non-career student's level of career indecision*. Unpublished masters dissertation, Mississippi State University, Mississippi.
- Oyler, J. D. (2007). Core self-evaluations and job satisfaction: The role of organizational and community embeddedness. Retrieved September, 27, 2011 from <http://scholar.lib.vt.edu/theses/available/etd-10242007-153627/>
- Patton, W., & Creed, P. A. (2001). Developmental issues in career maturity and career decision status. *The Career Development Quarterly 49*(4), 336-351.
- Patton, W., & Creed, P. A. (2002). The relationship between career maturity and work commitment in a sample of Australian high school students. *Journal of Career Development, 29*(2), 69-85.
- Peng, C. Y. J., & So, T. S. H. (2002). Logistic regression analysis and reporting: A primer. *Understanding Statistics, 1*(1), 31-70.
- Pienaar, J., & Sieberhagen, C. (2005). Burnout and engagement of student leaders in a higher education institution. *South African Journal of Higher Education, 19*(1), 155-166.
- Redwine, T. D. (2009). *An examination of factors influencing the career decision-making ability of students in the college of agricultural sciences and natural resources at Texas Tech University*. Retrieved May 18, 2011, from <http://hdl.handle.net/2346/ETD-TTU-2009-12-291>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Saka, N., Gati, I., & Kelly, K. R. (2008). Emotional and personality-related aspects of career-decision-making difficulties. *Journal of Career Assessment, 16*(4), 403-424.
- Salami, S. O. (2004). Effects of problem-solving technique and anxiety management training on career indecision of school-going adolescents in Nigeria. *Journal of Psychology in Africa, 14*(2), 139-135.

- Salami, S. O., & Aremu, A. O. (2007). Impact of parent-child relationship on the career development process of high school students in Ibadan, Nigeria. *Career Development International*, 12(7), 596-616.
- Salanova, M., Schaufeli, W., Martínez, I., & Bresò, E. (2009). How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety, Stress & Coping*, 23(1), 1-18.
- Santos, P. J. (2001). Predictors of generalized indecision among Portuguese secondary school students. *Journal of Career Assessment*, 9(4), 381-396.
- Schaufeli, W. B., & Salanova, M. (2007). Efficacy or inefficacy, that's the question: Burnout and work engagement, and their relationships with efficacy beliefs. *Anxiety, Stress, and Coping*, 20(2), 177-196.
- Schaufeli, W. B., Martínez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-cultural Psychology*, 33(5), 464-481.
- Schaufeli, W. B., Salanova, M., González-Romà, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3(1), 71-92.
- Simmons, A. N. (2008). A reliable sounding board: Parent involvement in students' academic and career decision making. *NACADA Journal*, 28(2), 33-43.
- SPSS Inc. (2009). *SPSS 12.0 for Windows*. Chicago, IL: Author.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using Multivariate Statistics* (4<sup>th</sup> ed.). Boston, MA: Allyn and Bacon.
- Talib, M. A., & Aun, T. K. (2009). Predictors of career indecision among Malaysian undergraduate students. *European Journal of Social Sciences*, 8(2), 215-224.
- Taylor, B. C. (2007). *The impact that career guidance counselling has on the level of career indecision of high school students in the Bahamas*. Unpublished doctoral thesis, University of South Carolina, South Carolina.
- The American college testing program (ACT) (2008b). ACT high school profile: Section IV, career and educational aspirations. Retrieved October 22, 2011 from <http://www.act.org/news/data/07/data.html>.

- Thompson, K. D. (2001). *An exploratory study of factors influencing career certainty and indecision in the career decision-making process of late adolescents in Cape Town*. Unpublished honours dissertation, University of Cape Town, Cape Town.
- Tien, H. S. (2001). Career decision-making difficulties perceived by college students in Taiwan. *Bulletin of Educational Psychology and Counseling*, 33(1), 87-98.
- Tien, H. S., Lin, C., & Chen, S. (2005). A grounded analysis of career uncertainty perceived by college students in Taiwan. *Career Development Quarterly*, 54(2), 162-174.
- Tokar, D. M., Withrow, J. R., Hall, R. J., & Moradi, B. (2003). Psychological separation, attachment security, career self-concept crystallization and career indecision: A structural equation analysis. *Journal of Counseling Psychology*, 50(1), 3-19.
- Trevor-Roberts, E. (2006). Are you sure? The role of uncertainty in career. *Journal of Employment Counseling*, 43(3), 98-116.
- Wortman, P. M., & Napoli, A. R. (1996). A meta-analysis of the impact of academic and social integration on persistence of community college students. *Journal of Applied Research in the Community College*, 4(1), 5-21.
- Zhou, D., & Santos, A. (2007). Career decision making difficulties of British and Chinese international university students. *British Journal of Guidance and Counseling*, 35(2), 219-235.

## **CHAPTER 2**

### **RESEARCH ARTICLE 1**

# **SOCIO-DEMOGRAPHIC CHARACTERISTICS AND ANTECEDENTS ASSOCIATED WITH THE CAREER UNCERTAINTY OF UNIVERSITY STUDENTS**

## **ABSTRACT**

**Orientation:** Career uncertainty is a widespread problem for university students. When the problem is not addressed it leads to career indecision, or less than optimal choices which could influence career opportunities and quality of life. Career indecision could cause person-job fit problems, lack of engagement and burnout in organisations.

**Research purpose:** To determine the antecedents of career uncertainty by comparing students with low and high career uncertainty.

**Motivation for the study:** To gain more knowledge and understanding of possible antecedents of career uncertainty of students in a South African university.

**Research design, approach and method:** A cross-sectional design was used. A non-probability quota sample ( $N = 782$ ) was used to investigate antecedents of career uncertainty in a sample of university students. Participants were categorised as certain or uncertain – a total of 644 students were career certain and 135 were career uncertain. These two groups were enclosed as a dependent variable in the logistic regression analysis.

**Main findings:** In the final step of the logistic regression, significant predictors of career uncertainty were lack of information about the decision-making process, lack of information about occupations, inconsistent information due to internal conflict, exhaustion ( $p \leq 0,01$ ), lack of information about ways of obtaining information, inconsistent information due to external conflict, cynicism and lack of dedication ( $p \leq 0,05$ ).

**Practical/managerial implications:** Further knowledge could help to identify undecided students and to provide career guidance, reduce possible extra years of study and prevent dropout and delay in university graduation. Furthermore, it could assist organisations with person-job fit problems, organisational commitment and turnover intention.

**Contribution/value-add:** The study contributes to the present limited body of research on career uncertainty and its antecedents in the South African context.

**Keywords:** career uncertainty, career indecision, antecedents, personality characteristics, student burnout, student engagement, university students.

## INTRODUCTION

Occupational variety has become limitless, therefore making a career decision can often be overwhelming and difficult for students (Taylor, 2007). As a result, students are often uncertain about their choice of a future career. A study conducted in 29 countries revealed that only 43% of women and 42% of men experience job satisfaction. The study reported that 41% of South African employees are satisfied with their jobs (Accenture, 2011). Moreover, studies reported that career indecision, apart from career interest, is the most important matter of investigation in vocational behaviour (Guay, Senécal, Gauthier & Fernet, 2003; Kelly & Lee, 2002).

Uncertainty in making a career choice can lead to an inaccurate decision which can have short-term and long-term effects on the quality of life of the individual (De Raaf, Dowie & Vincent, 2009; Gati & Saka, 2001; Ng & Feldman, 2009). Therefore students are often hesitant to make a decision (Esters, 2007; Osipow, 1999). Consequently, career uncertainty results in career indecision which influences individuals' approach to and perception of their future career (Elaydi, 2006; Jordaan, Smithard & Burger, 2009; Morgan & Ness, 2003). It may cause frustration and dropout from high school, which can result in failure to be admitted to a higher education institution or an unrealistic career choice (Salami, 2004). Career uncertainty can cause additional years of study, delay university graduation (Feldman, 2003; Gati & Amir, 2010) and lead to more resources (e.g. financial expenses) needed for students to complete their qualifications (Essig, 2010; Gordon & Meyer, 2002).

Career uncertainty may also have an impact on organisations in the future. Career indecision can undermine skills development, wear down the results of work experience and cause the individual to be incapable of being employed due to his or her inability to meet the job requirements (Salami, 2004; Staff, Harris, Sabates & Briddell, 2011). Job changes can lead to gaps in employment history and the lowering of the individual's sense of career-managing ability (Fouad, Cotter & Kantamneni, 2009; Ng & Feldman, 2009). As a result, career indecision may lead to fewer employment opportunities (Ng & Feldman, 2009). According to Fouad et al. (2009), career indecision also leads to poor occupational adjustment on employment, and possibly to unengaged employees.

Internationally, previous research has focused on the difficulties students experience with career uncertainty (Campagna & Curtis, 2007; Chason, 2010; Gati & Amir, 2010; Staff et al., 2011; Tien, Lin & Chen, 2005; Trevor-Roberts, 2006). Studies on internal antecedents of career indecision include identity development (Davis, 2001; Scott & Ciani, 2008; Talib & Aun, 2009), anxiety (Campagna & Curtis, 2007; Germeijs, Verchuerin & Soenens, 2006) and personality factors such as locus of control (Feldman, 2003; Saka, Gati & Kelly, 2008), self-efficacy (Hargrove, Creagh & Burgess, 2002; Scott & Ciani, 2008; Creed, Prideaux & Patton, 2005) and self-esteem (Creed et al., 2005; Feldman, 2003; Santos, 2001). Studies of external antecedents reveal lack of career information (Albion & Fogarty, 2002; Talib & Aun, 2009), parental factors (Keller & Whiston, 2008; Simmons, 2008), psychological separation (Keller, 2007; Tokar, Withrow, Hall & Moradi, 2003) and career guidance concerns (Chen, 2008; Porter, 2007; Taylor, 2007).

Previous research has focused on the sources of career uncertainty (Argyropoulou, Sidiropoulou-Dimakakou & Besevegis, 2007; Esters, 2007), career decision-making difficulties (Amir, Gati & Kleiman, 2008; Gati & Amir, 2010) and the career decision-making process (Salami & Aremu, 2007; Germeijs, Verchuerin & Soenens, 2006; Germeijs & Verchuerin, 2006). Further research led to the association of career indecision with personality characteristics and situational factors (Ferreira, Santos, Fonseca & Haase, 2007; Jordaan et al., 2009; Khasmohammadi et al., 2010; Page, Bruch & Haase, 2008). There is, however, a scarcity of studies that focus on the relationship between career uncertainty and certain socio-demographic differences, personality characteristics, student burnout, student engagement and academic performance, specifically in the South African context. In South Africa, only a few researchers have investigated the above-mentioned constructs. The career uncertainty levels of Australian students were compared with those of South African students (Creed, Patton & Watson, 2003). Jordaan et al. (2009) compared students with regard to career uncertainty and work experience. Mhlongo (2009) and Myburg (2005) studied career decision status and the effects of parental factors.

It is important to evaluate the association between career uncertainty and socio-demographic characteristics (Guay et al., 2003; Smith, 2011). Knowledge of socio-demographic characteristics can also assist career guidance counsellors to understand the cause of the problem, help to



identify students with career uncertainty, guide students in making decisions and prevent career indecision (Jordaan et al., 2009; Lock, 2009). It is also important to investigate the role of personality characteristics to understand and recognise how students with career uncertainty handle the decision-making process (Gati, Krausz & Osipow, 1996). This will facilitate the development of specific career interventions to fit the causes of students' career uncertainty. Career decision-making, student burnout, student engagement and academic performance are all constructs that have rarely been included in studies on career uncertainty. According to Salami (2004), student burnout and engagement can affect career uncertainty. It also seems plausible that there is a relationship between career uncertainty and academic performance, especially when a student is cynical, undedicated and emotionally drained by his or her studies (Tien et al., 2005).

### **Research objective and potential value-add**

The objective of this study was to compare students with low and high career uncertainty in terms of socio-demographic characteristics (gender, career guidance, help from parents, help from others, work experience) personality characteristics (self-esteem, self-efficacy, neuroticism), career decision-making, student burnout, student engagement and academic performance.

Extensive research has been done on career decision-making, whereas only a limited number of studies have focused on career uncertainty or indecision (Elaydi, 2006). Internationally, the need to study the causes of career uncertainty and indecision has increased (Esters, 2007; Gati & Saka, 2001; Huang, 1997; Rowland, 2004; Tien et al., 2005). In South Africa, by contrast, not much research has been done on predictors of career uncertainty. In studying the causes of career uncertainty, more information must be gathered to help students to make fitting career choices and simplify their career goals (Downing & Nauta, 2009; Lock, 2009).

## **TRENDS FROM THE RESEARCH LITERATURE**

### **Career uncertainty**

Career<sup>1</sup> uncertainty and career indecision are directly connected. Jordaan et al. (2009) explain that career uncertainty is a contributing variable which produces career indecision. However, in order to avoid confusion, it is important to distinguish between the two terms. To better understand the term career uncertainty, the decision-making process will be explained.

There are two perspectives of decision-making, the consequentialist perspective and the nonconsequentialist perspective. Firstly, the consequentialist perspective suggests that the decision-making process is the cognitive consideration (logic reasoning) of a choice in which the individual weighs all the possible results and risks of the choice (Elyadi, 2006). This perspective does not suggest that emotions are not associated with the decision-making process, but rather that emotions occur as an effect of the decision-making process (Elyadi, 2006). Researchers explain that when individuals are unable to make these decisions, the indecision may lead to higher levels of career uncertainty (Germeijs & De Boeck, 2003; Morgan & Ness, 2003; Tien et al., 2005). Secondly, the nonconsequentialist perspective suggests that the individual reacts to the decision-making process with an emotional response before reacting with any cognitive response. Individuals' emotions affect their judgment in the decision-making process and how they would evaluate the possible results and risks of their choice. In consequence, the decision-making process is influenced by expected and experienced emotions without cognitive consideration (logic reasoning) of a choice (Elyadi, 2006). When emotions dominate logical reasoning, it leads to career uncertainty. Furthermore, researchers suggest that because career uncertainty is merely a feeling or emotions of the individuals about their prospects, it then leads to career indecision (Elyadi, 2006; Jordaan et al., 2009).

Researchers explain that career indecision is a developmental process that individuals experience in making a decision about a future career (Morgan & Ness, 2003; Osipow, 1999; Talib & Aun,

---

<sup>1</sup> The term career should not be confused with occupation. An occupation is a person's line of work or trade for making a living, whereas a career is defined as specialising in a certain field or one's life work involving more responsibility with time (Oxford Dictionary, 2005, 7th ed.).

2009). Career indecision is defined as the difficulty an individual has in the decision-making process and the incapability of making a single choice with regard to his or her career (Gati & Saka, 2001). Morgan and Ness (2003) define career indecision as the inability of an individual to make up his or her mind about possible career choices. On the other hand, Tien et al. (2005, p. 2) defines career uncertainty as “any factors that make an individual feel uncertain of his/her career future”. Thus, career uncertainty is seen as a causative variable of career indecision because students who experience career uncertainty later develop career indecision which influences their capability of making career decisions (Elyadi, 2006). Career uncertainty therefore occurs when the individual experiences difficulties during the decision-making process (Jordaan et al., 2009; Morgan & Ness, 2003; Tien et al., 2005). According to Tien (2001), difficulty with the decision-making process is due to the lack of those elements required to make a sound decision. These elements are included in the taxonomy of career decision-making difficulties constructed by Gati et al. (1996) (which will be explained later in the study).

Although the focus of this study is on career uncertainty, the literature reviewed on possible predictors focuses on career uncertainty and career indecision as the constructs are related within the literature.

### **Career uncertainty and socio-demographic characteristics**

Career uncertainty differs among individuals with regard to socio-demographic factors (Huffman & Torres, 2001; Creed, Patton & Bartrum, 2004; Naidoo, 1998). This study focuses on the following socio-demographic characteristics: gender, whether the student received career guidance before making a decision on a course of study, whether the student received help from parents and others in making a choice on a course of study and whether the student had some work experience in the field before making his or her choice of study. Racial differences were not included as the sample was racially homogeneous.

Researchers suggest that the level of career indecision may differ between males and females (Creed et al., 2004; Smith, 2011). Previous research found that female students experience more career indecision than males (Creed et al., 2005; Patton & Creed, 2001, 2002; Staff et al., 2011; Talib & Aun, 2009; Zhou & Santos, 2007). Zhou and Santos (2007) explain that female students

have more difficulties in the decision-making process compared to males. It can therefore be expected that female students will experience more career uncertainty compared to male students (Hypothesis 1a).

Notably, career guidance is another factor that influences career uncertainty (Gati & Saka, 2001). Career guidance assists students with decision-making and reduces career uncertainty (Chen, 2008; Essig, 2010). Career guidance counsellors present a chance for a facilitative learning process to inform students of their aptitude, interests and what is needed for specific career choices (Amir & Gati, 2006; Maree, Ebersöhn & Vermaak, 2008; Mhlongo, 2009). According to Taylor (2007), career guidance counsellors need to guide students through the process to reduce career indecision levels. In the same way, students who do not participate in discovering career possibilities and information gathering will benefit from career guidance (Essig, 2010). In a study conducted by Mhlongo (2009), students who did not receive career guidance thought it would have been to their advantage before they made their career choice. It is therefore expected that students who receive career guidance will have less career uncertainty compared to students who did not receive career guidance (Hypothesis 1b).

Furthermore, parents influence individuals' career choice and career development (Guerra & Braungart-Rieker, 1999; Keller & Whiston, 2008; Wong & Liu, 2009). According to the National Survey of Student Engagement (2007), students who rely on their parents in the career decision-making phase are satisfied with their study experience and are engaged in academic work. Similarly, researchers found that the parents' contribution helps students' development in college and this has an impact on the level of career indecision being experienced (Feldman, 2003; Simmons, 2008). It is therefore expected that students who receive help from their parents in their choice of study will have less career uncertainty compared to students who are not influenced (Hypothesis 1c).

Researchers explain that other individuals apart from parents influence students' career decisions (Mhlongo, 2009; Rathge, Mullis & Mullis, 1988; Myburg, 2005; Swift, 2009). In a qualitative study Mhlongo (2009) found that other than parents, students are influenced by their church and community. Moreover, Rathge et al. (1988) found that individuals who are influenced by others

include, for instance, family (12%), friends (8%) and teachers and counsellors (8%). It is therefore expected that students who receive help from others in their choice of study course will have less career uncertainty compared to students who are not influenced (Hypothesis 1d).

Additionally, work experience is another factor that influences the level of career uncertainty (Jordaan et al., 2009; Naidoo, 1998). Researchers found that individuals with work experience had less career indecision than those without work experience (Herr, Cramer & Niles, 2004; Talib & Aun, 2009). In a study conducted by Creed et al. (2005), it was found that undecided individuals had little paid work experience, whereas decided individuals had more experience in a paid work environment. In addition, Talib and Aun (2009) found a relationship between work experience and career indecision in students from Malaysia. It is therefore expected that students with work experience will experience lower levels of career uncertainty compared to students without work experience (Hypothesis 1e).

### **Career uncertainty and personality characteristics**

Researchers suggest that internal predictors are associated with personality characteristics of individuals (Creed et al., 2005). There has indeed been interest in personality factors as internal predictors of career indecision, (Bacanli, 2006; Davis, 2001; Gunkel, Schlaegel, Langella & Peluchette, 2010; Saka et al., 2008), specifically with regard to self-esteem, self-efficacy and neuroticism. Throughout the study, self-esteem and self-efficacy will be referred to as personality factors according to the core self-evaluations theory of Judge, Erez, Bono & Thoresen (2003).

Self-esteem is the sum of all the thoughts and emotions individuals have of themselves (Rosenberg, 1965). Chamorro-Premuzic, Ahmetoglu and Furnham (2007, p. 259) define self-esteem as “perception of one’s worth, value, and importance”. Various studies have found that there is a negative relationship between career indecision and self-esteem (Germeijs & De Boeck, 2002; Santos, 2001). The lower the student’s self-esteem, the higher the level of career indecision the student will experience (Bacanli, 2006; Emanuelle, 2009; Saka et al., 2008). According to Tokar, Fischer and Subich (1998) individuals with low self-esteem are inaccurate in evaluating their own capabilities. Low self-esteem also influences individuals to make career

decisions that gratify others instead of their own needs. These individuals might therefore be hesitant to take part in career exploration and misinterpret information obtained through discovering career options (Callanan & Greenhaus, 1992). On the other hand, Dodgson and Wood (1998) found that individuals with high self-esteem are more likely to have future success and job satisfaction. In line with this, it can be hypothesised that students who experience career uncertainty will have lower self-esteem compared to students who are certain about their careers (Hypothesis 2a).

Self-efficacy is the insight individuals have of their capability of completing tasks under different circumstances (Judge, Locke, Durham & Kluger, 1998). Self-efficacy is also defined as an individual's typical level of confidence about the possibility of performing well (Chamorro-Premuzic et al., 2007). According to Argyropoulou et al. (2007), self-efficacy has a major effect on career indecision. The literature suggests that there is a negative relationship between self-efficacy and career indecision (Huang, 1997; Krantz, 2004; Creed et al., 2005). According to Betz and Voyten (1997), students with low self-efficacy are doubtful about setting career goals and are not resilient when they suffer setbacks. In particular, students with low self-efficacy will be unsure of gathering information about career possibilities. Ballout (2009) also found that self-efficacy acts as a moderator between career commitment and career success – individuals with no career commitment and low levels of self-efficacy might therefore have less career satisfaction. It is therefore expected that students who experience career uncertainty will have lower self-efficacy compared to students who are certain about their careers (Hypothesis 2b).

Neuroticism is an individual's tendency to be emotionally sensitive and to over-exaggerate in situations (Eysenck & Eysenck, 1968). In various studies researchers have found that neuroticism is related to career indecision (Chartrand, Rose, Elliot, Marmorash & Caldwell, 1993; Feldman, 2003; Kelly & Pulver, 2003; Tokar et al., 2003). More specifically, neuroticism is associated with problem-solving difficulties and the decision-making style of individuals (Chartrand et al., 1993; Tokar et al., 1998; Feldman, 2003). McCrae and Costa (1991) found that high levels of neuroticism impair the decision-making process. Individuals with high levels of neuroticism are therefore either cautious about job searches or make impulsive decisions to reduce their stress levels (McCrae & Costa, 1991). Di Fabio and Palazzeschi (2009) reported that

individuals with less neuroticism seem to have fewer difficulties in the decision-making process. It is therefore hypothesised that students who experience career uncertainty will be more neurotic compared to students who are certain about their careers (Hypothesis 2c).

### **Career uncertainty and decision-making difficulties**

Some students find it a straightforward matter to make career decisions, whereas others have difficulties deciding on a possible career. To identify each individual's unique difficulties in the decision-making process, Gati et al. (1996) proposed a taxonomy of career decision-making difficulties. The taxonomy differentiates between career decision-making difficulties preceding the decision-making process and difficulties that occur throughout the decision-making process (Morgan & Ness, 2003). These difficulties are divided into three clusters, namely lack of readiness, lack of information and inconsistent information. The first cluster relates to decision-making difficulties before the process and the other two clusters to difficulties during the decision-making process (Morgan & Ness, 2003).

Gati and Saka (2001) developed the Career Decision-Making Difficulty Questionnaire based on the taxonomy of career decision-making difficulties. Any deviation from the taxonomy results in the individual having difficulty in the process which prevents him or her from making a choice or causing him or her to make a less desirable decision (Gati & Saka, 2001). The dimensions of the Career Decision-Making Difficulty Questionnaire are as follows (Gati & Osipow, 2010):

- *Lack of readiness* includes three categories, namely lack of motivation, indecisiveness and dysfunctional beliefs. Lack of motivation reflects a lack of willingness to make a decision or to take part in the decision-making process. Indecisiveness is the general difficulty of making decisions and dysfunctional beliefs refers to a distorted perception of the career decision-making process, irrational expectations and dysfunctional thoughts about the decision-making process.
- *Lack of information* includes four categories: lack of information about the decision-making process, lack of information about the self, lack of information about occupations and lack of information about ways of obtaining information. Lack of information about the decision-making process reflects a lack of knowledge about how to make a wise decision and the specific steps involved in the career decision-making process. Lack of information about the

self reflects the lack of knowledge an individual has about the self, specifically about career preferences, own abilities and potential. Lack of information about occupations reflects a lack of information on the existing range of career options, what alternatives exist and/or what each alternative's characteristics are. Lack of information about ways of obtaining information reflects a lack of information about ways of obtaining additional information that may facilitate career decision making.

- *Inconsistent information* consists of three categories, namely unreliable information, internal conflict and external conflict. Unreliable information shows that the individual feels that he or she has conflicting information about himself or herself or about the considered occupations. Internal conflict reflects a state of internal confusion that may stem from a difficulty in processing contradictory factors. External conflict reflects a gap between the individual's preferences and the preferences of significant others, or opposing opinions from two significant others (Gati & Osipow, 2010).

Gati et al. (1996) suggest that the three most important sources of career indecision are lack of readiness, lack of information and inconsistent information. Similarly, other researchers report that students experience career uncertainty because of lack of knowledge about themselves, careers and the workplace (Feldman, 2003; Talib & Aun, 2009). Researchers report that lack of readiness influences individuals' decision status (Mau, 2001; Pečjak & Košir, 2007; Redwine, 2009). It is therefore hypothesised that students who experience lack of readiness to make a career decision will experience more career uncertainty (Hypothesis 3a).

In addition, researchers have provided evidence that lack of information leads to career uncertainty (Albion & Fogarty, 2005; Mau, 2001; Pečjak & Košir, 2007). As opposed to this, Mubiana (2010) reported that although students experienced a lack of information, they chose a career and were confident about their choice. It is therefore hypothesised that students who experience a lack of information when making a career decision will experience more career uncertainty (Hypothesis 3b). Finally, researchers have shown that inconsistent information affects students' decision status (Albion & Fogarty, 2005; Pečjak & Košir, 2007; Redwine, 2009). It is therefore hypothesised that students who experience inconsistent information when making a career decision will experience more career uncertainty (Hypothesis 3c).



### **Career uncertainty and student burnout and engagement**

Student well-being (specifically student burnout and engagement) is rarely considered to be related to career uncertainty. Burnout is defined as students who are physically and emotionally drained due to stress, and those who have a cynical approach towards their studies (Schaufeli, Martínez, Pinto, Salanova & Bakker, 2002). This study will focus on the two core dimensions of burnout, namely exhaustion and cynicism. The third dimension of burnout, lack of professional efficacy is not included as exhaustion and cynicism is seen as the core dimensions of burnout (Lee & Ashforth, 1990; Schaufeli, 2003). Exhaustion has often been described as wearing out, loss of energy, depletion, debilitation and fatigue (Maslach, Leiter & Schaufeli, 2008, p. 89). Although exhaustion is often a physical experience, psychological or emotional exhaustion is more often described as being the central experience of burnout. Cynicism refers to a negative shift in responses towards others, negative or inappropriate attitudes towards people, irritability, loss of idealism and withdrawal. Burnout among students refers to a feeling of exhaustion caused by study demands and having a cynical and detached attitude towards one's studies (Schaufeli, Martínez et al., 2002).

Schaufeli, Martínez et al. (2002) reported that the study demands that students face are increasing. Indeed, students experience stress due to increased workload, academic responsibility, class assignments, studying for tests (Gauché, 2006; Reece, 2011; Ross, Niebling & Heckert, 1999; Salanova, Schaufeli, Martínez & Bresò, 2009) and time management (Dusselier, Dunn, Wang, Shelley & Whalen, 2005). Researchers explain that stress results in reduced academic performance, low levels of self-esteem, planning to terminate studies and exhaustion (Gauché, 2006; Schaufeli, Martínez et al., 2002). Moreover, to cope with stress, individuals produce a cynical approach to distance themselves from work (Bakker, Schaufeli, Sixma, Bosveld & Van Dierendonck, 2000; Latack & Havlovic, 1992). Researchers suggest that high levels of exhaustion and cynicism (burnout) reduce future efficacy beliefs (Schaufeli & Salanova, 2007). Furthermore, Betz and Vuyten (1997) suggest that decision-making self-efficacy is the most important predictor of career uncertainty. More specifically, Reece (2011) found a relationship between high stress levels and career uncertainty. Hinkelman and Luzzo (2007) suggest that psychological distress may intensify career uncertainty, while Tien et al.

(2005) found that students experienced physical exhaustion and discouragement while experiencing career uncertainty. It is therefore expected that students with more career uncertainty will experience higher levels of exhaustion and cynicism compared to students who are certain about their careers (Hypothesis 4a).

Student engagement is explained as a multi-dimensional construct with different factors such as an emotional factor, a behavioural factor and a cognitive factor. These dimensions relate to the thoughts, feelings and actions of students (Conner, 2009). Engagement is defined as “a positive, fulfilling, and work-related state of mind that is characterized by vigor, dedication and absorption” (Schaufeli, Salanova, González-Romà & Bakker, 2002, p. 75). This study will focus on the two core dimensions of engagement, vigour and dedication. The third dimension of engagement, namely absorption is regarded as the opposite of the burnout dimension, professional inefficacy. Moreover, absorption is deemed to be an end result of engagement and are therefore not included (Schaufeli & Bakker, 2004). Vigour is defined as high levels of energy and mental resilience while working and by the willingness and ability to invest effort in one’s work (Schaufeli, Salanova et al., 2002). Dedication refers to experiencing meaning and satisfaction in one’s work and to be eager and motivated (Schaufeli, Salanova et al., 2002).

According to the job demands-resources model, lack of resources leads to disengagement (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). Researchers found that the amount of job resources influences the level of work engagement (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Mauno, Kinnunen, & Ruokolainen, 2007). Besides, researchers have shown that job resources are the major cause of reduced commitment, which is a form of disengagement (Bakker, Demerouti, De Boer & Schaufeli, 2003). Furthermore, Bakker, Demerouti and Verbeke (2004) demonstrated that job resources lead to dedication. However, when the individual does not have enough resources it results in decreased commitment and motivation (Bakker, Demerouti & Schaufeli, 2003). Similarly, vigour and dedication are reduced by more job demands (Mauno et al., 2007).

There is a limited amount of research on student engagement at college level (Handelsman, Briggs, Sullivan & Towler, 2005). Researchers found that engagement is a sought-after state of

university students, and they link engagement to positive academic achievement (Conner, 2009). Tien et al. (2005) report that students felt discouraged while experiencing career uncertainty. Likewise, Konstam and Lehmann (2011) demonstrate that individuals who experience career indecision have considerably lower work engagement. Moreover, students who are sure of their career paths show more engagement to substantiate their decisions (Kosine, Steger & Duncan, 2008). It is therefore expected that students with more career uncertainty will experience lower vigour and dedication compared to students who are certain about their careers (Hypothesis 4b).

### **Career uncertainty and academic performance**

Researchers suggest that some students struggle with academic demands, which influences their academic performance (Kahn, Nauta, Gailbreath, Tipps & Chartrand, 2002; Wortman & Napoli, 1996). Poor academic performance often results in the individual dropping out of college (Napoli & Wortman, 1998; Sandler, 2000) which can influence the career decision-making process (Borchert, 2002; Kahn et al., 2002). In a study conducted by Tien et al. (2005) students reported that low scores on their college admission tests was the cause of career uncertainty. When these test scores are low, students are denied admission to the department of their choice at the college. Additionally, the difficulty associated with being accepted by and studying in a specific department (as a result of poor academic performance) might be another reason why students feel uncertain about their career decision (Tien et al., 2005). It is therefore expected that students with lower academic performance will have more career uncertainty compared to students with higher academic performance (Hypothesis 5).

## **RESEARCH DESIGN**

### **Research approach**

The study was conducted from a quantitative perspective with a cross-sectional design whereby data are gathered at one point in time over a short period. The cross-sectional design was used to assess interrelationships among variables within the population to achieve the specific objectives of this study (Struwig & Stead, 2001; Trochim & Donnelly, 2008).

## **Research method**

### **Research participants**

A non-probability quota sample of students at a higher education institution was used. E-mails were sent to students from the first to the sixth year. Unfortunately, the e-mail addresses of both students and university personnel are used as student/personnel numbers. It was therefore not possible to differentiate between registered students and personnel, and an e-mail was sent to everyone on the list with a message that the survey was aimed at registered students. As a result the response rate could not be calculated either. A realised sample size of 782 was obtained. The characteristics of the sample population are shown in Table 1.

Table 1

*Characteristics of the Participants (N= 782)*

Item	Category	Frequency	Percentage
Gender	Male	279	35,70
	Female	503	64,30
Age	18-20 years	314	40,10
	21-29 years	461	59,00
	30-39 years	5	0,60
	40-47 years	2	0,20
Race	White	713	91,20
	African	48	6,10
	Coloured	18	2,30
	Indian	2	0,30
Academic year	1st Year	214	27,40
	2nd Year	186	24,30
	3rd Year	206	26,30
	4th Year	115	14,70
	Postgraduate	61	7,80
Historical year	1st Year	206	26,30
	2nd Year	165	21,10
	3rd Year	190	24,30
	4th Year	141	18,00
	Postgraduate	80	10,20
Faculty	Faculty of Arts	64	8,20
	Faculty of Economic and Management Sciences	202	25,80
	Faculty of Education Sciences	72	9,20
	Faculty of Engineering	118	15,10
	Faculty of Law	61	7,80
	Faculty of Natural Sciences	117	15,00
	Faculty of Theology	10	1,30
	Faculty of Health Sciences	138	17,60
Career guidance	No	355	45,40
	Yes	427	54,60
Work experience	No	583	74,60
	Yes	199	25,40

Table 1 shows that 91,20% of participants were white. The majority were female (64,30%) between 21 to 29 years of age (59,00%). The academic year was evenly distributed with the faculty of Theology as the minority (1,30%). A total of 45,40% of participants had not received career guidance and 25,40% of participants had work experience.

### **Measuring instruments**

The following questionnaires were used in the study:

*Biographical questionnaire.* This questionnaire was used to gather socio-demographic information about participants and contained questions on gender, age, academic and historical year and faculty. A few items were incorporated for other dimensions to obtain external predictors. The questionnaire included questions on career guidance (e.g. “Did you receive career guidance before you decided on a course of study?”), work experience (e.g. “Before you chose your degree/possible career, did you already have work experience in that environment?”), help in career decision-making from parents and others (e.g. “Did your parents or guardians help you to choose a course of study and a possible career?”), external influences (e.g. “Did financial costs influence your decision to follow this specific course of study?”), confidence in studying the right course (e.g. “How confident are you that you are following the right course of study?”) and whether the student had changed his or her course of study (e.g. “Have you ever changed your course of study?”).

*Career uncertainty.* This was measured by one item (“To what extent are you sure about which career you will follow after you leave university?”). It is comprised of four categories: I am very sure; I know exactly what career I will pursue ( $n = 228$ ), I am fairly sure what career I will pursue ( $n = 416$ ), I am not sure at all which career I will pursue ( $n = 135$ ) and I do not plan to follow a career ( $n = 3$ ). For the objective of the study, categories one and two were grouped together with participants who were fairly certain which career they would follow, while participants in category three represented participants who were uncertain. Category four was not included as only three participants within that category answered. In total, 644 students were (fairly) certain, while 135 were uncertain. These two groups were enclosed as a dependent variable in the logistic regression.

*Personality characteristics.* Three personality characteristics were included, namely self-esteem, self-efficacy and neuroticism. Self-esteem was measured with Rosenberg's (1965) Self-Esteem Scale. It consists of ten items (e.g. "I feel that I have a number of good qualities"). The Cronbach alpha for self-esteem is 0,88 (Judge et al., 2003; Oyler, 2007). *Self-efficacy* was measured with the self-efficacy scale (Judge, Locke, Durham & Kluger, 1998). It consists of eight items (e.g. "I am strong enough to overcome life's struggles"). The Cronbach alpha for self-efficacy is 0,89 (Judge et al., 2003; Oyler, 2007). *Neuroticism* was measured with the Eysenck Personality Inventory Neuroticism scale (Eysenck & Eysenck, 1968). It consists of 12 items (e.g. "Sometimes I feel miserable for no reason"). The Cronbach alpha for neuroticism is 0,90 (Judge et al., 2003; Oyler, 2007). Items for all three scales were scored on a five-point Likert scale ranging from one (*strongly disagree*) to five (*strongly agree*).

*Career decision-making difficulties.* The Career Decision-Making Difficulty Questionnaire (CDDQ) (Gati & Saka, 2001) was used to measure the difficulties that the students experienced in making career choices. The 34-item version was used which includes three clusters, namely lack of readiness, lack of information and inconsistent information. Each broad dimension is divided into subscales.

- Lack of readiness includes three subscales, namely *lack of motivation* (three items, e.g. "I know that I have to choose a career, but I don't have the motivation to make the decision now"), *indecisiveness* (four items, e.g. "It is usually difficult for me to make decisions") and *dysfunctional beliefs* (three items, e.g. "I believe there is only one career that suits me").
- Lack of information contains four subscales, namely *lack of information about the decision-making process* (three items, e.g. "I find it difficult to make a career decision because I do not know what steps I have to take"), *lack of information about the self* (eight items, e.g. "I find it difficult to make a career decision because I still do not know which occupations interest me"), *lack of information about occupations* (four items, e.g. "I find it difficult to make a career decision because I don't know what careers will look like in the future"), and *lack of information about ways of obtaining information* (two items, e.g. "I find it difficult to make a career decision because I do not know how to obtain additional information about myself").

- Inconsistent information incorporates three subscales, namely *unreliable information* (six items, e.g. “I find it difficult to make a career decision because I constantly change my career preferences”), *internal conflict* (seven items, e.g. “I find it difficult to make a career decision because I do not like any of the occupations or training programmes to which I can be admitted”) and *external conflict* (four items, e.g. “I find it difficult to make a career decision because people who are important to me do not agree with the career options I am considering”) (Albion & Fogarty, 2002).

The items were scored on a nine-point Likert scale ranging from one (does not describe me) to nine (describes me well) (Albion & Fogarty, 2002). The reliabilities for the three clusters are: lack of readiness 0,71, lack of information 0,91 and difficulties related to inconsistent information 0,93, while the Cronbach alpha for the total scale is reported as 0,94 (Gati et al., 1996).

*Student burnout.* The *Maslach Burnout Inventory-Student Survey* (MBI-SS) (Schaufeli, Martínez, Pinto, Salanova & Bakker, 2002) was used to measure the exhaustion and cynicism levels of the participants. Exhaustion was measured with five items (e.g. “I feel emotionally drained by my studies”) and cynicism with four items (e.g. “I have become less enthusiastic about my studies”). Items were scored on a seven-point frequency rating scale ranging from 0 (*never*) to 6 (*always*). The MBI-SS has been validated internationally (Schaufeli, Salanova et al., 2002) and in South Africa (Mostert, Pienaar, Gauché & Jackson, 2007; Pienaar & Sieberhagen, 2005). The reliabilities are 0,79 for exhaustion and 0,73 for cynicism (Pienaar & Sieberhagen, 2005). Mostert et al. (2007) found 0,74 for exhaustion and 0,68 for cynicism.

*Student engagement.* The *Utrecht Work Engagement Scale-Student Survey* (UWES-S) (Schaufeli, Salanova, González-Romà & Bakker, 2002) was used to measure the vigour and dedication levels of the participants. Vigour was measured with five items (e.g. “When I study, I feel like I am bursting with energy”). Dedication was also measured with five items (e.g. “I am enthusiastic about my studies”). Items were scored on a seven-point Likert scale ranging from 0 (*never*) to 6 (*every day*). The UWES-S has been validated internationally (Schaufeli, Salanova et al., 2002). In South Africa, Pienaar and Sieberhagen (2005) found reliabilities of 0,77 for vigour



and 0,85 for dedication. Mostert et al. (2007) reported a Cronbach alpha of 0,70 for vigour and 0,78 for dedication.

*Academic performance.* The participants' academic marks for the first semester were obtained from the academic administration department of the university. The average of the marks was calculated to assess academic performance.

Confirmatory Factor Analysis (CFA) as implemented by means of Mplus 6.1 (Muthén & Muthén, 2007) was used to test the factorial validity of the measuring instruments. The input type was the covariance matrix. The robust maximum likelihood estimator was used to accommodate the lack of multivariate normality in the item distribution (Muthén & Muthén, 2007).

Several problematic items were identified for the scales of the three personality characteristics. After repeated analyses, the following items were deemed suitable for further analyses: items 1, 2, 5 and 7 for self-esteem; items 1, 3, 6 and 8 for self-efficacy; and items 2, 3, 4 and 5 for neuroticism. After the problematic items were removed, an acceptable fit was obtained, although the fit could be improved ( $\chi^2 = 540,10$ , CFI = 0,90 and TLI = 0,87; RMSEA = 0,11). The results supported a three-factor model for career decision-making difficulties ( $\chi^2 = 929,48$ , CFI = 0,92 and TLI = 0,91; RMSEA = 0,06). However, the communalities of two items of the Lack of Motivation scale (items 2 and 3), one item of the General Indecisiveness scale (item 6) and one item of the Dysfunctional Beliefs scale (item 8) had very low communalities (ranging from 0,16 to 0,20). In addition, the Dysfunctional Beliefs scale did not load onto the higher order Readiness scale. As a result of these problems with the Readiness scale, it was decided only to include the Lack of Information and Inconsistent Information scales in the subsequent analyses. The results supported a four-factor model for student burnout and student engagement. However, five items were problematic (low communalities and cross-loadings) and were discarded from the analysis. These items were exhaustion item 2, cynicism item 3 and item 4, vigour item 2 and dedication item 5. After these items had been deleted the results supported a four-factor model for burnout and engagement ( $\chi^2 = 284,67$ , CFI = 0,95 and TLI = 0,93; RMSEA = 0,06).

### **Research procedure**

Permission to do the research was obtained from the university by writing a letter to the campus registrar and explaining the goals and value of the study to the university. Permission was also obtained from the university's ethical committee to acquire the academic records of the students. The data were gathered by having the students complete the questionnaires online on a secure website. The students were informed of the study via e-mail with the link that directed them to the website. On the website, the importance of the study, the research objectives and the reason for the study were explained. The students were assured that participation was voluntary and that the information was confidential. They were informed about ethical and privacy issues before participation. The students signed an informed consent form prior to answering the questionnaire. The participants could complete the questionnaires in their own time by saving their answers and continuing with the questionnaires later.

### **Statistical analysis**

The statistical analysis was carried out with the SPSS program (SPSS, 2009). Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were used to evaluate the data. Cronbach alpha coefficients were used to ascertain the internal consistency of the constructs (Clark & Watson, 1995). To determine the relationship between variables, Pearson product-momentum correlation coefficients were used. With regard to statistical significance, it was decided to set the value at a 95% confidence interval level ( $p \leq 0,05$ ). Cut-off points of 0,30 (medium effect), and 0,50 (large effect, Cohen, 1988) were set for the practical significance of the correlation coefficients.

The first step was to determine whether there was a relationship between the outcome (career uncertainty) and the set of predictors. When a relationship was found, an attempt was made to simplify the model by removing some predictors while at the same time maintaining strong prediction. Once a reduced set of predictors had been found, the equation could be used to predict outcomes for new cases on a probabilistic basis. Uncertain and certain students were compared for certain socio-demographic characteristics, personality characteristics, career decision-making difficulties, burnout, engagement and academic performance using  $\chi^2$  tests ( $p$ -

values were obtained from Pearson's chi-square tests) and analysis of variance (ANOVA). Only variables that differed significantly were included in the logistic regression analysis.

Direct logistic regression was used to predict if individuals belonged to the career uncertain (coded 0) or the career certain (coded 1) groups. Logistic regression is a technique for fitting a regression surface to data in which the dependent variable is a dichotomy (Kerlinger & Lee, 2000). The goal of this analysis was to accurately predict the category of the outcome for individual cases. Logistic regression estimates the probability of a certain event occurring (Peng & So, 2002) and is similar to discriminant analysis using a dichotomous dependent variable. Like discriminant analysis equations, logistic regression equations show relative effects of independent variables on individuals that belong to the group in one of two categories of a dependent variable. Nevertheless, independent variables with nominal and ordinal scaling are not readily accommodated in discriminant analysis. Linearity and normality statements are also more stringent for discriminant analysis. Moreover, logistic regression presents results in terms of odds. As a result, interpretation of logistic regression is less complicated than it is for discriminant analysis.

The accuracy of the logistic regression model is estimated by fitting models, on the basis of available predictors, to the observed data. Hence a model is fit to the data that allows one to estimate values of the outcome variable from known values of the predictor variable(s). To estimate the fit of the model, attention was given to 1) overall model evaluation; 2) goodness-of-fit statistics; and 3) statistical tests of individual predictors (Field, 2005; Peng & So, 2002).

*Overall model evaluation.* Progress over the baseline was observed by using the likelihood ratio. The log-likelihood is based on summing the probabilities with the predicted and real outcomes (Tabachnick & Fidell, 2001). It is an indicator of how much unexplained information there is after the model was fit. Large values of the log-likelihood indicate poorly fitting statistical models, as the larger the value of the log-likelihood, the more unexplained observations there are.

*Goodness-of-fit statistics.* Goodness-of-fit statistics calculate the fit of a logistic model against real outcomes. The inferential goodness-of-fit test is the Hosmer-Lemeshow (H-L) test and is the proportional reduction in the absolute value of the log-likelihood measure. Two additional descriptive measures of goodness-of-fit were used, namely those of Cox and Snell (1989) and Nagelkerke (1991). These indicators are variations of the  $R^2$  concept defined for the ordinary least squares regression model.

*Statistical tests of individual predictors.* The statistical significance (for the inclusion or exclusion from the model) of individual regression coefficients (i.e.  $\beta$ s) was tested using the Wald chi-square statistic and the likelihood-ratio test. Odds ratios (*Exp b*) and 95% confidence intervals (CIs) for each group in the model were determined. A value greater than 1 specifies that as the predictor increases, the odds of the outcome occurring increase. On the contrary, a value less than 1 indicates that as the predictor increases, the odds of the outcome occurring decreases (Agresti, 1996).

## **RESULTS**

The results of the descriptive statistics and reliability of the measuring instruments are provided in Table 2.

Table 2

*Descriptive Statistics and Cronbach Alpha Coefficients of the Measuring Instruments*

Dimension	<i>M</i>	<i>SD</i>	<i>α</i>
Self-esteem	4,31	0,72	0,83
Self-efficacy	4,19	0,72	0,79
Neuroticism	2,75	1,11	0,90
Lack of information about the decision-making process	4,04	2,29	0,91
Lack of information about the self	3,39	1,99	0,87
Lack of information about occupations	4,03	2,32	0,90
Lack of information about ways of obtaining information	3,47	2,13	0,79
Inconsistent information due to unreliable information	3,17	1,89	0,80
Inconsistent information due to internal conflict	3,37	1,78	0,81
Inconsistent information due to external conflict	2,65	1,98	0,81
Exhaustion	2,92	1,39	0,82
Cynicism	2,14	1,47	0,78
Vigour	3,63	1,28	0,82
Dedication	4,52	1,25	0,88
Academic average	65,03	10,32	-

Table 2 provides evidence that the Cronbach alpha coefficients of all the measuring instruments were considered to be acceptable compared to the guideline of  $\alpha \geq 0,70$  (Nunnally & Bernstein, 1994), demonstrating that all the scales are reliable. Correlations between the dimensions are given in Table 3.

Table 3

*Product-Moment Correlations between the Study Variables*

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Career uncertainty	-															
2 Self-esteem	-0,18**	-														
3 Self-efficacy	-0,16**	0,62**	-													
4 Neuroticism	0,09**	-0,31**	-0,30**	-												
5 Lack of info about the DM process	0,40**	-0,26**	-0,29**	0,22**	-											
6 Lack of info about the self	0,39**	-0,33**	-0,35**	0,25**	0,72**	-										
7 Lack of info about occupations	0,40**	-0,21**	-0,24**	0,18**	0,74**	0,78**	-									
8 Lack of info about ways of obtaining info	0,32**	-0,29**	-0,29**	0,18**	0,70**	0,76**	0,79**	-								
9 Inconsistent info due to unreliable info	0,32**	-0,24**	-0,27**	0,21**	0,62**	0,73**	0,68**	0,71**	-							
10 Inconsistent info due to internal conflict	0,35**	-0,27**	-0,29**	0,21**	0,59**	0,69**	0,64**	0,64**	0,73**	-						
11 Inconsistent info due to external conflict	0,17**	-0,24**	-0,27**	0,16**	0,39**	0,51**	0,44**	0,48**	0,56**	0,60**	-					
12 Exhaustion	0,13**	-0,24**	-0,24**	0,23**	0,26**	0,28**	0,23**	0,25**	0,25**	0,30**	0,25**	-				
13 Cynicism	0,24**	-0,29**	-0,29**	0,16**	0,34**	0,40**	0,31**	0,35**	0,37**	0,43**	0,39**	0,67**	-			
14 Vigour	-0,21**	0,28**	0,24**	-0,06	-0,23**	-0,21**	-0,21**	-0,22**	-0,19**	-0,24**	-0,14**	-0,33**	-0,26**	-		
15 Dedication	-0,32**	0,37**	0,32**	-0,13**	-0,32**	-0,37**	-0,30**	-0,32**	-0,31**	-0,39**	-0,29**	-0,41**	-0,52**	0,67**	-	
16 Academic average	-0,07*	0,13**	0,11**	0,03	-0,06	-0,08*	-0,04	-0,08*	-0,07	-0,12**	-0,16**	-0,17**	-0,19**	0,18**	0,23**	-

\*\*Correlation is significant at the 0,01 level (2-tailed).

\*Correlation is significant at the 0,05 level (2-tailed).

≥ 0,15 is statistically significant; ≥ 0,30 is practically significant (medium effect);

≥ 0,50 is practically significant (large effect).

Career uncertainty was positively, statistically and practically significantly correlated with lack of information about the decision-making process ( $r = 0,40, p \leq 0,01$ ), lack of information about the self ( $r = 0,39, p \leq 0,01$ ), lack of information about occupations ( $r = 0,40, p \leq 0,01$ ), lack of information about ways of obtaining information ( $r = 0,32, p \leq 0,01$ ), inconsistent information due to unreliable information ( $r = 0,32, p \leq 0,01$ ) and inconsistent information due to internal conflict ( $r = 0,35, p \leq 0,01$ ). Career uncertainty was positively and statistically significantly correlated with inconsistent information due to external conflict ( $r = 0,17, p \leq 0,01$ ) and cynicism ( $r = 0,24, p \leq 0,01$ ). Career uncertainty was negatively, statistically and practically significantly correlated with dedication ( $r = -0,32, p \leq 0,01$ ) and negatively, statistically significantly correlated with self-esteem ( $r = -0,18, p \leq 0,01$ ), self-efficacy ( $r = -0,16, p \leq 0,01$ ) and vigour ( $r = -0,21, p \leq 0,01$ ). Associations between the participants and career uncertainty are reported in Table 4.

Table 4

*Pearson Chi-square Calculation to Determine the Associations between Socio-Demographic Characteristics and Participants' Career Uncertainty*

	Certain		Uncertain		<i>p</i> value
	<i>N</i>	%	<i>N</i>	%	
<b>Gender</b>					
Males	238	30,60%	40	5,10%	<i>p</i> = 0,11
Females	406	52,10%	95	12,20%	
<b>Career guidance</b>					
Did not receive guidance	288	37,00%	65	8,30%	<i>p</i> = 0,47
Did receive guidance	356	45,70%	70	9,00%	
<b>Help from parents</b>					
Did not receive help from parents when making a career decision	332	42,60%	59	7,60%	<i>p</i> = 0,10
Received help from parents when making a career decision	312	40,10%	76	9,80%	
<b>Help from others</b>					
Did not receive help from others when making a career decision	364	46,70%	71	9,10%	<i>p</i> = 0,40
Received help from others when making a career decision	380	35,90%	64	8,20%	
<b>Work experience</b>					
Have no work experience	464	59,60%	117	15,00%	<i>p</i> ≤ 0,00*
Have some work experience	180	23,10%	18	2,30%	

\*Statistically significant difference:  $p \leq 0,05$

As illustrated in Table 4, statistically significant differences were found only based on work experience. In total, 74,60% of the participants did not have work experience, of whom 59,60% were certain and 15,00% were uncertain. In addition, 25,40% of the participants had work experience, of whom 23,10% were certain and 2,30% were uncertain. Therefore Hypothesis 1a, which suggests that female students will experience more career uncertainty compared to male students, is rejected. Hypothesis 1b, which suggests that students who receive career guidance will experience less career uncertainty is also rejected. Hypotheses 1c and 1d, which propose that students who receive help from parents and others will experience less career uncertainty than students not influenced is therefore rejected. Hypothesis 1e, which suggests that career uncertainty will be lower for students with work experience, is accepted. Associations between internal antecedents, outcomes thereof and career uncertainty are reported in Table 5.



Table 5

*Associations between Personality Characteristics, Career Decision Making, Burnout, Engagement, Academic Average and Career Uncertainty*

Item	Certain		Uncertain		ANOVA
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Self-esteem	4,38	0,69	4,03	0,82	$F = 27,16, df = 1,00^{**}$
Self-efficacy	4,24	0,69	3,94	0,82	$F = 20,40, df = 1,00^{**}$
Neuroticism	2,70	1,11	2,98	1,12	$F = 6,87, df = 1,00^{**}$
Lack of info about the DM process	3,62	2,14	6,02	1,93	$F = 145,20, df = 1,00^{**}$
Lack of info about the self	3,04	1,81	5,08	1,92	$F = 139,16, df = 1,00^{**}$
Lack of info about occupations	3,60	2,15	6,06	2,00	$F = 149,41, df = 1,00^{**}$
Lack of info about ways of obtaining info	3,16	2,00	4,96	2,14	$F = 88,91, df = 1,00^{**}$
Inconsistent info due to unreliable info	2,90	1,78	4,51	1,86	$F = 90,35, df = 1,00^{**}$
Inconsistent info due to internal conflict	3,09	1,70	4,74	1,55	$F = 108,80, df = 1,00^{**}$
Inconsistent info due to external conflict	2,49	1,91	3,39	2,11	$F = 23,74, df = 1,00^{**}$
Exhaustion	2,84	1,38	3,30	1,34	$F = 12,78, df = 1,00^{**}$
Cynicism	1,97	1,42	2,92	1,47	$F = 48,91, df = 1,00^{**}$
Vigour	3,76	1,26	3,04	1,16	$F = 36,71, df = 1,00^{**}$
Dedication	4,70	1,12	3,66	1,46	$F = 86,74, df = 1,00^{**}$
Academic average	65,40	10,31	63,38	10,29	$F = 4,27, df = 1,00^*$

\*\*Statistically significant difference:  $p \leq 0,01$

\*Statistically significant difference:  $p \leq 0,05$

As indicated in Table 5, statistically significant differences were found between all the variables on a  $p \leq 0,01$  level, except for academic average, which was significant on a  $p \leq 0,05$  level. The results on the logistic regression models are reported in Table 6.

Table 6

*Logistic Regression Models predicting Certainty and Uncertainty*

Model	Predictor	$\beta$	$SE \beta$	Wald's $\chi^2$	df	p	$e^\beta$	95% CI for $e^\beta$
1	Constant	-1,37	0,10	174,83	1	0,00	0,25	
	Work experience	0,91	0,27	11,54	1	0,00*	0,40	(0,24 - 0,68)
	<u>Overall model evaluation</u>	Cox & Snell $R^2$	Nagelkerke $R^2$	$\chi^2$	df	p		
	Likelihood ratio test	0,02	0,03	701,74	1	0,00		
	Hosmer & Lemeshow			0,00	0	.		
2	Constant	0,96	0,75	1,64	1	0,20	2,62	
	Work experience	-0,85	0,27	9,81	1	0,00*	0,43	(0,25 - 0,73)
	Self-esteem	-0,39	0,16	6,06	1	0,01*	0,68	(0,50 - 0,90)
	Self-efficacy	-0,23	0,16	1,94	1	0,16	0,80	(0,58 - 1,10)
	Neuroticism	0,09	0,09	0,83	1	0,36	1,09	(0,91 - 1,31)
	<u>Overall model evaluation</u>	Cox & Snell $R^2$	Nagelkerke $R^2$	$\chi^2$	df	p		
	Likelihood ratio test	0,05	0,08	676,89	3	0,00		
	Hosmer & Lemeshow			5,82	8	0,67		
3	Constant	-2,66	0,96	7,61	1	0,01	0,07	
	Work experience	-0,46	0,30	2,28	1	0,13	0,64	(0,35 - 1,15)
	Self-esteem	-0,36	0,18	3,86	1	0,05*	0,70	(0,49 - 1,00)
	Self-efficacy	-0,08	0,19	0,20	1	0,65	0,92	(0,64 - 1,32)
	Neuroticism	-0,14	0,11	1,75	1	0,19	0,87	(0,70 - 1,07)
	Lack of info about the DM process	0,28	0,07	14,80	1	0,00*	1,32	(1,15 - 1,52)
	Lack of info about the self	0,11	0,09	1,52	1	0,22	1,12	(0,94 - 1,34)
	Lack of info about occupations	0,31	0,08	14,25	1	0,00*	1,37	(1,16 - 1,60)
	Lack of info about ways of obtaining info	-0,20	0,08	5,68	1	0,02*	0,82	(0,69 - 0,96)
	Inconsistent info due to unreliable info	0,04	0,09	0,18	1	0,67	1,04	(0,88 - 1,23)
	Inconsistent info due to internal conflict	0,30	0,09	10,12	1	0,00*	1,35	(1,12 - 1,61)
	Inconsistent info due to external conflict	-0,13	0,07	4,01	1	0,05*	0,88	(0,77 - 1,00)
	<u>Overall model evaluation</u>	Cox & Snell $R^2$	Nagelkerke $R^2$	$\chi^2$	df	p		
		Likelihood ratio test	0,21	0,35	534,31	7	0,00	
	Hosmer & Lemeshow			6,00	8	0,65		

Table 6 continued

*Logistic Regression Models predicting Certainty and Uncertainty*

Model	Predictor	$\beta$	$SE \beta$	Wald's $\chi^2$	$df$	$p$	$e^\beta$	95% CI for $e^\beta$
4	Constant	-2,81	1,02	7,62	1	0,01	0,06	
	Work experience	-0,51	0,31	2,77	1	0,10	0,60	(0,33 - 1,10)
	Self-esteem	-0,34	0,18	3,45	1	0,05*	0,71	(0,50 - 1,02)
	Self-efficacy	-0,05	0,19	0,06	1	0,81	0,96	(0,66 - 1,38)
	Neuroticism	-0,12	0,11	1,13	1	0,29	0,89	(0,71 - 1,11)
	Lack of info about the DM process	0,28	0,07	14,92	1	0,00*	1,32	(1,15 - 1,53)
	Lack of info about the self	0,09	0,09	0,89	1	0,35	1,09	(0,91 - 1,31)
	Lack of info about occupations	0,33	0,08	15,63	1	0,00*	1,39	(1,18 - 1,64)
	Lack of ways of obtaining info	0,20	0,09	5,54	1	0,02*	0,82	(0,69 - 0,79)
	Inconsistent info due to unreliable info	0,03	0,09	0,12	1	0,73	1,03	(0,87 - 1,22)
	Inconsistent info due to internal conflict	0,27	0,09	7,95	1	0,01*	1,30	(1,08 - 1,57)
	Inconsistent info due to external conflict	-0,17	0,07	6,38	1	0,01*	0,84	(0,74 - 0,96)
	Exhaustion	-0,28	0,12	5,08	1	0,02*	0,76	(0,59 - 0,96)
	Cynicism	0,40	0,12	11,17	1	0,00*	1,49	(1,18 - 1,89)
<u>Overall model evaluation</u>		Cox & Snell $R^2$	Nagelkerke $R^2$	$\chi^2$	$df$	$p$		
	Likelihood ratio test	0,22	0,37	522,97	2	0,00		
	Hosmer & Lemeshow			8,41	8	0,40		
5	Constant	-0,74	1,09	2,55	1	0,11	0,18	
	Work experience	-0,45	0,31	2,07	1	0,15	0,65	(0,34 - 1,18)
	Self-esteem	-0,19	0,20	0,92	1	0,34	0,83	(0,56 - 1,22)
	Self-efficacy	0,01	0,19	0,00	1	0,97	1,01	(0,69 - 1,47)
	Neuroticism	-0,08	0,11	0,45	1	0,50	0,93	(0,74 - 1,16)
	Lack of info about the DM process	0,27	0,07	13,29	1	0,00*	1,31	(1,13 - 1,52)
	Lack of info about the self	0,08	0,10	0,75	1	0,39	1,09	(0,90 - 1,31)
	Lack of info about occupations	0,32	0,09	14,10	1	0,00*	1,38	(1,17 - 1,63)
	Lack of ways of obtaining info	-0,21	0,09	5,63	1	0,02*	0,81	(0,69 - 0,97)
	Inconsistent info due to unreliable info	0,05	0,09	0,35	1	0,56	1,05	(0,89 - 1,26)
	Inconsistent info due to internal conflict	0,24	0,10	6,20	1	0,01*	1,27	(1,05 - 1,53)
	Inconsistent info due to external conflict	-0,15	0,07	5,09	1	0,02*	0,86	(0,75 - 0,98)
	Exhaustion	-0,32	0,13	6,04	1	0,01*	0,73	(0,57 - 0,94)
	Cynicism	0,31	0,13	5,56	1	0,02*	1,36	(1,05 - 1,76)
Vigour	-0,13	0,12	1,07	1	0,30	0,88	(0,69 - 1,12)	
Dedication	-0,27	0,14	4,14	1	0,04*	0,76	(0,58 - 0,99)	

Table 6 continued  
*Logistic Regression Models predicting Certainty and Uncertainty*

Model	Predictor	$\beta$	$SE \beta$	Wald's $\chi^2$	$df$	$p$	$e^\beta$	95% CI for $e^\beta$
	<u>Overall model evaluation</u>	Cox & Snell $R^2$	Nagelkerke $R^2$	$\chi^2$	$df$	$p$		
	Likelihood ratio test	0,23	0,32	510,08	2	0,00		
	Hosmer & Lemeshow			3,55	8	0,90		
6	Constant	-1,55	1,62	1,51	1	0,22	0,21	
	Work experience	-0,44	0,32	1,99	1	0,16	0,64	(0,35 - 1,19)
	Self-esteem	-0,19	0,20	0,89	1	0,35	0,83	(0,57 - 1,22)
	Self-efficacy	0,01	0,19	0,00	1	0,97	1,01	(0,69 - 1,47)
	Neuroticism	-0,07	0,11	0,43	1	0,52	0,93	(0,74 - 1,16)
	Lack of info about the DM process	0,27	0,07	13,32	1	0,00*	1,31	(1,13 - 1,52)
	Lack of info about the self	0,08	0,10	0,75	1	0,39	1,09	(0,90 - 1,31)
	Lack of info about occupations	0,32	0,09	14,13	1	0,00*	1,38	(1,17 - 1,63)
	Lack of info about ways of obtaining info	-0,21	0,09	5,67	1	0,02*	0,81	(0,68 - 0,96)
	Inconsistent info due to unreliable info	0,05	0,09	0,36	1	0,55	1,06	(0,89 - 1,26)
	Inconsistent info due to internal conflict	0,24	0,10	6,16	1	0,01*	1,27	(1,05 - 1,53)
	Inconsistent info due to external conflict	-0,16	0,07	5,15	1	0,02*	0,86	(0,75 - 0,98)
	Exhaustion	-0,32	0,13	6,07	1	0,01*	0,73	(0,57 - 0,94)
	Cynicism	0,31	0,13	5,50	1	0,02*	1,36	(1,05 - 1,76)
	Vigour	-0,12	0,12	0,99	1	0,32	0,88	(0,69 - 1,13)
	Dedication	-0,27	0,14	4,09	1	0,04*	0,76	(0,58 - 0,99)
	Academic average	0,00	0,01	0,08	1	0,77	1,00	(0,97 - 1,02)
	<u>Overall model evaluation</u>	Cox & Snell $R^2$	Nagelkerke $R^2$	$\chi^2$	$df$	$p$		
	Likelihood ratio test	0,23	0,39	510,00	1	0,77		
	Hosmer & Lemeshow			2,48	8	0,96		

Note: All statistics are presented for all variables in the logistic regression equations. For Model 1, Cox and Snell  $R^2 = 0,02$  and Nagelkerke  $R^2 = 0,03$ ; for Model 2 Cox and Snell  $R^2 = 0,05$  and Nagelkerke  $R^2 = 0,08$ ; for Model 3 Cox and Snell  $R^2 = 0,21$  and Nagelkerke  $R^2 = 0,35$ ; for Model 4, Cox and Snell  $R^2 = 0,22$  and Nagelkerke  $R^2 = 0,37$ ; for Model 5 Cox and Snell  $R^2 = 0,23$  and Nagelkerke  $R^2 = 0,32$ ; for Model 6 Cox and Snell  $R^2 = 0,23$  and Nagelkerke  $R^2 = 0,39$ .

Table 6 provides the results of the logistic regression model. The logistic regression coefficients are represented by the  $\beta$ s. Positive  $\beta$ s reveal a positive relationship and negative  $\beta$ s show a negative or inverse relationship. In the second-last column, the odds ( $e^\beta$ ) are more straightforward in interpretation than the  $\beta$ s (log odds). Odds of 1 are equal to log odds of 0. Odds of 1 and log odds of 0 indicate no relation of the independent variable to the dependent variable. The odds are the probability that an event will happen divided by the probability that the event will not happen (Norusis, 1994).

As demonstrated in Table 6, after adjusting for all the variables, lack of information about the decision-making process [ $\beta = 0,27$  (1,13 - 1,52)], lack of information about occupations [ $\beta = 0,32$  (1,17 - 1,63)], lack of information about ways of obtaining information [ $\beta = -0,21$  (0,68 - 0,96)], inconsistent information due to internal conflict [ $\beta = 0,24$  (1,05 - 1,53)], inconsistent information due to external conflict [ $\beta = -0,16$  (0,75 - 0,98)], exhaustion [ $\beta = -0,32$  (0,57 - 0,94)], cynicism [ $\beta = 0,31$  (1,05 - 1,76)] and dedication [ $\beta = -0,27$  (0,58 - 0,99)] were predictive of career uncertainty.

The results do not provide support for Hypotheses 2a and 2b, which propose that students who experience career uncertainty will have lower self-esteem and self-efficacy compared to students who are certain. Therefore Hypotheses 2a and 2b are rejected. Hypothesis 2c, which suggests that students who experience career uncertainty will be more neurotic compared to students who are certain, is also rejected. The results do not provide support for Hypothesis 3a either, which suggests that students who experience lack of readiness to make a decision will have more career uncertainty. Hypothesis 3a is therefore rejected. Model 6 indicates a significant relationship between lack of information about the decision-making process and inconsistent information. Hypotheses 3b and 3c are therefore accepted.

Hypothesis 4a proposes that students with more career uncertainty will experience higher exhaustion and cynicism. Therefore Hypothesis 4a is accepted. The results also provide support for Hypothesis 4b, which suggests that students with more career uncertainty will experience lower levels of vigour and dedication. However, only dedication was a significant predictor in the logistic regression model. Therefore Hypothesis 4b is partially accepted. Finally, the results

do not provide support for Hypothesis 5, which suggests that students with lower academic achievement will have more career uncertainty. Hypothesis 5 is therefore rejected.

## DISCUSSION

Researchers have provided evidence that career indecision is a pervasive problem among students, and estimate that 50% of students are undecided (Amir & Gati, 2006; Gianakos, 1999). Although a large number of studies touch upon the predictors of career indecision, not much research has been done which compares individuals with low and high levels of career uncertainty and the relationship with socio-demographic characteristics, personality characteristics, career decision-making, student burnout, student engagement and academic performance. The objective of this study was to determine significant predictors of career uncertainty. Predictors included different socio-demographic characteristics (gender, career guidance, help from parents, help from others, work experience), personality characteristics (self-esteem, self-efficacy, neuroticism), student burnout (exhaustion and cynicism), student engagement (vigour and dedication) and academic performance.

Before conducting the logistic regression analysis, it was determined whether a relationship existed between the outcome variable (career uncertainty) and the set of predictors. Chi-square tests were used to determine a significant relationship existed between socio-demographic characteristics and career uncertainty. Contrary to expectations, statistically significant differences were found only for work experience. Of the 74,60% participants who did not have work experience, 59,60% were certain and 15,00% were uncertain. In total, 25,40% of the participants had work experience, of whom 23,10% were certain and 2,30% were uncertain. ANOVA analysis was used to determine statistically significant relationships existed between career uncertainty and personality characteristics, career decision-making, burnout, engagement and academic average. Statistically significant differences were found for all the variables on a  $p \leq 0,01$  level, except for academic average, which was significant on a  $p \leq 0,05$  level.

Logistic regression analysis was used to determine the most important predictors of career uncertainty. Of these characteristics, only work experience was significant in the chi-square tests and was therefore included in the logistic regression. Work experience was significant in the first

step of the logistic regression model. This finding implies that individuals who had work experience and more knowledge about the workplace and employment before making a career choice experienced less uncertainty about a future career. This finding is supported by previous research, which suggests that individuals have less career indecision when they have work experience (Herr et al., 2004; Talib & Aun, 2009). Also, researchers found that career-undecided individuals have less paid work experience compared to career-decided individuals (Creed et al., 2005). However, although work experience is a significant predictor of career uncertainty according to the literature and was also significant in the first step of the logistic regression model, it was not significant after all the other constructs had been entered into the model. Therefore work experience is associated with career uncertainty only to some extent.

The following personality characteristics were included in the logistic regression analysis: self-esteem, self-efficacy and neuroticism. All of these three personality characteristics were significant in ANOVA analysis. However, only self-esteem was a significant predictor of career uncertainty in the earlier steps of the logistic regression model. When individuals have high self-esteem, they believe their input is valuable. This finding is supported by Tokar, Fischer and Subich's (1998) findings that individuals with low self-esteem are unable to evaluate their own capabilities accurately. They are often hesitant to explore career options and misinterpret information provided about possible career options (Callanan & Greenhaus, 1992). Therefore career indecision is higher when students experience low self-esteem (Bacanli, 2006; Emanuelle, 2009; Saka et al., 2008). It appears that the role of self-esteem is cancelled out when the other predictors are entered into the final step of the model. It should therefore be noted that self-esteem influences career uncertainty only to some degree.

The career decision-making difficulties consist of the three clusters, namely lack of readiness, lack of information and inconsistent information. Because of poor validity, the lack of readiness cluster was not included in subsequent analyses. The four categories of lack of information (i.e. lack of information about the decision-making process, lack of information about the self, lack of information about occupations and lack of information about ways of obtaining information) and the three categories of inconsistent information (i.e. unreliable information, internal conflict and external conflict) were entered into the logistic regression model.

The following categories of lack of information were significant predictors of career uncertainty: lack of information about the decision-making process, lack of information about occupations and lack of information about ways of obtaining information. Therefore when individuals experience lack of information about the decision-making process, they have limited knowledge about the steps involved in making a decision. They may have trouble combining information about themselves (personality characteristics, interests, abilities) and possible career options (subjects, abilities, training required). This could then lead to career uncertainty. Furthermore, when individuals experience lack of information about occupations, it reveals that they are unaware of possible career options. Individuals could either be uninformed about different areas of work within an occupational field (e.g. in communication studies: corporate media, journalism, marketing, public relations, video production) or they are unsure what career alternatives involve, which leaves them uncertain about specific options. Lack of information about ways of obtaining information reflects that individuals have limited information that will help the decision-making process (e.g. where to find a career guidance counsellor), and this can intensify career uncertainty (Gati & Osipow, 2010). These findings are supported by previous research on the broad dimensions of career decision-making, which found that lack of information influences individuals' decision status (Albion & Fogarty, 2005). Pečjak and Košir (2007) found that uncertain students experience lack of information during the decision-making process. Mau (2001) also found that lack of information has a great impact on career indecision.

The categories of inconsistent information that were significant in the logistic regression analysis were internal conflict and external conflict. Inconsistent information due to internal conflict relates to individuals who experience confusion because there is opposing information (e.g. training for the individual's study preference is far from home). In addition, inconsistent information due to external conflict occurs when significant others influence the individual (e.g. the students' preference for the institution differs from that of their parents). These factors could lead individuals to become uncertain of their future careers (Gati & Osipow, 2010). This links with Redwine's (2009) finding that students who changed their major subject had inconsistent information in the decision-making process. Albion and Fogarty's (2005) and Pečjak and Košir's (2007) findings also suggest that inconsistent information affects students' decision status.



Student burnout and engagement were also entered into the logistic regression model, in particular exhaustion and cynicism and vigour and dedication. After all the constructs had been entered into the model, exhaustion, cynicism and dedication were significant predictors of career uncertainty in the final step of the model. When students experience exhaustion, they are physically and/or emotionally exhausted from their studies, which influences their career decidedness. This finding is supported by Hinkelman and Luzzo (2007), who suggest that psychological distress might increase career uncertainty, and Tien et al. (2005), who found that exhaustion is experienced when students feel uncertain about their career. Cynicism is when students have no optimism and withdraw from their work. The stress that students experience from their studies leads to discouragement, which could influence their decision status. This assertion is supported by Tien et al. (2005), who found that students experience cynicism when they feel uncertain about their career. Finally, dedication is when students are motivated towards their studies; the results indicate that a lack of dedication might lead to career uncertainty. This is supported by Tien et al.'s (2005) finding that students felt discouraged while experiencing career uncertainty. The finding that dedication is associated with career uncertainty is also supported by Konstam and Lehmann (2011), who found that individuals who experience career indecision have lower work engagement.

Limited research has been done on career uncertainty in the South African context, and even less has been done on the predictors of career uncertainty. The present research contributes to the literature on career decision status by explaining the need for career guidance and providing knowledge of the predictors of career uncertainty. More knowledge of career uncertainty can assist students and counsellors in career decision-making problems and over the long term help organisations to identify employees with career uncertainty and person-job fit problems. The main findings of this study showed that the predictors of career uncertainty were lack of information about the decision-making process, lack of information about occupations, inconsistent information due to internal conflict and exhaustion. These predictors were all significant on the  $p \leq 0,01$  level. Lack of information about ways of obtaining information, inconsistent information due to external conflict, cynicism and dedication were also significant predictors of career uncertainty ( $p \leq 0,05$ ).

## **Limitations and Recommendations**

This study has several limitations. The first limitation is that the research sampling method used was a non-probability quota sample. Therefore the results cannot be generalised to a larger population and might not be true for all individuals. Secondly, a cross-sectional design was used (Fogarty & McGregor-Bayne, 2008; Kelly & Shin, 2008), therefore causality of the relationship between the predictors and career uncertainty could not be determined. Students might adjust to career decision-making difficulties at a stage which changes the predictors of their career uncertainty. Thirdly, the study focused entirely on a student sample of one specific university (Amir & Gati, 2006; Redwine, 2009), which implies difficulty in generalising the results to other universities or the organisational context. The predictors of career uncertainty/indecision might therefore differ between full-time students and individuals in the work context or students from other universities. Furthermore, the study sample is racially homogeneous (Gati & Amir, 2010; Nauta, 2011), which means that the results might not be true for all individuals within the South African context. Individuals from other ethnic groups might experience different predictors of career uncertainty. Finally, the results were obtained from self-report measures (Di Fabio, 2009; Koumoundourou, Tsaousis & Kounenou, 2011), which could lead to a method bias, namely “common method-variance”. A difficulty arises because individuals’ perceptions are being measured, which is difficult to distinguish between the actual construct being measured. More objective measures could be devised for future studies.

It is recommended for future research that longitudinal research be conducted to determine the effects of career uncertainty and whether the predictors included in this study could rather be outcomes of career uncertainty. Further research can explore whether student engagement and burnout are possible outcomes of students’ career uncertainty and the influence this might have on individuals within the organisational context. Moreover, further research could focus on predictors of career uncertainty which were found in the literature but were not included in this study, for example anxiety (Campagna & Curtis, 2007; Germeijs, Verchuerin & Soenens, 2006) and locus of control (Feldman, 2003; Saka, Gati & Kelly, 2008). Further research could also investigate academic average as a predictor of career uncertainty. This may provide career counsellors with additional information on predictors of career uncertainty. This study focused on only two of the three dimensions of career decision-making difficulties, i.e. lack of

information and inconsistent information. Future research concerning the minimisation of career uncertainty and career indecision can be done on the validity of the other dimension (lack of readiness), and it can explore what students find useful for minimising career decision-making difficulties they experience regarding lack of readiness, lack of information and inconsistent information. Possible reasons for the poor functioning of items of this scale should also be explored. Although the results did not find that personality characteristics (self-esteem, self-efficacy and neuroticism) were significantly related to career uncertainty, it is recommended that future studies should continue to investigate the relationship as previous research has reported on the association between the variables (Bacanli, 2006; Creed et al., 2005; Kelly & Pulver, 2003). Furthermore, since several items were problematic and only four items per scale were used in the analysis, the results pertaining to the personality characteristics should be interpreted with caution. Future research should examine possible reasons for underlying problems and investigate the validity of other scales measuring personality characteristics that are suitable for students.

## REFERENCES

- Accenture. (2011). *Reinvent opportunity: Looking through a new lens*. Retrieved October 28, 2011, from [http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture\\_IWD\\_Research\\_embargoed\\_until\\_March\\_4\\_2011.pdf](http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture_IWD_Research_embargoed_until_March_4_2011.pdf)
- Agresti, A. (1996). *Introduction to categorical data analysis*. New York: John Wiley and Sons, Inc.
- Albion, M. J., & Fogarty, G. J. (2002). Factors influencing career decision making in adolescents and adults. *Journal of Career Assessment, 10*(1), 91-126.
- Amir, T., & Gati, I. (2006). Facets of career decision-making difficulties. *British Journal of Guidance and Counselling, 34*(4), 483-503.
- Amir, T., Gati, I., & Kleiman, T. (2008). Understanding and interpreting career decision-making difficulties. *Journal of Career Assessment, 16*(3), 281-309.
- Argyropoulou, E. P., Sidiropoulou-Dimakakou, D., & Besevegis, E. (2007). Generalized self-efficacy, coping, career indecision, and vocational choices of senior high school students in Greece: Implications for career guidance practitioners. *Journal of Career Development, 33*(4), 316-337.
- Bacanli, F. (2006). Personality characteristics as predictors of personal indecisiveness. *Journal of Career Development, 32*(4), 320-332.
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual processes at work in a call centre: An application of the job demands-resources model. *European Journal of Work and Organizational Psychology, 12*(4), 393-417.
- Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management, 43*(1), 83-104.
- Bakker, A. B., Demerouti, E., De Boer, E., & Schaufeli, W. B. (2003). Job demands and job resources as predictors of absence duration and frequency. *Journal of Vocational Behavior, 62*(2), 341-356.
- Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology, 99*(2), 274-284.

- Bakker, A. B., Schaufeli, W. B., Sixma, H., Bosveld, W., & Van Dierendonck, D. (2000). Patient demands, lack of reciprocity, and burnout: A five-year longitudinal study among general practitioners. *Journal of Organizational Behavior, 21*, 425-441.
- Ballout, H. I. (2009). Career commitment and career success: moderating role of self-efficacy. *Career Development International, 14*(7), 655-670.
- Betz, N. E., & Vuyten, K. K. (1997). Efficacy and outcome expectations influence career exploration and decidedness. *Career Development Quarterly, 46*(2), 179-189.
- Borchert, M. (2002). *Career choice factors of high school students*. Unpublished masters dissertation, University of Wisconsin-Stout, Wisconsin, United States of America.
- Callanan, G. A., & Greenhaus, J. H. (1992). The career indecision of managers and professionals: An examination of multiple subtypes. *Journal of Vocational Behavior, 41*(3), 212-231.
- Campagna, C. G., & Curtis, G. J. (2007). So worried I don't know what to be: Anxiety is associated with increased career indecision and reduced career certainty. *Australian Journal of Guidance and Counselling, 17*(1), 91-96.
- Chamorro-Premuzic, T., Ahmetoglu, G., & Furnham, A. (2007). Little more than personality: Dispositional determinants of test anxiety (the Big Five, core self-evaluations, and self-assessed intelligence). *Learning and Individual Differences, 18*(2), 258-263.
- Chartrand, J. M., Rose, M. L., Elliot, T. R., Marmorash, C., & Caldwell, S. (1993). Peeling back the onion: Personality problem solving, and career decision-making style and correlates of career indecision. *Journal of Career Assessment, 1*(1), 66-82.
- Chason, A. K. (2010). *The relationship among negative career thoughts, profile evaluation, differentiation, career decidedness and satisfaction with choice*. Unpublished doctoral thesis, Florida State University, Florida, United States of America.
- Chen, C. P. (2008). Career guidance for at-risk students via social learning. *Perspectives in Education, 26*(4), 6-16.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309-319.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2<sup>nd</sup> ed.). Orlando, CA: Academic Press.

- Conner, J. O. (2009). Student engagement in an independent research project: The influence of Cohort culture. *Journal of Advanced Academics*, 21(1), 8-38.
- Cox, D. R., & Snell, E. J. (1989). *The analysis of binary data* (2<sup>nd</sup> ed.). London: Chapman and Hall.
- Creed, P. A., Patton, W., & Bartrum, D. (2004). Internal and external barriers, cognitive style, and the career development variables of focus and indecision. *Journal of Career Development*, 30(4), 277-295.
- Creed, P. A., Patton, W., & Watson, M. B. (2003). *Cross-cultural equivalence of the career decision-making self-efficacy scale – short form: An Australian and South African comparison*. Retrieved October 28, 2011, from <http://www98.griffith.edu.au/dspace/bitstream/10072/7132/1/19634.pdf>
- Creed, P., Prideaux, L., & Patton, W. (2005). Antecedents and consequences of career decisional states in adolescence. *Journal of Vocational Behavior*, 67(3), 397-412.
- Davis, E. R. (2001). *Levels of career indecision and prominent personality dimensions of high school and community college dual-enrolment students*. Unpublished doctoral thesis. Texas University, Texas, United States of America.
- De Raaf, S., Dowie, M., & Vincent, C. (2009). *Improving career decision making of young workers: Design of a randomized experiment*. Retrieved October 28, 2011, from [http://www.srdc.org/uploads/careermotion\\_design\\_rpt.pdf](http://www.srdc.org/uploads/careermotion_design_rpt.pdf)
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands–resources model of burnout. *Journal of Applied Psychology*, 86(3), 499-512.
- Di Fabio, A. & Palazzeschi, L. (2009). Emotional intelligence, personality traits and career decision difficulties. *International Journal of Educational Vocational Guidance*, 9(2), 135-146.
- Dodgson, P. G., & Wood, J. V. (1998). Self-esteem and the cognitive accessibility of strengths and weaknesses after failure. *Journal of Personality and Social Psychology*, 75(1), 178-197.
- Downing, H. M., & Nauta, M. M. (2009). Separation-individuation, explorations, and identity diffusion as mediators of the relationship between attachment and career indecision. *Journal of Career Development*, 36(3), 207-227.

- Dusselier, L., Dunn, B., Wang, Y., Shelley, M. C., & Whalen, D. F. (2005). Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health, 54*(1), 15-24.
- Elaydi, R. (2006). Construct development and measurement of indecisiveness. *Management Decision, 44*(10), 1363-1376.
- Emanuelle, V. (2009). Inter-relationships among attachment to mother and father, self-esteem, and career indecision. *Journal of Vocational Behavior, 75*(2), 91-99.
- Essig, G. N. (2010). Relative effectiveness of information giving and therapeutic assessment models in reducing career indecision. Retrieved August, 31, 2010 from [http://www.purdue.edu/policies/pages/teach\\_res\\_outreach/viii\\_3\\_1.html](http://www.purdue.edu/policies/pages/teach_res_outreach/viii_3_1.html)
- Esters, L. T. (2007). Career indecision levels of students enrolled in a college of agriculture and life sciences. *Journal of Agricultural Education, 48*(4), 130-146.
- Eysenck, H. J., & Eysenck, S. B. G. (1968). *Manual for the Eysenck Personality Inventory*. San Diego, CA: Educational and Industrial Testing Service.
- Feldman, D. C. (2003). The antecedents and consequences of early career indecision among young adults. *Human Resource Management Review, 13*(3), 499-531.
- Ferreira, J. A., Santos, E. J. R., Fonseca, A. C., & Haase, R. F. (2007). Early predictors of career development: A 10-year follow-up study. *Journal of Vocational Behavior, 70*(1), 61-77.
- Field, A. (2005). *Discovering Statistics Using SPSS* (2<sup>nd</sup> ed.). London, UK: Sage Publications.
- Fogarty, G. J., & McGregor-Bayne, H. (2008). Factors that influence career decision making among elite athletes. *Australian Journal of Career Development, 17*(3), 26-38.
- Fouad, N., Cotter, E. W., & Kantamneni, N. (2009). The effectiveness of a career decision-making course. *Journal of Career Assessment, 17*(3), 338-347.
- Gati, I., & Amir, T. (2010). Applying a systemic procedure to locate career decision-making difficulties. *The Career Development Quarterly, 58*(4), 301-320.
- Gati, I., & Osipow, S. H. (2010). *Abridged professional manual for the career decision-making difficulties questionnaire*. Retrieved November 15, 2011, from <http://go.to.cddq>.
- Gati, I., & Saka, N. (2001). High School students' career-related decision-making difficulties. *Journal of Counseling and Development, 79*(3), 331-340.
- Gati, I., Krausz, M., & Osipow, S. H. (1996). A taxonomy of difficulties in career decision making. *Journal of Counselling Psychology, 43*(4), 510-526.

- Gauché, C. (2009). *Burnout and engagement in a South African university student sample – A psychometric analysis*. Unpublished masters dissertation, North West University, Potchefstroom, South Africa.
- Germeijs, V., & De Boeck, P. (2002). A measurement scale for indecisiveness and its relationship to career indecision and other types of indecision. *European Journal of Psychological Assessment, 18*(2), 113-122.
- Germeijs, V., & De Boeck, P. (2003). Career indecision: Three factors from decision theory. *Journal of Vocational Behavior, 62*(1), 11-25.
- Germeijs, V., & Verchuerin, K. (2006). High school students' career decision-making process: Development and validation of the study choice task inventory. *Journal of Career Assessment, 14*(4), 449-471.
- Germeijs, V., Verschueren, K., & Soenens, B. (2006). Indecisiveness and high school students' career decision-making process: Longitudinal associations and the meditational role of anxiety. *Journal of Counseling Psychology, 53*(4), 397-410.
- Gianakos, I. (1999). Patterns of career choice and career decision-making self-efficacy. *Journal of Vocational Behavior 54*(2), 244-258.
- Gordon, L., & Meyer, J. C. (2002). Career indecision amongst prospective university students. *South African Journal of Psychology, 32*(4), 41-47.
- Guay, F., Senécal, C., Gauthier, L., & Fernet, C. (2003). Predicting career indecision: A self-determination theory perspective. *Journal of Counseling Psychology, 50*(2), 165-177.
- Guerra, A. L., & Braungart-Rieker, J. M. (1999). Predicting career indecision in college students: The roles of identity formation and parental relationship factors. *The Career Development Quarterly, 47*(3), 255-266.
- Gunkel, M., Schlaegel, C., Langella, I. M., & Peluchette, J. V. (2010). Personality and career decisiveness: An international empirical comparison of business students' career planning. *Personnel Review, 39*(4), 503-524.
- Handelman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *Journal of Educational Research, 89*(3), 185-191.
- Hargrove, B. K., Creagh, M. G., & Burgess, B. L. (2002). Family interaction patterns as predictors of vocational identity and career decision-making self-efficacy. *Journal of Vocational Behavior, 61*(2), 185-201.



- Herr, E., Cramer, S., & Niles, S. (2004). *Career guidance and counseling through lifespan: Systematic approaches*. Boston: Allyn and Bacon.
- Hinkelman, J. M., & Luzzo, D. A. (2007). Mental health and career development of college students. *Journal of Counseling and Development, 85*(2), 143-147.
- Huang, S. (1997). *The effect of family environment, personality, self-efficacy on career indecision of college students*. Unpublished doctoral thesis, Purdue University, Purdue, United States of America.
- Huffman, M. L., & Torres, L. (2001). Job search methods: Consequences for gender-based earnings inequality. *Journal of Vocational Behavior, 58*(1), 127-141.
- Jordaan, Y., Smithard, C., & Burger, E. (2009). Comparing levels of career indecision among selected honours degree students at the university of Pretoria. *Meditari Accountancy Research, 17*(2), 85-100.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology, 56*(2), 303-331.
- Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology, 83*(1), 17-34.
- Kahn, J. H., Nauta, M. M., Gailbreath, R. D., Tipps, J., & Chartrand, J. M. (2002). The utility of career and personality assessment in predicting academic progress. *Journal of Career Assessment, 10*(1), 3-23.
- Keller, B. K., & Whiston, S. C. (2008). The role of parental influences on young adolescents' career development. *Journal of Career Assessment, 16*(2), 198-217.
- Keller, C. J. (2007). *Career indecision between white American and Asian American students: The influence of psychological separation and adult attachment orientation*. Unpublished doctoral thesis. University of Missouri, Kansas City, United States of America.
- Kelly, K. R., & Lee, W. (2002). Mapping the domain of career decision problems. *Journal of Vocational Behavior, 61*(2), 302-326.
- Kelly, K. R., & Pulver, C. A. (2003). Refining measurement of career indecision types: A validity study. *Journal of Counseling and Development, 81*(4), 445-454.
- Kelly, R., & Shin, Y. (2008). Relation of neuroticism and negative career thoughts and feelings to lack of information. *Journal of Career Assessment, 17*(2), 201-213.

- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research* (4<sup>th</sup> ed). Fort Worth, TX: Harcourt College Publishers.
- Khasmohammadi, M., Noah, S. M., Kadir, R. A., Baba, M., Bakhash, K. F., & Keshavarz, H. (2010). Manifestation of parental perfectionism on career indecision. *Procedia Social and Behavioral Sciences*, 5, 1200-1204.
- Konstam, V., & Lehmann, I. S. (2011). Emerging adults at work and at play: Leisure, work engagement, and career indecision. *Journal of Career Assessment* 19(2) 151-164.
- Kosine, N. R., Steger, M. F., & Duncan, S. (2008). Purpose-centered career development: A strengths-based approach to finding meaning and purpose in careers. *Professional School Counseling*, 12(2), 133-136.
- Koumoundourou, G., Tsaousis, I., & Kounenou, K. (2011). Parental influences on Greek adolescents' career decision-making difficulties: The mediating role of core self-evaluations. *Journal of Career Assessment*, 19(2), 165-182.
- Krantz, J. (2004). *An exploration of the relationship of career decision self-efficacy and career indecision to the retention of Africans Americans in higher education*. Unpublished doctoral thesis, University of Memphis, Memphis, United States of America.
- Latack, J. C., & Havlovic, S. J. (1992). Coping with job stress: a conceptual evaluation framework for coping measures. *Journal of Organizational Behavior*, 13(5), 479-508.
- Lee, R. T., & Ashforth, B. E. (1990). On the meaning of Maslach's three dimensions of burnout. *Journal of Applied Psychology*, 75(6), 743-747.
- Lock, E. (2009). *The relationship between individualistic and collectivistic value orientations and early career indecision*. Unpublished masters dissertation, University of South Africa, South Africa.
- Maree, J. G. Ebersöhn, L. E., & Vermaak, B. (2008). Confronting the effects of unemployment on achievement motivation: The case for postmodern career facilitation. *Perspectives in Education*, 26(3), 55-70.
- Maslach, C., Leiter, M. P., & Schaufeli, W. B. (2008). 'Measuring burnout', In C.L. Cooper & S. Cartwright (Eds.). *The Oxford handbook of organizational well-being* (pp. 86-108). Oxford: Oxford University Press.
- Mau, W. (2001). Assessing career decision-making difficulties: A cross-cultural study. *Journal of Career Assessment*, 9(4), 353-364.

- Mauno, S., Kinnunen, U., & Ruokolainen, M. (2007). Job demands and resources as antecedents of work engagement: A longitudinal study. *Journal of Vocational Behavior, 70*(1), 149-171.
- McCrae, R. R., & Costa Jr., P. T. (1991). The NEO personality inventory: Using the five-factor model in counseling. *Journal of Counseling and Development, 69*(4), 367-372.
- Mhlongo, Z. S. (2009). *Family influence on career decision by black first-year students at the university of KwaZulu-Natal: A qualitative study*. Unpublished masters dissertation, University of KwaZulu-Natal, Pietermaritzburg, South Africa.
- Morgan, T., & Ness, D. (2003). Career decision-making difficulties of first-year students. *The Canadian Journal of Career Development, 2*, 33-39.
- Mostert, K., Pienaar, J., Gauché, C., & Jackson, L. T. B. (2007). Burnout and engagement in university students: A psychometric analysis of the MBI-SS and UWES-S. *South African Journal of Higher Education, 21*(1), 147-162.
- Mubiana, P. B. (2010). *Career maturity, career knowledge, and self knowledge among psychology honour students: An exploratory study*. Unpublished masters dissertation, University of Pretoria, Pretoria, South Africa.
- Muthén, L. K., & Muthén, B. O. (2007). *Mplus user's guide* (5<sup>th</sup> ed.). Muthén & Muthén, Los Angeles, CA.
- Myburg, J. E. (2005). An empirical analysis of career choice factors that influence first-year accounting students at the University of Pretoria: a cross-racial study. *Meditari Accountancy Research, 13*(2), 35-48.
- Nagelkerke, N. J. D. (1991). A note on a general definition of the coefficient of determination. *Biometrika, 78*(3), 691-692.
- Naidoo, A. V. (1998). *Career maturity: A review of four decades of research*. Unpublished doctoral thesis, University of Western Cape, Bellville, South Africa.
- Napoli, A. R., & Wortman, P. M. (1998). Psychosocial factors related to retention and early departure of two-year community college students. *Research in Higher Education, 39*(4), 419-455.
- National Survey of Student Engagement. (2007). *Experiences that matter: Enhancing student learning and success, annual report 2007*. Bloomington, IN: Author.

- Nauta, M. M. (2011). Temporal stability, correlates, longitudinal outcomes of career indecision factors. Retrieved October 28, 2011 from <http://jcd.sagepub.com/content/early/2011/04/26/0894845311410566>
- Ng, T. W. H., & Feldman, D. C. (2009). Personality, social relationships, and vocational indecision among college students: The mediating effects of identity construction. *Career Development International*, 14(4), 309-332.
- Norusis, M. J. (1994). *SPSS professional statistics 6.1*. SPSS Inc, Chicago, USA.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3<sup>rd</sup> ed.). New York: McGraw-Hill.
- Osipow, S. H. (1999). Assessing career indecision. *Journal of Vocational Behavior*, 55(1), 147-154.
- Oyler, J. D. (2007). Core self-evaluations and job satisfaction: The role of organizational and community embeddedness. Retrieved September, 27, 2011 from <http://scholar.lib.vt.edu/theses/available/etd-10242007-153627/>
- Page, J., Bruch, M. A., & Haase, R. F. (2008). Role of perfectionism and five-factor model traits in career indecision. *Personality and Individual Differences*, 45(8), 811-815.
- Patton, W., & Creed, P. A. (2001). Developmental issues in career maturity and career decision status. *The Career Development Quarterly* 49(4), 336-351.
- Patton, W., & Creed, P. A. (2002). The relationship between career maturity and work commitment in a sample of Australian high school students. *Journal of Career Development*, 29(2), 69-85.
- Pečjak, S., & Košir, K. (2007). Personality, motivational factors and difficulties in career decision-making in secondary school students. *Psihologijske Teme*, 16(1), 141-158.
- Peng, C. Y. J., & So, T. S. H. (2002). Logistic regression analysis and reporting: A primer. *Understanding Statistics*, 1(1), 31-70.
- Pienaar, J., & Sieberhagen, C. (2005). Burnout and engagement of student leaders in a higher education institution. *South African Journal of Higher Education*, 19(1), 155-166.
- Porter, S. H. (2007). Undoing circumscription: The effect of critical career counseling ingredients on the expansion of woman's career choices. Retrieved October 14, 2011 from [http://gateway.proquest.com/openurl%3furl\\_ver=z39.882004%26resdat=xri:pqdiss%26rftvalfmt=info:ofi/fmt:kev:mtx:dissertation%26rftdat=xri:pqdiss:3287019index.htm](http://gateway.proquest.com/openurl%3furl_ver=z39.882004%26resdat=xri:pqdiss%26rftvalfmt=info:ofi/fmt:kev:mtx:dissertation%26rftdat=xri:pqdiss:3287019index.htm)

- Rathge, R., Mullis, R., & Mullis, A. (1988). Career choices of North Dakota adolescents: *Major influences*. *Farm Research*, 46(1), 25-27.
- Redwine, T. D. (2009). *An examination of factors influencing the career decision-making ability of students in the college of agricultural sciences and natural resources at Texas Tech University*. Retrieved May 18, 2011, from <http://hdl.handle.net/2346/ETD-TTU-2009-12-291>
- Reece, E. J. (2011). *Stress and career indecision: A comparison of senior athletes and non-athletes*. Retrieved October 22, 2011 from <http://ecommons.txstate.edu/psycyad/8>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Ross, S. E., Niebling, B. C., & Heckert, T. (1999). Sources of stress among college students. *College Student Journal*, 33(2), 312-317.
- Rowland, K. D. (2004). Career decision-making skills of high school students in the Bahamas. *Journal of Career Development*, 31(1), 1-13.
- Saka, N., Gati, I., & Kelly, K. R. (2008). Emotional and personality-related aspects of career-decision-making difficulties. *Journal of Career Assessment*, 16(4), 403-424.
- Salami, S. O. (2004). Effects of problem-solving technique and anxiety management training on career indecision of school-going adolescents in Nigeria. *Journal of Psychology in Africa*, 14(2), 139-135.
- Salami, S. O., & Aremu, A. O. (2007). Impact of parent-child relationship on the career development process of high school students in Ibadan, Nigeria. *Career Development International*, 12(7), 596-616.
- Salanova, M., Schaufeli, W., Martínez, I., & Bresò, E. (2009). How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety, Stress & Coping*, 23(1), 1-18.
- Sandler, M. E. (2000). Career decision-making self-efficacy, perceived stress, and an integrated model of student persistence: A structural model of finances, attitudes, behavior, and career development. *Research in Higher Education*, 41(5), 537-580.
- Santos, P. J. (2001). Predictors of generalized indecision among Portuguese secondary school students. *Journal of Career Assessment*, 9(4), 381-396.
- Schaufeli, W. B. (2003). Past Performance and Future Perspectives of Burnout Research. *South African Journal of Industrial Psychology*, 29(4), 1-15.

- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3), 293-315.
- Schaufeli, W. B., & Salanova, M. (2007). Efficacy or inefficacy, that's the question: Burnout and work engagement, and their relationships with efficacy beliefs. *Anxiety, Stress, and Coping*, 20(2), 177-196.
- Schaufeli, W. B., Martínez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-cultural Psychology*, 33(5), 464-481.
- Schaufeli, W. B., Salanova, M., González-Romà, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3(1), 71-92.
- Scott, A. B., & Ciani, K. D. (2008). Effects of an undergraduate career class on men's and women's career decision-making self-efficacy and vocational identity. *Journal of Career Development*, 34(3), 263-285.
- Simmons, A. N. (2008). A reliable sounding board: Parent involvement in students' academic and career decision making. *NACADA Journal*, 28(2), 33-43.
- Smith, R. M. (2011). *Personality traits and career decidedness: An empirical study of university students*. Retrieved October 22, 2011 from [http://trace.tennessee.edu/utk\\_graddiss/1027](http://trace.tennessee.edu/utk_graddiss/1027)
- SPSS Inc. (2009). *SPSS 12.0 for Windows*. Chicago, IL: Author.
- Staff, J., Harris, A., Sabates, R., & Briddell, L. (2011). Uncertainty in early occupational aspirations: Role exploration or aimlessness?. *Social Forces*, 89(2), 1-25.
- Struwig, F. W., & Stead, G. B. (2001). *Planning, designing and reporting research*. South Africa: Pearson Education South Africa.
- Swift, J. (2009). *Education and employment: The influences on young people's career decision making in Antigua and the UK*. Retrieved October 28, 2011 from <http://eprints.hud.ac.uk/7064/>
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using Multivariate Statistics* (4<sup>th</sup> ed.). Boston, MA: Allyn and Bacon.
- Talib, M. A., & Aun, T. K. (2009). Predictors of career indecision among Malaysian undergraduate students. *European Journal of Social Sciences*, 8(2), 215-224.

- Taylor, B. C. (2007). *The impact that career guidance counselling has on the level of career indecision of high school students in the Bahamas*. Unpublished doctoral thesis, University of South Carolina, South Carolina, United States of America.
- Tien, H. S. (2001). Career decision-making difficulties perceived by college students in Taiwan. *Bulletin of Educational Psychology and Counseling*, 33(1), 87-98.
- Tien, H. S., Lin, C. & Chen, S. (2005). A grounded analysis of career uncertainty perceived by college students in Taiwan. *Career Development Quarterly*, 54(2), 162-174.
- Tokar, D. M., Fischer, A. R., & Subich, L. M. (1998). Personality and vocational behavior: A selective review of the literature, 1993–1997. *Journal of Vocational Behavior*, 53(2), 115-153.
- Tokar, D. M., Withrow, J. R., Hall, R. J., & Moradi, B. (2003). Psychological separation, attachment security, vocational self-concept crystallization and career indecision: A structural equation analysis. *Journal of Counseling Psychology*, 50(1), 3-19.
- Trevor-Roberts, E. (2006). Are you sure? The role of uncertainty in career. *Journal of Employment Counseling*, 43(3), 98-116.
- Trochim, W., & Donnelly, J. P. (2007). *The research methods knowledge base*. (3<sup>rd</sup> ed.). Mason, OH: Thomson Publishing.
- Wong, S. C., & Liu, G. J. (2009). Will parental influences affect career choice? Evidence from hospitality and tourism management students in China. *International Journal of Contemporary Hospitality Management*, 22(1), 82-102.
- Wortman, P. M., & Napoli, A. R. (1996). A meta-analysis of the impact of academic and social integration on persistence of community college students. *Journal of Applied Research in the Community College*, 4(1), 5-21.
- Zhou, D., & Santos, A. (2007). Career decision making difficulties of British and Chinese international university students. *British Journal of Guidance and Counseling*, 35(2), 219-235.

## **CHAPTER 3**

### **CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS**

The purpose of this chapter is to discuss the conclusions drawn from the study objectives and the results. The limitations of the study are discussed and recommendations for the organisation and future research are presented.

#### **3.1 CONCLUSIONS**

The general objective of this study was to investigate the antecedents of career uncertainty and to compare students with low and high career uncertainty. The specific objectives were to 1) conceptualise the antecedents of career uncertainty according to the literature; 2) determine whether socio-demographics (gender, career guidance, help from parents, help from others and work experience) are significant predictors of career uncertainty; 3) determine whether personality characteristics (self-esteem, self-efficacy and neuroticism) are significant predictors of career uncertainty; 4) determine whether career decision-making difficulties are significant predictors of career uncertainty; 5) determine whether student burnout and student engagement are significant predictors of career uncertainty; 6) determine whether academic performance is a significant predictor of career uncertainty; and 7) make recommendations for future research.

The first objective of the research was to conceptualise the antecedents of career uncertainty according to the literature. Career uncertainty is defined as “any factors that make an individual feel uncertain of his/her career future” (Tien, Lin & Chen, 2005, p. 2). Career uncertainty occurs when the individual experiences difficulties during the decision-making process (Jordaan, Smithard & Burger, 2009; Tien et al., 2005). Researchers explain that career uncertainty is feelings or emotions that individuals have about their career prospects which lead to career indecision (Elaydi, 2006; Jordaan et al., 2009). Therefore career uncertainty is seen as a causative variable of career indecision (Elaydi, 2006).



According to the literature, individuals who experience career uncertainty/indecision should not be regarded as a homogeneous group. The level of uncertainty/indecision experienced differs between individuals and the causes thereof are unique to each individual (Gordon & Meyer, 2002). The problems and reasons for career uncertainty are termed predictors. The antecedents of career uncertainty found in the literature and included in this study were internal predictors, for example socio-demographic characteristics, (gender, career guidance, help from parents, help from others and work experience), personality characteristics (self-esteem, self-efficacy and neuroticism) and external factors such as career decision-making difficulties, student burnout, student engagement and academic performance.

The second objective of the study was to determine whether socio-demographics (gender, career guidance, help from parents, help from others and work experience) are significant predictors of career uncertainty. The literature demonstrates that career indecision differs between males and females. Previous research suggests that male students experience fewer difficulties during the decision-making process (Zhou & Santos, 2007). In the literature it was found that female students experience more career uncertainty/indecision than male students (Creed, Prideaux & Patton, 2005; Staff, Harris, Sabates & Briddell, 2011; Talib & Aun, 2009). Career guidance was also found to influence the level of career uncertainty. According to the literature, students benefit from career guidance in the decision-making process (Essig, 2010), and students who do not receive guidance report that career guidance would assist them in making a career decision (Mhlongo, 2009). Furthermore, researchers explain that parents influence the career development of students. Previous research suggests that parents contribute to students' career development which impacts on the level of career uncertainty/indecision they experience (Feldman, 2003; Simmons, 2008). In line with this, individuals other than parents also influence students' decision making. Researchers explain that students are influenced by friends and teachers (Myburg, 2005; Swift, 2009), and in some cases, community and their church (Mhlongo, 2009). Furthermore, it is reported in the literature that work experience has an influence on career uncertainty. Researchers have found that individuals with work experience have less career indecision/uncertainty in comparison to individuals with no work experience (Creed et al., 2005; Talib & Aun, 2009).

The results of this study were not in line with previous research findings. Chi-square tests were used to determine whether there is a significant relationship between socio-demographic characteristics and career uncertainty. Of all the variables, statistically significant differences were found only for work experience. In total, 74,60% of the participants did not have work experience. Of these, 59,60% were certain and 15,00% were uncertain. Of the 25,40% of the participants who had work experience, 23,10% were certain and only 2,30% were uncertain. Furthermore, work experience was significant in the first step of the logistic regression model. This finding implies that individuals who have work experience, more knowledge about tasks and responsibilities and more knowledge about the world of work before making a decision about a specific career, experience less career uncertainty. Previous research supports the finding that individuals experience less career indecision when they have work experience. Moreover, Creed et al. (2005) report that individuals who are uncertain about their career choice have less paid work experience than individuals who are decided about their career. Although work experience is a significant predictor according to the literature and was significant in the first step of the logistic regression model, it was not significant at a later stage when the other constructs were entered into the model – for that reason work experience is related to career uncertainty only to some degree.

The third objective of this study was to determine whether personality characteristics (self-esteem, self-efficacy and neuroticism) are significant predictors of career uncertainty. ANOVA analysis was used to determine whether the relationship exists. Statistically significant differences were found for self-esteem, self-efficacy and neuroticism on a  $p < 0,01$  level. Although all the personality characteristics were significant in the ANOVA analyses, only self-esteem was significant in the first steps of the logistic regression model. High self-esteem is the belief individuals have that their contribution is valuable. Research supports this finding – Tokar, Ficher and Subich (1998) found that individuals with low self-esteem are incapable of accurately evaluating their own capabilities. Additionally, researchers found that individuals with low self-esteem are hesitant to explore career possibilities and that they get the wrong idea when information is provided about possible options (Callanan & Greenhaus, 1992). It should be noted that self-esteem was not significant after the other predictors had been entered into the model; nevertheless, career uncertainty is associated with self-esteem to some extent.

The fourth objective of the study was to determine whether career decision-making difficulties are significant predictors of career uncertainty. The career decision-making difficulties consist of three clusters namely lack of readiness, lack of information and inconsistent information. The lack of readiness cluster was not included in further analyses due to poor validity. The ANOVA analysis was used to determine the differences for career uncertainty between lack of information and inconsistent information. A statistically significant relationship was found for both dimensions on a  $p \leq 0,01$  level.

In the logistic regression model, the sub-categories of lack of information that were significant were lack of information about the decision-making process, lack of information about occupations and lack of information about ways of obtaining information. Therefore when individuals experience lack of information about the decision-making process, they have limited knowledge about how to make a decision. Individuals may have trouble combining knowledge they have about themselves and knowledge about career options. This could lead to career uncertainty because they need more information on the steps involved in the process. Also, when individuals experience lack of information about occupations, it shows they have limited knowledge about occupational options and the world of work. They could be unaware of the different options within a specific career field or be uncertain about the career alternatives that exist. Lack of information about ways of obtaining information reveals that individuals have limited information to assist them in the decision-making process, which could lead to intensified career uncertainty (Gati & Osipow, 2010). Previous research on the broad dimensions of career decision-making supports this finding. Albion and Fogarty (2005) reported that individuals' career uncertainty is influenced by lack of information. Pečjak and Košir (2007) reported that uncertain students experience lack of information during the decision-making process, and Mau (2001) found that lack of information has an impact on career decision status.

Subscales of the inconsistent information dimension that were significant in the logistic regression analysis were internal conflict and external conflict. Inconsistent information due to internal conflict reveals that individuals are confused because there is opposing information that could influence their choice. Also, inconsistent information due to external conflict occurs when significant others influence the individual. Previous research on the dimensions of career

decision-making found that students who changed their major subjects had inconsistent information in the decision-making process (Redwine, 2009). Additionally, research by Albion and Fogarty (2005) and Pečjak and Košir's (2007) provides evidence that inconsistent information affects students' decision status.

The fifth objective of the study was to determine whether student burnout and student engagement are significant predictors of career uncertainty. ANOVA analysis was used to determine whether a significant relationship exists. A statistically significant relationship was in fact found for student burnout and student engagement on a  $p < 0,01$  level. The core constructs of student burnout and engagement, namely exhaustion and cynicism and vigour and dedication were entered into the logistic regression model. Only exhaustion, cynicism and dedication were significant predictors of career uncertainty in the final step of the model. Therefore, students who experience exhaustion are physically and emotionally exhausted from their studies, which influences their career decision status. Hinkelman and Luzzo (2007) found that psychological distress might increase career uncertainty, and Tien et al. (2005) reported that exhaustion is experienced while students are feeling uncertain about their career. Cynicism is experienced when students lack optimism and withdraw from their work. Stress experienced by students due to their studies could lead them to become discouraged, and this will influence their career uncertainty. Tien et al. (2005) found that students experience cynicism when feeling uncertain about their career. Dedication is experienced when students are motivated towards their studies, and a lack of motivation may result in career uncertainty. Previous research supports this finding as students feel discouraged when they experience career uncertainty (Tien et al., 2005). Konstam and Lehmann (2011) also found that when career indecision is experienced, individuals have lower work engagement.

The sixth objective was to determine whether academic performance is a significant predictor of career uncertainty. ANOVA analysis was used to determine whether a relationship exists. A statistically significant relationship between career uncertainty and academic average was found on a  $p \leq 0,05$  level. However, in the logistic regression model, academic average was not significant in the last step of the model. Nevertheless, researchers found that poor academic performance could influence the career decision-making process (Borchert, 2002; Kahn, Nauta,

Gailbreath, Tipps & Chartrand, 2002). Tien et al. (2005) also found that low scores on college admissions tests was a cause of career uncertainty.

### **3.2 LIMITATIONS OF THIS RESEARCH**

Although the research showed interesting results, some limitations should be noted. Firstly, the research method used was a non-probability quota sample. The disadvantage of this sampling method is that it may not always represent the population accurately. Some information may be over-exaggerated due to the availability of the sample population and the results may also not be true for all individuals who experience career uncertainty. Besides, individuals with career uncertainty may experience other predictors that are dissimilar to the results indicated. The results of this study cannot therefore be generalised to a larger population.

In line with this factor, the cross-sectional research design used is another limitation (Fogarty & McGregor-Bayne, 2008; Kelly & Shin, 2008). A cross-sectional design is used to gather information at one point in time over a short period such as one day or a few weeks. It was used to assess the interrelationships among variables to achieve the objectives of this study (Struwig & Stead, 2001; Trochim & Donnelly, 2008). The disadvantage of this design is that it does not provide information on how events progress over time. Individuals might adjust to the difficulties they experience during career decision making, which will cause the predictors to change. Therefore the causality of the relationship between the predictors and career uncertainty could not be determined.

Thirdly, the focus of the study was entirely on a student sample at one university. The predictors of career uncertainty/indecision may differ for students from other universities and also differ between full-time students and individuals in the workplace (Amir & Gati, 2006; Redwine, 2009). For this reason it is creates a difficulty in generalising the results of this study to students from other universities and to the organisational context.

Fourthly, cynicism was measured with only two items after two items were removed. This affects the reliability of the cynicism scale and therefore the results obtained from the cynicism scale should be interpreted with caution.

Another aspect is that the study sample was racially relatively homogeneous (Gati & Amir, 2010; Nauta, 2011). Although this reflected the general composition of this campus of the university, the results may not be true for all students in the South African context. Individuals from other language and ethnic groups may have other causes of career uncertainty. Furthermore, the predictors of career uncertainty found in this study may not be comparable with those in other language or ethnic groups.

A final limitation is that the results were obtained through self-report measures (Di Fabio & Palazzeschi, 2009; Koumoundourou, Tsaousis & Kounenou, 2011). This could lead to the problem of method bias, namely “common method-variance”. Self-report measures are the perceptions that individuals have of the constructs, and the difficulty arises of distinguishing between the perceptions of the individuals and the actual constructs that are being measured. More objective measures could be included in future studies to investigate the causal factors of career uncertainty.

### **3.3 RECOMMENDATIONS**

#### **3.3.1 Recommendations for practice**

Based on the results of this study, recommendations can be made for individuals, universities and career counsellors. Firstly, career counsellors could benefit from the results and incorporate them in their career guidance processes. Also, if career uncertainty leads students to view school or university dropout and change in study course as their options, the causes of uncertainty need to be identified as students may adjust to the difficulties over time. Secondly, all university faculties should provide information to students on where to find a career guidance counsellor and on all possible courses of study. Moreover, universities should provide students with information on career uncertainty and on career guidance by a university career guidance counsellor to prevent

any possible dropout or delay in university graduation. Career counsellors should determine the effect that career indecision has on an individual because it could effect his or her career development in future. Finally, career counsellors need to identify the resources or information students need to overcome any possible career decision-making difficulties they might experience.

### **3.3.2. Recommendations for future research**

Notwithstanding the limitations discussed above, recommendations can be made for future research. The objective of this study was to investigate the antecedents of career uncertainty; however, it is recommended that longitudinal research be conducted to determine the effect that career uncertainty has on individuals. In previous research it was found necessary to further study the results of vocational indecision (Germeijs, Verschuerin & Soenens, 2006). Future research could explore whether student burnout and engagement could be possible outcomes of career uncertainty and the long-term effects they may have on individuals and within the organisational context. It is likely that students who are uncertain of their vocation will not be as engaged as decided students. Hirschi, Niles & Akos (2010) found that student engagement positively predicts vocational decidedness and goal setting. Reece (2011) found that there is a relationship between stress and vocational indecision. The higher the vocational indecision levels, the higher the stress levels. According to Kuhn, Goldberg and Compton (2008) uncertainty relates to burnout due to the anxiety and stress experienced. For this reason student burnout and engagement as outcomes of career uncertainty should be explored.

Another aspect which future research can focus on is the other predictors of career uncertainty found in literature but which were not included in this study. Apart from the predictors used in the study, the most predominant antecedents cited in the literature include anxiety (Campagna & Curtis, 2007; Germeijs et al., 2006) and locus of control (Feldman, 2003; Saka, Gati & Kelly, 2008). These may provide additional information for career guidance counsellors to create a profile for students who experience career uncertainty. Future research can also investigate whether these antecedents have long-term effects which hinder the individual in the organisation and relate to the problem of person-job fit.

Of the three dimensions of career decision-making difficulties, this study focused only on two, namely lack of information and inconsistent information. This was due to the problem of the validity of the other dimension (lack of readiness). Two items in the lack of motivation scale, one item in the general indecisiveness scale and one item in the dysfunctional beliefs scale had very low communalities (ranging between 0,16 and 0,20). In addition, the dysfunctional beliefs scale did not load on the higher-order “readiness” scale. As a result of these problems, it was decided to discard the lack of readiness dimension from subsequent analyses and only include the other two dimensions (i.e. lack of information and inconsistent information). Future research should study the validity of the lack of readiness dimension and explore the career decision-making difficulties that students experience within this dimension. Furthermore, in order to minimise career uncertainty and career indecision, future studies can explore what students need and find useful to eliminate or reduce difficulties experienced with lack of readiness, lack of information and inconsistent information. More knowledge may help to create interventions for career-undecided individuals who experience decision-making difficulties in order to reduce dropout rates and delayed graduation.

One of the results of this study was that personality characteristics (self-esteem, self-efficacy, and neuroticism) were not found to be significantly related to career uncertainty in the final steps of the logistic regression model. Nevertheless, it is recommended that future studies continue to investigate the possible association between these characteristics and career uncertainty because previous studies have found a relationship between personality characteristics and career uncertainty/indecision (Creed et al., 2005; Germeijs & De Boeck, 2002; Kelly & Pulver, 2003). Knowledge of the personality characteristics may provide more information on the reason why students experience career uncertainty during their years of study and why adult employees experience career uncertainty within the workplace and problems with organisational adjustment. Moreover, given that a number of items that were problematic and only four items per scale were used during the analysis, the results pertaining to the personality characteristics should be interpreted with caution. Future research should investigate the possible reasons for underlying problems and examine the validity of other scales measuring personality characteristics that are suitable for students.



## REFERENCES

- Albion, M. J., & Forgarty, G. (2005). Career decision-making for young elite athletes: Are we ahead on points? *Australian Journal of Career Development*, 14(1), 1-30.
- Amir, T., & Gati, I. (2006). Facets of career decision-making difficulties. *British Journal of Guidance and Counselling*, 34(4), 483-503.
- Borchert, M. (2002). *Career choice factors of high school students*. Unpublished masters dissertation, University of Wisconsin-Stout, Wisconsin, United States of America.
- Callanan, G. A., & Greenhaus, J. H. (1992). The career indecision of managers and professionals: An examination of multiple subtypes. *Journal of Vocational Behavior*, 41(3), 212-231.
- Campagna, C. G., & Curtis, G. J. (2007). So worried I don't know what to be: Anxiety is associated with increased career indecision and reduced career certainty. *Australian Journal of Guidance and Counselling*, 17(1), 91-96.
- Creed, P., Prideaux, L., & Patton, W. (2005). Antecedents and consequences of career decisional states in adolescence. *Journal of Vocational Behavior*, 67(3), 397-412.
- Di Fabio, A., & Palazzeschi, L. (2009). Emotional intelligence, personality traits and career decision difficulties. *International Journal of Educational Vocational Guidance*, 9(2), 135-146.
- Elydi, R. (2006). Construct development and measurement of indecisiveness. *Management Decision*, 44(10), 1363-1376.
- Essig, G. N. (2010). Relative effectiveness of information giving and therapeutic assessment models in reducing career indecision. Retrieved August, 31, 2010 from [http://www.purdue.edu/policies/pages/teach\\_res\\_outreach/viii\\_3\\_1.html](http://www.purdue.edu/policies/pages/teach_res_outreach/viii_3_1.html)
- Feldman, D. C. (2003). The antecedents and consequences of early career indecision among young adults. *Human Resource Management Review*, 13(3), 499-531.
- Fogarty, G. J., & McGregor-Bayne, H. (2008). Factors that influence career decision making among elite athletes. *Australian Journal of Career Development*, 17(3), 26-38.
- Gati, I., & Amir, T. (2010). Applying a systemic procedure to locate career decision-making difficulties. *The Career Development Quarterly*, 58(4), 301-320.

- Gati, I., & Osipow, S. H. (2010). *Abridged professional manual for the career decision-making difficulties questionnaire*. Retrieved November 15, 2011, from <http://go.to.cddq>.
- Germeijs, V., & De Boeck, P. (2002). A measurement scale for indecisiveness and its relationship to career indecision and other types of indecision. *European Journal of Psychological Assessment, 18*(2), 113-122.
- Germeijs, V., Verschueren, K., & Soenens, B. (2006). Indecisiveness and high school students' career decision-making process: Longitudinal associations and the meditational role of anxiety. *Journal of Counseling Psychology, 53*(4), 397-410.
- Gordon, L., & Meyer, J. C. (2002). Career indecision amongst prospective university students. *South African Journal of Psychology, 32*(4), 41-47.
- Hinkelman, J. M., & Luzzo, D. A. (2007). Mental health and career development of college students. *Journal of Counseling and Development, 85*(2), 143-147.
- Hirschi, A., Niles, S., & Akos, P. (in press). Engagement in adolescent career preparation: Social support, personality and development of choice decidedness and congruence. *Journal of Adolescence*.
- Jordaan, Y., Smithard, C., & Burger, E. (2009). Comparing levels of career indecision among selected honours degree students at the university of Pretoria. *Meditari Accountancy Research, 17*(2), 85-100.
- Kahn, J. H., Nauta, M. M., Gailbreath, R. D., Tipps, J., & Chartrand, J. M. (2002). The utility of career and personality assessment in predicting academic progress. *Journal of Career Assessment, 10*(1), 3-23.
- Kelly, K. R., & Pulver, C. A. (2003). Refining measurement of career indecision types: A validity study. *Journal of Counseling and Development, 81*(4), 445-454.
- Kelly, R., & Shin, Y. (2008). Relation of neuroticism and negative career thoughts and feelings to lack of information. *Journal of Career Assessment, 17*(2), 201-213.
- Konstam, V., & Lehmann, I. S. (2011). Emerging adults at work and at play: Leisure, work engagement, and career indecision. *Journal of Career Assessment, 19*(2), 151-164.
- Koumoundourou, G., Tsaousis, I., & Kounenou, K. (2011). Parental influences on Greek adolescents' career decision-making difficulties: The mediating role of core self-evaluations. *Journal of Career Assessment, 19*(2), 165-182.

- Kuhn, G., Goldberg, R., & Compton, S. (2008). Tolerance for uncertainty, burnout and satisfaction with the career of emergency medicine. *Annals of Emergency Medicine*, 54(1), 106-119.
- Mau, W. (2001). Assessing career decision-making difficulties: A cross-cultural study. *Journal of Career Assessment*, 9(4), 353-364.
- Mhlongo, Z. S. (2009). *Family influence on career decision by black first-year students at the university of KwaZulu-Natal: A qualitative study*. Unpublished masters dissertation, University of KwaZulu-Natal, Pietermaritzburg, South Africa.
- Myburg, J. E. (2005). An empirical analysis of career choice factors that influence first-year accounting students at the University of Pretoria: a cross-racial study. *Meditari Accountancy Research*, 13(2), 35-48.
- Nauta, M. M. (2011). Temporal stability, correlates, longitudinal outcomes of career indecision factors. Retrieved October 28, 2011 from <http://jcd.sagepub.com/content/early/2011/04/26/0894845311410566>
- Pečjak, S., & Košir, K. (2007). Personality, motivational factors and difficulties in career decision-making in secondary school students. *Psihologijske Teme*, 16(1), 141-158.
- Redwine, T. D. (2009). *An examination of factors influencing the career decision-making ability of students in the college of agricultural sciences and natural resources at Texas Tech University*. Retrieved May 18, 2011, from <http://hdl.handle.net/2346/ETD-TTU-2009-12-291>
- Reece, E. J. (2011). *Stress and career indecision: A comparison of senior athletes and non-athletes*. Retrieved October 22, 2011 from <http://ecommons.txstate.edu/psycyad/8>
- Saka, N., Gati, I., & Kelly, K. R. (2008). Emotional and personality-related aspects of career-decision-making difficulties. *Journal of Career Assessment*, 16(4), 403-424.
- Simmons, A. N. (2008). A reliable sounding board: Parent involvement in students' academic and career decision making. *NACADA Journal*, 28(2), 33-43.
- Staff, J., Harris, A., Sabates, R., & Briddell, L. (2011). Uncertainty in early occupational aspirations: Role exploration or aimlessness?. *Social Forces*, 89(2), 1-25.
- Struwig, F. W., & Stead, G. B. (2001). *Planning, designing and reporting research*. South Africa: Pearson Education South Africa.

- Swift, J. (2009). *Education and employment: The influences on young people's career decision making in Antigua and the UK*. Retrieved October 28, 2011 from <http://eprints.hud.ac.uk/7064/>
- Talib, M. A., & Aun, T. K. (2009). Predictors of career indecision among Malaysian undergraduate students. *European Journal of Social Sciences*, 8(2), 215-224.
- Tien, H. S., Lin, C., & Chen, S. (2005). A grounded analysis of career uncertainty perceived by college students in Taiwan. *Career Development Quarterly*, 54(2), 162-174.
- Tokar, D. M., Fischer, A. R., & Subich, L. M. (1998). Personality and vocational behavior: A selective review of the literature, 1993–1997. *Journal of Vocational Behavior*, 53(2), 115-153.
- Trochim, W., & Donnelly, J. P. (2007). *The research methods knowledge base*. (3<sup>rd</sup> ed.). Mason, OH: Thomson Publishing.
- Zhou, D., & Santos, A. (2007). Career decision making difficulties of British and Chinese international university students. *British Journal of Guidance and Counseling*, 35(2), 219-235.