# Factors influencing the career choice of undergraduate students at a historically disadvantaged South African university

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***Abstract:*** *During the apartheid years in South Africa, career guidance amongst disadvantaged learners was largely absent and, for many, career choices were limited and governed by politics. Despite South Africa having celebrated 20 years of democracy, this situation has improved only slightly. Therefore, the aims of the study were to determine the factors that influenced students' career choice and to ascertain the possible barriers that impacted their decision. An adapted version of Myburgh's Career Choices Questionnaire (2005) was administered to 721 undergraduate students. The results showed that parents and loans or bursaries were the largest sources of financial support and that anticipated benefits influenced the students' career choice, with the potential for personal growth and development, for future high earnings and for promotion to the top of the organization the most important among these. Furthermore, participants rated visits from lecturers and brochures as the most prominent sources of influence.*

***Keywords:*** *barriers; career choice; opportunities; South Africa; tertiary institution*

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In apartheid South Africa, the various race groups were faced with disparate realities, differing career options and exclusivity, and different opportunities for educational and career options. As a consequence, career counselling and guidance were also unequal; and legislation such as the Job Reservation Act of 1961 blocked the career aspirations of Black people (Nicholas *et al*, 1999).[1]

In post-apartheid South Africa, despite the fact that discriminatory legislation has been removed and enabling legislation passed, the issue of career guidance – or lack thereof – still remains evident, particularly in

the previously disadvantaged schools. Nevertheless, a limited number of initiatives have been established, such as the Nelson Mandela Career Guidance Campaign in 2010, that targeted rural students and imparted information on tertiary institutions, courses and training opportunities, and financial aid and bursary schemes (Makoni, 2010).

## Trends from the research literature

For most people, career development entails a lifelong process of engaging the world of work through choosing employment opportunities that are made available to them, influenced by many factors. With adolescents, a major turning point in their lives involves the decisions they make while at high school (that is, pre-tertiary level education). The importance of this decision-making process is often underestimated; however, it plays a major role in setting a career path that will either close or open opportunities (Ferry, 2006).

When career theories are considered, the traditional theories such as those of Super and Holland were questioned by a number of researchers in South Africa. Stead and Watson (1998a; 1998b) queried the appropriateness to South Africans, particularly Black South Africans, of research concepts and career theories that emanated from the West. Certain suggestions were made to improve the measure by re-examining and redefining Super's theoretical concepts such as developmental stages, career maturity and decision making (Stead and Watson, 1998a). This development started around 1990 when researchers started questioning the relevance of these theories to the South African population. Naicker (1994) questioned the omission of socio-cultural factors in career research and the validity thereof. Van Niekerk and Van Daalen (1991) focused on Super's research and queried the appropriateness of the developmental stages amongst Black South Africans, who seldom had opportunities to enjoy long term careers. Stead and Watson (1998a) concluded that:

> 'Researchers need to utilize and integrate findings from other countries in their own research, but they should also focus on the career issues pertinent to South Africa such as unemployment, economic factors, career barriers, school to work transition, and the role of culture in career choice.' (Stead and Watson, 1998a, p 296)

Rousseau and Venter (2009) developed a more appropriate model, related to career choice, which included three components influencing goal setting, goal progress and eventual career choice, namely individual, environmental and situational variables. Individual variables refer to talents, interests and personality. Environmental variables relate to the demand of job skills and knowledge, job opportunities, business opportunities, part-time experiences and availability of tertiary education institution. Situational variables refer to present conditions that may influence career choice such as peer pressure, advice from family members, mother's and father's educational level and socio-economic status, and willingness to relocate in cases of global assignments.

According to Schreuder and Coetzee (2006), the choice of occupation was often dictated more by situational variables (socio-economic and historical) than by personality or job opportunities. Thus, people with few or unmarketable skills and qualifications were often dependant on whatever employment they could get. Research on career and career choice therefore did not focus on this group, but rather on people/groups where choosing a career was based on a rational decision making process, weighing up alternatives.

In South Africa, students entering university came from a diverse background, socially and culturally. This gave them different life and educational experiences and resulted in a wide variety of needs, expectations and academic potential (Fraser and Killen, 2003). Research conducted by Jawitz and Case (1998) attempted to determine whether the factors influencing career choice differed from those identified in studies conducted in the USA. They found that in addition to the factors outlined in the US studies the social identity category was given specific focus, and this reflected the specific issues related to the South African context. Reed and Case (2003) examined race and gender differences among first year engineering students at a South African university and found significant differences in the reasons given by male and female students and Black and White students entering the profession. Riordan (2008; cited in Rousseau and Venter, 2009), in a qualitative study of developing mid-career academic women, found that universities ignored social–cultural constraints placed on women, and that more resources were needed – for example for family responsibilities. Miji (2002) found that students entered university education because it offered opportunities to develop and enabled them to get a good job; however, lack of career guidance at school was identified as a problem. In a cross cultural study at a South African university amongst accounting students, Myburgh (2005) found that school performance, and the advice given by parents, relatives and school teachers, greatly influenced the students' decisions to become Chartered Accountants. However, the groups differed in terms of

the perceived barriers because the Black students identified the cost of qualifying as the major factor while Asian and White students identified the difficulty of qualifying. Rousseau and Venter (2009) found that the most important factors affecting career choice were cognitive competence, work values and education and training. Mashige and Oduntan (2011) reported that job availability, subjects passed in 'matric' and the desire to help others influenced the students at a South African university to study optometry.[2] Shumba and Naong (2012) reported that family, the ability of the learner to identify their own preference in terms of career choice, and teachers were significant with regard to having an influence on the career choice and aspirations of South African students. Mudhovozi and Chireshe (2012) examined the socio-economic factors that affected career choice amongst psychology students at a South African university who had attended rural situated public schools. They found that parents, teachers and friends were the major influencers when choosing psychology as a career.

In the USA and other Western countries various studies have examined the influences on career choices of high school and university students. Research by Chope (2005); Dick and Rallis (1991) and Ferry (2006) found that parents, teachers and communities were instrumental in influencing the career choice of high school students. In terms of specific careers, availability of employment and earning potential were recognised as the most important influences for university students choosing accounting as their chosen profession (Lowe and Simons, 1997; Paolillo and Estes, 1982). Quimby and DeSantis (2006) examined gender differences and found that role models influenced the career choice of females. A study by Behrend *et al* (2007) suggested that when choosing a specialization amongst medical students, women valued opportunities to provide comprehensive care more than men.

In non-Western countries, similar and different patterns emerged. In a study by Agarwala (2008) of MBA students from India, it was found that skills, competencies and abilities were the most common factors and 'father' the most significant individual influencing the career choice of these students. Salami (2007) examined the factors influencing career orientations at secondary schools in Nigeria and found that career aspirations was the most important factor that influenced career orientation, followed by gender–role stereotypes and then family involvement. Focusing on career development amongst senior secondary schools in Nigeria, Obiunu and Ebunu (2010) reported that career development was affected by a number of factors that included psychological, sociological, educational, hereditary and economic variables. A study by Stephen and Makotose (2007) of female engineering students at a Polytechnic revealed that despite the negative influences from parents, peers and societal labelling, sheer interest in engineering caused these students to choose this particular career. Edwards and Quinter (2011) found that advancement opportunities and learning experiences were the most important factors affecting career choice amongst secondary school students in Kenya. A study by Korir and Wafula (2012) of hospitality management students in Kenya found that the majority of students were influenced by opportunities and environmental factors when choosing a career.

Mwachaka and Mbugua (2010) also focused on female students studying paediatrics and found that career choice was predominately influenced by the perceived intellectual challenge, the presence of a role model, and the ease of combining a career and a family. Cenkseven-Önder *et al* (2010) found that parenting and parent attachment levels were important factors when career decisions were made amongst secondary school students in Turkey.

A few studies have also focused on career decision-making and personality. In a study by Pečjak and Košir (2007) of secondary school students in Slovenia, it was found that the most important predictors of students' career decision-making difficulties were a less panic-stricken and impulsive decision-making style, extraversion, emotional stability and competency in self-regulation. Lee (2005) used the *Coping with Career Indecision Questionnaire* and found that when constructing an ideal typology of career choice, cognizance needed to be taken of emotional and cognitive variables as well as the stable/unstable personality types.

To summarize: the above studies showed that there are many variables that influence the career decision-making process of students. However, the following variables featured most prominently in the literature reviewed: family, academic potential, job opportunities, and socio cultural factors.

## Research objectives

Based on the above literature, the following objectives were formulated, in order to:

- Determine whether students' perceive any discrimination against them in their chosen career
- Determine the general factors that influence students' career/ degree choice
- Ascertain the possible barriers that might impact on their career choice

**Table 1. Racial composition of sample.**

| Race | Frequency | Percentage | Cumulative percentage |
|---|---|---|---|
| Black | 389 | 54.0 | 54.0 |
| Coloured | 287 | 39.8 | 93.8 |
| Indian | 27 | 3.7 | 97.5 |
| White | 14 | 1.9 | 99.4 |
| Chinese | 2 | 0.3 | 99.7 |
| Other | 2 | 0.3 | 100.0 |
| Total | 721 | 100.0 | |

- Determine which sources of reference influence students' career choice
- Determine the factors influencing students' ultimate career goals

## Research design and methodology

*Research approach*

A quantitative approach, using a structured questionnaire and convenience sampling technique, was adopted. The questionnaire was sent to respondents who were registered in 2013 for an undergraduate course at a previously disadvantaged university in South Africa. The number of full-time students registered for 'Academic Literacy for Commerce' (ALC), in the Faculty of Economic and Management Sciences, a compulsory first year subject for all students registered in the faculty, was 1,028.

Convenience sampling was adopted because the questionnaires were administered to those who attended the ALC lectures. Seven hundred and twenty-one questionnaires were completed and returned, a 70% response rate.

The majority (95.1%) of the students who took part in the study were aged between 18 and 24. The composition of the sample according to race was: African (54%), Coloured (39.8%), Indian (3.7%), White (1.9%), Chinese (0.3%) and Other (0.3%) (see Table 1). The sample comprised 53.5% females and 46.5% males. Of the 721 participants, 37.4% had indicated English as their home language, 35.2% indicated isiXhosa and 10.8% Afrikaans. With respect to the qualifications of the respondents' parents, 25.5% of the sample indicated that their mothers had Grade 12, 18.4% a diploma, 13.9% a degree and 10.4% a postgraduate degree.[3] Similarly, most of the respondents' fathers had Grade 12 (21.4%), followed by those who had a degree (17.8%) and 14.4% had a diploma and 13.2% had a postgraduate degree. It was further noted that 30.4 % of the sample indicated that their mothers had a qualification lower than Grade 12 and similarly, 27.6% indicated that their fathers also had a qualification lower than Grade 12.

Most of the students' studies were financed by their parents (33.1%), a loan (32.7%) and/or a bursary (16.9%) (see Table 2).

*Measuring instrument*

The measuring instrument used to gather the data was an adapted version of Myburgh's *Career Choices Questionnaire* (Myburgh, 2005). The adapted version was initially piloted with 56 undergraduate industrial psychology students who did not form part of the final study. The pilot study was used to check for validity with regard to ensuring that participants understood both the questions and the instructions for completing the questionnaire. The feedback received from the pilot group was then incorporated as appropriate into the final version of the questionnaire.

The final version of the questionnaire comprised Section A, Biographical Questions; and Section B, the Adapted Career Choices scale (Myburgh, 2005). Section B contained seven subscales with 5-point Likert scale items measuring the influence on career choice in the following fields:

(1) Sources of influence (13 items: Q1.1–Q1.13);
(2) Benefits (17 items: Q2.1–Q2.17);
(3) Barriers (7 items: Q3.1–Q3.7);
(4) Time of decision (5 items: Q4.1–Q4.5);
(5) Discrimination (6 items: Q5.1–Q5.6);
(6) Ultimate goal (5 items: Q6.1–Q6.5); and
(7) Furthering studies (4 items: Q7.1–Q7.4).

*Data collection and procedure*

Once permission and ethical clearance had been obtained, arrangements were made with the ALC lecturer to administer the questionnaires during lecture periods. Data were gathered during the first and second

**Table 2. Frequency of sources financing studies.**

| Sources | Frequency | Percentage |
|---|---|---|
| Loan | 236 | 32.7 |
| Parents | 239 | 33.1 |
| Bursary | 122 | 16.9 |
| Self | 14 | 1.9 |
| Donors | 6 | 0.8 |
| Parents and loan | 35 | 4.9 |
| Parents and bursary | 29 | 4.0 |
| Parents and self | 5 | 0.7 |
| Parents and donors | 3 | 0.4 |
| Bursary and loan | 18 | 2.5 |
| Combinations of above | 13 | 1.8 |
| Total | 720 | |

semesters of the academic year. Participants were informed (in a covering letter as well as verbally) of the purpose of the study, that their participation was voluntary and responses provided would be anonymous, and that all information would be regarded in confidence. They were also told that by completing the questionnaire they were consenting to partake in the research, but that they could withdraw at any point without any repercussions.

*Statistical analysis*

The IBM SPSS Release 21 was used for an exploratory factor analysis to detect the simplified, underlying structure of the data and variables and to investigate the validity of the measurement scales. Subsequently the reliability (internal consistency as measured by Cronbach's coefficient Alpha) of these scales was established and the descriptive statistics (means, standard deviations, skewness, medians) and the individual items comprising the scales were calculated.

The construct validity of the measuring instrument was investigated by means of a factor analysis. Because (a) the inter-item correlation matrix met mathematical criteria (Bartlett's test: see Field, 2009, pp 648, 660):

$-\chi^2$ (1 540)=1, 1932.77, ($p$=00)

and because (b) the sample was adequate (Kaiser-Meyer-Olkin) and (c) the measure of sampling adequacy was 0.804, which fell within the range 0.8 to 0.9 (Field, 2009, pp 647, 659), an exploratory factor analysis was indicated.

To extract the factors, a principal component analysis was performed and varimax rotation was chosen to try to maximize the dispersion of loadings among the factors (Field, 2009). Originally, 16 components/factors were extracted that met the criterion eigenvalue $\geq 1$. These 16 factors explained 60% of the variance in the items.

To maximize the explained variance, only factors with higher eigenvalues were selected by means of a scree plot. In the present analysis, seven factors were identified that explained 33.34% of the total variance of all the items:

(1) Discrimination;
(2) Benefits – Flexibility and Prospects;
(3) Benefits – Material and Promotion;
(4) Benefits – Reputation;
(5) Sources of Influence;
(6) Barriers; and
(7) Future Studies.

Appendix Tables A1–A14 present the 7 factors, relevant variables, descriptive statistics and factor loadings.

Because constructs and factors were investigated, an appropriate measure of reliability was an index of internal consistency such as Cronbach's Alpha. These indices were calculated for the different subscales (see Tables A1–A14). Huysamen (1980, also in Foxcroft and Roodt, 2009) suggested that depending on the situation reliability indices of 0.65 and higher were acceptable.

## Results

*Subscale: Discrimination*

The factor loadings were acceptable (ranging from 0.741 to 0.831) and reliability ($\alpha$=0.88) of the subscale with 6 items was also acceptable. The skewness (0.17) did not differ too much from the 0 of a normal distribution. On average the respondents did not experience too much discrimination in terms of the variables in the subscale, with religion being the lowest (2.09) and internal politics the highest (2.76). The mean for all items was 2.41 (see Tables A1 and A2).

*Subscale: Benefits – Flexibility and Prospects*

In the original questionnaire, the importance of benefits derived from a chosen career was assessed by one scale comprising 17 items (see discussion above). Even though the alpha coefficient for the original scale was 0.82, three independent factors were extracted during the factor analysis.

The factor loadings for the 'Flexibility and Prospects' subscale were acceptable (ranging from 0.468 to 0.707) and reliability ($\alpha$=0.73) of the subscale with 6 items was also acceptable. The skewness, –0.87, did not differ too much from the 0 of a normal distribution. This meant that the respondents indicated that on average certain anticipated benefits influenced their career choice in this subscale with prospects of on the job training being the lowest (3.51) and potential for personal growth and development being the highest (4.22). The mean for all items was 4.02 (see Tables A3 and A4).

*Subscale: Benefits – Material and Promotion*

The factor loadings for the 'Benefits: Material and Promotion' subscale were acceptable (ranging from 0.485 to 0.825) and reliability ($\alpha$=0.76) of the subscale with 5 items was also acceptable. The skewness (–0.94) did not differ too much from the 0 of a normal distribution. This meant that the respondents indicated that on average certain anticipated benefits influenced their career choice in this subscale with prestige, lifestyle and social status being the lowest (3.80) and future high earnings potential being the highest (4.31).

The mean for all items was 4.23 (see Tables A5 and A6).

*Subscale: Benefits – reputation*

The factor loadings for the 'Benefits: Reputation' subscale were acceptable (ranging from 0.557 to 0.717) and reliability ($\alpha$=0.64) of the subscale with 3 items was also acceptable even though a bit on the low side. The skewness (–1.13) differed more than the other scales from the 0 of a normal distribution. This meant that the respondents indicated that on average certain anticipated benefits influenced their career choice in this subscale with size and reputation of organisation being the lowest (3.66) and promoted to the top of the organisation being the highest (4.50). The mean for all items was 4.1 (see Tables A7 and A8).

*Subscale: Sources of Influence*

The factor loadings for the 'Sources of Influence' subscale were acceptable (ranging from 0.455 to 0.734 and reliability ($\alpha$=0.72) of the subscale with 6 items was also acceptable. The skewness (0.45) did not differ much from the 0 of a normal distribution. This meant in general that the respondents did not rate the various sources of influence in the subscale beyond average with guidance counsellor being the lowest (1.95) and visits from lecturers and brochures being the highest (2.96) and the mean for all items was 2.43 (see Tables A9 and A10).

*Subscale: Barriers*

The factor loadings for the 'Barriers' subscale were acceptable (ranging from 0.640 to 0.783 and reliability ($\alpha$=0.74) of the subscale with 4 items was also acceptable. The skewness (–0.62) did not differ too much from the 0 of a normal distribution. This meant that the respondents indicated that on average barriers were seen as fairly important in this subscale with limited relaxation and free time being the lowest (3.19) and difficulty of degree being the highest (3.71). The mean for all items was 3.58 (see Tables A11 and A10).

*Subscale: Future Studies*

The factor loadings for the 'Future Studies' subscale were acceptable (ranging from 0.630 to 0.889) and reliability ($\alpha$=0.72) of the subscale with 3 items was also acceptable. The skewness (–0.58) did not differ too much from the 0 of a normal distribution. This meant that the respondents indicated that on average they wanted to further their studies with a doctorate (3.28) being the lowest rating and an honours the highest (4.53). The mean for all items was 3.89 (see Tables A13 and A14).

## Discussion

Whilst South Africa celebrated 20 years of democracy in April 2014, unfortunately career guidance at schools, particularly at the previously disadvantaged schools, continues to be under-resourced and under-emphasized. A Department of Education spokesperson, Ranjeni Munusamy, told *University World News*:

> 'There has been limited career guidance at schools ... lack of career guidance was most serious in townships and rural areas and among children living in poor socio-economic conditions.' (Makoni, 2010)

The current study supports this statement: the respondents rated guidance counsellors as the lowest source of influence in terms of career choice, and visits from lecturers and brochures as the highest. This is also supported by Miji (2002), who found that South African students entered university education because it offered opportunities to develop and enabled them to get a good job, but found the lack of career guidance at school a problem.

The students in the present study did not view the support of both family and teachers as significant factors that influenced their career choice decision. This might be due to the fact that a large proportion of the students (in the sample) may be the first and/or only family member to have entered university. Interestingly, in a study by Stephen and Makotose (2007) amongst female engineering students at a Polytechnic, they found that despite the negative influences from parents, peers, and societal labelling, sheer interest in engineering caused them to choose this career.

This conclusion is contrary to those of a number of researchers (Mudhovozi and Chireshe, 2012; Myburgh, 2005; Shumba and Naong, 2012) who found that the advice given by parents, relatives and school teachers, influenced significantly the students' career decision to become a Chartered Accountant. Similarly, in the USA and other countries, various studies (Agarwala, 2008; Cenkseven-Önder *et al*, 2010; Chope, 2005; Dick and Rallis, 1991; Ferry, 2006; Salami, 2004) also support the influence of relatives and/or teachers on career decision making.

The current study also shows that the respondents did not experience too much discrimination in terms of the variables, namely culture, race, religion, gender, age and internal politics, when choosing a career. This is encouraging because in the past (during apartheid)

many jobs were reserved for Whites, and the job options of the other races were severely restricted.

Personal growth, high earning potential and promotion prospects in the organisation were considered significant factors when choosing a career. This finding is supported by a number of studies. Miji (2002) found that the South African students entered university education as it offered opportunity for them to develop and enabled them to get a good job. Rousseau and Venter (2009) found that the most important career choice factors were cognitive competence, work values and education and training. In the USA, in terms of specific careers, availability of employment and earning potential were recognized as the most important influences for university students who chose accounting as their preferred profession (Lowe and Simons, 1997; Paolillo and Estes, 1982). In a study by Edwards and Quinter (2011) of secondary school students in Kenya, advancement opportunities and learning experiences emerged as the most important factors affecting career choice among students.

In the present study, the students reported that limited relaxation and free time were the biggest barriers they faced in pursuit of their chosen career.

## Conclusions

This paper highlights the need for further research on a variety of factors influencing career choice; for example, gender, race, educational background of parents, culture, and personality. A particular limitation of this study was the fact that a meaningful comparison between the different race groups could not be made due to the low numbers of participants in some subcategories of the sample.

It is anticipated and hoped that the results of this present study will help educational institutions and relevant industry and government bodies to formulate their recruitment strategies more effectively (Myburgh, 2005). This is particularly important in the townships and rural communities in South Africa, as was highlighted in 2010 by Ranjeni Munusamy:

> 'Access to career guidance is particularly important for children whose parents are unemployed or have limited formal education experience. These children tend to have low exposure to career information as it is not within their experience. The challenge is to break this intergenerational trend.' (Makoni, 2010)

By understanding the factors that influence decisions about career choice, it should be possible to educate students through the use of targeted programmes. There have been many studies on career indecisiveness, career development and career interventions, because of the high costs often incurred when students experience career indecision (Gordon and Meyer, 2002). Understanding the key role of certain factors (for example, family and community) requires educators to reach beyond the adolescent. It might lead to the development of collaborative partnerships that could help change perceptions of the adolescent and open the door to emerging and non-traditional career choices (Reed and Case, 2003).

## Notes

[1]According to the Employment Equity Act of 1998 in South Africa, the designated racial categories are Black, Coloured, Indian and White. The major aim of the Act is to eliminate unfair discrimination in employment, practised during the apartheid regime, when Whites were the only advantaged group. isiXhosa and Afrikaans are two of the official eleven languages of South Africa.

[2]Matriculation (or 'matric') is a term commonly used in South Africa to refer to the final year of high school and the qualification received on graduating from high school: strictly speaking it refers to the minimum university entrance requirements. Formally, the qualification is the Senior Certificate: see http://www.education.gov.za/Curriculum/AmendedSeniorCertificate/tabid/627/Default.aspx.

[3]South Africa's National Qualifications Framework (NQF) recognises three broad bands of education: General Education and Training, Further Education and Training, and Higher Education and Training. School life spans 13 years or Grades, from Grade 0, otherwise known as Grade R or 'reception year', through to Grade 12 or 'matric' – the year of matriculation. General Education and Training runs from Grade 0 to Grade 9. See: http://www.southafrica.info/about/education/education.htm#.VUH7 lZPT79Y.

## References

Agarwala, T. (2008), 'Factors influencing career choice of management students in India', *Career Development International*, Vol 13, No 4, pp 362–376.

Behrend, T.S., Thompson, L.F., Meade, A.W., Grayson, M.S., and Newton, D.A. (2007), 'Gender differences in career choice influences', paper presented at the 22nd Annual Meeting of the Society for Industrial and Organizational Psychology, New York.

Cenkseven-Önder, F., Kirdök, O., and Işik, E. (2010), 'High school students' career decision-making pattern across parenting styles and parental attachment levels', *Electronic Journal of Research in Educational Psychology*, Vol 8, No 1, pp 263–280.

Chope, R.C. (2005), 'Qualitatively assessing family influence in career decision making', *Journal of Career Assessment*, Vol 13, pp 395–414.

Dick, T.P., and Rallis, S.F. (1991), 'Factors and influences on high school students' career choices', *Journal for Research in Mathematics Education*, Vol 4, pp 281–292.

Edwards, K., and Quinter, M. (2011), 'Factors influencing students career choices among secondary school students in Kisumu Municipality, Kenya', *Journal of Emerging Trends in Educational Research and Policy Studies*, Vol 2, No 2, pp 81–87.

Ferry, M. (2006), 'Factors influencing career choices of adolescents and young adults in rural Pennsylvania', *Journal*

*of Extension*, Vol 44, No 3, http:www//joe.org/joe/2006june/rb7.php (accessed April 2013).
Field, A. (2009), *Discovering Statistics Using SPSS* (3rd edition), Sage, Thousand Oaks, CA.
Foxcroft, C., and Roodt, G., eds (2009), *Introduction to Psychological Assessment in the South African Context* (3rd edition), Oxford University Press, Cape Town.
Fraser, W.J., and Killen, R. (2003), 'Factors influencing academic success or failure of first-year and senior university students: do education students and lecturers perceive things differently?', *South African Journal of Education*, Vol 23, No 4, pp 254–260.
Gordon, L., and Meyer, J.C. (2002), 'Career indecision amongst prospective university students', *South African Journal of Psychology*, Vol 32, No 4, pp 41–47.
Huysamen, G.K. (1980), *Psychological Test Theory,* G.K. Huysamen, Durbanville.
Jawitz, J., and Case, J. (1998), 'Exploring the reasons South African students give for studying engineering', *International Journal of Engineering Education*, Vol 14, pp 235–240.
Korir, J., and Wafula, W. (2012), 'Factors that influence career choice of hospitality students in Moi University, Kenya', *Journal of Education and Practice*, Vol 3, No 14, pp 83–90.
Lee, K.H. (2005), 'Coping with career indecision: differences between four career choice types', *Journal of Career Development*, Vol 3, No 4, pp 279–289.
Lowe, D.R., and Simons, K. (1997), 'Factors influencing choice of business majors – some additional evidence: a research note', *Accounting Education*, Vol 6, No 1, pp 39–45.
Makoni, M. (2010), 'South Africa: career guidance for higher education', *University World News,* No 58, 18 July.
Mashige, K.P., and Oduntan, O.A. (2011), 'Factors influencing South African optometry students in choosing their career and institution of learning', *South African Optometrist*, Vol 70, No 1, pp 21–28.
Mji, A. (2002), 'What influences students to university education? Insights from the horse's mouth', *South African Journal of Higher Education*, Vol 16, No 2, pp 166–176.
Mudhovozi, P., and Chireshe, R. (2012), 'Socio-demographic factors influencing career decision-making among undergraduate psychology students in South Africa', *Journal of Social Science*, Vol 31, No 12, pp 167–176.
Mwachaka, P.M., and Mbugua, E.T. (2010), 'Factors influencing choice of paediatrics as a career among medical students at the University of Nairobi, Kenya', *SA Journal of Child Health*, Vol 4, No 3, pp 70–72.
Myburgh, 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*, Vol 13, No 2, pp 35–48.
Naicker, A. (1994), 'The psycho-social context of career counselling in South African Schools', *South African Journal of Psychology*, Vol 24, pp 27–34.
Nicholas, L., Pretorius, T., and Naidoo, A. (1999), 'Historical perspective of career psychology in SA', in Stead, G.B., and Watson, M.B., eds, *Career Psychology in the South African Context*, J.L. van Schaik Publishers, Pretoria, pp 1–12.
Obiunu, J.J., and Ebunu, O.R. (2010), 'Factors affecting career development of senior secondary school students in Ethiope East local government area, Delta State, Nigeria', *Educational Research*, Vol 1, No 11, pp 594–599.
Paolillo, J.G.P., and Estes, R.W. (1982), 'An empirical analysis of career choice factors among accountants, attorneys, engineers and physicians', *The Accounting Review*, Vol 4, pp 785–793.
Pečjak, S., and Košir, K. (2007), 'Personality, motivational factors and difficulties in career decision-making in secondary school students', *Psihologijske Teme*, Vol 16, No 1, pp 141–158.
Quimby, J.L., and DeSantis, A.M. (2006), 'The influence of role models on women's career choices', *Career Development Quarterly*, Vol 54, pp 297–306.
Reed, B., and Case, J. (2003), 'Factors influencing learners' choice of mechanical engineering as a career', *African Journal of Research in SMT Education*, Vol 7, pp 73–83.
Rosseau, G.G., and Venter, D.J.L. (2009), 'Investigating the importance of factors related to career choice', *Management Dynamics*, Vol 18, No 3, pp 2–14.
Salami, S.O. (2004), 'A path model to examine factors influencing career orientations of school-going adolescents in Nigeria', *International Journal for the Advancement of Counselling,* Vol 26, No 1, pp 79–94.
Salami, S.O. (2007), 'Influence of culture, family and individual differences on choice of gender-dominated occupations among female students in tertiary institutions', *Women in Management Review*, Vol 22, No 8, pp 650–665.
Schreuder, A.M.G., and Coetzee, M. (2006), *Careers: An Organisational Perspective* (3rd edition), Juta, Landsdowne, South Africa.
Shumba, A., and Naong, M. (2012), 'Factors influencing students' career choice and aspirations in South Africa', *Journal of Social Science*, Vol 33, No 2, pp 169–178.
Stead, G.B., and Watson, M.B. (1998a), 'The appropriateness of Super's Career Theory among Black South Africans', *South African Journal of Psychology*, Vol 28, No 1, pp 40–41.
Stead, G.B., and Watson, M.B. (1998b), 'Career research in South Africa: challenges for the future', *Journal of Vocational Behaviour*, Vol 52, pp 289–299.
Stephen, M., and Makotose, A.B. (2007, June), 'A study into the factors that influence female engineering students' career choice: a case study of Mutare Polytechnic, Zimbabwe', *Research and Essay*, Vol 2, No 6, pp 211–216.
Van Niekerk, E.C., and Van Daalen, H.J (1991), 'Career development of tertiary students: some pertinent issues', *VITAL (Vista Teaching and Learning)*, Vol 6, pp 7–13.

# Appendix

## Statistical data

**Table A1. Item statistics and factor loadings for discrimination subscale.**

| Variables (item) | Mean | SD | Loading |
|---|---|---|---|
| Cultural (Q5.4) | 2.24 | 1.16 | 0.831 |
| Race (Q5.5) | 2.74 | 1.44 | 0.814 |
| Religion (Q5.3) | 2.09 | 1.07 | 0.787 |
| Gender (Q5.1) | 2.30 | 1.24 | 0.782 |
| Age (Q5.2) | 2.30 | 1.23 | 0.766 |
| Internal Politics (Q5.6) | 2.76 | 1.33 | 0.741 |
| All items | 2.41 | 1.25 | |

*Note:* N=721; 6 items.

**Table A2. Statistics: discrimination subscale.**

| Mean | SD | Standard error | Median | Skewness | Kurtosis | Cronbach's $\alpha$ |
|---|---|---|---|---|---|---|
| 14.43 | 5.91 | 0.22 | 14 | 0.17 | –0.76 | 0.88 |

*Note:* N=721; 6 items.

**Table A3. Item statistics and factor loadings for benefits – flexibility and prospects subscale.**

| Variables(Item) | Mean | SD | Loading |
|---|---|---|---|
| Opportunity to use skills and abilities (Q2.16) | 4.16 | 0.88 | 0.707 |
| Ability to choose career specialization (Q2.17) | 4.05 | 0.99 | 0.663 |
| Potential for personal growth and development (Q2.8) | 4.22 | 0.90 | 0.632 |
| Challenging, interesting, exciting career (Q2.10) | 3.96 | 1.00 | 0.626 |
| Prospects of on the job additional training (Q2.15) | 3.51 | 1.06 | 0.498 |
| Career flexibility and options (Q2.7) | 4.21 | 0.87 | 0.468 |
| All items | 4.02 | 0.95 | |

*Note:* N=721; 6 items.

**Table A4. Statistics: benefits – flexibility and prospects subscale.**

| Mean | SD | Standard error | Median | Skewness | Kurtosis |
|---|---|---|---|---|---|
| 24.11 | 3.74 | 0.14 | 24.86 | –0.87 | 1.29 |

*Note:* N=721; 6 items.

**Table A5. Item statistics and factor loadings for benefits – material and promotion subscale.**

| Variables (item) | Mean | SD | Loading |
|---|---|---|---|
| Future high earnings potential(Q2.5) | 4.31 | 0.88 | 0.825 |
| Initial earnings potential(Q2.4) | 4.15 | 0.95 | 0.798 |
| Prestige, lifestyle, social status(Q2.3) | 3.80 | 1.06 | 0.638 |
| Promotion prospect or opportunities(Q2.6) | 4.22 | 0.90 | 0.513 |
| Prospects of on the job additional training(Q2.15) | 4.20 | 0.97 | 0.485 |
| All items | 4.13 | 0.95 | |

*Note:* N=721; 5 items.

**Table A6. Statistics: benefits – material and promotion subscale.**

| Mean | SD | Standard error | Median | Skewness | Kurtosis |
|---|---|---|---|---|---|
| 20.67 | 3.40 | 0.13 | 21 | –0.94 | 0.80 |

*Note:* N=721; 5 items.

**Table A7. Item statistics and factor loadings for benefits: reputation subscale.**

| Variables(Item) | Mean | SD | Loading |
|---|---|---|---|
| Promoted to top of organization (Q6.1) | 4.50 | 0.81 | 0.717 |
| Possibility of becoming Director or CEO (Q2.13) | 4.14 | 1.08 | 0.668 |
| Size and reputation of organization (Q2.14) | 3.66 | 1.09 | 0.557 |
| All items | 4.10 | 1.00 | |

*Note:* N=721; 3 items.

**Table A8. Statistics: benefits – reputation subscale.**

| Mean | SD | Standard error | Median | Skewness | Kurtosis | Cronbach's $\alpha$ |
|---|---|---|---|---|---|---|
| 12.31 | 2.29 | 0.09 | 13 | –1.13 | 1.45 | 0.64 |

*Note:* N=721; 3 items.

**Table A9. Item statistics and factor loadings for sources of influence subscale.**

| Variables (item) | Mean | SD | Loading |
|---|---|---|---|
| Association with others in the field (Q1.8) | 2.59 | 1.39 | 0.734 |
| Guidance counsellor (Q1.7) | 1.95 | 1.28 | 0.652 |
| Work experience in the field (Q1.9) | 2.15 | 1.37 | 0.639 |
| Close relationship with graduate/other student (Q1.4) | 2.65 | 1.42 | 0.537 |
| Recruitment promotion schemes of university (Q1.12) | 2.27 | 1.30 | 0.533 |
| Visits from lecturers and brochures (Q1.6) | 2.96 | 1.41 | 0.455 |
| All items | 2.43 | 1.36 | |

*Note:* N=721; 6 items.

**Table A10. Statistics: sources of influence subscale.**

| Mean | SD | Standard error | Median | Skewness | Kurtosis | Cronbach's $\alpha$ |
|---|---|---|---|---|---|---|
| 14.55 | 5.28 | 0.20 | 14 | 0.45 | –0.39 | 0.72 |

*Note:* N=721; 6 items.

**Table A11. Item statistics and factor loadings for barriers subscale.**

| Variables (item) | Mean | SD | Loading |
|---|---|---|---|
| Difficulty of degree (Q3.3) | 3.71 | 1.15 | 0.783 |
| Time period to graduate (Q3.2) | 3.77 | 1.19 | 0.758 |
| Cost of degree (Q3.1) | 3.63 | 1.33 | 0.707 |
| Limited relaxation and free time (Q3.4) | 3.19 | 1.26 | 0.640 |
| All items | 3.58 | 1.24 | |

*Note:* N=721; 4 items.

**Table A12. Statistics: barriers subscale.**

| Mean | SD | Standard error | Median | Skewness | Kurtosis | Cronbach's $\alpha$ |
|---|---|---|---|---|---|---|
| 14.30 | 3.69 | 0.14 | 15 | –0.62 | –0.11 | 0.74 |

*Note:* N=721; 4 items.

**Table A13. Item statistics and factor loadings: future studies subscale.**

| Variables (item) | Mean | SD | Loading |
|---|---|---|---|
| Master's (Q7.2) | 3.86 | 1.13 | 0.889 |
| Doctorate (Q7.3) | 3.28 | 1.24 | 0.800 |
| Honours (Q7.1) | 4.53 | 0.85 | 0.630 |
| All items | 3.89 | 1.08 | |

*Note:* N=721; 3 items.

**Table A14. Statistics: future studies subscale.**

| Mean | SD | Standard error | Median | Skewness | Kurtosis | Cronbach's $\alpha$ |
|---|---|---|---|---|---|---|
| 11.67 | 2.60 | 0.10 | 12 | –0.58 | 0.13 | 0.72 |

*Note:* N=721; 3 items.