

Work experience and evidence of entrepreneurial orientation of South African Professionals

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ABSTRACT

This research explores how work experience influences entrepreneurial behaviour in professionals. The study is mainly focused on engineering and commerce professionals who are employed in various sectors in South Africa. The research is inspired by the observable low total early-stage entrepreneurial activity and employee entrepreneurial activity rates in South Africa, despite empirical research showing that entrepreneurship increases economic growth and company performance in both financial and non-financial terms.

This research conceptualises entrepreneurial behaviour in terms of an entrepreneurial orientation which is a combination of three sub-dimensions: innovativeness, proactiveness and a risk-taking propensity. An index is used to measure the individual's entrepreneurial orientation. Work experience is characterised by a specialist career path (depth of experience), a generalist career path (breadth of experience), and job design. The specialist path refers to accumulated work experience within a domain where individuals become experts. The generalist path relates to accrued work experience across different fields where individuals become generalists. Job design is the structure and configuration of jobs in the workplace.

The research is exploratory. The data was collected using a survey questionnaire. Eighteen professional disciplines across thirteen industries were sampled. The study achieved 202 valid responses, 61% being male and 39% female. All racial groups in South Africa were sampled.

The findings reveal that the entrepreneurial orientation index is highest and lowest in the 18-24 and 55-64 age groups respectively. The male and female indices were comparable, with females showing a slightly higher index than males. Legal practitioners had the highest entrepreneurial orientation index compared to other professions. General managers showed the lowest index compared to other professional functions. Concerning hypotheses, the results find a negative correlation between the depth of experience in industry and individual entrepreneurial orientation. There was also a negative correlation

between the depth of experience in a function and individual entrepreneurial orientation. There was no statistically significant relationship between broad experience in industry or function and individual entrepreneurial orientation. Concerning work experience, the variance of individual entrepreneurial orientation is largely explained by job design. The job functions that offer strategic and structural autonomy and those which allow employees to engage in a variety of tasks using a variety of skills are positively correlated to individual entrepreneurial orientation.

The research has theoretical and practical implications. Theoretically, it reveals that work experience has an influence on the individual's entrepreneurial orientation. The individual's entrepreneurial orientation is studied in a developing country context using the measures that are derived from the original EO scale. This provides further academic insights in individual EO research. Practically, the research provides insight on the aspects of work experience that foster an entrepreneurial posture on the organisation's human resource.

DECLARATION

I, Duduza Madlala, declare that this research report is my work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Duduza Mvo Madlala

Signed at

On the day of 2018

DEDICATION

I dedicate this work to my mother for the tremendous contribution she's had in my life, and for teaching me always to aim higher than the goal so that if I fall short, I fall closer to the goal. It is my wish that this work will inspire my daughter, Qhakaza, to enrich her life by acquiring knowledge and skills that will allow her to contribute positively to society.

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TABLE OF CONTENTS

ABSTRACT	II
DECLARATION.....	IV
DEDICATION	V
LIST OF TABLES.....	X
LIST OF FIGURES	XII
CHAPTER 1: INTRODUCTION	15
1.1 PURPOSE OF THE STUDY	15
1.2 CONTEXT OF THE STUDY	15
1.3 PROBLEM STATEMENT	17
1.3.1 MAIN PROBLEM	17
1.4 SIGNIFICANCE OF THE STUDY	19
1.5 DELIMITATIONS OF THE STUDY.....	19
1.6 DEFINITION OF TERMS	20
1.7 ASSUMPTIONS	20
1.8 REPORT STRUCTURE	20
CHAPTER 2: LITERATURE REVIEW	22
2.1. INTRODUCTION	22
2.2. BACKGROUND DISCUSSION.	22
2.3. WORK EXPERIENCE AND ENTREPRENEURIAL BEHAVIOUR.....	25
2.3.1 THE INFLUENCE OF DEPTH OF WORK EXPERIENCE	27
2.3.2 THE INFLUENCE OF BREADTH OF WORK EXPERIENCE	28
2.4. JOB DESIGN AND ENTREPRENEURIAL BEHAVIOUR.....	29
2.5. CONCLUSION OF LITERATURE REVIEW	31
CHAPTER 3: RESEARCH METHODOLOGY	34
3.1 RESEARCH METHODOLOGY /PARADIGM	34
3.2 RESEARCH DESIGN	34
3.3 POPULATION AND SAMPLE.....	34
3.3.1 POPULATION	34
3.3.2 SAMPLE AND SAMPLING METHOD	35
3.4 THE RESEARCH INSTRUMENT	36

3.5	PROCEDURE FOR DATA COLLECTION	37
3.6	DATA ANALYSIS AND INTERPRETATION	38
3.6.1	DESCRIPTIVE STATISTICS	38
3.6.2	EO INDEX	38
3.6.3	EXPLORATORY FACTOR ANALYSIS	38
3.6.4	RELIABILITY	39
3.6.5	MULTIPLE REGRESSION	39
3.1	LIMITATIONS OF THE STUDY	39
3.2	VALIDITY AND RELIABILITY OF RESEARCH	40
3.2.1	EXTERNAL VALIDITY	40
3.2.2	INTERNAL VALIDITY	40
3.2.3	RELIABILITY	41
3.2.4	ETHICS	41

CHAPTER 4: PRESENTATION OF RESULTS 42

4.1	INTRODUCTION	42
4.2	DEMOGRAPHIC PROFILE OF RESPONDENTS	42
4.3	RESPONSES TO VARIABLES	48
4.4	DESCRIPTIVE ANALYSIS OF VARIABLES	49
4.5	THE VALIDITY OF MEASURING INSTRUMENT	55

4.6 RELIABILITY OF MEASURING INSTRUMENT 56

4.7	VARIABLE CORRELATION	56
4.8	REGRESSION ANALYSIS	59
4.9	SUMMARY OF THE RESULTS	60

CHAPTER 5: DISCUSSION OF THE RESULTS 62

5.1	INTRODUCTION	62
5.2	DEMOGRAPHIC PROFILE OF RESPONDENTS	62
5.3	EVALUATION OF VARIABLES	64
5.4	THE EO INDEX OF RESPONDENTS	65
5.5	DISCUSSION PERTAINING TO DEPTH OF EXPERIENCE (HYPOTHESIS 1 AND 2)..	67
5.6	DISCUSSION ON THE BREADTH OF EXPERIENCE (HYPOTHESIS 3 AND 4)	68
5.7	DISCUSSION PERTAINING ON JOB DESIGN (HYPOTHESIS 5 AND 6)	69
5.5	CONCLUSION	70

CHAPTER 6: CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS.....72

6.1	INTRODUCTION	72
6.2	CONCLUSIONS OF THE STUDY	72
6.3	IMPLICATIONS AND RECOMMENDATIONS	76

6.3.1	THEORETICAL IMPLICATIONS	76
6.3.2	PRACTICAL IMPLICATIONS	77
6.3.3	PROFESSIONAL EMPLOYEES	77
6.3.4	EMPLOYERS.....	78
6.4	SUGGESTIONS FOR FURTHER RESEARCH	78
REFERENCES		80
APPENDIX A: RESEARCH INSTRUMENT & CONSENT LETTER		87
APPENDIX B: CONSISTENCY MATRIX.....		89
APPENDIX C: VARIABLE RESPONSES.....		91
APPENDIX D: PARAMETRIC DATA ANALYSIS		93
APPENDIX E. EXPLORATORY FACTOR ANALYSIS.....		99
APPENDIX F. RELIABILITY ANALYSIS.....		105
APPENDIX G. REGRESSION ANALYSIS (EO).....		108

LIST OF TABLES

Table 1. Variable responses to variables	49
Table 2. Descriptive Statistics	50
Table 3. Descriptive statistics by gender	50
Table 4. ANOVA between gender, EO and job design variables	51
Table 5. ANOVA between age, EO and job design variables	51
Table 6. Test for homogeneity of variance	52
Table 7. KMO and Bartlett's Test	55
Table 8. Reliability Statistics.....	56
Table 9. Correlation matrix for dependant (EO elements) and independent variables.....	58
Table 10. EO regression results.....	59
Table 11. Response to risk-taking	91
Table 12. Responses to innovation	91
Table 13. Response to proactiveness	91
Table 14. Response to job autonomy.....	92
Table 15. Response to job variety	92
Table 16. Missing value replacement.....	93
Table 17. Homogeneity of variance.....	98
Table 18. Factor descriptive statistics	99

Table 19. Sampling Adequacy	99
Table 20. Communalities	100
Table 21. Variance	101
Table 22. Factor Loading	102
Table 23. Factor variance	104
Table 24. Reliability Statistics EO	105
Table 25. Reliability Statistics for risk-taking sub-scale	106
Table 26. Reliability Statistics for innovation sub-scale	106
Table 27. Reliability Statistics for proactiveness sub-scale	107
Table 28. EO Model Summary	108
Table 29. EO Model Coefficients.....	109
Table 30. EO Model Excluded Variables.....	110
Table 31. EO Model Residuals.....	111
Table 32. Correlations.....	112

LIST OF FIGURES

Figure 1. South African GDP growth relative to emerging markets (Source: International Monetary Fund, 2017)	16
Figure 2. Graduates produced by South African universities (Source: DHET, 2015).....	17
Figure 3. Conceptual Framework	32
Figure 4. Number and percentage distribution of respondents	42
Figure 5. Distribution of respondents by age.....	43
Figure 6. Distribution of respondents by race.....	43
Figure 7. Respondents by Provinces	44
Figure 8. Respondent's education.....	44
Figure 9. Respondent's professional discipline	45
Figure 10. Respondents by Industry	45
Figure 11. Respondent's functional areas	46
Figure 12. Respondent experience	47
Figure 13. Number of Industries worked	47
Figure 14. Number of functions worked	48
Figure 15. Longest time in function	48
Figure 16. Mean EO Index for gender.....	53
Figure 17. Mean EO index by age.....	53
Figure 18. Mean EO Index by professional discipline	54

Figure 19. Mean EO Index by functional area	55
Figure 20. Box Plot for risk-taking EO element	93
Figure 21. Box Plot for the innovation EO element	94
Figure 22. Box Plot for the proactiveness EO element.....	94
Figure 23. Box Plot for job autonomy	95
Figure 24. Box Plot for job variety	95
Figure 25. Histogram and P-P plot for risk-taking EO element.....	96
Figure 26. Histogram and P-P plot for the innovation EO element.....	96
Figure 27. Histogram and P-P plot for the proactiveness EO element	96
Figure 28. Histogram for job autonomy	97
Figure 29. Scree Plot	102
Figure 30. EO Model Histogram and P-P Plot.....	111

LIST OF ACROYNMS

EEA	Employee Entrepreneurial Activity
EFA	Exploratory Factor Analysis
EO	Entrepreneurial Orientation
GCI	Global Competitive Index
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
KMO	Kaiser-Meyer-Olkin
MBA	Master of Business Administration
MM	Master of Management
PCA	Principal Component Analysis
R&D	Research and Development
TEA	Total Early Stage Entrepreneurial Activity
VIF	Variance Inflation Factor
WDQ	Work Design Questionnaire

CHAPTER 1: INTRODUCTION

This document presents the findings of the research on how professional work experience influence the entrepreneurial orientation of professionals who work in South Africa. This chapter begins with the background followed by the purpose and context of the study. Then a problem statement is stated. It proceeds to discuss the significance of the study which pronounces the theoretical gap and its necessity in the developing country context. Thereafter, the delimitations of the study, the definition of terms and the assumptions made in completing the study are given.

1.1 Purpose of the study

The purpose of this research is to explore the influence of work experience on individual EO. The unit of interest is knowledge workers who work in South Africa. EO is the behavioural phenomenon that leads to entrepreneurship (Nobile & Husson, 2016; Bolton and Lane, 2012) which lead to better business performance and economic growth (Chen and Chang, 2015).

1.2 Context of the study

In modern economies, entrepreneurship is recognised as a catalyst for organisational survival, advancement and profitability (Karyotakis and Moustakis, 2016). It stimulates economic growth and generates employment (Nandamuri, Gajulapally and Ch, 2012; Lumpkin and Dess, 1996). According to Antonites and Nonyane-Mathebula (2012), it is knowledge workers with the correct EO that drive economic growth through entrepreneurship. Chen and Chang (2015) supports this view and posit that individuals with a high EO have a strong motivation of trying different combinations that lead to better performance.

South Africa is an efficiency-driven economy (Kelley, Singer and Herrington, 2016). Such economies are characterised by industrialisation, an increased

reliance in economies of scale, and a dominance of large capital-intensive organisations. In such economies, competitiveness is mainly driven by skilled labour, a business-friendly ecosystem, the efficient use of existing technologies and large national or international markets (Schwab, 2016). According to Schwab (2016) competitiveness sets the level of prosperity a country can achieve. South Africa ranked at number forty-seven (47) on the Global Competitive Index (GCI) during the 2016/2017 review period (Schwab, 2016). The South African economy was the most competitive in Africa during the review period. The highlights were increased competitiveness both locally and internationally, marginal improvement in the quality of education, and the better utilisation of talent. There are, however; several challenges to economic growth in South Africa. The gross domestic product (GDP) is persistently lower than the average growth for emerging economies and continues to decline as shown in figure 1. The unemployment rate reached 27.7% in the third quarter of 2017 (Statistics SA, 2017).

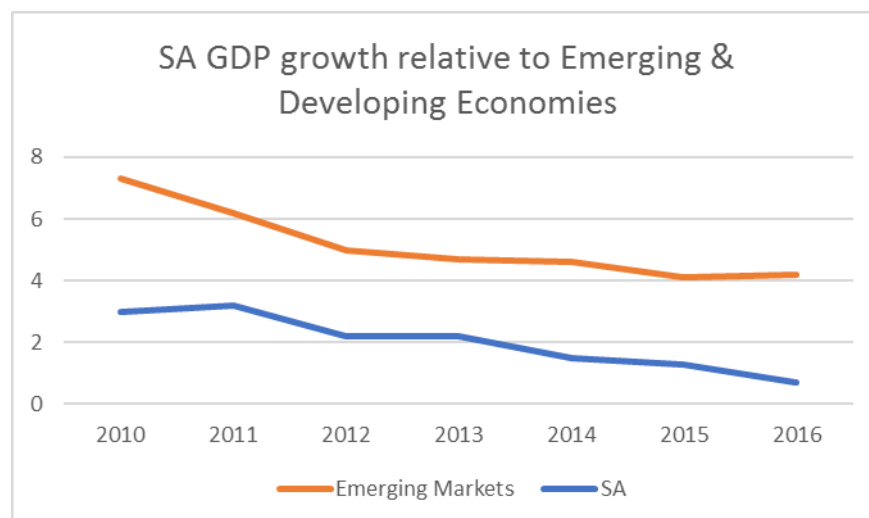


Figure 1. South African GDP growth relative to emerging markets (Source: International Monetary Fund, 2017)

When the expanded definition of unemployment is considered, which includes people who have stopped looking for work, unemployment reached 36.8% in the third quarter of 2017 (Stats SA, 2017). Youth unemployment stood at 52.2% in the third quarter of 2017 (Stats SA, 2017). Graduate unemployment stands at 7.3% (Stats SA, 2017). The number of graduates produced by the universities

has been increasing since 2009 as shown in figure 2.

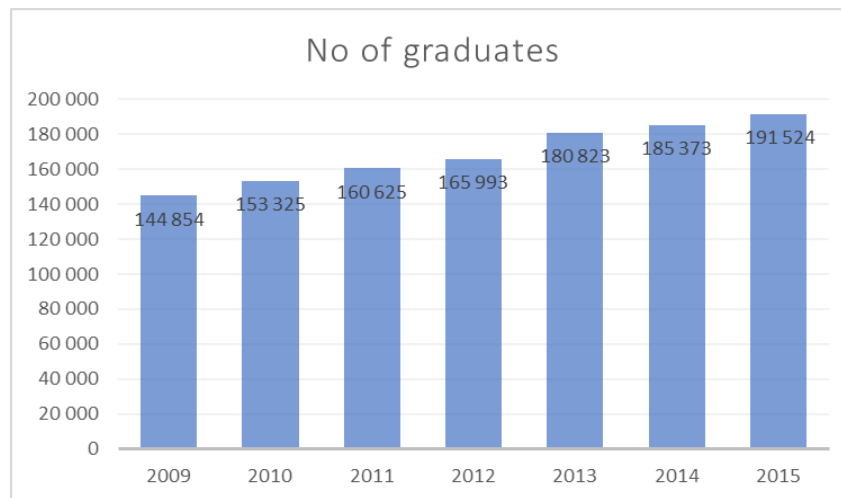


Figure 2. Graduates produced by South African universities (Source: DHET, 2015)

Graduates usually find employment in the public or the private sector. There is a surplus of unused human capital potential caused by graduate unemployment (Stats SA, 2017). The employed graduates develop into professional employees who are at the epicentre of organisational performance. In corporations, they become the link between senior executives and general employees, and influence performance and profitability (Chen & Chang, 2015). Their level of education, professional experience and industry social capital puts them in a better position to advance entrepreneurship. Bilić, Prka and Vidović (2011) cite Robison and Saxon (1994) who posit that university education prepares individuals for harsh market conditions. Hsieh (2015) citing Lazear (2005) acknowledges that corporates also produce entrepreneurs.

This research will focus on the influence of work experience in developing EO in professional employees. This is important in a South African context where GDP growth and company profitability continue to decline (Statistics SA, 2016).

1.3 Problem statement

1.3.1 Main problem

Rutherford and Holt (2007) posit that it is the individual's application of

innovative abilities and skills that drive entrepreneurship. According to Marvel *et al.*, 2016 education and work experience is vital in discovering and exploiting entrepreneurial opportunities. While the South African government has made progress in improving the output rate of graduates from universities (DHET, 2015), increased the middle-class population (Brown, 2016), and established a ministry of small business development, the entrepreneurial activity remains low in the country. GEM 2015/16 reported a total early-stage entrepreneurial activity (TEA) and employee entrepreneurial activity (EEA) rates of 9.2% and 0.3% respectively. South Africa had the lowest EEA among the 62 economies who were sampled. EEA is a form of entrepreneurship where entrepreneurial activity is advanced by employees within established organisations.

Given this context, there is a need to evaluate the influence of work experience in influencing entrepreneurial behaviours such as innovation, proactiveness and a risk-taking propensity in professional employees. This will provide insight into the elements of work experience that either stifle or encourage entrepreneurial behaviour. After an extensive article review, the researcher found three articles relating to the EO of professional employees in South African. These were Antonites and Nonyane-Mathebula's (2012) study of the EO of engineers, Van Wyk and Boshoff's (2004) study of entrepreneurial attitudes of accountants and pharmacists and Surujlal's (2016) study of entrepreneurial disposition of sports coaches. The researcher is not aware of any study that specifically evaluates the relationship between work experience and individual EO in professional employees. There is therefore a need for further enquiry in this area of individual EO research. The research asks the following questions:

- 1. How does the anatomy of the individual's work experience influence their EO?*
- 2. How does job design influence the EO of an individual?*
- 3. Which elements of work experience structure and job design influence entrepreneurial behaviour in individuals?*

1.4 Significance of the study

EO is broadly studied in a developed economy context (Nandamuri *et al.*, 2012 citing Tang *et al.*, 2007) as a firm-level phenomenon (Wales, 2016). According to Bolton and Lane (2012), the predominant individual EO studies do not emphasise the measures that characterise the original EO scale but accentuate personality traits, entrepreneurial attitudes and loosely defined entrepreneurial attributes. This research has both theoretical and practical implication. It extends the literature in individual EO research. It studies individual EO in a developing economy context using the attitude measures inherent in the original EO scale. The researcher is not aware of any similar study in a developing country context. De Jong, Parker, Wennekers and Wu (2015) acknowledge that there is a significant gap in studies of employee entrepreneurial behaviour in organisations. The study also evaluates how elements of work experience influence EO in professionals. This will provide a better understanding of the aspects of work experience that foster or constrain entrepreneurial behaviour. The professionals, policy-makers and corporate leaders who are keen to accelerate growth through entrepreneurship can benefit from the findings. Its findings can become strategies that can encourage entrepreneurial behaviour. This can potentially improve entrepreneurial activity, business profitability and economic growth in South Africa.

1.5 Delimitations of the study

The study focusses mainly on engineering and commerce professionals in the mining, manufacturing, retail, transport, energy, services, finance and business sectors. Skilled level and middle management professionals are targeted. The sample will be across provinces, but predominantly in Gauteng and KwaZulu Natal. These two regions account for 49% of the country's GDP (Statistics SA, 2016).

1.6 Definition of terms

The research defines the terms used as follows:

- Entrepreneurship: The process of recognising and pursuing opportunities by individuals and organisations (Karyotakis and Moustakis, 2016 citing Currie *et al.*, 2008).
- Entrepreneurial Orientation: Processes, practices, decision-making activities and strategic behaviours that are inherently entrepreneurial (Lumpkin and Dess, 1996; Pittino, 2017).
- Professional: Someone who has both formal education and practical experience and uses knowledge as a base needed to compete and innovate (Antonites and Nonyane-Mathebula, 2012, p.6).

1.7 Assumptions

The research makes the following assumptions:

- The measuring instrument will measure the elements of work experience and entrepreneurial orientation accurately.
- The respondents will be accurate and honest when answering questions.
- The sample is representative.

1.8 Report Structure

The report has six chapters. Chapter 1 provides the background, context in which the research is done and the significance of the study within its context. Chapter 2 provides a review of extant literature on human capital, with specific reference to education and work experience, and individual EO. Chapter 3 provides the methodology and research design. It discusses the research instrument, sampling, data collection and analysis procedures. Chapter 4 presents the results. Chapter 5 discusses and elaborates on the results.

Chapter 6 concludes the research and discusses the theoretical and practical implications. It also provides suggestions for further research.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This section examines existing literature on human capital, with specific reference to work experience and education, and its influence in encouraging entrepreneurial behaviour. The section is divided into the following sections: background discussion, work experience and entrepreneurial behaviour, job design and entrepreneurial behaviour and a conclusion of the literature survey.

2.2. Background discussion.

Stevenson and Jarrillo-Mossi (1986) cited by Morris, Kuratko and Covin (2010) define entrepreneurship as a method of creating value by exploiting an opportunity in a unique way. Entrepreneurship is inherently the discovery and exploitation of opportunities (Shane and Venkataraman, 2000) by alert and capable individuals (Marvel, Davis and Sproul, 2016). Therefore, a proactive behaviour (Ireland, Kuratko and Covin, 2003) and high cognition are crucial in driving entrepreneurship (Antonites and Nonyane-Mathebula, 2012). Entrepreneurial behaviour is both an individual and firm-level phenomenon that centres around an EO (Ireland *et al.*, 2003).

EO refers to a combination of demonstrable entrepreneurial behaviours and an inclination towards risk-taking (Anderson, Kreiser, Kuratko, Hornsby and Eshima, 2015). It represents the methods, processes and decision-making strategies that help individuals act entrepreneurially (Nobile and Husson, 2016). The question whether EO is a behavioural, an attitudinal or a combined phenomenon is the subject of ongoing scholarly debate. The dominant EO conceptualisations are the Miller/Covin and Slevin's (1989) construct which combines innovativeness, proactiveness and risk-taking (Nobile and Husson, 2016), and the Lumpkin and Dess (1996) multi-dimensional construct of autonomy, competitive aggressiveness, innovativeness, proactiveness and a risk-taking propensity. The Miller/Covin and Slevin (1989) conceptualisation

requires that dimensions be repeatedly demonstrated and with simultaneity (Covin and Wales, 2012). The Lumpkin and Dess (1996) conceptualisation does not need the dimensions to covary (Covin and Wales, 2012). Covin and Miller (2014) submit that the two conceptualisations represent different constructs and are not comparable. These authors see the Lumpkin and Dess' (1996) conceptualisation as domain focussed (where to look for EO), and the Miller/Covin and Slevin (1989) conceptualisation as phenomenon-focussed (what EO looks like). Anderson *et al.*, 2015 propose a reconceptualisation of EO into two non-interchangeable dimensions: entrepreneurial behaviour and a risk-taking attitude. The authors argue that innovation and proactiveness are functionally inextricable and should form a single aspect, entrepreneurial behaviour. This proposal is not well embodied in extant literature. The Miller/Covin and Slevin (1989) conceptualisation remains dominant in EO research (Nobile and Husson, 2016; Covin and Miller, 2014).

Innovativeness is an inclination to experiment and generate novel ideas, products and methods (Mobaraki and Parsian, 2016). It represents a will to surpass the accepted norms (Lumpkin and Dess, 1996). According to Mobaraki and Parsian (2016), innovation is highly associated to entrepreneurship because new entry follows the enhancement of the innovation orientation in people. *Proactiveness* implies a behaviour to continually pursue opportunities that predict future imperfections (Mobaraki and Parsian, 2016). Proactive actors innovate ahead of competitors (Nobile and Husson, 2016) and benefit from unusually high profits (Lumpkin and Slevin, 1996). *Risk-taking* refers to a proclivity to engage in activities with uncertain outcomes. It is the core of entrepreneurship (Parsian and Mobaraki, 2016) since it represents a willingness to challenge uncertainty and accepted paradigms (Chen and Chang, 2015).

EO is associated with performance in both financial and non-financial dimensions (Pittino *et al.*, 2017; Marvel *et al.*, 2016) for both individuals and firms (Tuan, 2016; Todorovic and Todorovic, 2015). It can influence the country's competitiveness (Belas and Sopkova, 2016). Wales (2016) however, finds that a high EO can generate a variety of outcomes which can range from success to total failure.

Scholars have endeavoured to understand the factors and conditions that foster EO. Pittino, Visintin and Lauto (2017) find that various inherent and external motivations, and personal characteristics lead to a high EO. The authors identify three drivers of internal motivation: a need to achieve, a desire for autonomy and an emotional attachment to the business. They further recognise material needs, financial wealth and associated benefits, and social expectations to influence external motivation. Personality traits such as an internal locus of control and ambiguity-tolerance are related to entrepreneurship. Specific studies find that demographics, education, training and practical experience also influence entrepreneurial behaviour. Chen, Wu and Su (2012) submit that higher education increases the risk-taking propensity in individuals. Higher education increases learning and information processing capability, therefore influencing abstract innovation (Marvel and Lumpkin, 2007). Gender and age have been found to affect entrepreneurial behaviour. The global surveys show a high number of male entrepreneurs than female (Kelley *et al.*, 2016). Women are found to have a higher risk aversion (Caliendo, Fossen, Kritikos and Wetter, 2014) and lower perceived entrepreneurial capabilities (Brush, Ali, Kelley and Greene, 2017) than men. In global surveys, TEA rates are found to be highest in the 25 – 34 age group and the 35 – 44 age group (Kelley *et al.*, 2016). Levesque and Minniti (2006) attribute this to the "age effect", recognising that the anticipated return from entrepreneurship reduces as working individuals get older. A study by Kautonen, Down and Minniti (2014) found that entrepreneurial actions increased proportionally with age for individuals with entrepreneurial intentions. It increased until the late 40's after that decreased for individuals who preferred to be owner-managers, and there was no observable age effect in necessity entrepreneurs.

The measurement of EO receives considerable attention in EO literature. EO is predominately studied as a firm-level phenomenon (Wales, 2016), but can be measured for individuals as well (Bolton and Lane, 2012). Constructs in management theory are fundamentally measured using reflective and formative measures. With reflective measurement, the indicators reflect the latent construct and measurement error. Therefore, a change in the construct induces a shift in its indicators. With formative measurement, the indicators collectively

define the latent construct. The Covin and Slevin (1989) EO scale, a reflective measure, is the most used for measuring EO. Anderson *et al.*, 2015 propose that EO be measured formatively because the relationship between EO indicators and the EO construct is not consistent with the reflective description. Covin and Wales (2012) contrasts this view and argue that reflective measurements are the most appropriate for measuring EO. They caution that measuring EO using formative models abandons the very conceptualisation that considers EO a unitary entity. A scale for measuring individual EO was developed and validated by Bolton and Lane (2015) using a student sample and later a sample of entrepreneurs. This scale derives from the original Covin and Slevin (1989) scale.

This section provided a background of entrepreneurship and the individual EO construct, its measure and its relation to performance. The next sections discuss extant literature on the influence of work experience, and job design in fostering entrepreneurial behaviour.

2.3. Work Experience and Entrepreneurial Behaviour

Knowledge workers have higher human capital investments than general employees. Chen *et al.*, 2012 submits that knowledge gained through formal training and experience provides individuals with an ability to explore and exploit opportunities. It develops innovativeness and creativity (Makhbul, 2011 cited by Staniewski, 2016) therefore increasing the probability of entrepreneurial success. Entrepreneurial success refers to size of the firm, profitability and growth (Iversen, Malchow-Møller and Sørensen, 2016). Marvel *et al.*, 2016 defines knowledge as the possession and understanding of principles, facts, processes, and their interaction. Entrepreneurial success is predominantly attributed to experience (Cassar, 2014; Staniewski, 2016). Experience is classified as entrepreneurial, business function and industry experience. Entrepreneurial experience describes knowledge and proficiency of launching new ventures (Oe and Mitsuhashi, 2013). Business function experience describes knowledge, skills and attitudes acquired through the conversion of expertise in job functions (Oe and Mitsuhashi, 2013). Industry experience

describes knowledge gained about the business and its environment (Cassar, 2014). Shane (2003) cited by Gabrielsson and Politis (2012) attributes better entrepreneurial judgment to business function and industry experience. This sub-section reviews extant literature on the influence of business function and industry experience on the entrepreneurial behaviour of individuals.

Shane (2000) cited by Gabrielsson and Politis (2012) finds that work experience can develop an ability to create combinations that lead to entrepreneurial discovery. Ohyama (2015) findings support this assertion. He submits that individuals who gain related job experience after their high education have a more exceptional ability to select and implement advanced technologies that influence entrepreneurial success. He finds that entrepreneurs with related job experience are better at integrating information and mitigating adverse effects. Kraus (2013) cited by Belas and Sopkova (2016) submits that experience is positively associated with innovativeness, proactiveness and a higher risk-taking propensity. Scholars such as Bhide (2000) and Klepper and Thompson (2010) cited by Ohyama (2015) have attributed the success of spin-offs and start-ups to individuals with high industry-specific knowledge. They acknowledge that successful spinoffs and start-ups come from the exploitation and modification of business ideas that come from experience. Their submission is supported by Oe and Mitsunashi (2013) who find that entrepreneurial success improves when the new venture is related to entrepreneurs' prior experience.

Work experience has however yielded a varied result in promoting entrepreneurship. Newbert (2007) and Davidsson and Honing (2003) cited by Oe and Mitsunashi (2013) find no significant association between business experience, work experience and the accelerated growth of start-ups. Cassar (2014) refers to his work (Cassar, 2010) where he found no association between work experience and bias attributes amongst entrepreneurs starting new ventures. Such variation results from the assumption that experience mechanically results to entrepreneurial performance without considering the complementary factors (Oe and Mitsunashi, 2013). Entrepreneurial behaviour is further complemented by psychological and personality traits (Staniewski,

2016), the organisational environment, and the practices of management in organisations (Brettel, Chomik and Flatten, 2015). According to Marvel *et al.*, 2016), it is the dichotomous approaches used to measure work experience that fail to capture the different implications of work experience. The variability of knowledge and skills which result from experience can produce different outcomes (Gabrielsson and Politis, 2012). This variation is expected even in individuals with similar education and work experience (Marvel *et al.*, 2016). They suggest that to capture the investment in work experience fully, the types and the diversity of work experience should be considered. Work experience is classified concerning depth (Marvel *et al.*, 2016) and breadth (Gabrielsson and Politis, 2012). The depth of work experience refers to accumulated work experience within a domain where individuals become experts. The breadth of work experience relates to accrued work experience across different fields where individuals become generalists.

2.3.1 The influence of depth of work experience

Work experience is the most investigated human capital component (Marvel *et al.*, 2016). The depth of work experience is operationalised as the duration worked in a specific industry (Marvel *et al.*, 2016) or job function (Gabrielsson and Politis, 2012). This captures the investment in human capital rather than knowledge and skills outcome from work experience (Marvel *et al.*, 2016). However, due to simplicity and consistency of measurement it is the most adopted in human capital studies.

Cohen and Levinthal (1990) submit that long service within a domain improves the absorption of new knowledge and creativity within that field thus stimulating innovation. Experts think more intuitively and make decisions faster (Shepherd and DeTienne, 2005). This quality is synonymous with entrepreneurial heuristics (Busenitz and Barney, 1997). Entrepreneurial heuristics and dispositions drive entrepreneurial decisions and allow entrepreneurs to maximise on opportunities that emerge from environmental uncertainties. Enhanced field knowledge also increases efficiency, because knowledgeable individuals focus their attention on dimensions with the most impact to the

outcome of decisions (Chase and Simon cited by Shepherd and DeTienne, 2005). Certain studies find a negative association between expert knowledge and entrepreneurial capabilities. They find that prolonged work experience in a domain stifles innovation (Gabrielsson and Politis, 2012) and result to imitative entrepreneurs (Cliff, Jennings and Greenwood, 2006). This is attributed to a tendency by industry to reproduce prevailing practices and routines. Since these epitomise experience and knowledge, they are difficult to change thereby constraining the ability to deviate from expected norms. This supports work by Perttigrew (1973) and Amihud and Lev (1981) cited by Busenitz and Barney (1997) who found that corporate citizens were risk averse and adhered largely to accepted paradigms. Given the contrasting views, it follows that the depth of experience affects entrepreneurial behaviour in conflicting ways depending on the context and individual traits. The following hypotheses arise:

- H1.** The depth of work experience in an industry is positively related to a higher EO in professionals.
- H2.** The depth of work experience in a job function is positively related to a higher EO in professionals.

2.3.2 The influence of breadth of work experience

Research has long associated a broad functional experience with entrepreneurship (Lazear, 2004). A broad experience across domains can develop entrepreneurial insights (Baron 2006 cited by Gabrielsson and Politis, 2012); improve entrepreneurial judgement (Marvel and Lumpkin, 2007), produces novel ideas (Gabrielsson and Politis, 2012), provides independence of discovering and exploiting opportunities (Kacperczyk & Younkin, 2015), and provides better willingness and motivation to be self-employed (Kacperczyk & Younkin, 2015). This is pronounced in individual with both industry and business experience (Marvel and Lumpkin, 2007) and such individuals develop the most successful companies (Timmons, 1994 cited by Barreira *et. al.*, 2011). Gabrielsson and Politis (2012) find that it is work experience across different job functions, rather than across industries, that provides entrepreneurial

inclination. Contrary to claims that new ventures are mainly based on technical innovation, Lazear (2004) find that entrepreneurs are likely to be generalists. He argues that though entrepreneurs are innovators, for the most part they are business innovators. Hsieh (2015) provides two ways generalists acquire broad experience: sequentially, where individuals move through various functions sequentially; and in parallel, where individuals experience multiple fields simultaneously. He argues that individuals who experience job functions in parallel are likely to be more entrepreneurial. He speculates that experiencing business functions in parallel provides important linkages across domains instinctively, whereas under sequential work experience, linkages within a specific domain get identified or generated. The premise of his argument is that knowledge combinations play a significant role in fostering an entrepreneurial posture. The following hypotheses arise:

- H3.** Work experience across different job functions is positively related to a higher EO in professionals.
- H4.** Work experience across different industries is positively related to a higher EO in professionals.

2.4. Job Design and Entrepreneurial Behaviour

Job design refers to the structure and configuration of jobs in the workplace (Oldham and Fried, 2016). Job design has intensively been studied in relation to its consequence to employee motivation and performance (Oldham and Fried, 2016), and limited studies relate it to behavioural outcomes beyond direct task performance (De Jong *et al.*, 2015). Herzberg's Theory of satisfaction and motivation forms the basis for job design research. The premise of the theory is that employee motivation is influenced by factors intrinsic to the work they perform.

According to Hackman and Oldham (1975) employees must experience a meaningfulness of work, a responsibility for work outcomes, and must have the knowledge of how work activities affect results for them to produce positive work outcomes. The positive work outcome is characterised by high intrinsic

motivation, work satisfaction, excellent performance, and a high reliability. Literature shows that these psychological states are driven by the job factors: autonomy, variety, task significance, task identity, and feedback from the job. According to De Jong *et al.*, 2015 autonomy and job variety are the main dimensions which strongly influence employee's motivation and performance.

Job Autonomy refers to the independence, freedom and discretion allowed in decision-making, work preparation and choosing work approaches (Breugh, 1985 cited by Morgeson and Humphrey, 2006). It can be categorised as structural and strategic autonomy. Structural autonomy refers to independence of decision making and freedom of control within organisational constraints. Strategic autonomy refers to independence and freedom of decision making and control beyond organisational constraints. Studies have found that anatomy increases employee perceived capability and self-efficacy (De Jong *et al.*, 2015), drives entrepreneurial venture creation (Burgelman, 2001 cited by Lumpkin, Cogliser and Schneider, 2009), and is strongly related to EO (De Jong *et al.*, 2015). Within organisations, research shows that autonomy inspires innovation and entrepreneurial intensity, and increases firm competitiveness and effectiveness (Burgelman, 2001 and Brock, 2003 cited by Lumpkin, Cogliser and Schneider, 2009).

Job variety refers to the extent to which a job will require the execution of different tasks involving the use of different skills and talents (Oldham and Fried, 2016). Morgeson and Humphrey (2006) posit that the performance of multiple skills is more challenging and requires more engagement. Job variety is associated with better individual performance (Oldham and Fried, 2016). Recent studies have observed its influence on individual entrepreneurial behaviour (De Jong *et al.*, 2015). De Jong *et al.*, 2015 found that job variety influenced perceived capabilities for entrepreneurial behaviour but was not significantly associated with higher order entrepreneurial behaviour. It influences entrepreneurial behaviour when it is coupled with specialisation and commitment in a specific market domain (Kacperczyk and Younkin, 2015). It is expected that individuals with broad experience, acquired through job variety, and entrepreneurial skills will be motivated and will have a better ability to

become an entrepreneur.

The job characteristics such as task significance, task identity and feedback from the job have not been studied in relation to entrepreneurial behaviour. The following hypotheses arise.

H5. Job Autonomy is positively related to a higher EO in professionals.

H6. Job Variety is positively related to a higher EO in professionals.

2.5. Conclusion of Literature Review

Entrepreneurial behaviour is characterised by innovativeness, proactiveness and a risk-taking propensity. These dimensions are measured at firm and individual level. Various combinations of internal and external motivations, personality characteristics, demographics and human capital influence entrepreneurial behaviour. Literature suggests that education, formal training and practical experience increase the capability for entrepreneurial behaviour. The outcomes of human capital investments are associated with innovativeness (Marvel and Lumpkin, 2007), proactiveness (Kraus 2013 cited by Belas and Sopkova, 2016) and a higher risk-taking propensity (Chen *et al.*, 2012). Experience is the human capital dimension most associated with entrepreneurial behaviour. Within the experience domain, business function and industry experience are credited for better entrepreneurial judgment (Shane, 2003 cited by Gabrielsson and Politis, 2012).

Work experience is operationalised in terms of depth and breadth. The depth of knowledge can produce creativity (Cohen and Levinthal, 1990), improve efficiency and decision making thus increasing the likelihood of discovering and exploiting opportunities (Shepherd and DeTienne, 2005). A broad functional or industry experience can provide entrepreneurial insights, improves entrepreneurial judgement and provides independence of discovering and exploiting opportunities. The structure and configuration of jobs can also influence motivation for entrepreneurial behaviour. Job autonomy and job variety are the dimensions found to strongly influence employee's motivation

and performance (De Jong *et al.*, 2015). Literature shows that autonomy increases employee perceived capability and self-efficacy, inspires innovation and drives entrepreneurial venture creation. Job variety is found to influence better individual performance and perceived capabilities for entrepreneurial behaviour.

Extant literature also associates higher education with abstract innovation (Marvel and Lumpkin, 2007) and a higher risk-taking propensity (Chen *et al.*, 2012). It also prepares individuals for market dynamics (Robinson & Sexton, 1994 cited by Bilic *et al.*, 2011). Higher education is usually a moderating variable in past entrepreneurial research (Gabrielsson & Politis, 2012). The theoretical framework shown in figure 3 is developed from extant literature.

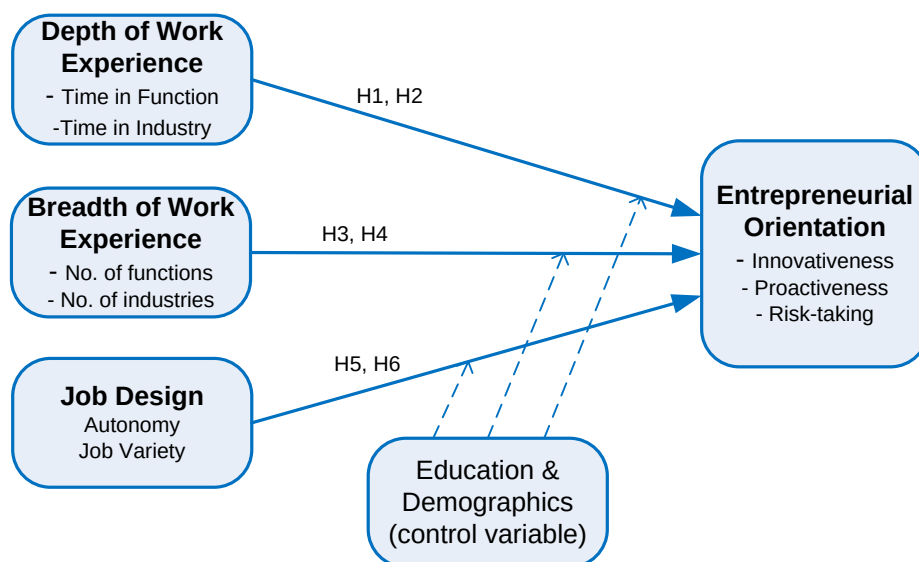


Figure 3. Conceptual Framework

- H1.** The depth of work experience in an industry is positively related to a higher EO in professionals.
- H2.** The depth of work experience in a job function is positively related to a higher EO in professionals.
- H3.** Work experience across different job functions is positively related to a higher EO in professionals.

- H4.** Work experience across different industries is positively related to a higher EO in professionals.
- H5.** Job Autonomy is positively related to a higher EO in professionals.
- H6.** Job Variety is positively related to a higher EO in professionals.

CHAPTER 3: RESEARCH METHODOLOGY

Research methodology refers to the methods used in conducting a research project, and provides guidelines for collecting, manipulating or interpreting data (Leedy, 2010). This section discusses the research methodology and covers the following: research methodology, research design, the research instrument, data collection and analysis; data interpretation, research limitation, and the validity and reliability of the research.

3.1 Research methodology /paradigm

The research follows a positivism paradigm. The hypotheses are tested through objective phenomena rather than subjective statements (Greener, 2008). A quantitative methodological approach is adopted. This method is used extensively in entrepreneurship research related to EO (Wales, 2016), and applied human capital theory (Gabrielsson and Politis, 2012). In this study, it will be used to test the hypotheses and answer questions related to the association between entrepreneurial orientation, the dependant variable, and work experience and job design, the independent variables.

3.2 Research Design

The research design is the strategy and investigative structure that is used to answer the research questions (Cooper and Schindler, 2001). The study uses a structured survey questionnaire. It adopts a correlational strategy of enquiry. In this approach, correlational statistic is used to describe the relationship between variables (Creswell, 2014).

3.3 Population and sample

3.3.1 Population

A population is the total collection of elements about which inferences can be

made (Cooper & Schindler, 2001). The research population was defined as engineering and commerce professionals in the manufacturing, mining, retail, energy, transport, construction, information, water & waste management and finance sectors in South Africa. The study targets professionals in general management and specialist functions.

3.3.2 Sample and sampling method

Sampling involves selecting certain elements in a population that are representative of the population (Cooper & Schindler, 2001). Sampling ensures speed of collecting data, accuracy of results and low research cost (Cooper & Schindler, 2001). The study uses a nonprobability sampling method where the targeted sample is chosen based on its convenience and availability. This is suitable considering the time constraints of the research. The average sample return in similar individual EO studies is 208 (De Jong, 2015; Gabrielsson and Politis, 2012; Antonites and Nonyane-Mathebula, 2012). Field (2009) suggests 10 to 15 cases of data per predictor variable for the regression analysis. To comply with the guidelines provided by Field (2009) and other EO studies, the research aimed to achieve a sample return of 200 respondents.

The sample was extracted from the following sources: LinkedIn South Africa, Wits Business School MBA and MM Entrepreneurship & New Venture Creation students, the researcher's professional colleagues; and professionals which were reached through mutual friends and colleagues. The MM Entrepreneurship & New Venture Creation sample was in the same class with the researcher. The MBA sample was reached through the Wits MBA co-ordinator. The link to the questionnaire was sent to the co-ordinator who then distributed it to the MBA class. The LinkedIn sample was mostly the researcher's connections. The other sample was reached through the InMail facility that is available on LinkedIn Premium. The participation was voluntary. The research is exploratory as a purposive nonprobability sampling method was used. This method resulted to a larger representation of professionals who were within reach to the researcher.

3.4 The research instrument

The measuring instrument is a structured survey questionnaire (Appendix A). It is developed from existing instruments for measuring demographics, work experience and individual EO. The instrument is divided into five sections: demographics, professional profile, work experience, individual EO and job design.

Demographics captures information on sex, age and race or ethnicity.

Professional profile is about level of education, professional discipline, duration of professional employment, industry of employment and present functional work. The South African standard industrial classification is used to distinguish between industries. Work functions are distinguished by ten functional areas. A blank space is provided for other functions.

Work experience is measured regarding depth and breadth (Gabrielsson and Politis, 2012). The depth of work experience is operationalized as the longest time spent in one industry and/or function. The breadth of work experience is operationalised as the count of different functions and/or industries the employee has worked.

Individual EO is measured using ten items from Bolton and Lane's (2012) individual EO scale and a single item relating risk-taking from De Jong *et al.*, 2015. The items are measured on a 7- point likert scale, 1 representing strongly disagree, 4 representing neutral and 7 representing strongly agree. Bolton and Lane's (2012) scale has been validated and tested on 1100 university students and 340 entrepreneurs and demonstrated reliability and validity to measure EO at individual level.

Job design elements, autonomy and variety, are taken from Morgeson and Humphrey's (2006) WDQ. The items are measured on a 7-point Likert scale similar to the EO scale. Job autonomy is measured by six items which cover work scheduling autonomy, decision-making autonomy and work method autonomy. Job variety is measured using four items which cover skill variety and task variety. The WDQ was validated on 540 employees in 243 different

jobs.

The resulting questionnaire has 30 questions which take approximately 15 minutes to complete. The questionnaire was verified by the supervisor and consent to proceed with the study was granted by faculty.

3.5 Procedure for data collection

A survey questionnaire was generated on Wits Qualtrics Software. Attached with the questionnaire was an introductory statement, a confidentiality clause and a consent form. A confidentiality clause assured respondent's anonymity and that information would only be accessible via the university library. The consent clause declared participation voluntary. The respondents gave consent to participate.

A link to the survey was distributed to the sample using Email, LinkedIn, WhatsApp and Qualtrics. The questionnaire was initially hand distributed to 12 respondents (church members and work colleagues) to identify glitches before it was sent to the larger sample. Some respondents misinterpreted the question; "*number of different functions worked in*" with the number of jobs the individual had worked. This was clarified in the questionnaire by way of an explanatory note i.e. "*production and marketing: total = 2*". The clarification note was also included in the question "*number of different industries worked in (i.e. paper and banking: total = 2)*". After the amendments, the researcher distributed the questionnaire to three work colleagues. They completed the questionnaire accurately and confirmed that all the questions were easy to understand. The questionnaire was uploaded to Qualtrics and a link was created. The researcher sent the link to his personal email to check the functionality of the automated questionnaire. After he was satisfied with the presentation and flow of the questionnaire, the link was distributed to 655 respondents that can be accounted for. One respondent provided feedback that Qualtrics did not allow for a section to be revisited once it was completed.

3.6 Data analysis and interpretation

The data was exported from Qualtrics to Excel. The data was sorted on Excel and then transferred to SPSS version 24. The statistical analysis was done by the researcher and verified by a statistician. This was done to validate the outcomes of the analysis.

3.6.1 Descriptive Statistics

Descriptive statistics analyse the spread of the data (range of scores, mean, mode, standard deviation and the demographic distribution) and variables such as education and professional profile.

3.6.2 EO Index

Individual EO is assessed using an EO index taken from Belas and Sopkova (2016). This measure is used to compare the EO of respondents by demographics, professional disciplines and functional areas.

$$IEO = \sum_{i=1}^3 \phi K0i \quad (1)$$

$\phi k0i$ is average value for each EO dimension

3.6.3 Exploratory Factor Analysis

EFA examines the extent to which the items reflect the underlying construct or constructs (Hornsby, Kuratko, Holt and Wales, 2013). Principal component analysis was done on the items for variables, job design and EO, using orthogonal rotation (varimax). Sampling adequacy using KMO and Bartlett test of sphericity were determined. Field (2009) advises that the acceptable limit for KMO is 0.5. The Bartlett test determines the significance of correlations between items.

3.6.4 Reliability

The reliability of the over-all scale was tested by measuring the Cronbach's α for each sub-scale. The Cronbach's α biases the result when many items are considered (Field, 2009). For this reason, it must be measured on sub-scales as well. A value of 0.7 and 0.8 is acceptable for Cronbach's α (Field 2009 citing Cortina, 1993 and Kline, 1999).

3.6.5 Multiple Regression

Multiple regression examines the nature of relationships between the predictor and dependent variables. Regression was done using the stepwise method. Before regression was done, the data-set was judged for its suitability for regression analysis. The data-set was checked for normality of errors, multicollinearity by examining the VIF and the tolerance statistic, homoscedasticity, independence of errors and independence of variables. Influential cases were examined by calculating the values of Cook's distance, Leverage and Mahalanobis distance. According to Field (2009) a Cook's distance value of less than one and a Leverage value that approaches zero will indicate that there are no influential cases. The control variables, education, age and gender, are included in the model. These variables affect entrepreneurial behaviour and are controlled for in specific studies (Gabrielsson and Politis, 2012; De Jong et.al., 2015).

3.1 Limitations of the study

- The study is quantitative and will not capture the qualitative aspects that relate work experience with EO.
- Due to time constraints, non-probability sampling using purposive sampling was used. Therefore, there was a large representation of sub-groups that were readily available. The results may not be generalisable to the population.
- The mediating effect of psychological factors, personal traits, socialisation,

culture, working environment and other factors related to EO are not considered.

3.2 Validity and reliability of research

The validity of the research refers to the quality of the experiment process and the accuracy of the results (Creswell, 2014). The instrument must measure accurately what it is intended to measure (Field, 2009). The researcher tested against two threats to the validity of the research. These are the internal and external validity. Reliability refers to whether the instrument provides consistent results across different settings. To be valid, the instrument must be reliable (Field, 2009).

3.2.1 External validity

External validity is the extent to which inferences from the sample can be accurately applied to other people, settings, and past and future situations (Creswell, 2014). According to Creswell, threats to external validity can arise due to the characteristics of individuals selected for the sample, the uniqueness of the participant's setting and the timing of the research. This makes it difficult to generalise results beyond the sample. To maintain external validity, the participants will be selected randomly across industries and regions. The researcher will restrict claims about groups to which the results cannot be generalised.

3.2.2 Internal validity

Internal validity is the extent to which the measuring procedures draw the correct inferences from the data collected from the population (Creswell, 2014). According to Creswell (2014) threats to internal validity arise from many factors including participants (history, maturation, regression, selection and mortality); experimentation (diffusion of treatment, demoralisation and rivalry) and procedures used during experimentation (testing and instruments). To maintain validity, this research uses validated measuring instruments to collect data. The

participants are selected randomly across different industries and regions. The size of the sample size resembles other EO studies.

3.2.3 Reliability

Reliability implies that the research technique or survey will yield similar results repeatedly (Cooper & Schindler, 2001). To maintain reliability, the researcher used techniques employed in prior research. The research instrument is developed from instruments used in similar studies. The reliability of the over-all scale was tested by measuring the Cronbach's α for each sub-scale.

3.2.4 Ethics

The researcher aimed to maintain the highest level of ethical conduct throughout the research. The researcher guarded against plagiarism. In instances where information was taken from earlier publications, proper referencing of the information was done.

The participation was voluntary, and respondents were not coerced to participate. There was no payment for participation. The respondents were notified about the conditions for participation and gave their consent to participate. The respondents could ask questions about any aspect of the study that they didn't understand. There were no foreseeable risks for participating in the research. The anonymity of respondents was maintained. The respondents were informed that information was for academic purpose and would be available to the research supervisor. The public could access the research findings through the university library.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 Introduction

This section provides the results. The section begins with the demographic profile of the respondents followed by a presentation of variable responses. Thereafter, it presents the results of descriptive statistics, EO index, validity and reliability of the measuring instrument, variable correlations and regression to test the nature and strength of relationships between the variables.

4.2 Demographic profile of respondents

The total responses were 228. Rejections were 4, and 22 questionnaires were incomplete and set aside. Therefore, the valid responses were 202. Figure 4 shows the gender distribution.

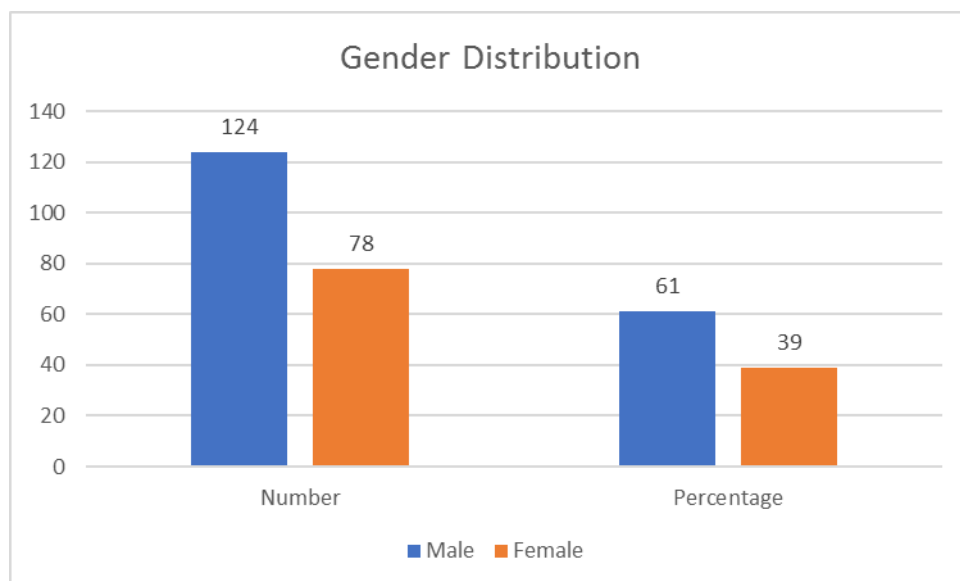


Figure 4. Number and percentage distribution of respondents

The male respondents were 61%, and females were 39%.

Figure 5 shows the spreading of respondents by age.

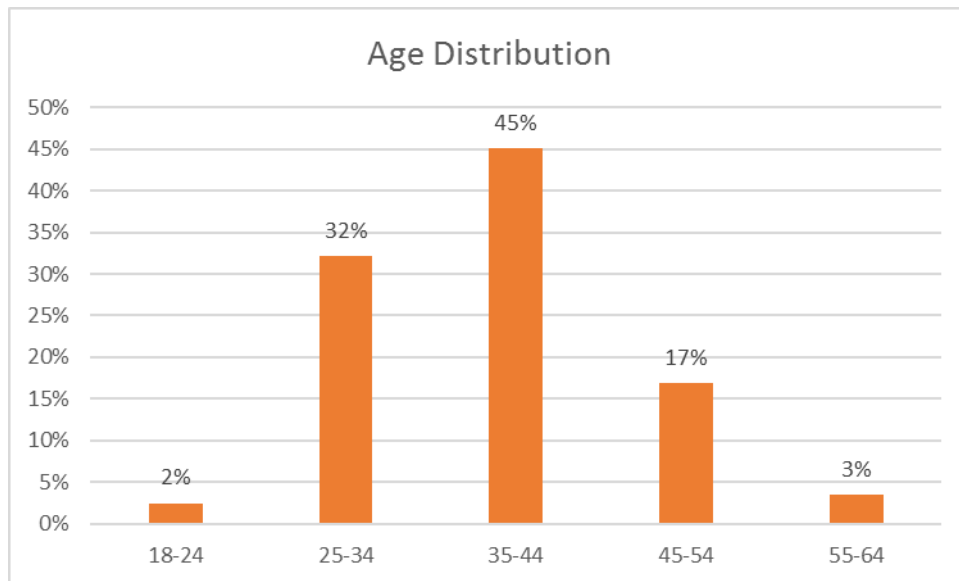


Figure 5. Distribution of respondents by age

There was a good representation of youth and mid-aged adults. The 35-44 age group was the majority making 45%. The 25-34 age group made 32%. There is a lesser representation of under 25s and over 44s.

Figure 6 shows the distribution by race or ethnicity.

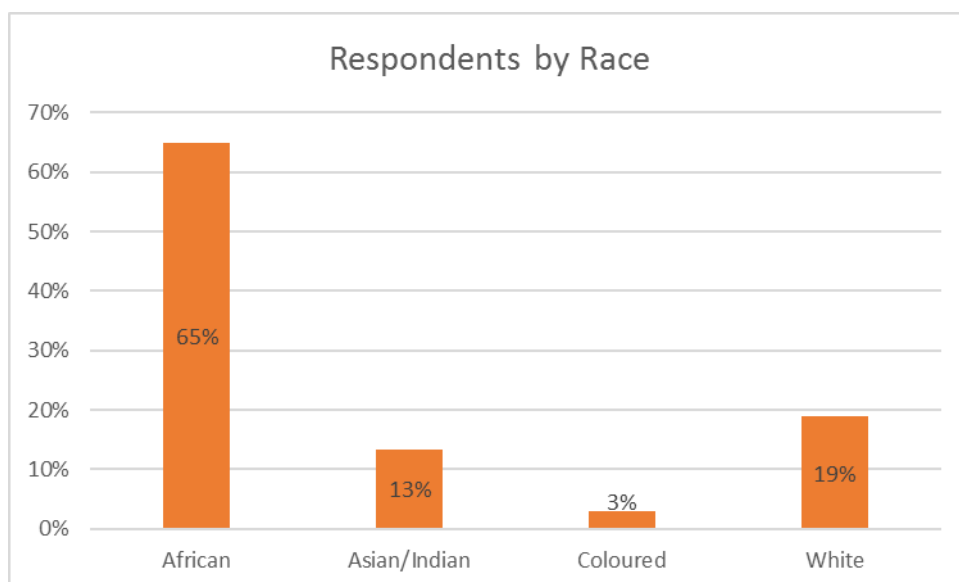


Figure 6. Distribution of respondents by race

Africans were the majority making 65% and followed by Whites at 19%. Indian/Asian and coloured respondents were 13% and 3% respectively.

Figure 7 shows the results by provinces. Three respondents did not indicate their province of employment. Respondents from Gauteng made 65% and Kwazulu Natal at 25%. There was little representation from other provinces.

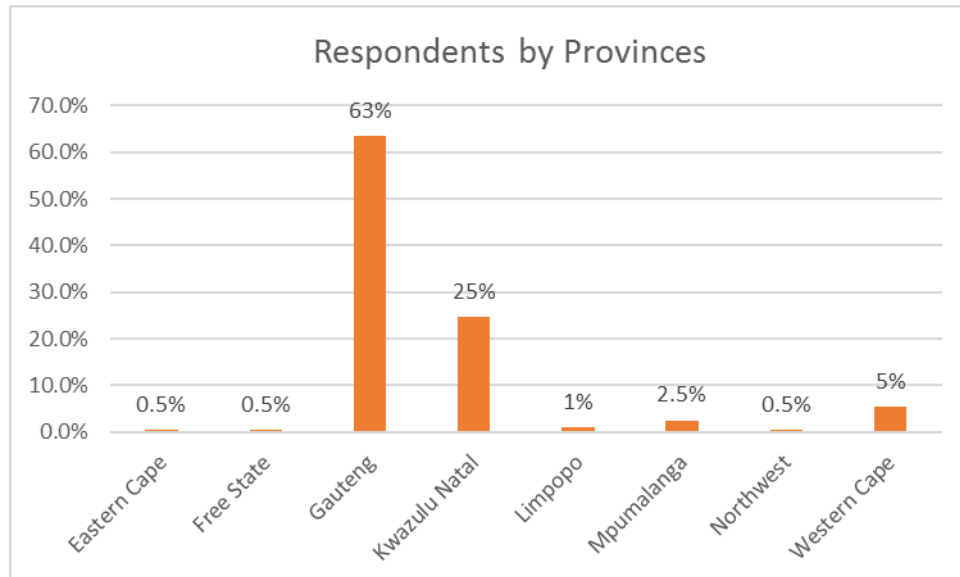


Figure 7. Respondents by Provinces

Figure 8 shows the educational level of respondents.

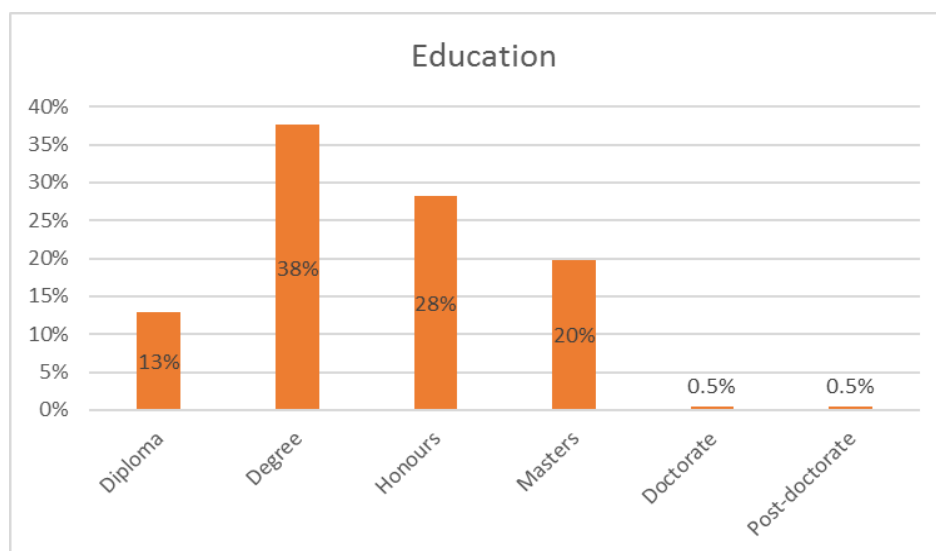


Figure 8. Respondent's education

The respondents whose highest qualification was a bachelor's degree were the majority (38%). Those with honours and master's degrees were 28% and 20% respectively. Diplomas were 13%. The doctoral and post-doctoral qualified

respondents were 0.5% each.

Figure 9 shows the professional disciplines represented.

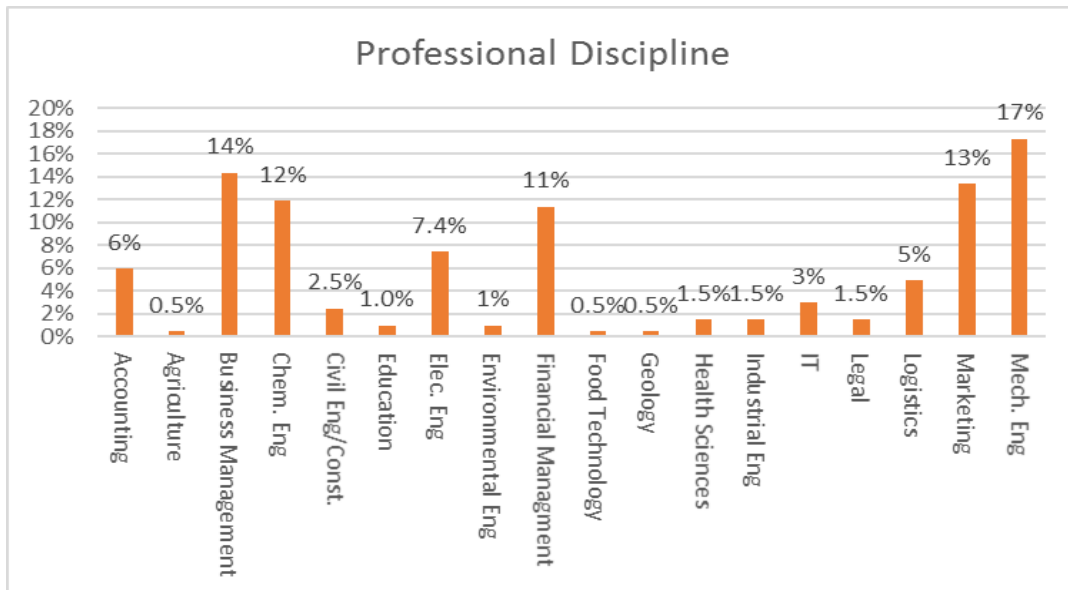


Figure 9. Respondent's professional discipline

Engineers made 41.4%. Those in commerce were 52%. The agriculture, health sciences, education, geology, legal and food technology respondents represented 5.5%. Figure 10 shows the representation by industry.

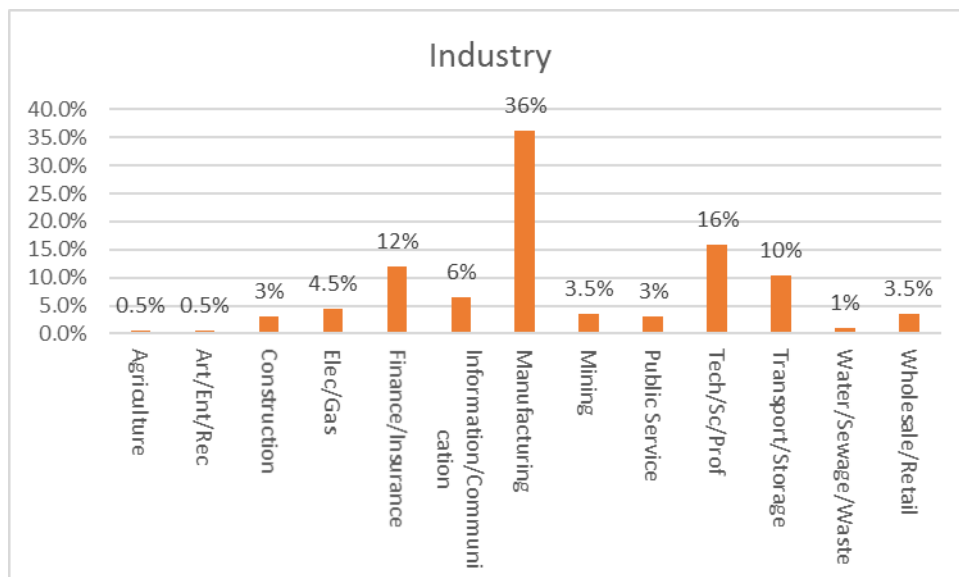


Figure 10. Respondents by Industry

The manufacturing sector dominated with 36%, 16% were in professional

services, 12% in finance/insurance, 10% in transport/storage, 6% in information/communication and 4.5% in electricity/gas industry. The remaining 15% is spread across the wholesale/retail, mining, construction, public service, water/waste, art/recreation and agricultural.

Figure 11 shows results for functional areas.

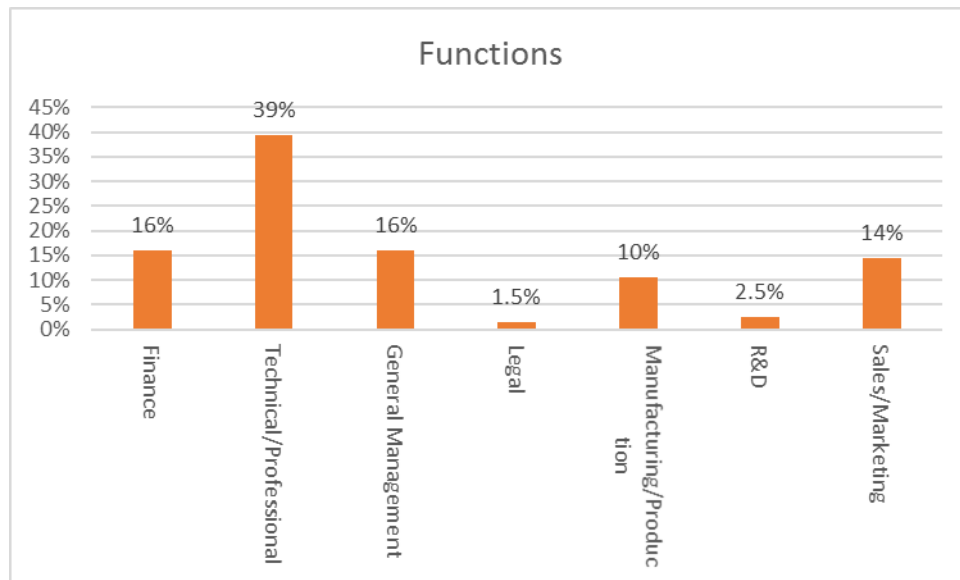


Figure 11. Respondent's functional areas

Most respondents work in technical/professional functions (39%), 16% are in general management, 16% in finance, 14% in sales/marketing and 10% in production. Only 2.5% are in R&D and 1.5% in legal functions.

Figure 12 shows the experience level of respondents. The majority (55%) had 7-15 years' working experience, 12% had 16-20 years, 11% had 4-6 years and 9% had 1-3 years' experience. Only 11% had more than 20 years' experience.

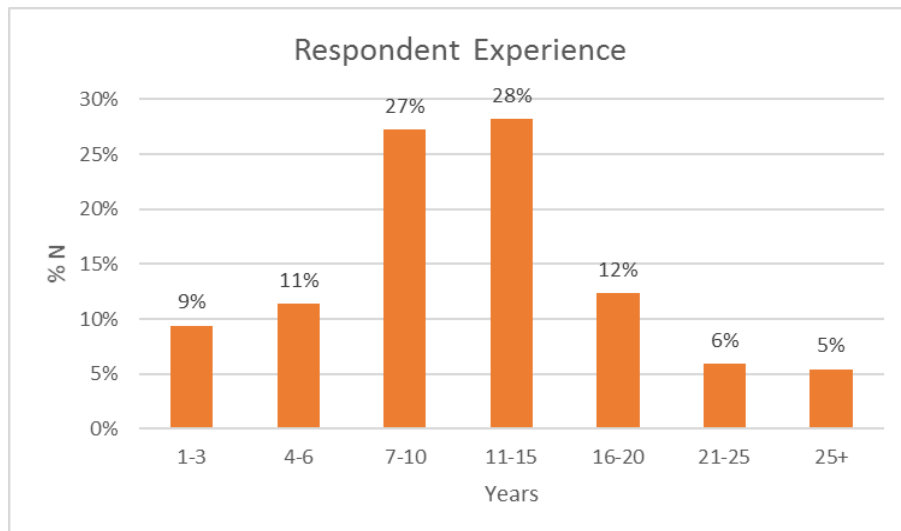


Figure 12. Respondent experience

The number of industries worked by respondents was evaluated. Figure 13 shows the results.

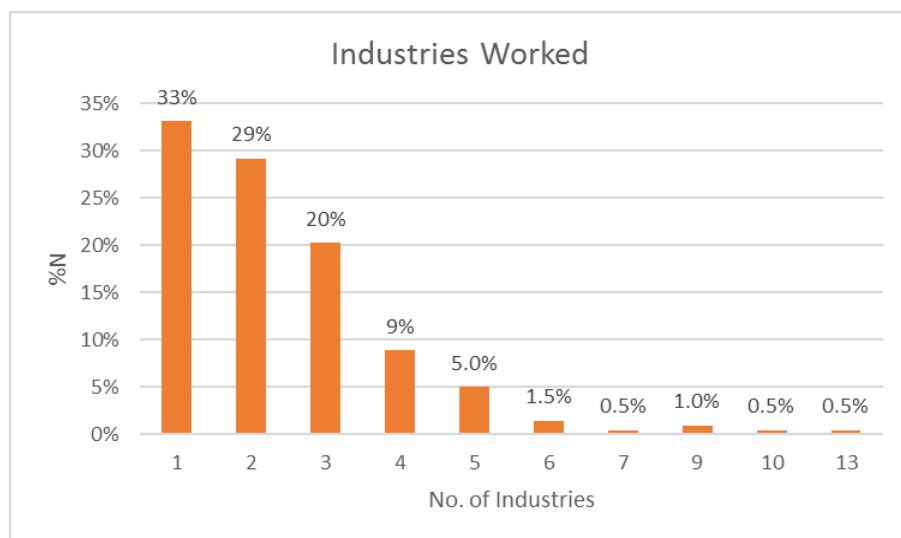


Figure 13. Number of Industries worked

Most respondents (82%) worked in no more than three industries.

The researcher evaluated the respondents' functional variety. Figure 14 shows the results. The results show that 86% have not worked in more than three different functions.

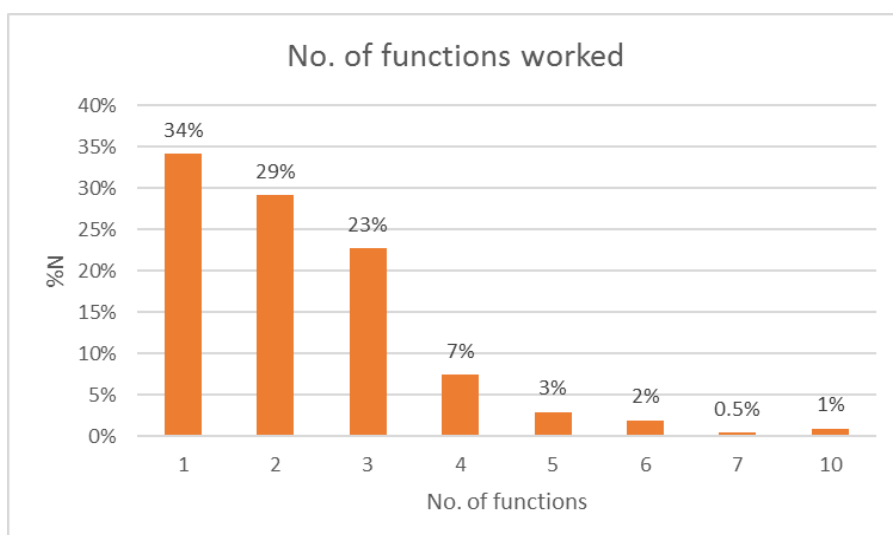


Figure 14. Number of functions worked

The researcher evaluated the longest time spent in each function. Figure 15 shows the results.

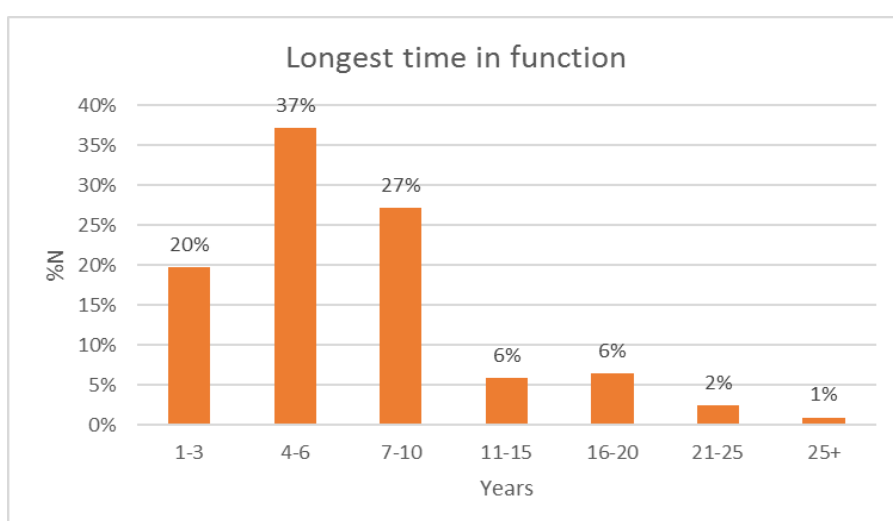


Figure 15. Longest time in function

Most respondents (37%) spend 4-6 years in one function, 27% spent 7-10 years, 20% spent 1-3 years, 6% spent 11-15 years, 6% spent 16-20 years, 2% spent 21-25 years and 1% spent over 25 years in a single function.

4.3 Responses to variables

The researcher evaluated responses to EO and job design variables. The

detailed results are in Appendix C. Table 1 shows a summary of responses to variable items.

Table 1. Variable responses to variables

Variable	Variable items	% Agree
Risk-taking	Ventures into the unknown	62
	Invests resources when there is a potentially high return	85
	Bold in risky situations	56
	Pursues opportunity even when there is a risk of high losses	47
Innovation	Often tries new and unusual activities	64
	Prefers unique projects and approaches	77
	Prefers unique ways of learning	77
	Prefer experimentation & novel problem-solving techniques	66
Proactiveness	Anticipates future demands	80
	Proactive in projects	84
	Takes initiative	90
Job Autonomy	Takes decisions about work schedule	80
	Decides how the job is done	72
	Have autonomy for planning work	76
	Use personal initiative and judgement at work	77
	Independence of decision making	69
Job Variety	Independence and freedom of doing work	71
	Job has multiple tasks	70
	Job has a variety of activities	77
	Job requires use of multiple skills	78
	Perform a variety of tasks	78

4.4 Descriptive analysis of variables

The data were checked for missing values, outliers and for normality. In total 19 missing values were recorded, 8 and 11 for EO and job design variables respectively. The missing values were replaced using series mean on SPSS. There were no outliers. Data were normally distributed. See Appendix D for results. Table 2 shows the descriptive analysis.

Table 2. Descriptive Statistics

Variable	N	Mean	Std Dev.	Std Err	Skew	Kurtosis	Min	Max
Risk taking	202	4.852	1.207	0.085	-0.404	0.123	1	7
Innovation	202	5.011	1.065	0.075	-0.274	0.033	2	7
Proactive	202	5.614	1	0.07	-0.798	1.034	1.33	7
Autonomy	202	5.246	1.318	0.093	-1.017	0.782	1	7
Variety	202	5.302	1.239	0.087	-0.826	0.283	1.5	7

The proactive variable has the highest mean score of 5.61. Risk taking has the lowest mean score of 4.85. Table 3 shows descriptive analysis by gender. Females had higher risk-taking, innovation, proactiveness mean scores compared to males. Males had higher job autonomy and job variety mean scores compared to females.

Table 3. Descriptive statistics by gender

Variable	Group	N	Mean	Std Dev.	Std Err	Min	Max
Risk taking	Male	124	4.817	1.171	0.105	2	7
	Female	78	4.907	1.267	0.144	1	7
Innovation	Male	124	4.936	1.017	0.091	2	7
	Female	78	5.131	1.133	0.128	2	7
Proactive	Male	124	5.546	0.98	0.088	1.33	7
	Female	78	5.722	1.021	0.116	3	7
Autonomy	Male	124	5.327	1.226	0.11	1.67	7
	Female	78	5.118	1.451	0.164	1	7
Job Variety	Male	124	5.389	1.181	0.106	1.75	7
	Female	78	5.164	1.322	0.15	1.5	7

The One-Way ANOVA examined the relationships between variables and gender. The results are shown in Table 4.

Table 4. ANOVA between gender, EO and job design variables

Relationship with Gender		Sum of Squares	df	Mean Square	F	Sig.
Risk-taking	Between Groups	0.392	1	0.392	0.268	0.605
	Within Groups	292.402	200	1.462		
	Total	292.795	201			
Innovation	Between Groups	1.837	1	1.837	1.625	0.204
	Within Groups	226.079	200	1.13		
	Total	227.916	201			
Proactive	Between Groups	1.492	1	1.492	1.494	0.223
	Within Groups	199.723	200	0.999		
	Total	201.215	201			
Autonomy	Between Groups	2.094	1	2.094	1.207	0.273
	Within Groups	346.946	200	1.735		
	Total	349.04	201			
Job Variety	Between Groups	2.438	1	2.438	1.593	0.208
	Within Groups	306.016	200	1.53		
	Total	308.454	201			

The difference between gender and variables, EO and Job design, is not significant. The p-values are higher than 0.05.

The researcher assessed the relationship between variables and age. Table 5 shows the results.

Table 5. ANOVA between age, EO and job design variables

Relationship with Gender		Sum of Squares	df	Mean Square	F	Sig.
Risk-taking	Between Groups	13.379	4	3.345	2.358	0.055
	Within Groups	279.415	197	1.418		
	Total	292.795	201			
Innovation	Between Groups	8.826	4	2.206	1.984	0.098
	Within Groups	219.091	197	1.112		
	Total	227.916	201			
Proactive	Between Groups	6.639	4	1.66	1.68	0.156
	Within Groups	194.576	197	0.988		
	Total	201.215	201			
Autonomy	Between Groups	10.333	4	2.583	1.502	0.203
	Within Groups	338.706	197	1.719		
	Total	349.04	201			
Job Variety	Between Groups	6.319	4	1.58	1.03	0.393
	Within Groups	302.135	197	1.534		
	Total	308.454				

The difference in mean scores between age and the variables is not significant.

The p-values are higher than 0.05.

The homogeneity of variance was checked using the Levene's statistic. The results are shown in Table 6.

Table 6. Test for homogeneity of variance

	Based on	Levene Statistic	df1	df2	Sig.
Risk taking	Mean	0.11	1	200	.74
	Median	0.11	1	200	.74
	Median & with adj. df	0.11	1	197.25	.74
	Trimmed mean	0.092	1	200	.761
Innovation	Mean	2.445	1	200	.12
	Median	2.67	1	200	.104
	Median & with adj. df	2.67	1	199.98	.104
	Trimmed mean	2.63	1	200	.106
Proactive	Mean	0.237	1	200	.627
	Median	0.164	1	200	.686
	Median & with adj. df	0.164	1	198.67	.686
	Trimmed mean	0.265	1	200	.607
Autonomy	Mean	3.777	1	200	.053
	Median	2.388	1	200	.124
	Median & with adj. df	2.388	1	193.06	.124
	Trimmed mean	3.359	1	200	.68
Variety	Mean	1.881	1	200	.172
	Median	2.191	1	200	.14
	Median & with adj. df	2.191	1	199.19	.14
	Trimmed mean	1.989	1	200	.16

Levene's test shows that difference in variances is not significant ($p > .05$).

The researcher analysed the EO index to a total score of twenty-one (21) across gender, age, professional discipline and functional area. Figure 16; figure 17; figure 18 and figure 19 show the results.

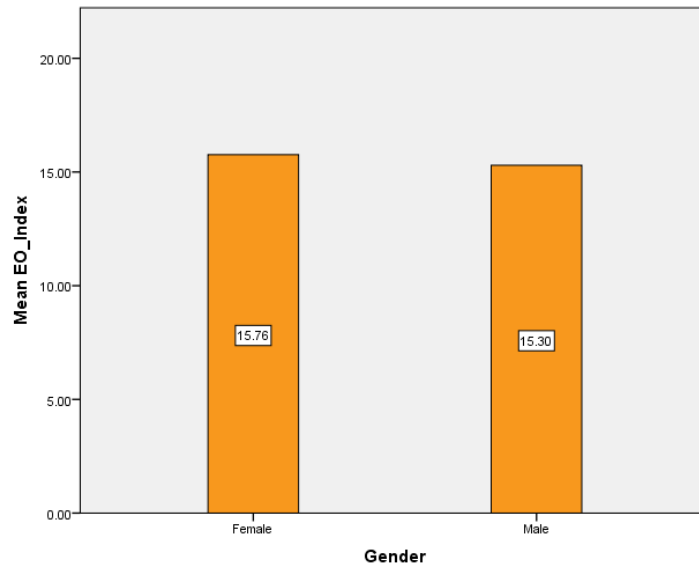


Figure 16. Mean EO Index for gender

The respondents showed a moderately high mean EO index. Females had a slightly higher mean EO index compared to males.

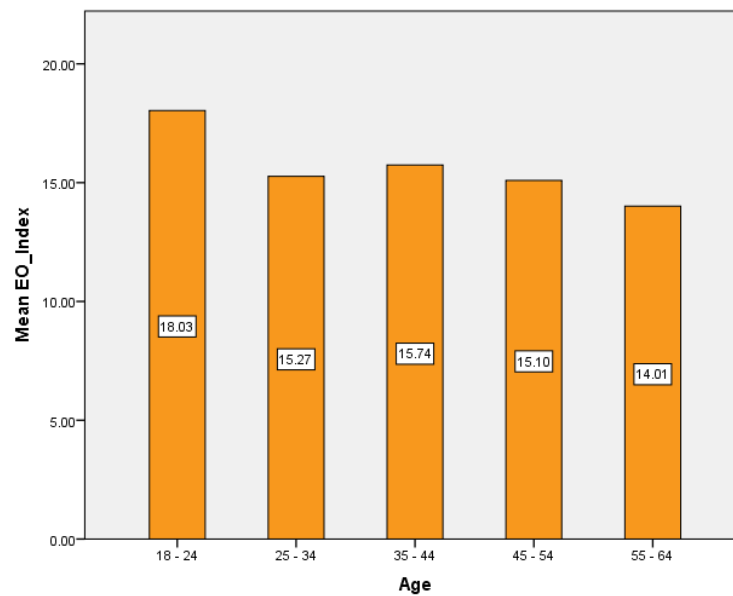


Figure 17. Mean EO index by age

The EO index is highest in the 18-24 age group followed by the 35-44 group. The EO index reduces from 45-54 age group and is lowest in the 55-64 age group.

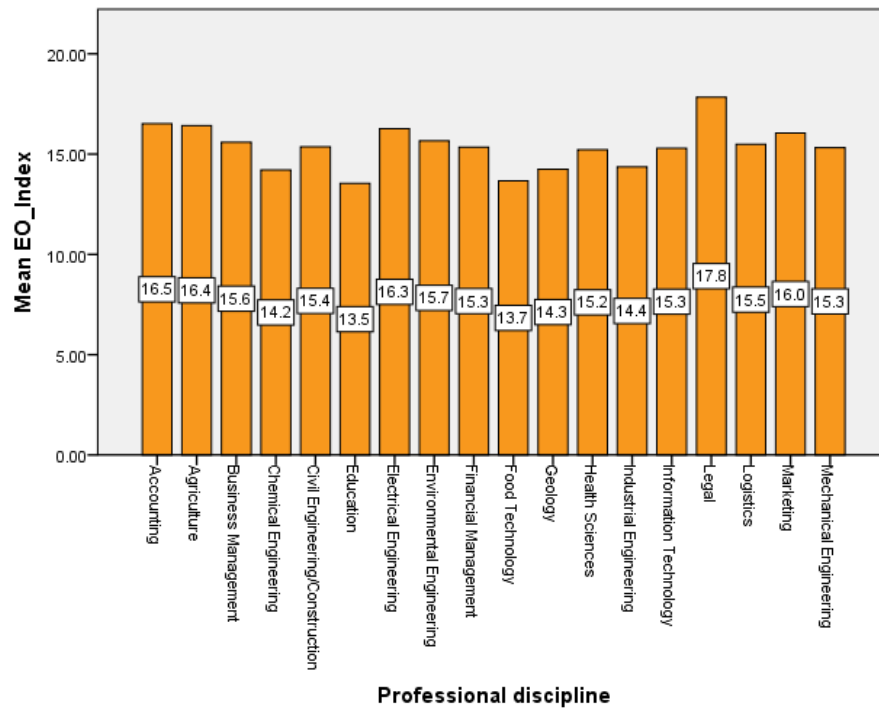


Figure 18. Mean EO Index by professional discipline

The legal professionals have the highest EO index (17.8) followed by accountants with 16.5. Those in agriculture followed at 16.4, electrical engineers at 16.3, marketing at 16.0, environmentalists at 15.7, business managers at 15.6, logistics at 15.5, civil engineers at 15.4, mechanical engineers, financial managers and information technologist at 15.3, health sciences at 15.2. Geologists, educators, food technologist, chemical and industrial engineers had a mean score that was lower than 15.

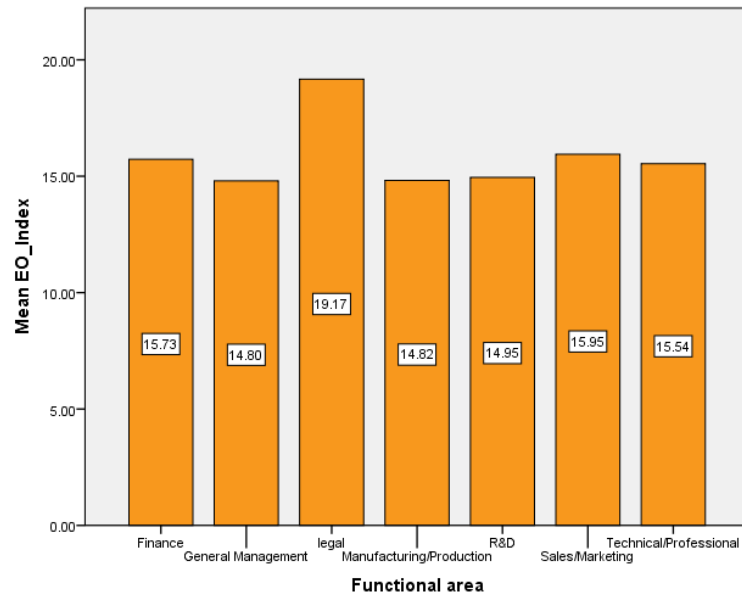


Figure 19. Mean EO Index by functional area

Respondents in legal practice had the highest EO index (19.17). Sales/marketing professionals achieved the second highest score (15.95), finance (15.73), technical/professional roles (15.54), R&D (14.95) and manufacturing/production personnel (14.82). Professionals in general management functions had the lowest EO index (14.80).

4.5 The validity of Measuring Instrument

The EFA is in Appendix E. PCA was conducted on 21 items using orthogonal rotation (varimax). Sampling adequacy was examined using the KMO. The Bartlett's test is used to check correlations between items. Table 7 show the results of KMO and Bartlett's tests.

Table 7. KMO and Bartlett's Test

Variable	No. of items	KMO	Bartlett's Test		
			Chi-SQR	df	p
EO	11	.884	1131.837	55	0.000
Job Design	10	.933	2028.333	45	0.000

The KMO = 0.884 and 0.933 for EO and job design variables respectively. This is well above the acceptable limit of 0.5 (Field, 2009). The Bartlett's Test of Sphericity $\chi^2(253)=1131.834$, $p<0.001$, indicates that correlations between EO items were significant.

The Bartlett's Test of Sphericity $\chi^2(253) = 2028.333$, $p < 0.001$ indicates that correlations between job design items were significant.

The analysis of eigenvalues results to four factors with eigenvalues over Kaiser's criterion of 1. These factors explain 72.6% of the variance and retained. Table 22 and Table 23 in Appendix E show the factor loadings after rotation and variance respectively. The items that load in factor 1 represent both job design elements, autonomy and variety. In the initial scale, these items are separate. Items in factor 2 represent risk-taking, factor 3 innovation and factor 4 proactiveness as per the initial EO scale.

4.6 Reliability of Measuring Instrument

The reliability analysis is in Appendix F. Table 8 shows reliability results for the overall EO scale, its elements innovation, proactiveness and risk-taking, and the job design scale.

Table 8. Reliability Statistics

Variable	No of items	Cronbach's α	Cronbach's α for standardised items
Overall EO	11	.89	.891
Risk-taking subscale	4	.853	.857
Innovation subscale	4	.816	.818
Proactiveness subscale	3	.855	.855
Job design	10	.957	.957

The Cronbach's α for the EO scale is .89. Subscales, innovation, proactiveness and risk-taking have Cronbach's α values of .82, .85 and .85 respectively. The job design subscale has a Cronbach's $\alpha = .96$. All items in each scale or subscale contribute to the reliability.

4.7 Variable Correlation

The relationship between the dependant (EO elements) and independent variables is examined using the Pearson's correlation. Table 9 provides a matrix of the correlation coefficients. Examining the correlations between independent

variables indicates no multicollinearity. Field (2009) suggests a correlation threshold of, $r > .9$, between independent variables for multicollinearity not to exist. Concerning independent variables, the highest correlation is between time in industry and time in function which is significant at $r = .696$, $p < 0.01$. Despite the significance of the correlation, the coefficient $r < .9$ indicates that the predictors measure different things.

Considering the relationships between the independent variables and EO, job design (made by autonomy and variety) has the highest significant correlation ($r = .372$, $p < 0.01$). It is likely that this variable will best predict EO. Time in industry and function are negatively correlated with EO at $r = -.181$, $p < 0.05$ and $r = -.186$, $p < 0.01$ respectively. Though significant the coefficients are weak ($r < .3$). The breadth of experience in the industry, represented by the number of industries worked has a weak positive significant correlation with EO ($r = .147$, $p < 0.05$). The breadth of experience by function has no significant relationship with EO. That means a breadth of functional experience will likely not explain EO.

Table 9. Correlation matrix for dependant (EO elements) and independent variables.

		EO Index	Risk taking	Innovation	Proactiveness	Job design	No of industries worked	No of funtions worked	Time in function	Time in industry
EO Index	Pearson Correlation	1								
	Sig (2 tailed)									
Risk Taking	Pearson Correlation	.834**	1							
	Sig (2 tailed)	.000								
Innovation	Pearson Correlation	.881**	.637**	1						
	Sig (2 tailed)	.000	.000							
Proactiveness	Pearson Correlation	.747**	.361**	.539**	1					
	Sig (2 tailed)	.000	.000	.000						
Job Design	Pearson Correlation	.372**	.164*	.353**	.430**	1				
	Sig (2 tailed)	.000	.02	.000	.000					
No of industries worked	Pearson Correlation	.147*	.148*	.068	.148*	.064	1			
	Sig (2 tailed)	.037	.035	.34	.042	.364				
No of functions worked	Pearson Correlation	.021	-.086	.086	.069	.177*	.296**	1		
	Sig (2 tailed)	.764	.225	.224	.328	.012	.000			
Time in function	Pearson Correlation	-.186**	-.209**	-.194**	-.041	.086	-.040	-.094	1	
	Sig (2 tailed)	.008	.003	.006	.566	.226	.571	.185		
Time in industry	Pearson Correlation	-.181*	-.219**	-.133	-.081	.107	-.238**	.164*	.696**	1
	Sig (2 tailed)	.010	.002	.058	.254	.131	.001	.020	.000	

** . Correlation is significant at $p < 0.01$ (2-tailed). * . Correlation is significant at $p < 0.05$ (2-tailed). N = 202 (series mean replacement of missing values)

4.8 Regression Analysis

Multiple regression using stepwise was done to test the nature of relationships between the dependent and independent variables. The model included control variables, age, gender and education. The full regression analysis is in Appendix G.

The researcher evaluated for normality, heteroscedasticity, multicollinearity and influential cases. Concerning heteroscedasticity, unequal variances did not exist. The Dublin-Watson value was 1.977, indicating that residuals were uncorrelated (Field, 2009). The values for the VIF and tolerance statistic were 1.011 and 0.989 respectively. Therefore, there was no multicollinearity between the predictor variables. The Cook's distance, Leverage and Mahalanobis distance were 0.1; 0.075 and 15.165 respectively. The data was judged to meet the requirements for regression analysis. Table 10 shows the results.

Table 10. EO regression results

Model		B	Std. Error	Beta	t (199)	p value
1	(Constant)	11.14	.78		14.22	.000
	Job Design	.41	.07	.37**	5.68	.000
2	(Constant)	12.03	.80		14.95	.000
	Job Design	.44	.071	.40**	6.17	.000
	Longest years in Industry	-.43	.12	-.22*	-3.47	.001

Note: $R^2 = 0.14$ for model 1, $\Delta R^2 = 0.05$ for model 2. * $p < 0.01$, ** $p < 0.001$

Two independent variables were statistically significant at $p < 0.05$. They explain 19% of the variance of EO. The depth of experience in an industry, operationalised as longest years in an industry, is negatively related with EO (Beta = -.22, SE = .12, $t(199) = -3.47$, $p = 0.001$). Therefore, hypothesis 1 is not supported.

The relationship between the depth of experience in a job function and EO is not significant. This is unexpected as the variable correlation in Table 9 indicated a significant negative relationship ($r = -.186$, $p < .008$). The results did

not support hypothesis 2. There is no significant relationship between work experience across different job functions and industries and EO. The results did not support hypothesis 3 and hypothesis 4.

Job design which comprises items of job autonomy and variety of the WDQ is positively associated with EO (Beta = .40, SE = .071, $t(199) = 6.17$, $p = 0.000$). Therefore, results find support for Hypothesis 5 and Hypothesis 6.

4.9 Summary of the results

The number of valid responses was 202. The distribution was 61% male and 39% female across 13 industries and 18 professional disciplines. The experience level ranged from below three years to over 25 years. The respondents show a moderately high mean score on EO and its dimensions. The highest EO index was in the 18-24 age group at 18.03. Females had a slightly higher EO index (15.76) than males (15.30). Except for electrical engineers, professionals in commerce fields showed a higher EO index than those in engineering, sciences and education.

PCA using orthogonal rotation (varimax) resulted in four factors with eigenvalues over Kaiser's criterion of 1. These factors explain 72.6% of the variance and retained. The Cronbach's α values were .89 and .96 for EO and job design scales respectively. The α values for subscales, innovation, proactiveness and risk-taking were .82, .85 and .85 respectively. The scales are reliable.

Multiple regression using stepwise provided the following findings: The depth of experience in an industry is negatively related with EO (Beta = -.22, SE = .12, $t(199) = -3.47$, $p = 0.001$). The depth of experience in a function was not significantly related to EO. The results did not support hypothesis 1 and hypothesis 2. The relationship between work across different job functions and industries, and EO was not statistically significant. The results did not support hypothesis 3 and hypothesis 4. Job design, which comprised items of job autonomy and variety has a positive significant relationship with EO (Beta = .40, SE = .071, $t(199) = 6.17$, $p = 0.000$). The results supported hypothesis 5 and

hypothesis 6.

CHAPTER 5: DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter elaborates on the results of the research. It begins with an overview of the demographic profile followed by a discussion on the evaluation of variables. After that, the section provides a discussion on the EO index and the hypotheses of the research. The chapter concludes by summarising the key findings.

5.2 Demographic profile of respondents

This section discusses the representations of respondents by gender, race/ethnicity, age, education, professional disciplines, working experience, industry of work, provinces of work and the EO index.

A total of 228 responses were received. The valid responses were 202. The distribution was 61% male and 39% female. This distribution reflects the dominance of males in the South African corporate sector. It is not expected to affect the outcome of the research.

The ethnicity/race distribution was 65% African, 19% White, 13% Indians/Asians and 3% Coloured. This distribution is influenced partly by the nonprobability sampling. It is also indicative of a growing educated black middle class in South Africa. Between 2004 and 2015, the tertiary educated black middle class increased by 2 million (Brown, 2016 citing John Simpson, a marketing professor at the University of Cape Town).

The age of respondents ranged from 18-24 to 55-64. The global entrepreneurship surveys indicate that TEA rates are highest in ages 25-34 followed by 35-44 (Kelley *et al.*, 2016). These age groups make 77% of the respondents. The 35-44 age group dominates at 45%. The 25-34 made 32%. The 45-54 age group made 17% and the 55-64 and 18-24 made 3% and 2% respectively.

Most respondents have a bachelor's degree as the highest qualification (38%). The respondents with honours and master's degrees were 28% and 20% respectively. Those with diplomas were 13%. The doctoral and post-doctoral qualified respondents represented 0.5% each. Higher education is associated with innovation (Marvel and Lumpkin, 2007) and a higher risk-taking propensity (Chen *et al.*, 2012). Due to their level of education and professional functions in the workplace, the researcher anticipated that professional employees were better able to advance sustainable entrepreneurship. They are the unit of interest in this research.

The research targeted engineering and commerce professionals. In this regard, engineers, IT specialists, logistics personnel, accountants, business managers, marketing professionals and financial managers constituted 94% of respondents. In addition to the targeted professional disciplines, a small sample (6%) comprised professionals in agriculture, health sciences, legal, food technology, geology, environmental science and education. The researcher achieved the intended distribution.

The experience level of respondents varied greatly. It varied from less than three years to above 25 years. Most respondents (55%) had between 7-15 years' working experience.

Most respondents (36%) were in the manufacturing sector, 16% in professional services, 12% in finance/insurance, 10% in transport/storage, 6% in information/communication and 4.5% in electricity/gas industry. There was little representation from the mining sector (3.5%), construction industry (3%), wholesale/retail (3.5%) and art/creation industries (0.5%).

The respondents were predominantly from Gauteng (63%) and KwaZulu Natal (25%). The Western Cape contributed 5%. There was negligible representation from Limpopo (1%). The Eastern Cape, Mpumalanga, Free State and Northwest accounted 0.5% each. There were no respondents from the Northern Cape.

5.3 Evaluation of variables

The researcher evaluated raw data for its suitability for principal component analysis and regression analysis. He evaluated for missing values, outliers, normality, sampling adequacy, heteroscedasticity, multicollinearity and influential cases.

In total 19 missing values were recorded. Missing values were replaced using series mean on SPSS. Outliers were evaluated using box-plots. There were no outliers. Normality was assessed using histograms and P-P plots. The dependent variable, EO, was normally distributed. Concerning sampling adequacy, the KMO value was 0.884 and 0.933 for the EO and job design respectively. The sampling was adequate for principal factor analysis. Field (2009) recommends $KMO > 0.5$ for sampling adequacy. Concerning heteroscedasticity, there were no unequal variances. The Dublin-Watson value was 1.977. Since it approached 2, the residuals were uncorrelated (Field, 2009). Examining for multicollinearity the values for the VIF and tolerance statistic were 1.011 and 0.989 respectively. Therefore, there was no multicollinearity between the predictor variables. Concerning influential cases, the values were 0.1; 0.075 and 15.165 for Cook's distance, Leverage and Mahalanobis distance respectively. The Cook's distance values less than 1 and leverage values approaching zero indicates that there are no influential cases (Field, 2009). The Mahalanobis distance less than 25 for a large sample and five predictor variables indicated that there were no outliers (Field 2009). The data was judged to meet the requirements principal factor analysis and regression analysis.

The independent variables in the research are the depth of experience, the breadth of experience and job design. The depth and breadth of experience are measured using Gabrielsson and Politis' (2012) linear scale. Ten items from the WDQ's autonomy and variety components measured job design on a 7-point Likert scale.

Principal component analysis resulted in the items for autonomy and variety loading on a single factor. This indicates that the items were perceived to

measure similar variables. The variable was termed job design. The scale represented excellent reliability with a Cronbach's α of .957. According to Field (2009), Cronbach α values between 0.7 and 0.8 are acceptable for reliability.

The dependent variable EO was measured using 11 items, 10 from Bolton and Lane's (2012) innovativeness, proactiveness and risk-taking measures and 1 risk-taking measure from De Jong *et al.*, 2015. The principal component analysis resulted in items loading on three factors (Table 22, Appendix E). Two items loaded on two factors but were in each case highly correlated to one factor. Other items related to innovation, proactiveness and risk-taking loaded as single factors. The Cronbach's α for the overall EO scale was .89. Cronbach's α for subscales, innovativeness, proactiveness and risk-taking was .82, .85, and .85 respectively. This indicated excellent reliability.

The final scale comprised four factors with eigenvalues greater than Kaiser's criterion of 1. The components explained 72.6% of the variance and were retained. The components related to innovativeness, proactiveness, risk-taking and job design. The scale was judged to be valid and reliable.

The researcher controlled for variables which commonly control entrepreneurial behaviour in similar studies. These are age, gender and education (Gabrielsson and Politis, 2012).

The research model explained 19% of the variance of EO. This indicates that work experience cannot strongly explain the variance of EO. Extant literature provides various psychological, personality traits and organisational factors that influence EO (Pittino *et al.*, 2017; Staniewski, 2016 and Brettel *et al.*, 2015).

5.4 The EO Index of Respondents

This research conceptualises EO as a construct made by a composition of innovativeness, proactiveness and a risk-taking propensity. The researcher evaluated the respondent's inclination towards EO dimensions. Thereafter, he evaluated the EO index by gender, age, professional discipline and work function.

The respondents reflected high mean scores for EO variables. On a total scale of 7, the mean values were 5.011, 5.61 and 4.85 for innovativeness, proactiveness and risk-taking, respectively. The respondents scored highest on proactiveness and lowest on risk-taking. Research by Amihud and Lev (1981) cited by Busenitz and Barney (1997) also found that corporate citizens were risk averse. They noticed that they adhered largely to accepted standards.

The males and females showed comparable mean scores, with females showing a slightly higher score on all EO dimensions. The finding is impressive considering that entrepreneurship surveys find women to be less entrepreneurially inclined than males (Kelley *et al.*, 2016). Caliendo *et al.*, 2014 studied the gender gap in entrepreneurship and found women to be more risk-averse. Synonymous with global surveys, their study had variation in education and employment status. Men were better educated and had better employment rank than females. The composition of the sample can explain the finding in this research. The education and work experience level are comparable. All respondents have a higher education and 87% have a university degree. Empirical research shows there are no gender differences between entrepreneurs when education and work experience is balanced between male and female (Greene *et al.*, 2003 cited by Brush *et al.*, 2017). Wilson *et al.*, 2007 cited by Brush *et al.*, 2017 found that education had a more significant impact in developing entrepreneurial self-efficacy in females than in males. Therefore, the differences in psychological and personality traits between women and men at professional level explains the finding. The women show a higher entrepreneurial disposition than males.

Concerning EO index, the highest score was in the age 18-24, followed by the 35-44 group. EO index reduced from age 45-54 and was lowest in the 55-64 age group. This finding supports Levesque and Minniti (2006) who found that older workers have lower perceived entrepreneurial return than younger workers.

The legal practitioners showed the highest EO index followed by accountants. They achieved mean scores of 17.8 and 16.5 respectively. Except for electrical engineers, respondents in the commerce professions show a higher EO index

than those in engineering, sciences and education. Greene (1978) cited by Dehart-Davis and Pandey (2005) associates engineering work with formalisation. Jarvenpaa and Staples (2000) cited by Karyotakis and Moustakis (2016) submits that formalisation constrain entrepreneurial behaviour. Lazear (2004) also finds that entrepreneurially inclined individuals are likely to be generalists than technical specialists. Therefore, the finding in this research supports extant literature.

The respondents in legal practice showed the highest EO index (19.17). They are followed by sales/marketing (15.95) and finance (15.73). The respondents in general management functions showed the lowest EO index score (14.80). This result indicates a prevalence of conventional management and its bias focus towards business administration as opposed to product development and business growth (Venter and Urban, 2015). Covin and Slevin (1991) submit that organisational culture is the primary antecedent of EO in corporations. Aloulou and Fayoller (2005) cited by Brettel, Chomik and Flatten (2015) consider organisational culture as the indirect result of management practice. Therefore, management is central to embedding EO in organisations. This research observation concurs with GEM 2016 report which found South Africa to have the lowest EEA rate (0.3%) in the sample of 62 economies. If managers are less entrepreneurial, employees in organisations will not engage in entrepreneurial activity. This must concern senior executives as empirical research has associated EO with better firm performance (Tuan, 2016; Todorovic and Todorovic, 2015) and competitiveness (Belas and Sopkova, 2016).

5.5 Discussion pertaining to depth of experience (hypothesis 1 and 2)

The conceptual framework developed hypotheses about how the depth of experience, operationalised as the amount of time in an industry or function, influences individual EO. Inspired by extant literature which associates the expert career path with better knowledge absorption, creativity and innovation (Cohen and Levinthal, 1990), intuitive thinking and better decision making

(Shepherd and DeTienne, 2005), and increased efficiency (Chase and Simon, 1973 cited by Shepherd and DeTienne, 2005), the researcher hypothesised, *hypothesis 1: The depth of experience in an industry is positively related to a higher EO in professionals*. Contrary to the hypothesis, the results found a negative significant relationship between the depth of experience in industry and EO (Beta = -.22, SE = .12, $t(199) = -3.47$, $p = 0.001$). Hypothesis 1 was not supported. The researcher further hypothesised, *hypothesis 2: The depth of experience in a job function is positively related to a higher EO in professionals*. The results found a negative correlation between depth of experience in a function and EO ($r = -.186$, $p < 0.01$). In the regression analysis, the relationship between depth of experience in a function and EO was not statistically significant. Therefore, hypothesis 2 was not supported.

These results indicate that spending too much time in an industry or job function constrains entrepreneurial behaviour in professional employees. This finding supports empirical research by Gabrielsson and Politis (2012) who found that prolonged experience in a domain stifled innovation and Amihud and Lev (1981) cited by Busenitz and Barney (1997) who associates the depth of experience with risk aversion. Spencer (1989) and Cliff et al., 2006 cited by Gabrielsson and Politis (2012) notice a prevalence by industry to reproduce established routines, order and limits. Developing proficiency in these routines essentially describes the knowledge and experience of individuals. The finding in this research is explained by submitting that professionals with extensive experience adhere primarily to established practices, as these epitomise their knowledge and experience. This inclination constrains their entrepreneurial behaviour.

5.6 Discussion on the breadth of experience (hypothesis 3 and 4)

The conceptual framework developed hypotheses about how the breadth of experience, operationalised as the number of industries or functions the respondents have worked. Previous research found a positive association between broad experience and entrepreneurial attributes such as

entrepreneurial insights (Baron 2006 cited by Gabrielsson and Politis, 2012); improved entrepreneurial judgement (Marvel and Lumpkin, 2007), creativity and innovation (Gabrielsson and Politis, 2012), independence of discovering and exploiting opportunities (Kacperczyk & Younkin, 2015) and entrepreneurial intentions (Kacperczyk & Younkin, 2015). Lazear (2004) submits that people with broad functional experience have a better ability for entrepreneurship. Inspired by this literature, the researcher hypothesised, *hypothesis 3: Work experience across different job functions is positively related to a higher EO in professionals*. The results indicated that the relationship between the number of job functions worked by the respondent and their EO was not statistically significant. Therefore, hypothesis 3 was not supported. The researcher had also hypothesised, *hypothesis 4: Work experience across different industries is positively related to a higher EO in professionals*. The results indicated a statistically insignificant relationship between the number of industries worked by the respondents and their EO. Hypothesis 4 was also not supported.

The research finds no relationship between broad work experience and individual EO. Since extant literature has associated broad experience with certain entrepreneurial attributes, the researcher expected that it would be related to EO. This finding can be explained by the findings of Cliff et al, 2006 cited by Gabrielsson and Politis (2012). They noticed a prevalence by industries to reproduce established routines, order and limits. Therefore, though working in different domains may inculcate broad knowledge, such knowledge can represent the established practices and standards of the different domains. Since the duration in a single domain is not prolonged, as in a specialist career path, there will not be sufficient time to influence the individual's entrepreneurial inclination.

5.7 Discussion pertaining on job design (hypothesis 5 and 6)

The research model developed hypotheses about the relationship between job design and EO. The job design variable comprises items of job autonomy and variety from the WDQ. Job design has intensively been studied concerning its consequence to employee motivation and performance (Oldham and Fried,

2016). Previous research has shown that job autonomy increases self-efficacy and is strongly related to EO (De Jong et al., 2015). Skill variety is associated with better individual performance (Oldham and Fried, 2016), and influences entrepreneurial behaviour (De Jong et al., 2015). The researcher hypothesised that "job *autonomy is positively related to a higher EO in professionals*". He further hypothesised that "*Job Variety is positively related to a higher EO in professionals*".

The principal component analysis using orthogonal rotation (varimax) resulted in the items for job design and variety loading as a single factor. The items were measuring the same thing. The researcher retained the items and termed the single variable, job design. The results show that job design was significantly positively associated with EO (Beta = .40, SE = .071, $t(199) = 6.17$, $p = 0.000$). Therefore, hypothesis 5 and hypothesis 6 were supported. Meynhardt and Dieffenbach (2012) cited by Karyotakis and Moustakis (2016) found that job autonomy provided employees with an opportunity to innovate and act entrepreneurially. The finding in this research concurs with their finding and indicates that in as far as work experience is concerned, the EO variance is mainly explained by job design. The jobs which provide structural and strategic autonomy or the variety of tasks which require the use of multiple skills will foster an EO in professionals.

5.5 Conclusion

The section discussed the results of the research. The results are based on 202 valid responses. The results show that the respondents have a moderately high EO index. Females had a slightly higher mean EO Index than males. The respondents in the legal discipline and those in the 18 -24 age group showed the highest EO index. Except for electrical engineers, the respondents in engineering, health sciences and education showed a lower EO index than those in the commerce fields. The respondents in general management functions had a lower EO index compared to other functions.

In the research model, the variance of EO is mainly explained by job design.

The results indicate a significant positive relationship between job design, characterised by autonomy and variety, and EO. Contrary to the research hypotheses, the results find a negative relationship between a depth of experience in industry and EO. In this regard, the depth of experience in an industry which was conceptualised as the amount of time spent in one industry had a negative significant relationship with individual EO. Accordingly, the depth of experience in a job function, conceptualised as the amount of time spent in a job function had a negative correlation with individual EO. The regression statistic was not significant between depth of experience in a job function and individual EO. The results indicated that relationship between breadth of experience and EO was not significant. In this regard, both the number of industries or job functions worked did not have a significant relationship with individual EO.

CHAPTER 6: CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

6.1 Introduction

This section discusses the conclusion of the research. The conclusion summarises the key findings based on empirical evidence. After that, it presents a discussion on the implication and recommendations of the research, and suggestions for further research.

6.2 Conclusions of the study

The research objective was to explore the influence of work experience on the EO of professional employees who work in South Africa. Anderson *et al.*, 2015 refers to EO as a combination of demonstrable entrepreneurial behaviours and an inclination towards risk-taking. This research conceptualises EO as a construct made by a combination of innovativeness, proactiveness and a risk-taking propensity (Nobile and Husson, 2016). EO is associated with better financial and non-financial performance (Pittino *et al.*, 2017; Marvel *et al.*, 2016) and competitiveness (Belas and Sopkova, 2016). Extant literature finds that EO is influenced by various combinations of internal and external motivations, and personality characteristics (Pittino *et al.*, 2017). Empirical research has also found that education and experience are associated with innovativeness (Marvel and Lumpkin, 2007), proactiveness (Kraus, 2013 cited by Belas and Sopkova, 2016) and a risk-taking propensity (Chen *et al.*, 2012). Work experience has further been associated with creativity and innovation (Cohen and Levinthal, 1990; Gabrielsson and Politis, 2012), better entrepreneurial judgement (Marvel and Lumpkin, 2007), intuitive thinking (Shepherd and DeTienne, 2005), and increased efficiency (Chase and Simon, 1973 cited by Shepherd and DeTienne, 2005). This research studied work experience in the context of EO.

The enquiry to the EO of professionals, precisely the influence of work

experience, was an effort to understand how work experience influences the entrepreneurial disposition of knowledge workers. The research was inspired by observable low TEA and EEA rates in South Africa, rates of 9.2% and 0.3% respectively (Kelley *et al.*, 2016). Empirical research shows that entrepreneurship stimulates economic growth, generates employment (Nandamuri *et al.*, 2012; Lumpkin and Dess, 1996) and improves the country's competitiveness (Belas and Sopkova, 2016). Low economic growth and unemployment are the significant challenges facing South Africa to-date. With their high human capital investment and industry exposure, it is speculated that knowledge workers are in a better position to advance sustainable entrepreneurship inside and outside of organisations. Therefore, the research addresses a national challenge.

EO is studied using Bolton and Lane's (2012) scale. Work experience is operationalised as depth and breadth of experience, and job design. The depth of experience represents a specialist career path which is gained by prolonged experience in a domain (industry or function). The breadth of experience refers to a generalist career path where individuals gain experience in different domains. Job design refers to the structure and configuration of jobs in the workplace (Oldham and Fried, 2016).

The research focus was the engineering and commerce sectors. A total of 202 valid responses was received from respondents who were predominately male (61%) and African (65%). The respondents were predominately from Gauteng (63%) and KwaZulu Natal (25%). The Northern Cape was not represented, and 12% was distributed across the six other provinces. All respondents had higher education, and 87% had a university degree. The experience level of respondents ranged from under three years to more than 21 years. The sample mainly comprised of engineers, IT specialists, logistics personnel, accountants, business managers, marketing professionals and financial managers. A small sample (6%) comprised professionals in agriculture, health sciences, legal, food technology, geology, environmental sciences and education.

EO was measured using Belas and Sopkova's (2016) EO Index. Overall, the respondents showed a moderately high EO index. The proactiveness

dimension had the highest mean score (5.61) and the risk-taking dimension the lowest (4.85). The low risk-taking propensity is typical of corporate citizens (Amihud and Lev, 1981 cited by Busenitz and Barney, 1997). Empirical research finds corporate citizens to adhere mainly to established procedures and standards. The proactive behaviour represented the efficient delivery of assignments and projects which is typical in established organisations.

The EO index scores between males and females were comparable, with females showing a slightly higher score in all EO dimensions. The global surveys and specific empirical studies often show men to be more entrepreneurially inclined than females (Kelley *et al.*, 2016; Caliendo *et al.*, 2014). However, in such surveys males usually have higher human capital investments than females. Interestingly, in this research the human capital investment for both males and females were comparable. Therefore, the finding was explained by the difference in psychological and personality traits between men and women at the professional level.

The 18-24 age group followed by the 35-44 age groups showed the highest EO index. The 55-64 age group showed the lowest. This finding is consistent with global surveys and previous empirical research (Kelley *et al.*, 2016; Levesque and Minniti, 2006).

The legal practitioners showed the highest EO index when compared to other professions. Except for electrical engineers, commerce professionals showed a higher EO index than those in engineering. The work of engineers is associated with formalisation and constrains workers to comply with bureaucratic requirements (Greene, 1978 and Dehart-Davis and Pandey, 2005 cited by Karyotakis and Moustakis, 2016). Too much formalisation constrains entrepreneurial behaviour (Jarvenpaa & Staples, 2000 cited by Karyotakis and Moustakis, 2016).

The research finds that general managers have the lowest EO index. This finding indicates a prevalence of conventional management practices in the South African corporate sector. This finding suggests that the low EEA (0.3%) in South Africa is not a result of low employee EO, but rather a widespread culture

within organisations. Chomik and Flatten (2015) consider organisational culture as the consequent result of management practice. Therefore, if managers are less entrepreneurial, employees are not likely to be involved in entrepreneurial activity in the workplace.

The research model did not strongly predict the variance of EO. Extant literature shows that EO is strongly driven by combinations of internal and external motivations, and personality characteristics (Pittino et al., 2017). In organisations, it is moderated by the internal work environment (Todorovic and Todorovic, 2015; Karyotakis and Moustakis, 2016).

Concerning the research hypotheses, the research finds that working too long in a domain constrains entrepreneurial behaviour. The results showed a significant negative relationship between time spent in industry and individual EO. Previous empirical research has found that prolonged experience in a domain stifled innovation (Gabrielsson and Politis, 2012) and led to risk aversion (Amihud and Lev, 1981 cited by Busenitz and Barney, 1997). The premise is that specialist mostly adhere to established practices and standards, as these epitomise their knowledge and experience. Though extensive experience in a domain has been associated with creativity, intuitive thinking, better decision making and increased efficiency (Cohen and Levinthal, 1990; Shepherd and DeTienne, 2005), the finding in this research suggests that these do not indicate entrepreneurial behaviour. They also exist within conventional domains.

The research also found that broad experience across different domains does not influence individual EO. This finding was unexpected as previous empirical research has found the broad experience to be positively related with entrepreneurial attributes such as innovation, independence of discovering and exploiting opportunities, and better entrepreneurial judgement (Marvel and Lumpkin, 2007; Gabrielsson and Politis, 2012; Kacperczyk & Younkin, 2015). Though such qualities are related to entrepreneurial behaviour, they do not represent a higher order EO construct of innovativeness, proactiveness and risk-taking propensity. The researcher explains this finding from the findings of Cliff et al., 2006 cited by Gabrielsson and Politis (2012). They noticed a prevalence by industries to reproduce established routines, order and limits.

Therefore, though working in different domains may inculcate broad knowledge, such knowledge can be limited to established practices and standards of the different domains. Since the duration in a single domain may not be prolonged, as in a specialist career path, individuals may not alter their entrepreneurial inclination.

Concerning work experience, the variance of EO is mainly explained by the way jobs are designed in the workplace. The results showed a significant relationship between job design and EO. The jobs which offer strategic and structural autonomy and those which allow employees to engage in a variety of tasks using a variety of skills are positively related to EO. Previous empirical research has found a healthy positive relationship between job autonomy and EO (De Jong *et al.*, 2015; Meynhardt and Dieffenbach, 2012 cited by Karyotakis and Moustakis, 2016). De Jong *et al.*, 2015 also found a positive correlation between job variety and EO, but the relationship mattered only in the absence of autonomy. However; their measurement of job variety was limited to task variety and did not consider skill variety. Morgeson and Humphrey (2006) submit that it is the performance of multiple skills rather than tasks which require better individual engagement.

6.3 Implications and Recommendations

This research has theoretical and practical implications.

6.3.1 Theoretical Implications

This research advances literature by revealing a relationship between an individual's work experience and their EO. The individual's EO is studied in a developing country context using the measures that derive from the original EO scale. The researcher is not aware of a similar study in South Africa. Bolton and Lane (2012) submit that individual EO studies predominantly emphasize personality traits, entrepreneurial attitudes and loosely defined entrepreneurial attributes. Work experience has also been extensively studied concerning cognitive abilities, entrepreneurial attitudes and attributes (Shepherd and

DeTienne, 2005, Marvel and Lumpkin, 2007; Gabrielsson and Politis, 2012; Kacperczyk & Younkin, 2015). Therefore, studying the influence of work experience on individual EO using measures that are derived from the original EO scale provides unique academic insights. Concerning work experience, the research exposes that the variance of EO is explained mainly by the structure and configuration of jobs in the workplace. It also provides insight on how the anatomy of an individual's work experience can influence their EO. It reveals that working too long in a domain constrains the individual's EO. It also reveals that working in different domains is not related to individual EO.

6.3.2 Practical Implications

The research provides insight on aspects of work experience that foster an entrepreneurial posture on the organisation's human resource. Employers seeking to advance entrepreneurship in their organisations must look at the design of jobs in the workplace. The research shows that jobs which offer structural and strategic autonomy, and those which allow employees to engage in a variety of tasks using a variety of skills are positively related with individual EO.

6.3.3 Professional Employees

Those professionals who seek to develop an entrepreneurial posture may need to guard against spending too much time in a domain. The research shows that prolonged work in a domain constrains individual EO. Hsieh (2016) finds that even with individuals who experience multiple domains simultaneously, entrepreneurial intentions begin to diminish after four years. The professionals may need to consider the extent to which their current or prospective job functions provide autonomy or variety that requires the use of different skills. This will assist them structure their development accordingly. It will also assist them make broadminded decisions when they move between jobs.

6.3.4 Employers

The research found that individuals in general management functions had the lowest EO index compared to other functional areas. Therefore, employers seeking to foster or maintain an entrepreneurial posture in their organisations may need to review their management strategies and practices. Karyotakis and Moustakis (2016) submit that entrepreneurship is essential for organisational survival, advancement and increased profitability. If managers are less entrepreneurial, employees will likely not engage in entrepreneurial activity in the workplace. Employers may also need to employ young professionals in positions of influence in their organisations. This research shows that individual EO is highest in the 18 – 24 age group, followed by the 35 -44 and 25 -34 age groups. The EO index reduces after 44 years and is lowest in the 55-64 age group. Levesque and Minniti (2006) support this finding. They found that older workers have lower perceived entrepreneurial return than younger workers. The employers may also need to have a policy on staff rotation. This research shows that spending too much in a domain can constrain individual EO.

6.4 Suggestions for further research

The research studied job design using two elements, autonomy and variety, from the WDQ. The factor structure of the scale became problematic and all items loaded as a single factor. This loading suggested that the items were perceived to measure similar variables. There is a need to further refine the items in the WDQ to improve the autonomy and variety factors. A refinement of the scale will provide further insight on job factors which mostly relate to EO. Additional insights can be exposed by including all the broad categories of the WDQ to study the variance of EO. This inclusion will provide a comprehensive analysis of how job factors and those factors which link jobs to the broader working environment influence an individual's EO.

The study was conducted using a non-probability sampling technique on a target sample. This resulted to a large representation of sub-groups that were readily available to the researcher. The research is therefore not generalisable

to the entire population. There is a need to conduct further research using a probability sampling method so that the result can be based on probability theory, and generalisable to the population.

The research can be expanded to understand the factors that lead to higher EO index in some professions compared to others. The study found that legal practitioners had the highest EO index compared to other professionals. It also found that the commerce professionals generally had a higher EO index than engineers, scientists and those in education. The factors which lead to such differences are a subject of further research.

Qualitative research can provide a deeper insight on the factors that lead to a negative relationship between a specialist career path and EO.

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APPENDIX A: RESEARCH INSTRUMENT & CONSENT LETTER

Demographics: Please mark with X in most applicable

	18-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs			
Age	O	O	O	O	O			
	Male	Female						
Gender	O	O						
	Diploma	Degree	Honours	Masters	Doctorate	Post Doctorate		
Highest Qualification	O	O	O	O	O	O		
	GP	MP	NW	NC	FS	KZN	EC	WC
Province of employment	O	O	O	O	O	O	O	O

Work Experience information (Please mark with X in most applicable)

Industry	Mining	O	Wholesale/Retail	O	Finance/Insurance	O		
	Manufacturing	O	Construction	O	Technical/Sci/Prof.	O		
	Transport & Storage	O	Water supply/sewage/waste	O	Art/ENT/recreation	O		
	Electricity/Gas	O	Information/Communication	O	Other (specify)			
Professional Discipline	Accounting	O	Marketing	O	Mech. Eng	O	Industrial	O
	Financial Management	O	Civil Eng	O	Mining	O	Other (specify)	
	Business Management	O	Elect. Eng	O	Chem. Eng	O		
Functional Area	General Management	O	Manuf/Prod.	O	Finance	O	Tech/Prof.	O
	R&D	O	Sales/Marketing	O	Legal	O		
No. of years of professional experience (i.e. 2 yrs)			No of different industries worked in (i.e. paper & banking. Total = 2)					
Longest No. of years in one industry (i.e. mining 2 yrs)			No. of different functions worked in (i.e. production & marketing. Total = 2)					
Longest No. of years in one function i.e. engineering- 2yrs								

Individual Entrepreneurial Orientation

Please mark with X in most applicable to you

Strongly disagree

Strongly agree

Questions	1	2	3	4	5	6	7
I like to take bold action by venturing into the unknown							
I am willing to invest a lot of time and/or money on							
I tend to act "boldly" in situations where risk is involved.							
When large interests are at stake, I go for the big win even							
I often like to try new and unusual activities that are not							
In general, I prefer a strong emphasis in projects on unique,							
I prefer to try my own unique way when learning new things							
I prefer experimentation and original approaches to							
I usually act in anticipation of future problems, needs or							
I tend to plan ahead on projects.							
I prefer to 'step up' and get things going on projects rather							

Job Design information

Please mark with X in most applicable to you

Strongly disagree

Strongly agree

Questions	1	2	3	4	5	6	7
The job involves a great deal of task variety							
The job allows me to make my own decision about how to							
The job involves doing a number of different things.							
The job allows me to decide on the order in which things are							
The job allows me to plan how I do my work							
The job requires me to utilize a variety of different skills in							
The job gives me a chance to use my personal initiative or							
The job allows me to make a lot of decisions on my own							
The job requires the performance of a wide range of tasks							
The job gives me considerable opportunity for							

Dear Participant

Towards the completion of a Master of Management degree in Entrepreneurship and New Venture Creation at the Wits Business School, I am conducting research on the influence of work experience on the entrepreneurial orientation of professionals working in South Africa. You are invited to participate in the survey which will take approximately 10 min of your time.

Please note that your participation is completely voluntary and you can withdraw at any time without penalty. The study is anonymous and you are not required to provide information about your identity. The data will be kept confidential and available to me and my supervisor. The findings of the study will be used for academic purpose and accessible through the university library. Your participation in the study is highly appreciated.

By signing below, you are indicating that you have freely consented to participate in this research.

Should you have any questions and/or concerns, I can be reached on the following contact details:

Researcher Name: Duduza Madlala

Email: 688324@students.wits.ac.za

I agree to participate

☐ No

☐ Yes

APPENDIX B: CONSISTENCY MATRIX

Work experience and the evidence of entrepreneurial orientation of South Africa professionals					
Sub-problem	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
How does the anatomy of work experience influence the EO of professionals?	Marvel et al, 2014; Gabrielsson & Politis, 2012; Marvel & Lumpkin, 2007; Hsieh, 2015; Rutherford and Holt, 2004; Ohyama, 2015; Belas and Sopkova, 2016; Cassar, 2014; Staniewski, 2016; Oe & Mitsuhashi, 2013; Cohen & Levinthal, 1990; Shepherd & DeTienne, 2005; Busenitz & Barney, 1997; Cliff, Jennings & Greenwood, 2006; Lazear, 2004; Kacperczyk & Younkin, 2015; Barreira et al., 2011	H1: The depth of work experience in an industry is positively related to a higher EO in professionals. H2: The depth of work experience in a job function is positively related to a higher EO in professionals. H3: Work experience across different job functions is positively related to a higher EO in professionals. H4: Work experience across different industries is positively related to a higher EO in professionals.	Survey Questionnaire; LinkedIn; Wits MBA students; Wits MM ENVC students, Researcher colleagues.	Nominal, Ordinal, Scale	Descriptive statistics; Correlation analysis; Exploratory Factor Analysis; Reliability; Multiple regression analysis

Work experience and the evidence of entrepreneurial orientation of South Africa professionals					
Sub-problem	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
How does job design influence the EO of professionals?	De Jong, 2015; Karyotakis & Moustakis, 2016; Chen and Chang, 2015; Oldham & Fried, 2016; Hackman & Oldham, 1975; Morgeson & Humphrey, 2006; Lumpkin, Cogliser & Schneider, 2009; Kacperczyk & Younkin, 2015;	H5: Job autonomy is positively related to a higher EO in professionals. H6: Job variety is positively related to a higher EO in professionals	Survey Questionnaire; LinkedIn; Wits MBA students; Wits MM ENVC students, Researcher colleagues.	Nominal, Ordinal, Scale	Descriptive statistics; Correlation analysis; Exploratory Factor Analysis; Reliability; Multiple regression analysis

APPENDIX C: VARIABLE RESPONSES

Table 11. Response to risk-taking

Risk taking	(1 strongly disagree, 7 strongly agree)						
N = 202	1	2	3	4	5	6	7
I like to take bold action by venturing into the unknown.	2%	2%	10%	24%	25%	20%	17%
I am willing to invest a lot of time and/or money on something that might yield a high return.	1%	2%	4%	8%	31%	23%	31%
I tend to act "boldly" in situations where risk is involved.	2%	5%	11%	26%	30%	16%	10%
Where large interests are at stake, I go for the big win even when things could go seriously wrong.	6%	11%	12%	25%	23%	13%	9%

Table 12. Responses to innovation

Innovation	(1 strongly disagree, 7 strongly agree)						
N = 202	1	2	3	4	5	6	7
I often like to try new and unusual activities that are not typical, but not necessarily risky.	0.5%	4%	11%	20%	30%	19%	15%
In general, I prefer a strong emphasis in projects on unique, one of a kind approaches, rather than revisiting tried and tested approaches used before.	0.5%	6%	6%	24%	32%	20%	12%
I prefer to try my own unique way when learning new things rather than doing it like everyone else does.	0%	2%	7%	14%	34%	27%	16%
I prefer experimentation and original approaches to problem solving rather than using methods others generally use for problem solving.	1%	4%	8%	19%	27%	26%	13%

Table 13. Response to proactiveness

Proactiveness	(1 strongly disagree, 7 strongly agree)						
N = 202	1	2	3	4	5	6	7
I usually act in anticipation of future problems, needs or changes.	0%	1%	5%	14%	35%	29%	16%
I tend to plan ahead on projects.	0.5%	0.5%	4%	10%	25%	34%	25%
I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.	0.5%	0.5%	2%	6%	27%	26%	37%

Table 14. Response to job autonomy

Job Autonomy	(1 strongly disagree, 7 strongly agree)						
N = 202	1	2	3	4	5	6	7
The job allows me to make my own decision about how to schedule my work.	1.5%	3.5%	5%	11%	22%	33%	23%
The job allows me to decide on the order in which things are done on the job.	3%	4.5%	7%	13.4%	20%	33%	19%
The job allows me to plan how I do my work.	0.5%	3%	6%	15%	19%	36%	21%
The job gives me a chance to use my personal initiative or judgement in carrying out the work.	3%	4%	3%	13%	20%	37%	20%
The job allows me to make a lot of decisions on my own.	4.5%	4.5%	6%	14%	22%	33%	14%
The job gives me considerable opportunity for independence and freedom in how I do the work.	4.5%	3.5%	6%	14%	24%	28%	19%

Table 15. Response to job variety

Job Variety	(1 strongly disagree, 7 strongly agree)						
N = 202	1	2	3	4	5	6	7
The job provides a great deal of task variety	2%	3.5%	7.4%	16.3%	26%	25%	19%
The job involves doing a number of different things.	0.5%	4.5%	6%	12%	21%	35%	21%
The job requires me to utilize a variety of different skills in order to complete the work.	2.5%	3%	4.5%	12%	23%	35%	20%
The job requires the performance of a wide range of tasks.	1.5%	3%	5.4%	12%	25%	33%	20%

APPENDIX D: PARAMETRIC DATA ANALYSIS

Table 16. Missing value replacement

Result Variables						
	Result Variable	N of Replaced Missing Values	Case Number of Non-Missing Values		N of Valid Cases	Creating Function
			First	Last		
1	Q11_1	1	1	202	202	SMEAN(Q11)
2	Q14_1	1	1	202	202	SMEAN(Q14)
3	Q15_1	1	1	202	202	SMEAN(Q15)
4	Q16_1	2	1	202	202	SMEAN(Q16)
5	Q17_1	2	1	202	202	SMEAN(Q17)
6	Q18_1	1	1	202	202	SMEAN(Q18)
7	Q24_1	1	1	202	202	SMEAN(Q24)
8	Q25_1	2	1	202	202	SMEAN(Q25)
9	Q26_1	3	1	202	202	SMEAN(Q26)
10	Q27_1	1	1	202	202	SMEAN(Q27)
11	Q30_1	3	1	202	202	SMEAN(Q30)
12	Q31_1	1	1	202	202	SMEAN(Q31)

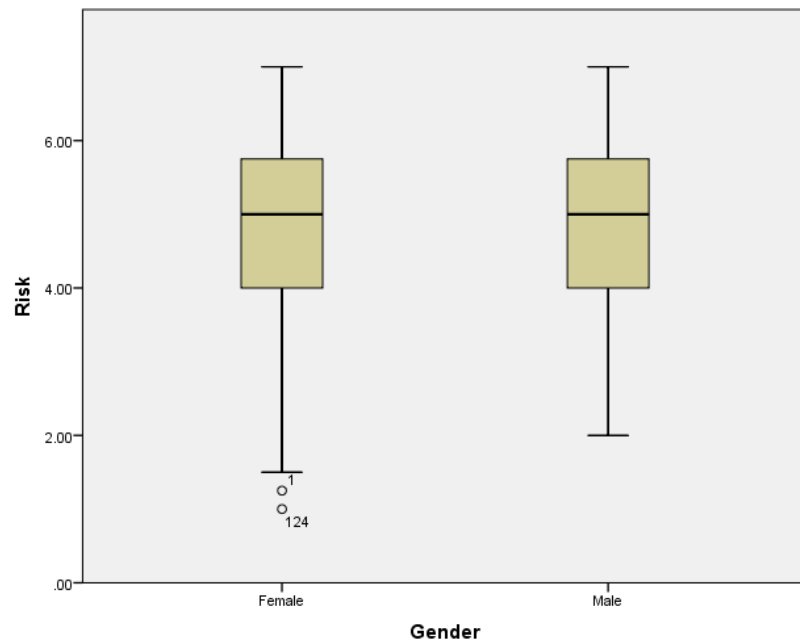


Figure 20. Box Plot for risk-taking EO element

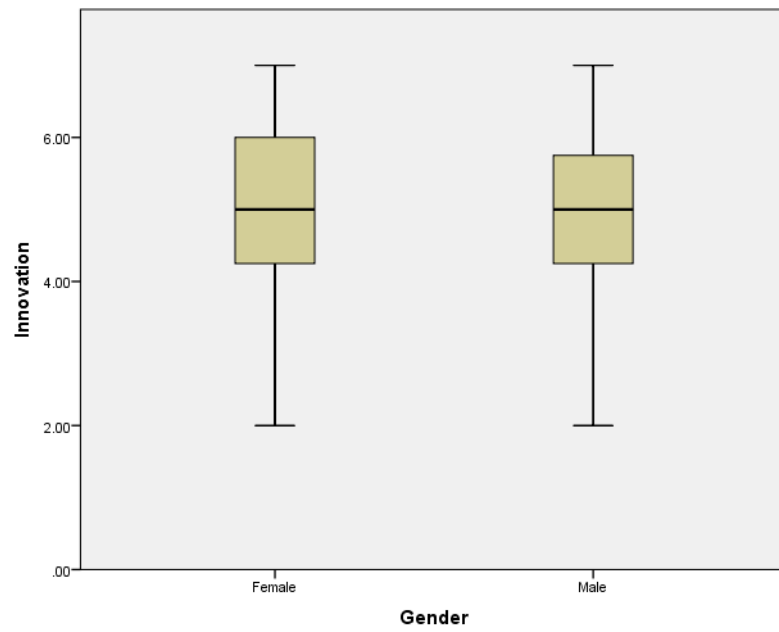


Figure 21. Box Plot for the innovation EO element

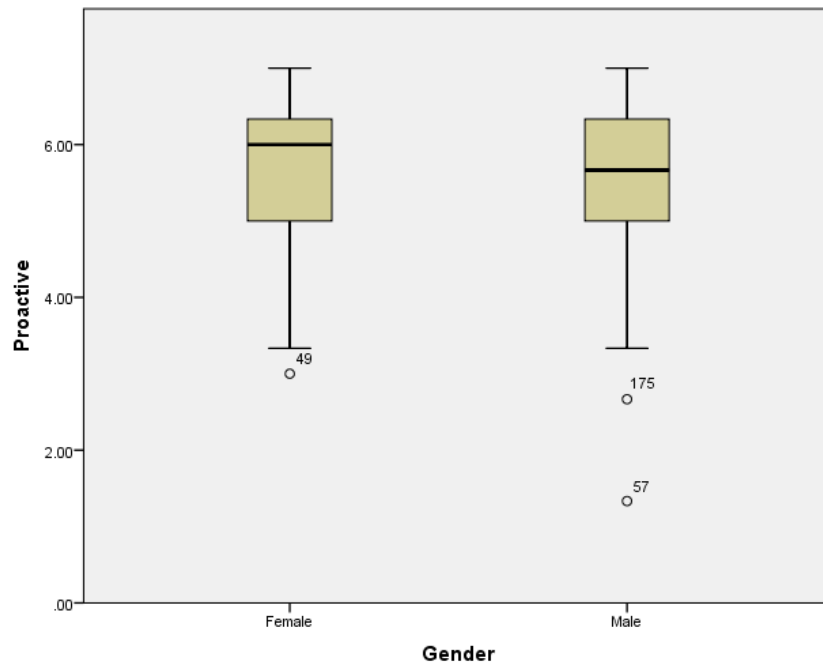


Figure 22. Box Plot for the proactiveness EO element

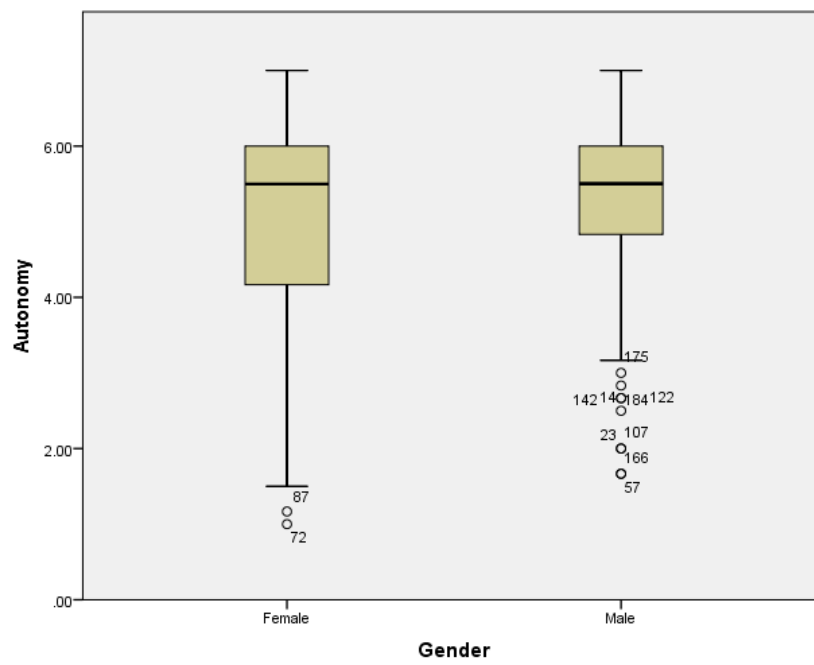


Figure 23. Box Plot for job autonomy

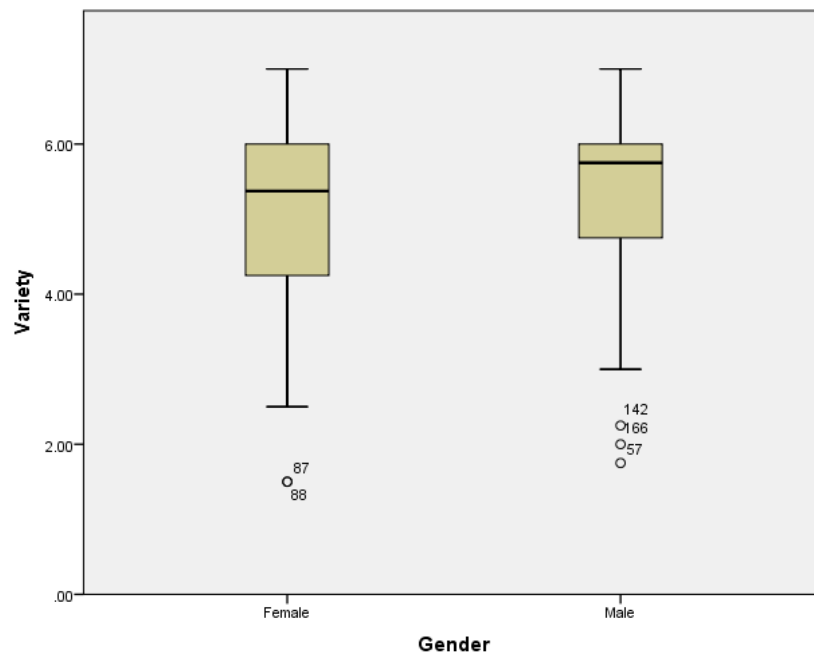


Figure 24. Box Plot for job variety

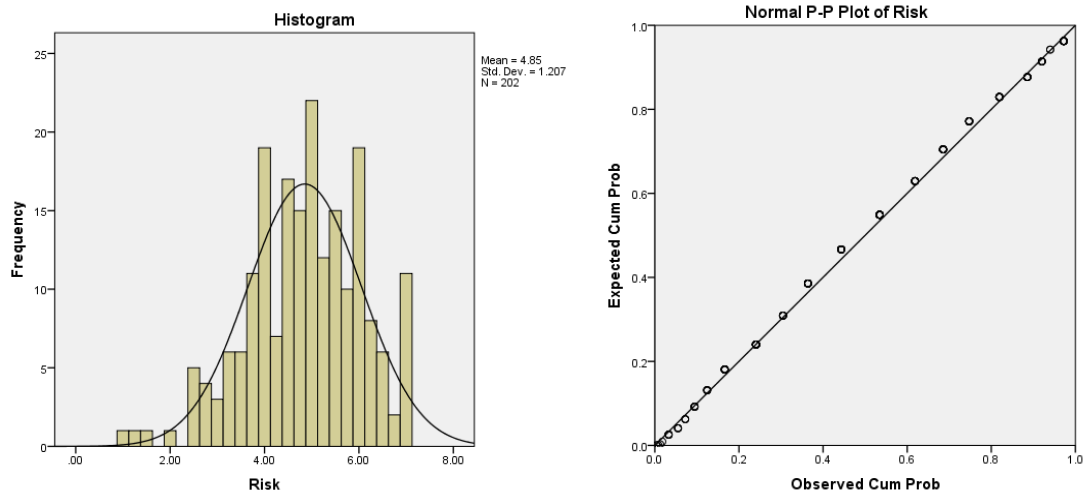


Figure 25. Histogram and P-P plot for risk-taking EO element

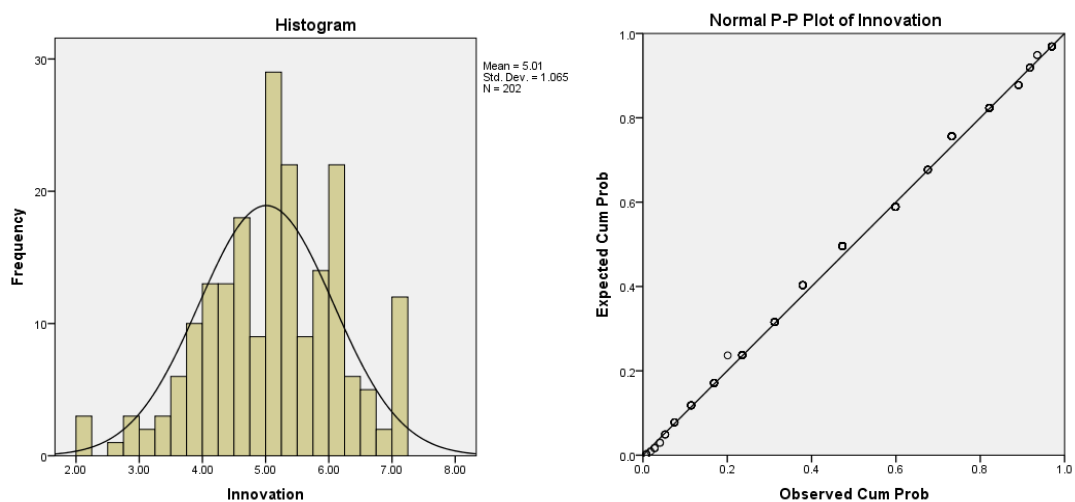


Figure 26. Histogram and P-P plot for the innovation EO element

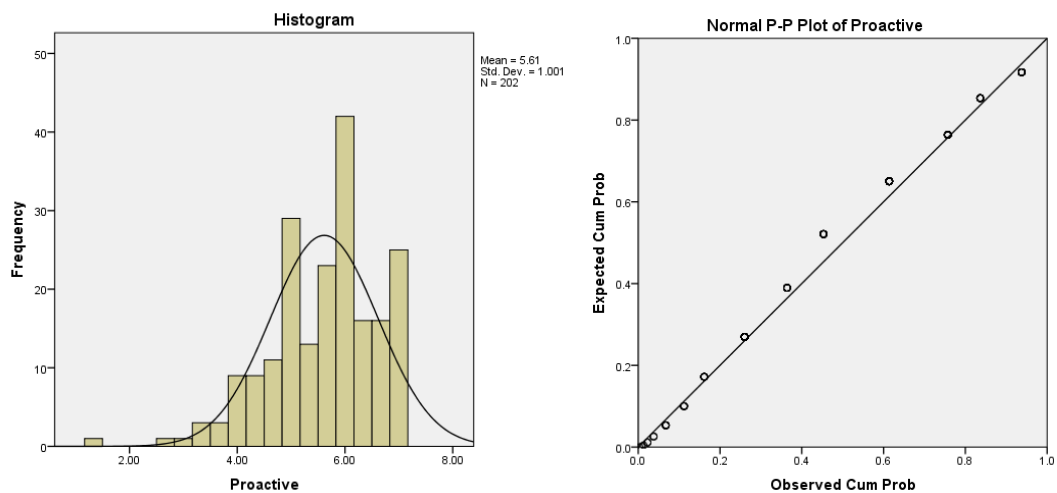


Figure 27. Histogram and P-P plot for the proactiveness EO element

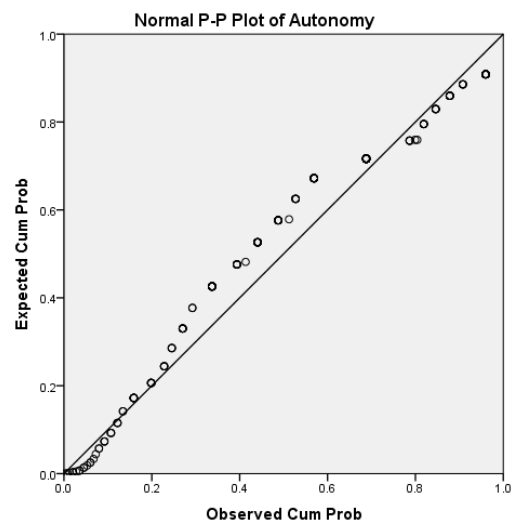
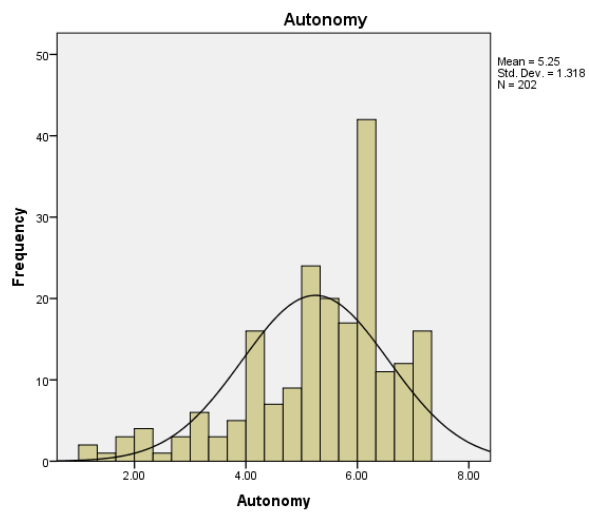


Figure 28. Histogram for job autonomy

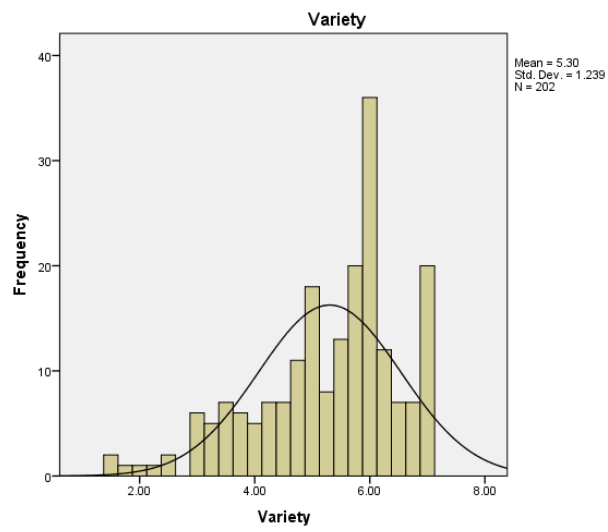


Table 17. Homogeneity of variance

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Risk_taking	Based on Mean	.110	1	200	.740
	Based on Median	.110	1	200	.740
	Based on Median and with adjusted df	.110	1	197.2 54	.740
	Based on trimmed mean	.092	1	200	.761
Innovation	Based on Mean	2.445	1	200	.120
	Based on Median	2.670	1	200	.104
	Based on Median and with adjusted df	2.670	1	199.9 81	.104
	Based on trimmed mean	2.630	1	200	.106
Proactiveness	Based on Mean	.237	1	200	.627
	Based on Median	.164	1	200	.686
	Based on Median and with adjusted df	.164	1	198.6 74	.686
	Based on trimmed mean	.265	1	200	.607
Autonomy	Based on Mean	3.777	1	200	.053
	Based on Median	2.388	1	200	.124
	Based on Median and with adjusted df	2.388	1	193.0 59	.124
	Based on trimmed mean	3.359	1	200	.068
Variety	Based on Mean	1.881	1	200	.172
	Based on Median	2.191	1	200	.140
	Based on Median and with adjusted df	2.191	1	199.1 87	.140
	Based on trimmed mean	1.989	1	200	.160

APPENDIX E. EXPLORATORY FACTOR ANALYSIS

Table 18. Factor descriptive statistics

Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
I like to take bold action by venturing into the unknown.	4.93	1.451	202
I am willing to invest a lot of time and/or money on something that might yield a high return.	5.58	1.307	202
I tend to act "boldly" in situations where risk is involved.	4.65	1.379	202
Where large interests are at stake, I go for the big win even when things could go seriously wrong.	4.25	1.635	202
I often like to try new and unusual activities that are not typical, but not necessarily risky.	4.95	1.372	202
In general, I prefer a strong emphasis in projects on unique, one of a kind approaches, rather than revisiting tried and tested approaches used before.	4.87	1.341	202
I prefer to try my own unique way when learning new things rather than doing it like everyone else does.	5.24	1.212	202
I prefer experimentation and original approaches to problem solving rather than using methods others generally use for problem solving.	4.99	1.375	202
I usually act in anticipation of future problems, needs or changes.	5.35	1.119	202
I tend to plan ahead on projects.	5.63	1.161	202
I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.	5.87	1.127	202
The job allows me to make my own decision about how to schedule my work.	5.42	1.406	202
The job allows me to decide on the order in which things are done on the job.	5.19	1.538	202
The job allows me to plan how I do my work.	5.39	1.342	202
The job gives me a chance to use my personal initiative or judgement in carrying out the work.	5.32	1.473	202
The job allows me to make a lot of decisions on my own.	5.05	1.553	202
The job gives me considerable opportunity for independence and freedom in how I do the work.	5.11	1.562	202
The job provides a great deal of task variety	5.14	1.450	202
The job involves doing a number of different things.	5.36	1.386	202
The job requires me to utilize a variety of different skills in order to complete the work.	5.35	1.418	202
The job requires the performance of a wide range of tasks.	5.36	1.365	202

Table 19. Sampling Adequacy

			Bartlett's Test		
Variable	No. of items	KMO	Chi-SQR	df	p
Combined	21	.912	3305.486	210	0.000
EO	11	.884	1131.837	55	0.000
Job Design	10	.933	2028.333	45	0.000

Table 20. Communalities

Communalities		
	Initial	Extraction
I like to take bold action by venturing into the unknown.	1.000	.728
I am willing to invest a lot of time and/or money on something that might yield a high return.	1.000	.712
I tend to act "boldly" in situations where risk is involved.	1.000	.782
Where large interests are at stake, I go for the big win even when things could go seriously wrong.	1.000	.681
I often like to try new and unusual activities that are not typical, but not necessarily risky.	1.000	.582
In general, I prefer a strong emphasis in projects on unique, one of a kind approaches, rather than revisiting tried and tested approaches used before.	1.000	.575
I prefer to try my own unique way when learning new things rather than doing it like everyone else does.	1.000	.725
I prefer experimentation and original approaches to problem solving rather than using methods others generally use for problem solving.	1.000	.726
I usually act in anticipation of future problems, needs or changes.	1.000	.693
I tend to plan ahead on projects.	1.000	.839
I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.	1.000	.784
The job allows me to make my own decision about how to schedule my work.	1.000	.781
The job allows me to decide on the order in which things are done on the job.	1.000	.676
The job allows me to plan how I do my work.	1.000	.767
The job gives me a chance to use my personal initiative or judgement in carrying out the work.	1.000	.824
The job allows me to make a lot of decisions on my own.	1.000	.766
The job gives me considerable opportunity for independence and freedom in how I do the work.	1.000	.828
The job provides a great deal of task variety	1.000	.636
The job involves doing a number of different things.	1.000	.625
The job requires me to utilize a variety of different skills in order to complete the work.	1.000	.764
The job requires the performance of a wide range of tasks.	1.000	.748
Extraction Method: Principal Component Analysis.		

Table 21. Variance

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.823	42.014	42.014	8.823	42.014	42.014	7.219	34.378	34.378
2	3.917	18.654	60.669	3.917	18.654	60.669	3.124	14.877	49.255
3	1.497	7.128	67.797	1.497	7.128	67.797	2.484	11.827	61.082
4	1.005	4.784	72.581	1.005	4.784	72.581	2.415	11.499	72.581
5	.820	3.903	76.484						
6	.586	2.791	79.275						
7	.556	2.648	81.923						
8	.491	2.337	84.260						
9	.435	2.070	86.330						
10	.385	1.831	88.162						
11	.365	1.740	89.902						
12	.328	1.560	91.462						
13	.327	1.556	93.018						
14	.285	1.357	94.374						
15	.244	1.163	95.537						
16	.211	1.007	96.544						
17	.184	.876	97.420						
18	.169	.807	98.227						
19	.150	.717	98.944						
20	.127	.606	99.550						
21	.095	.450	100.000						
Extraction Method: Principal Component Analysis.									

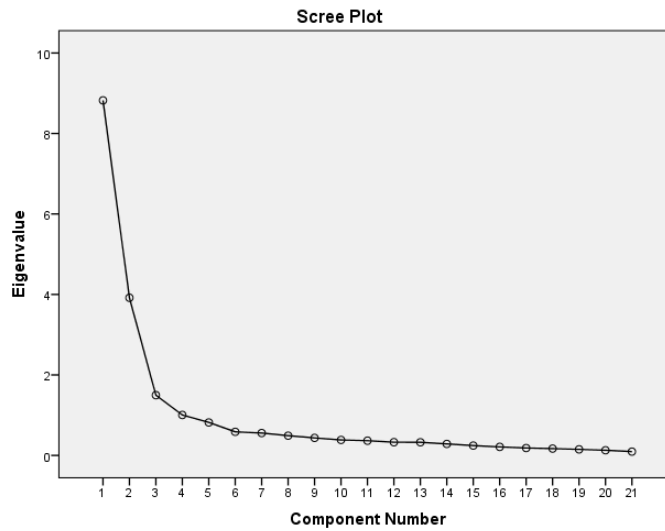


Figure 29. Scree Plot

Table 22. Factor Loading

Rotated Component Matrix ^a				
	Component			
	1	2	3	4
The job gives me a chance to use my personal initiative or judgement in carrying out the work.	.893			
The job gives me considerable opportunity for independence and freedom in how I do the work.	.891			
The job allows me to make my own decision about how to schedule my work.	.870			
The job requires me to utilize a variety of different skills in order to complete the work.	.857			
The job allows me to make a lot of decisions on my own.	.852			
The job allows me to plan how I do my work.	.841			
The job requires the performance of a wide range of tasks.	.833			
The job allows me to decide on the order in which things are done on the job.	.801			
The job provides a great deal of task variety	.747			
The job involves doing a number of different things.	.720			
I tend to act "boldly" in situations where risk is involved.		.820		
I like to take bold action by venturing into the unknown.		.807		
I am willing to invest a lot of time and/or money on something that might yield a high return.		.798		
Where large interests are at stake, I go for the big win even when things could go seriously wrong.		.759		
I prefer experimentation and original approaches to problem solving rather than using methods others generally use for problem solving.			.796	
I prefer to try my own unique way when learning new things rather than doing it like everyone else does.			.769	
I often like to try new and unusual activities that are not typical, but not necessarily risky.		.404	.579	

In general, I prefer a strong emphasis in projects on unique, one of a kind approaches, rather than revisiting tried and tested approaches used before.		.451	.569	
I tend to plan ahead on projects.				.871
I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.				.774
I usually act in anticipation of future problems, needs or changes.				.709
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 5 iterations.				

Component Transformation Matrix				
Component	1	2	3	4
1	.832	.292	.334	.332
2	-.518	.683	.456	.239
3	.188	.433	.027	-.881
4	.057	.510	-.824	.238
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				

Table 23. Factor variance

Component	Items	Factor loading	% Variance
Risk Taking	I like to take bold action by venturing into the unknown.	0.807	14.877
	I am willing to invest a lot of time and/or money on something that might yield a high return.	0.798	
	I tend to act "boldly" in situations where risk is involved.	0.82	
	Where large interests are at stake, I go for the big win even when things could go seriously wrong.	0.759	
Innovation	I often like to try new and unusual activities that are not typical, but not necessarily risky.	0.579	11.827
	In general, I prefer a strong emphasis in projects on unique, one of a kind approaches, rather than revisiting tried and tested approaches used before.	0.569	
	I prefer to try my own unique way when learning new things rather than doing it like everyone else does.	0.769	
	I prefer experimentation and original approaches to problem solving rather than using methods others generally use for problem solving.	0.796	
Proactiveness	I usually act in anticipation of future problems, needs or changes.	0.709	11.499
	I tend to plan ahead on projects.	0.871	
	I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.	0.774	
Job Design	The job allows me to make my own decision about how to schedule my work.	0.87	34.378
	The job allows me to decide on the order in which things are done on the job.	0.801	
	The job allows me to plan how I do my work.	0.841	
	The job gives me a chance to use my personal initiative or judgement in carrying out the work.	0.893	
	The job allows me to make a lot of decisions on my own.	0.852	
	The job gives me considerable opportunity for independence and freedom in how I do the work.	0.891	
	The job provides a great deal of task variety	0.747	
	The job involves doing a number of different things.	0.72	
	The job requires me to utilize a variety of different skills in order to complete the work.	0.857	
	The job requires the performance of a wide range of tasks.	0.833	

APPENDIX F. RELIABILITY ANALYSIS

Table 24. Reliability Statistics EO

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I like to take bold action by venturing into the unknown.	51.36	81.447	0.663	0.54	0.877
I am willing to invest a lot of time and/or money on something that might yield a high return.	50.71	84.834	0.597	0.467	0.881
I tend to act "boldly" in situations where risk is involved.	51.64	81.446	0.706	0.647	0.874
Where large interests are at stake, I go for the big win even when things could go seriously wrong.	52.04	81.009	0.585	0.504	0.883
I often like to try new and unusual activities that are not typical, but not necessarily risky.	51.35	82.597	0.659	0.479	0.877
In general, I prefer a strong emphasis in projects on unique, one of a kind approaches, rather than revisiting tried and tested approaches used before.	51.43	83.122	0.654	0.452	0.877
I prefer to try my own unique way when learning new things rather than doing it like everyone else does.	51.05	84.984	0.647	0.54	0.878
I prefer experimentation and original approaches to problem solving rather than using methods others generally use for problem solving.	51.3	83.694	0.609	0.497	0.88
I usually act in anticipation of future problems, needs or changes.	50.95	88.311	0.539	0.494	0.884
I tend to plan ahead on projects.	50.66	88.544	0.504	0.633	0.886
I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.	50.43	87.461	0.577	0.645	0.882

Reliability Statistics EO scale		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.89	.891	11

Table 25. Reliability Statistics for risk-taking sub-scale

Item-Total Statistics - Risk taking					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I like to take bold action by venturing into the unknown.	14.48	13.574	0.714	0.521	0.806
I am willing to invest a lot of time and/or money on something that might yield a high return.	13.83	15.010	0.651	0.441	0.832
I tend to act "boldly" in situations where risk is involved.	14.76	13.598	0.768	0.591	0.784
Where large interests are at stake, I go for the big win even when things could go seriously wrong.	15.16	12.821	0.667	0.470	0.832

Reliability Statistics - Risk Taking		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.853	0.857	4

Table 26. Reliability Statistics for innovation sub-scale

Item-Total Statistics - Innovation Sub-scale					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I often like to try new and unusual activities that are not typical, but not necessarily risky.	15.10	10.727	0.616	0.392	0.779
I like to try new approaches in projects on unique, one of a kind approaches, rather than revisiting tried and tested approaches used before.	15.18	11.103	0.587	0.345	0.792
I prefer to try my own unique way when learning new things rather than doing it like everyone else does.	14.80	10.996	0.707	0.521	0.740
I prefer experimentation and original approaches to problem solving rather than using methods others generally use for problem solving.	15.05	10.500	0.646	0.462	0.764

Reliability Statistics - Innovation		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.816	.818	4

Table 27. Reliability Statistics for proactiveness sub-scale

Item-Total Statistics - Proactiveness sub-scale					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I usually act in anticipation of future problems, needs or changes.	11.50	4.599	0.658	0.433	0.861
I tend to plan ahead on projects.	11.21	4.079	0.763	0.608	0.763
I prefer to 'step up' and get things going on projects rather than sit and wait for someone else to do it.	10.98	4.203	0.765	0.608	0.762

Reliability Statistics - Proactiveness		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.855	.855	3

APPENDIX G. REGRESSION ANALYSIS (EO)

Table 28. EO Model Summary

Model Summary ^c										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.372 ^a	.139	.134	2.50503	.139	32.220	1	200	.000	
2	.433 ^b	.188	.180	2.43866	.049	12.034	1	199	.001	1.977
a. Predictors: (Constant), Job Design										
b. Predictors: (Constant), Job Design, Longest years in Industry										
c. Dependent Variable: EO Index										

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	202.186	1	202.186	32.220	.000 ^b
	Residual	1255.033	200	6.275		
	Total	1457.219	201			
2	Regression	273.752	2	136.876	23.016	.000 ^c
	Residual	1183.468	199	5.947		
	Total	1457.219	201			
a. Dependent Variable: EO Index						
b. Predictors: (Constant), Job Design						
c. Predictors: (Constant), Job Design, Longest years in Industry						

Table 29. EO Model Coefficients

Coefficients ^a													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	11.143	.784		14.220	.000	9.597	12.688					
	Job Design	.411	.072	.372	5.676	.000	.268	.554	.372	.372	.372	1.000	1.000
2	(Constant)	12.025	.804		14.954	.000	10.439	13.611					
	Job Design	.437	.071	.396	6.167	.000	.297	.577	.372	.401	.394	.989	1.011
	Longest years in Industry	-.430	.124	-.223	-3.469	.001	-.675	-.186	-.181	-.239	-.222	.989	1.011
a. Dependent Variable: EO Index													

Table 30. EO Model Excluded Variables

Excluded Variables ^a								
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	No of Industries worked	.123 ^b	1.884	.061	.132	.996	1.004	.996
	Longest years in Industry	-.223 ^b	-3.469	.001	-.239	.989	1.011	.989
	No of functions	-.046 ^b	-.691	.490	-.049	.969	1.032	.969
	Longest years in function	-.219 ^b	-3.413	.001	-.235	.993	1.007	.993
	Gender	.117 ^b	1.789	.075	.126	.992	1.008	.992
	Age	-.138 ^b	-2.111	.036	-.148	.990	1.010	.990
	Qualification	-.031 ^b	-.473	.637	-.033	.991	1.009	.991
2	No of Industries worked	.073 ^c	1.101	.272	.078	.935	1.069	.928
	No of functions	-.013 ^c	-.198	.844	-.014	.947	1.056	.947
	Longest years in function	-.125 ^c	-1.407	.161	-.100	.516	1.938	.514
	Gender	.100 ^c	1.561	.120	.110	.986	1.014	.982
	Age	.017 ^c	.198	.843	.014	.555	1.800	.555
	Qualification	-.031 ^c	-.480	.632	-.034	.991	1.009	.980
a. Dependent Variable: EO Index								
b. Predictors in the Model: (Constant), Job Design								
c. Predictors in the Model: (Constant), Job Design, Longest years in Industry								

Collinearity Diagnostics ^a						
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Job Design	Longest years in Industry
1	1	1.974	1.000	.01	.01	
	2	.026	8.778	.99	.99	
2	1	2.827	1.000	.01	.01	.02
	2	.148	4.375	.04	.06	.96
	3	.025	10.585	.95	.93	.02
a. Dependent Variable: EO_Index						

Table 31. EO Model Residuals

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	11.0460	17.7137	15.4765	1.16703	202
Std. Predicted Value	-3.796	1.917	.000	1.000	202
Standard Error of Predicted Value	.176	.691	.278	.104	202
Adjusted Predicted Value	11.1593	17.7191	15.4734	1.17184	202
Residual	-6.01670	6.59389	.00000	2.42650	202
Std. Residual	-2.467	2.704	.000	.995	202
Stud. Residual	-2.489	2.723	.001	1.005	202
Deleted Residual	-6.12158	6.68609	.00311	2.47515	202
Stud. Deleted Residual	-2.522	2.768	.001	1.010	202
Mahal. Distance	.049	15.165	1.990	2.653	202
Cook's Distance	.000	.100	.007	.015	202
Centered Leverage Value	.000	.075	.010	.013	202
a. Dependent Variable: EO Index					

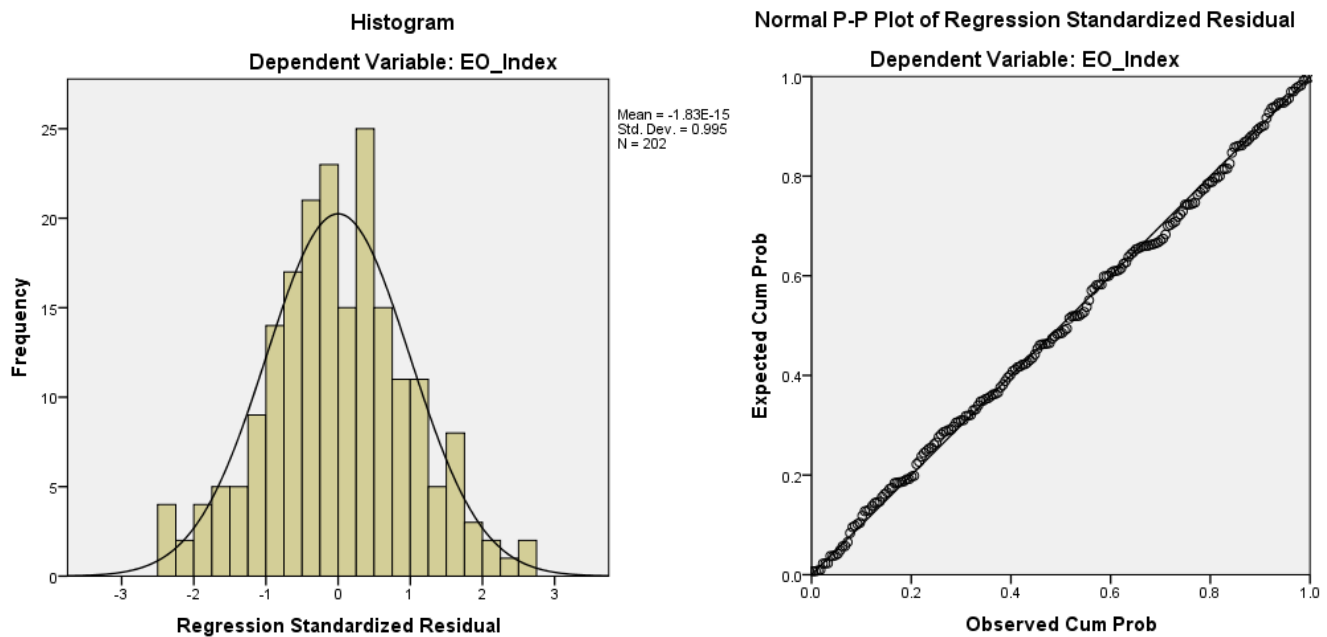


Figure 30. EO Model Histogram and P-P Plot

Table 32. Correlations

		EO Index	No of Industries worked	Longest years in Industry	No of functions	Longest years in function	Job Design
Pearson Correlation	EO Index	1.000	.147	-.181	.021	-.186	.372
	No of Industries worked	.147	1.000	-.238	.296	-.040	.064
	Longest years in Industry	-.181	-.238	1.000	.164	.696	.107
	No of functions	.021	.296	.164	1.000	-.094	.177
	Longest years in function	-.186	-.040	.696	-.094	1.000	.086
	Job Design	.372	.064	.107	.177	.086	1.000
Sig. (1-tailed)	EO Index	.	.019	.005	.382	.004	.000
	No of Industries worked	.019	.	.000	.000	.286	.182
	Longest years in Industry	.005	.000	.	.010	.000	.066
	No of functions	.382	.000	.010	.	.092	.006
	Longest years in function	.004	.286	.000	.092	.	.113
	Job Design	.000	.182	.066	.006	.113	.
N	EO Index	202	202	202	202	202	202
	No of Industries worked	202	202	202	202	202	202
	Longest years in Industry	202	202	202	202	202	202
	No of functions	202	202	202	202	202	202
	Longest years in function	202	202	202	202	202	202
	Job Design	202	202	202	202	202	202

