Mapping Factors Impacting Graduate Work Readiness Using A Structural Equation Modelling Approach

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Abstract

The paper reports the findings of a survey conducted among a sample of students from a private higher education institution (business school) in South Africa, to examine relationships hypothesized between work readiness and career self-efficacy, career exploration and self-perceived employability. The data was analysed using correlation analysis and structural equation modelling. The results revealed that work readiness was influenced significantly and positively by career self-efficacy, career exploration and self-perceived employability. Thus, relevant executives of higher education institutions should take note of the recommendations from this study, as this will contribute to graduate development and addressing a key attribute, namely work-readiness.

Keywords: Work Readiness, Career self-efficacy, Career Exploration, Self-Perceived Employability.

Introduction

It seems that as a country, South Africa is failing to afford the basic means mandatory to prepare a graduate for the workplace and there are evident implications (Inyathelo Retreat, 2013). A number of surveys suggest that graduates lack basic skills, such as timekeeping, communication, team work, and the ability to work under pressure to survive the workplace (Dathan, 2013). In 2016, Studying Internationally News published an article on "*5 work-ready attributes employers love to see in recent graduates*," which mentions that in the progressive competitive labour market, graduates have to work twice as hard to find decent employment. The Times of Higher Education (THE) reported that attaining an undergraduate or a postgraduate degree is significant, however an applicant's personal expertise and character are equally significant. Because of the lack of "hard- and soft-skills" in South Africa, graduates still do not grasp how to secure a position in the workplace (Burrows, 2017).
In an article published by Inyathelo Retreat (2013), Professor Ahmed Bawa, the former Vice-Chancellor of the Durban University of Technology, together with Gasant Orrie, a Managing Partner at Cliffe Dekker Hofmeyr Inc., questioned the work-readiness of South African graduates. This sparked a number of questions from the attendees, which include inter-alia, the following:

- How does the quality of graduates influence an organisation's output and aptitude for modernism?

- Is there a misalignment between the syllabus at tertiary level and the skills and awareness required by the labour market?
- What role in particular, do professional bodies and associations, employers and other patrons play to assist in aligning labour market needs with higher education curricula?
- How can tertiary organisations enhance the employability of alumni?
- How can South Africa create a "self-programmable industry" where employees are armed with the permanent ability to absorb, preserve and adjust to ever-changing circumstances and trials were further raised?
- (Inyathelo Retreat, 2013).

South Africa's unemployment rate exceeds 30%, with graduates between the age of 15 and 24 years at 55.2% and graduates between the ages of 25 to 34 years being 31 % (Statistic South Africa, 2019). The need for work-ready programmes has been identified by the South African government, leading to the partial introduction of the youth wage subsidy or tax incentive scheme in 2014. The Presidency claims that public employment programmes created more than a million job opportunities in the 2014-15 financial year. A study commissioned by the Development Bank of SA in 2010 found that a young South African who gets and keeps their first job for 12 months or more, has an 85% chance of being employed for the rest of their lives.

The above underlines a common thought that employers and higher education institutions need to engage more around, so as to alleviate the problem. Consequently, the role of higher education in producing quality work-ready graduates cannot be avoided and institutions of higher education have a duty to partner with industry and business to make available supportive and receptive programmes that will ultimately yield seasoned and well-rounded graduates who have the ability to adapt to challenges of the workplace.

In light of the above, this study explores the attributes that can contribute to a graduate being more work ready, by determining the impact of career self-efficacy, career exploration, self-perceived employability and career preparation on the work readiness of South African graduates within the Gauteng Province.

Background and Problem Statement

In today's post-modern era, youth or graduate unemployment is a major issue in South Africa, particularly for black youth, who face unfavourable living and social conditions (Mmesi, 2015). Young graduates are not equipped with the required competence in terms of skills, abilities and experience that will enable them to enter and establish themselves in the dynamic world of work (Van Aardt, 2012). Furthermore, young adults are ill-equipped with the ability to adjust to constant change and need to obtain more than just degree-specific skills and information (Froehlich, Beausaert, Segers & Gerken, 2014).

Graduates who enter the world of work today face a number of challenges, like decreasing employment opportunities and job security, fast-changing technology and an increasing personal responsibility, for continual up-skilling and lifelong learning –

as well as keeping up with changes in their fields of knowledge (Potgieter & Coetzee 2013). According to Martinez, Baker and Young (2017), students from traditionally under-represented groups face academic, accessibility, and affordability barriers that impede career readiness. Therefore, private organisations, foundations and public agencies have sought to develop interventions that will help such students overcome these barriers (Martinez, Baker & Young 2017).

Masole and van Dyk, (2016:70) point out that "some graduates appear to be insufficiently prepared for the world of work and this dissatisfaction by employers with the graduates' work readiness and performance, highlight two important issues". Firstly, field-specific knowledge and technical skills on their own are not sufficient to label graduates as being "work ready" (WR), and secondly, there is a need for graduates to develop certain capacities beyond their qualifications that would enable them to deal with the stressful nature of the work environment (Masole & van Dyk, 2016).

Notably, most international studies have focused on work readiness of graduate students in various contexts. For example, studies focused on:

- enhancing students' career readiness through peer counselling programme in Hong Kong (Wong, Chui, Chan, Ting, & Lam, 2016);
- work readiness of final-year civil engineering students at Victoria University (O'Brien, Venkatesan, Fragomenin & Moore, 2012);
- perceived job readiness of business students at institutes of higher learning in Malaysia (Mee, 2012), and
- models for the development of work-readiness skills for students in Vietnamese universities (Tran, 2017).

Raftopoulos (2009) also asserts that it is disappointing to note, that although work readiness programmes have been run in South Africa, research in the South African context is limited. Previous researchers in South Africa have examined graduate students in various contexts by focusing on increasing employability by implementing a Work-Integrated Learning partnership model in South Africa (Taylor & Govender, 2017). Other studies include factors which contribute to poor academic achievement among undergraduate students at a tertiary institution (Fakude 2012); the development of co-curricular interventions to strengthen female engineering students' sense of self-efficacy and to improve the retention of women in traditionally male-dominated disciplines and careers (Lourens, 2014); graduate unemployment in South Africa: perspectives from the banking sector (Oluwajodu, Blaauw, Greyling & Kleynhans, 2015); adaptation challenges faced by recent graduates in South African multinational organisations (Mmatli, 2015); as well as an evaluation criteria for a Science Access Program: A Case Study at a South African University (Engelbrecht, Hardin, & Potgieter, 2017).

Despite the theoretical contributions made on work readiness by many international scholars, it appears that in the South African context, there is a dearth of research studies that have shed light on modelling the antecedents that influence graduate students' work readiness. Thus, the aim of this study was to determine the impact of career self-efficacy; career exploration; self-perceived employability; and career preparation **o**n work readiness of students in the South African context, particularly

in the Gauteng Province.
More specifically, the following objectives informed this study, namely, to determine the impact of career self-efficacy on work readiness, to assess the impact of career exploration on work readiness and to measure the impact of Self-perceived employability on work readiness.

Literature Review

In order to address the research aim and objectives, the literature on career self-efficacy, career exploration, self-perceived employability, career preparation and work readiness was extensively reviewed. However, considering the constraints of the length of a paper, only salient aspects will be reported.

Career self-efficacy

Some researchers (Anderson & Betz, 2001), describe career self-efficacy as the manner in which individuals' critique their abilities to execute career comportment relative to career growth, selection and alteration. Career self-efficacy is well-thought-out to be necessary for fruitful job performance, and can significantly sway work conduct irrespective of expertise and proficiency (Dawes, Horan & Hacket, 2000).
Nesdale and Pinter (2000) discovered that career self-efficacy was a significant predictor of a person's aptitude to constantly find employment. Career self-efficacy has similarly been established to be one of the paramount measures of countless foundation career activities, such as job probing (Niles & Sowa, 1992).

Career exploration

Career exploration can be defined as a multifaceted process which people participate in to acquire and boost personal and conservational awareness, and to ultimately accomplish career ends (Taveira & Moreno, 2003). Career exploration embraces an extensive assortment of undertakings encompassing collecting data and understanding job probing, planning, prospects, and career selection. Career exploration is composed of sundry assorted activities used to endorse career evolution and it is therefore imperative for career exploration to have a proper structure and to embrace countless forms of career seeking events to obtain occupation (Nasta, 2007).

Self-perceived employability

The practice of the theory of "employability" predates the commencement of the 20th century, whence it has been used at "macro, meso, and micro" levels, which have made its meaning unclear and challenging to comprehend (Kirves, 2014). The methodology that has of late seen considerable academic consideration is *Self-Perceived Employability*, which is used in this research and well-defined as a person's view of exactly how effortless it is to obtain new employment (Rothwell & Arnold, 2007).
Rothwell et al. (2008) fashioned a self-perceived employability matrix made up of four constituents that act and work together, consisting of My University, My Field of Study, The State of the External Labour Market and Self-belief. This is depicted in

Table 1.

Table 1: Student Self Perceived Employability

My University				
Self-belief	**My engagement with my studies and academics**	**My perception of the strength of the university brand**	**The reputation my university has within my field of study**	**My field of study**
	My confidence in my skills and abilities	**My ambition**	**The status and credibility of my field of study**	
	My awareness of opportunities in the external labour market	**My perception of the state of the labour market**	**The external markets demand for people in my subject**	
The state of the external labour market				

Source: Rothwell et al., 2008

Work readiness

Work readiness is a relatively new concept which has emerged in the literature as a selection criterion for predicting graduate potential (Caballero, Walker, & Fuller-Tyszkiewicz, 2011). Using jargon such as "graduate employability, workforce readiness, graduateness, and work preparedness" to denote the degree to which graduates are 'work-ready,' is one of many grounds for the confusion in comprehending what it means to be "work ready". Work readiness can simply be defined as the extent to which graduates are perceived to possess the attitudes and attributes that make them prepared or ready for success in the work environment (Caballero & Walker, 2010). In addition, work-readiness is a component of the graduateness of a student (Fourie, & De Jager 2014). Work-readiness thus encompasses a sense of "self-directedness", or the ability to recognise one's "personal agency" in acquiring and keeping employment (Fourie & De Jager, 2014).

By drawing on the literature, the following hypotheses are postulated:

H1: Career self-efficacy has a positive impact on work readiness of students

H2: Career exploration has a positive impact on work readiness of students

H3: Self-perceived employability has a positive impact on work readiness of students

Research Methodology

In order to test the hypotheses, the study followed a quantitative approach (Leedy, 2013). The target population was restricted to students registered at a private Business School in Johannesburg, South Africa and the sampling frame comprised the total population (all students) from which the sample was extracted. Non-probability

convenience sampling was used, since it allowed for a large number of respondents to be researched within a relatively short period of time (Malhotra, 2010:230). A sample 200 respondents was deemed adequate for this study as it is consistent with that of previous studies (Harvey & Land, 2017)

Data Collection and Analysis

The survey method was chosen due to its low cost and ease of administration (Debois, 2016). A self-administered questionnaire was used for collecting the necessary data. The questionnaire was divided into four sections, namely Section A, comprising questions pertaining to the respondents' demographics. Section B assessed career self-efficacy and comprised four items adapted from Tsai, Hsu, and Yang (2017). Section C measured career exploration with six items adapted from the scale used by Forstenlechner, Selim, Baruch, and Madi (2014). Section D assessed self-perceived employability with seven items adapted from Rothwell, Jewell and Hardie (2009). In addition, Section E measured career preparation and comprised thee items adapted from Tsai, Hsu, and Yang (2017). Moreover, Section F which measured work readiness, utilised a 13 item scale adapted from Rose, Perks, Fidan, and Hurst (2010).

Responses for Section B, C, D, E and F were measured by means of a five-point Likert scale, whereby, 1= strongly disagree, 2 = disagree, 3 = neither disagree nor agree/ neutral, 4 = agree and 5 = strongly agree.

The Statistical Packages for Social Sciences (SPSS) was employed to analyse the data and test the relationship among the variables A; and Structural Equation Modelling (SEM) which is a multivariate arithmetic context, was used for the purpose of demonstrating multiple affiliations between direct and ancillary experiential variables (Stein, Morris & Nock, 2012).

Reliability and Validity

Reliability verification included testing for composite reliability and calculating Cronbach alpha values (Terry & Kelley 2012). Tavakol and Dennick (2011) suggest that the minimum accepted composite reliability values should be 0.70.

Validity is the extent to which a measure accurately and truthfully represents the characteristics being measured (Burns & Bush 2010:319). In this study, content, construct, convergent and discriminant validity were assessed.

Research Findings

Although 200 students were targeted so as to have sufficient data to conduct the various analyses, 195 participated, which is an excellent response rate.

Respondent Demographics

Gender

Fifty seven (57%) percent of the participants were females and the balance were male.

Age

Thirty four percent (34%) of the respondents were between the ages of 28 to 35 years,

closely followed by 29% who are aged 50 to 59, 15% aged between 44 and 51 years, and finally the remaining respondents were between the ages of 36 and 43 years.

Year of Study

In terms of the year of study of the participants, the vast majority (60%) of the respondents indicated that they are in the 3rd year and only 5.6 % of respondents were 1st year students.

Ethnicity

The vast majority (73%) of respondents were African, followed by coloureds (15%), Indians at 9% and lastly, the Whites with a participation rate of 5%.

Reliability and Validity

As reflected in Table 2, the composite reliability for Career Self-efficacy (CSE) was 0.83 which exceeded the estimated criterion of 0.70, which is regarded as acceptable for internal consistency of the constructs (Holland, 1999). The outcome of the average variance extracted for CSE is 0.56, which is above 0.4, a result which is deemed as being satisfactory (Fraering & Minor 2006).

The Factor loadings (standardised regression weights) of individual items of the CSE construct reveal that the distinct item loadings are all higher the recommended 0.5, which suggests that all items converged well on the construct measured and therefore, confirmed the existence of convergent validity (Anderson & Gerbing, 1988).

Table 2: Career self-efficacy

Research construct		Cronbach's Test		Factor loading	C.R	AVE
		Item-Total	A Value			
CSE	CSE1	0.667	0.807	0.850	0.83	0.56
	CSE2	0.597		0.828		
	CSE3	0.565		0.585		
	CSE4	0.657		0.688		

The results of composite reliability for Career Exploration (CE) shown in Table 3 reveal a CR index of 0.81, a level which exceeded the estimated criterion of 0.70, which is acceptable (Holland, 1999). The outcome of the average variance extracted for CE is 0.46, which is over 0.4 and regarded as satisfactory (Fraering & Minor 2006). The factor loadings of individual items of the CE construct are all higher than the recommended 0.5 thus suggesting that the items converged well on the construct being measured and therefore, confirmed the existence of convergent validity (Anderson & Gerbing, 1988). All the AVE values are 0.46, which is above the HSV value of 0.14 for the construct, thereby confirming the existence of discriminant validity.

Table 3: Accuracy Statistics - Career Exploration

Research construct		Cronbach's Test		Factor loading	C.R	AVE	Highest Shared Variance
		Item-Total	α Value				
CE	CE2	.924	0.912	0.731	0.81	0.46	0.14
	CE3	.901		0.572			
	CE4	.548		0.676			
	CE5	.922		0.770			
	CE6	.873		0.614			

As revealed in Table 4, the results of composite reliability for Self-perceived Employability (SPE) produced a CR index of 0.85, which level exceeded the estimated criteria of 0.70 which is recommended as acceptable for internal consistency of the constructs (Holland, 1999).
The outcome of the average variance extracted for the SPE construct revealed a score of 0.46, which is over 0.4, and deemed satisfactory (Fraering & Minor 2006).
The Factor loadings of the individual items on the SPE construct are all above the recommended 0.5, thus confirming the existence of convergent validity (Anderson & Gerbing, 1988).

Table 4: Accuracy Statistics - Self-Perceived Employability

Research construct		Cronbach's Test		Factor loading	C.R	AVE
		Item-Total	A Value			
SPE7	SPE1	.679	0.898	0.696	0.85	0.46
	SPE2	.708		0.727		
	SPE3	.675		0.739		
	SPE4	.695		0.588		
	SPE5	.681		0.698		
	SPE6	.719		0.616		
	SPE7	.745		0.651		

The composite reliability test for the Work Readiness (WR) construct shown in Table 5 produced a CR index of 0.92, which is deemed acceptable since it exceeds 0.7, as recommended (Holland, 1999).
The outcome of the average variance extracted for SPE construct is 0.53, which is above 0.4, a result which is deemed satisfactory (Fraering & Minor 2006). The Factor loadings (standardised regression weights) of individual items on the WR construct are beyond the recommended value of 0.5 which thus confirmed the existence of convergent validity (Anderson & Gerbing, 1988).

Table 5: Accuracy statistics analysis: Work Readiness

Research construct		Cronbach's Test		Factor loading	C.R	AVE
		Item-Total	α Value			
Work Readiness	WR1	.726	0.904	0.634	0.92	0.53
	WR3	.742		0.720		
	WR4	.768		0.776		
	WR5	.775		0.719		
	WR6	.697		0.748		
	WR7	.712		0.603		
	WR8	.692		0.763		
	WR9	.745		0.711		
	WR10	.759		0.886		

From the data contained in Table 2 to Table 5 to, it can thus be concluded that the research instrument was both reliable and valid.

Structural Equation Modelling

As per the two-step practice (Anderson & Gerbing, 1998), preceding hypothesis testing, Confirmatory Factor Analysis (CFA) was executed to test the measurement model (Hair et al., 2010) and the accuracy of the scale was determined using AMOS 25. Preliminary analysis led to the removal of some items in the measurement scales in order to deliver a tolerable fit and significant scale correctness. Testing for model fit was piloted to conclude whether the abstract model fits the collected data.
The Goodness-of-fit test results reflected in Table 6 indicate how well the conceptual model imitates the pragmatic covariance matrix within the indicated items (Hair et al., 2010).

Table 6: Model fit results

Model Fit criteria	CMIN	(DF)	Chisquare (χ2 /DF)	GFI	IFI	TLI	CFI	RMSEA
Indicator Value	548.674	385	1.425	0.913	0.953	0.943	0.959	0.041

It is evident from Table 6 that the data displayed satisfactory goodness-of-fit of the conceptual model, since all the pointers for GFI, IFI, TLI, CFI meet the acceptable thresholds of being equal to or greater than 0.9, and equal or less than 0.08 for RMSEA fit (Schreiber, Stage, King, Nora & Barlow 2006).
The next phase of the analysis entailed conducting SEM to look at the model fit and the structural model path analysis. The measurement of model fit was conducted by making use the following indices: chi-square value over degree of freedom, NFI, IFI, TLI, CFI, and RMSEA, all of which are reflected in Table 7.

Table 7: SEM model fit indexes

Fit Indices	Acceptable threshold	Study test results	Decision
Chi-square (CMIN/DF)	Tabled chi-square smaller or equal to 3	1.425	Accepted
Increment fit index (IFI)	Values greater than 0.90	0.953	Accepted
Tucker-Lewis index (TLI)	Values greater than 0.90	0.943	Accepted
Comparative fit index (CFI)	Values greater than 0.90	0.959	Accepted
Root mean square error of approximation (RMSEA)	Less than 0.08	0.041	Accepted

From the results in Table 7, it could be concluded that all the measures meet the conventional thresholds of being equal to or greater than 0.9 for NFI, IFI, TLI, CFI and equal to or less than 0.08 for RMSEA (Marsh, Hau & Wen, 2004). Therefore, it could be concluded that the information sanctions and fits the adequacy of the model.

Career Self-Efficacy and Work Readiness

It is evident from Table 8, Career Self-efficacy (CSE) has a significant positive impact on Work Readiness (WR) as reflected by the path coefficient value of 0.318 and the p-value (significance level) <0.001. Thus, hypothesis H1 is confirmed and the significance level is very strong.

Table 8: Hypothesised Relationships and Resulting Outcomes

Path / proposed hypothesis Relationship	Hypothesis	Estimate β	P - Value	Decision rejected/supported
Career Self Effeicacy (CSE) Work Readiness (WR)	H_1(+)	0.318	***	Supported and significant
Career Exploration (CE) Work Readiness (WR)	H_2(+)	0.233	***	Supported and significant
Self Perceived Employability (SPE) Work Readiness (WR)	H_3(+)	0.374	***	Supported and significant

** Significance level <0.05; ** significance level <0.01; *** significance level <0.001*

Career Exploration and Work Readiness
It is also evident (Table 8) that Career Exploration (CE) does have a positive and significant impact on Work Readiness (WR), as confirmed by the path coefficient value of 0.233 and the p-value (significance level) <0.001. On the basis of the outcomes, H2 is confirmed, and significant.

Self-Perceived Employability and Work Readiness
Hypothesis (H3) specified that Self-perceived Employability (SPE) has a positive impact on Work Readiness. The data confirms that SPE not only has a positive impact on WR, but that it also has a significant influence on WR as pointed out by the path coefficient value of 0.374 and the p-value (significance level) <0.001. Thus, H3 is also fully supported in this study.

Discussion of the Findings

Career Self-Efficacy (CSE) and Work Readiness (WR)
The association between CSE and WR was found to be positive and significant. The results of this study are also consistent with the research of Bandura (1993). Thus, the findings reveal that people who possess high career self-efficacy are more ambitious in their career life and always speak with a positive attitude and can also visualise success for themselves. Coetzee and Oosthuizen (2012) stated that employability is also related with self-efficacy and the individual's self-confidence in their ability to obtain employment. Niles and Sowa (1992) further endorsed the theory by alluding that career self-efficacy is important and relevant to understanding the complex career development process. Nasta (2007) suggests that low career self-efficacy can cause people to procrastinate in making career decisions, and may delay them from following through with a decision once it has been made.

Career Exploration (CE) and Work Readiness (WR)
It was ascertained that there is a positive and significant relationship between CE and WR, a finding which is similar to that reported by Makki, Salleh, Memon, and Harun (2015), as well as Prehar and Ignelzi (2012). The aforementioned researchers indicate that career exploration is one of the stages in career development and the other stages are self-assessment, gaining professional experience and plan implementation; and that career exploration is a purposive and cognitive behaviour that allows access to information about occupations, jobs or organisations.

Self-Perceived Employability (SPE) and Work Readiness (WR)
The research findings confirm that SPE has a positive impact on WR. This finding has ample support from previous studies, such as that conducted by Rothwell and Arnold (2007). Studies conducted by De Cuyper, Van der Heijden and De Witte, (2014) revealed that self-perceived employability boosts an employees' work performance.

Conclusion

The research findings do indeed confirm the attributes that can contribute to a graduate being more work ready, namely career self-efficacy, career exploration, self-perceived employability and career preparation, since all of the aforementioned were found to impact the work readiness of the research sample of students at the private higher education institution in Gauteng, South Africa.

The above underlines common issues which employers and higher education institutions need to engage more on, so as to alleviate the problem of un- and under-preparedness of graduates for the world of work. Consequently, the role of higher education in producing quality work-ready graduates cannot be avoided and institutions of higher education have a duty to partner with industry and business to make available supportive and receptive programmes that will ultimately yield seasoned and well-rounded graduates who have the ability to adapt to challenges of the workplace.

Recommendations

In light of the findings, the following recommendations are offered:

- Increased relationships between educational institutions and (prospective) employers;
- Interventions by relevant policy makers (Higher Education Department of government and the Council on Higher Education), which make it mandatory for higher education providers to ensure that one of the graduate attributes, namely, work readiness is fully entrenched in the curriculum;
- Establishment of a distinct programme on WR or work preparedness at higher education institutions;
- Higher education institutions should consider inter-alia, more seminars/ workshops and other deliberate interventions to better prepare graduates for the world of work;
- Further studies to be conducted to explore other factors which may impact work readiness so as to narrow the gap between being a fresh graduate and a graduate ready to work. The scope of this research could be expanded to include all higher education and training institutions in South Africa.

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