

# “Employability within South African businesses in the 4IR era: The impacts of abilities, self-efficacy, and work-integrated learning effectiveness”

<b>AUTHORS</b>	Masase Mageza-Mokhethi Foluso Philip Adekanmbi 
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Masase Mageza-Mokhethi, M.Sc.,  
Lecturer, Department of Industrial  
Psychology and People Management,  
College of Business and Economics,  
University of Johannesburg, South  
Africa.

Foluso Philip Adekanmbi, Ph.D.,  
Senior Lecturer, Department of  
People, Organizations Strategy and  
Entrepreneurship (POSE), Faculty  
of Business and Law, University of  
Roehampton, United Kingdom.  
(Corresponding author)



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Masase Mageza-Mokhethi (South Africa), Foluso Philip Adekanmbi (United Kingdom)

# EMPLOYABILITY WITHIN SOUTH AFRICAN BUSINESSES IN THE 4IR ERA: THE IMPACTS OF ABILITIES, SELF-EFFICACY, AND WORK-INTEGRATED LEARNING EFFECTIVENESS

## Abstract

The South African education sector and businesses are concerned about whether higher education institutions could meet the demands and expectations of the labor market in the context of the fourth industrial revolution (4IR). Hence, it becomes essential to examine the perceived employability of work-integrated learning graduates within businesses in the context of the 4IR. This study seeks to examine employees' perceptions of the influence of graduates' abilities, self-efficacy, and effectiveness of work-integrated learning on their employability in the context of 4IR. The sample was obtained from employees from four South African firms (Syntech Ltd, Centrevo Ltd, Outsurance Ltd, and First National Bank Plc) in the information technology, sales, insurance, and banking industries. This study used a cross-sectional questionnaire. Of the 200 surveys randomly floated, 196 were fitting for scrutiny, cleaning, and analysis. Consequently, this study found that South African employees perceive graduates' employability as being significantly and positively influenced by their abilities ( $\beta = .802$ ,  $p < .001$ ), self-efficacy ( $\beta = .815$ ,  $p < .001$ ), and work-integrated learning ( $\beta = .864$ ,  $p < .001$ ). In the third-step model, these three factors substantially impacted graduates' employability more than other likely combination matrices. Therefore, 97% of South African graduates are perceived employable in the fourth industrial revolution era due to their abilities, self-efficacy, and participation in work-integrated learning. This investigation concludes that in the 4IR, the employability of South African graduates is mainly impacted by their self-efficacy, abilities, and the effectiveness of work-integrated learning.

## Keywords

abilities, learning, self-efficacy, employability, South Africa

## JEL Classification

J21, E24, D83, O33

## INTRODUCTION

In the fourth industrial revolution (4IR), technology inspires new businesses, disrupts present ones, and changes how things are made. The 4IR has profoundly impacted social interactions, employment, and lifestyle by developing cyber-physical systems, robotics, and the Internet of Things (IoT). The 4IR has widened the societal divide between developed and developing countries. Employability encompasses a range of competencies or skills that are necessary for both graduates and persons who are currently working. Determining whether employability skills are adaptable to the fourth industrial revolution is increasingly important. Work-integrated learning preparation increases student self-efficiency by transforming them from learners to experts through work knowledge and performance accomplishments. It motivates students to be responsible for their success.

Many stakeholders (including the industry, institutions, and students) are concerned about new graduates' employability. As a result, work-integrated learning is believed to expand graduates' employment options and make them more employable. It also seeks to facilitate the transition from students to professional learners by preparing graduates for employment. Hence, labor, business, and community leaders have urged higher education institutions, especially universities, to generate better-prepared and equipped graduates. It is crucial to note that when society and business sectors shift entirely to the period of the 4IR, it becomes increasingly vital for work-integrated learning students to play a role in transmitting 4IR skills to economies and societies.

## 1. LITERATURE REVIEW

While the fourth industrial revolution (4IR) has the potential to cause significant upheaval, it also presents opportunities to improve the quality of life for many people. Many occupations may soon be lost as automation and technology, such as robotics, replace them. However, it is quite likely that new employment will be created. Hence, students must be prepared with the necessary skills for a world of employment in the 4IR (Borrageiro & Mennega, 2023; Singaram et al., 2023). Notably, graduate employability skills are a popular topic in industries where technology transforms social, cultural, economic, and personal lives. Hence, additional research should be conducted to assess the programs higher education should provide to address this challenge while considering employers' opinions (Strauss et al., 2012; Winterton & Turner, 2019).

Regarding graduate abilities within the current 4IR, the most in-demand graduates should be proficient in communication, information technology, teamwork, analytical and critical thinking, and teamwork. Besides, graduates are best prepared for the workforce if they develop their practical skills, academic knowledge, soft skills, and technical abilities. Significantly, variables beyond academic achievement affect graduates' employment (Paadi, 2014; Ambepitiya, 2016; Jayasingha & Suraweera, 2020). Hence, this research focuses on graduates' abilities, such as technical skills, teamwork and problem-solving skills, and communication skills.

Technical skills are required to assess and use various equipment and procedures, such as computers, software, and information technology. The modern competitive 4IR environment necessitates such capabilities due to the rapid adoption of information technology and the Internet. Employers

look for graduates with soft and technical abilities, as employability is significantly linked to technical and soft skills. Communication skills also refer to the capacity to effectively interact with people by exchanging concise and clear communication. Effective communication minimizes perceived bias, saves time, and increases efficacy (El Mansour & Dean, 2016; Hossain et al., 2020; Hosain et al., 2023). Furthermore, teamwork refers to an individual's capacity to collaborate efficiently with others and fulfill their responsibilities as team members. A competent job candidate must have two essential skills: teamwork and problem-solving abilities (Nazron et al., 2017; Succi & Canovi, 2020). Moreover, possessing teamwork and problem-solving abilities might empower individuals to secure and maintain employment opportunities (Nusrat & Sultana, 2019). Significantly, problem-solving ability is the efficient and effective solution to a real-life or modeled problem (Hosain et al., 2023).

Additionally, self-efficacy is a fundamental element of employability. It pertains to an individual's belief in his/her ability to accomplish goals in professional pursuits. Without a belief in achieving desired results through one's actions, individuals lack the motivation to act or persist in facing challenges. Regardless of any additional factors that may serve as guides and motivators, they are ultimately based on the notion that individuals can generate outcomes through their activities (Yorke & Knight, 2006). Self-efficacy improves graduates' employability in the workforce. Therefore, a strong and meaningful correlation exists between self-efficacy and employability, as demonstrated by Wiharja et al. (2020) and Hudaniah (2013). In addition, a direct correlation exists between self-efficacy and students' employability (Tuffa & Rahayu, 2023). Self-efficacy influences perceived future employability. Students with higher self-

efficacy have a more positive perception of their future employability. Hence, self-efficacy positively impacts graduates' perceived employability. Besides, it positively influences graduates' future employability (Ngo et al., 2017; Ahmed et al., 2019; Chow et al., 2019; Atitsogbe et al., 2019; Aydin, 2022). However, in some instances, participants' self-efficacy had no significant relationship with their employability (Coetzee & Oosthuizen, 2012).

Furthermore, incorporating work-integrated learning into curricula is necessary for higher education to enhance students' experiential and authentic learning, ensuring that the acquired discipline-based information aligns with employer expectations and improves graduates' employability (Winterton & Turner, 2019). Although it is not easy to assess the effectiveness of work-integrated learning because students learn in a semi-autonomous environment outside of the classroom, work-integrated learning improves non-technical skills and provides students with a better understanding of their future careers' expectations, requirements, and features (Kinash et al., 2016; Jackson & Collings, 2018). Such learning responds to employability concerns. Work-integrated learning opportunities in courses allow students to apply their academic theories in the workplace, improving recent graduates' employability and educational achievements. It also reinforces the bonds between students, employers, and institutions, boosting employability. Additionally, the perceived employability of graduates is significantly influenced by their exposure to work-integrated learning, which educates them about the necessary qualifications and abilities in a desired field. Work-integrated learning has been associated with enhanced employability skills, including self-confidence, leadership, and collaboration (Messer, 2018; Fenta et al., 2019; Zehr & Korte, 2020; Namutuwa, 2020; Ng et al., 2021; Ebner et al., 2021).

In addition to concerns about the employability of graduates in South Africa, employers' apprehensions and the rise of 4IR capabilities have compelled higher education institutions worldwide to modify their methods of imparting knowledge and skills to students (Singaram et al., 2023).

Therefore, to address employers' concerns about the employability of graduates in South Africa and the rise of 4IR abilities, this study seeks to

investigate employees' perception of the impacts of abilities, self-efficacy, and work-integrated learning effectiveness on graduates' employability within South African businesses, specifically in the context of the fourth industrial revolution. Consequently, the following hypotheses are formulated:

*H<sub>1</sub>: Graduate abilities significantly affect their employability within South African businesses in the 4IR era.*

*H<sub>2</sub>: In the fourth industrial revolution, self-efficacy significantly predicts graduates' employability within South African businesses.*

*H<sub>3</sub>: Perceived work-integrated learning effectiveness significantly affects graduates' perceived employability in South African businesses in the 4IR era.*

*H<sub>4</sub>: In the fourth industrial revolution, the employability of graduates in South African firms is significantly and jointly influenced by their abilities, self-efficacy, and perceived effectiveness of work-integrated learning.*

## 2. METHODS

This study used a cross-sectional questionnaire method, as it helps researchers identify variations in responses that may be attributed to organizational differences (e.g., culture, leadership, or processes) by selecting respondents from different organizations (J. W. Creswell & J. D. Creswell, 2017). Surveys were allocated randomly to 200 male and female employees from four South African businesses in the information technology, sales, insurance, and banking industries to learn about their views on graduates' employability, abilities, self-efficacy, and the effectiveness of work-integrated learning. These firms are Syntech, Centrevo Ltd, Outsurance Ltd, and First National Bank. In the current investigation, 50 respondents were randomly selected from each entity. Balancing the necessity for adequate representativeness and statistical validity with the logistical constraints of data collection, it is a practical decision to select 50 respondents per organisation (Bryman, 2016).

The specified industries are fundamental components of the South African economy and are progressively intertwined with digital transformation initiatives and service-oriented expansion. Consequently, the sample's diversity, encompassing technology, financial services, and sales, facilitates a cross-industry analysis that underscores the convergence of these sectors regarding digital transformation, regulatory compliance, and workforce development. Moreover, the sample from these sectors facilitates the assessment of perspectives regarding technological adoption and the changing workplace environment (PwC South Africa, 2022; Oliver Wyman, 2021). The participants' voluntary involvement fostered value for ethical considerations. Surveys were gathered, and 196 were useable. The data were recovered, cleaned, and analysed with Statistical Packages for Social Sciences (SPSS) version 29. Nonetheless, this study included factor and reliability analyses to create an optimal measure and ensure local consistency. Table 1 shows the demographics and professional features of the respondents.

Section A of the questionnaire pertains to the demographic information of the participants, including their gender, age, level of education, work experience, and job role. Respondents are 100 males and 100 females aged between 20-29, 30-39, 40-49, and 50 and above. Their highest levels of education range between a College Degree or Below, a Bachelor's Degree, and a Master's Degree or above, with years of work experience of fewer than 2 years, 2-5 years, and 5 years and above. Furthermore, respondents' job roles ranged from entry-level to mid-level and senior-level/management. Section B presents the abilities scale. The scale created by Hosain et al. (2023) was used to measure technical skills, teamwork and problem-solving skills, and communication skills. Each subscale consisted of three items. Each item was scored on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Hosain et al. (2023) found that the subscales assessing technical, communication, teamwork, and problem-solving skills had internal consistency values of 0.86, 0.74, and 0.92, respectively. In that order, reliability values for the present study's three subscales were 0.90, 0.80, and 0.85.

Section C indicates the self-efficacy scale. Hence, Scholz et al.'s (2002) 10-item General Self-Efficacy Scale was adapted to assess respondents' perception of graduates' self-efficacy. The scale uses a 5-point Likert scale, with scores ranging from 1 (not at all true) to 4 (exactly true). Scholz et al. (2002) found

a consistency coefficient ( $\alpha$ ) of 0.76. According to Cronbach's alpha, the scale's reliability in this study was 0.80.

Section D presents the work-integrated learning effectiveness measures. This paper used Ng et al.'s (2021) six-item measure to evaluate perceptions about the effectiveness of work-integrated learning. Participants rated the three items on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The scale's reliability score was 0.87, as indicated by Ng et al. (2021). In the present investigation, Cronbach's alpha indicated that the dependability of the scale was 0.84.

Section E shows the perceived graduates' employability scale. The current investigation adopted De Vos and Soens' (2008) scale, which consists of three items to evaluate the employability of graduates. Respondents ranked the three items on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). According to De Vos and Soens (2008), the reliability value for the scale was 0.91. Cronbach's alpha in the current investigation revealed that the scale was 0.90.

**Table 1.** Descriptive statistics of the employees' demographic and professional features

Respondents' Demographic/ Professional Characteristics		Freq.	%
Gender	Male	96	49.0
	Female	100	51.0
	Total	196	<b>100</b>
Age	20-29	65	33.2
	30-39	52	26.5
	40-49	42	21.4
	50 and Above	37	18.9
	Total	196	<b>100</b>
Highest Level of Education	College Degree or Below	36	18.4
	Bachelor's Degree	96	48.9
	Master's Degree or Above	64	32.7
	Total	196	<b>100</b>
Work Experience	Less than 2 years	42	21.4
	2-5 years	64	32.7
	5 years and above	90	45.9
	Total	196	<b>100</b>
Job Role	Entry-Level	54	27.6
	Mid-Level	82	41.8
	Senior-Level/Management	60	30.6
	Total	196	<b>100</b>

Pilot research was implemented in this investigation to identify prospective issues and verify the usefulness of the measuring tool. Hypotheses 1, 2, 3, and 4 were investigated using multiple linear regression.

### 3. RESULTS

Table 1 indicates that a total of 196 out of 200 employees completed the survey questionnaire. Of those, 96 (49.0%) were male, while 100 (51.0%) were female. Sixty-five (33.2%) of these employees were between the age of 20-29, 52 workers (26.5%) were between the age of 30-39, 42 (21.4%) were between 40-49 years of age, while the remaining 37 (18.9%) were 50 years and above. Also, 36 (18.4%) of the employees had a college degree or below, 96 (48.9%) had a Bachelor's degree, and 64 (32.7%) employees had a Master's degree or above.

In addition, out of the 196 employees who completed the questionnaire, 42 (21.4%) had work experience of less than two years, 64 (32.7%) had between 2-5 years of work experience, while the remaining 90 (45.9%) had work experience of 5 years and above. This paper also shows that 54 (27.6%) of the 196 respondents worked at the entry-level, 82 (41.8%) at the mid-level, and 60 (30.6%) at the senior/management level.

Table 2 demonstrates the respondents' view on the fact that abilities significantly impact graduates' employability, accounting for 89% of the variance ( $F(1, 195) = 115.474, p .001$ ). This perception implies that abilities can account for 89% of graduates' employability variations. Hence, the outcome elucidates a significant proportion of the variation in employability results solely based on abilities. Moreover, self-efficacy and abilities in step 2 explained 90% of the overall change ( $F(2, 194) = 134.759, p .001$ ). The findings indicate employees' view that self-efficacy and abilities are strong predictors of the dependent variable, accounting for 90% of its variability. The  $F$ -statistic of 134.759 and a  $p$ -value of less than .001 indicate that the model is statistically significant.

Furthermore, the model, which considered abilities, self-efficacy, and work-integrated learning effectiveness, accounted for 95% of the variant ( $F(3, 193) = 156.967, p .001$ ). Here, the explanation for 95% of the variance is extraordinarily high, indicating respondents' perspective that these pre-

**Table 2.** Hierarchical multiple regressions: Combined influence of graduates' abilities, self-efficacy, and perceived work-integrated learning effectiveness on employability in South African businesses in the 4IR era

Model Summary <sup>d</sup>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	F Change Sig
1	.922 <sup>a</sup>	.892	.893	2.92181	.113	115.474	1	194	.001
2	.943 <sup>b</sup>	.902	.901	2.96922	.047	134.759	1	193	.000
3	.966 <sup>c</sup>	.951	.950	2.99236	.031	156.967	1	192	.000

Note: a. Predictors: (Constant), Abilities. b. Predictors: (Constant), Abilities, Self-efficacy. c. Predictors: (Constant), Abilities, Self-efficacy, Work-Integrated Learning Effectiveness. d. Dependent Variable: Graduates' Employability.

**Table 3.** ANOVA results

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15951.8447	1	15051.847	1579.807	.000 <sup>b</sup>
	Residual	1849.532	195	5.834		
	Total	17780.268	196			
2	Regression	15608.522	2	6804.249	1907.506	.000 <sup>c</sup>
	Residual	1292.858	194	4.079		
	Total	16880.269	196			
3	Regression	15631.243	3	4293.748	1303.296	.000 <sup>d</sup>
	Residual	1260.936	193	3.990		
	Total	16790.268	196			

Note: a. Predictors: (Constant), Abilities. b. Predictors: (Constant), Abilities, Self-efficacy. c. Predictors: (Constant), Abilities, Self-efficacy, WIL Effectiveness. d. Dependent Variable: Graduates' Employability.

**Table 4.** Hierarchical multiple regressions: Individual and joint influence of graduates' abilities, self-efficacy, and perceived work-integrated learning effectiveness on employability in South African businesses in the 4IR era

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	100.763	.970		100.142	.000	89.028	92.665
	Abilities	1.088	.053	.838	50.668	.000	1.116	1.902
2	(Constant)	105.564	1.176		105.874	.000	104.672	108.723
	Abilities	1.467	.040	.814	25.607	.000	1.816	1.617
	Self-Efficacy	1.054	.026	.828	23.432	.000	.305	.223
3	(Constant)	107.474	1.662		102.014	.000	96.605	103.710
	Abilities	1.623	.049	.802	26.871	.001	.881	.729
	Self-Efficacy	1.714	.058	.815	33.757	.001	1.349	1.267
	Work-integrated Learning Effectiveness	1.935	.079	.864	42.641	.000	.338	.256

Note: Dependent Variable: Graduates' Employability.

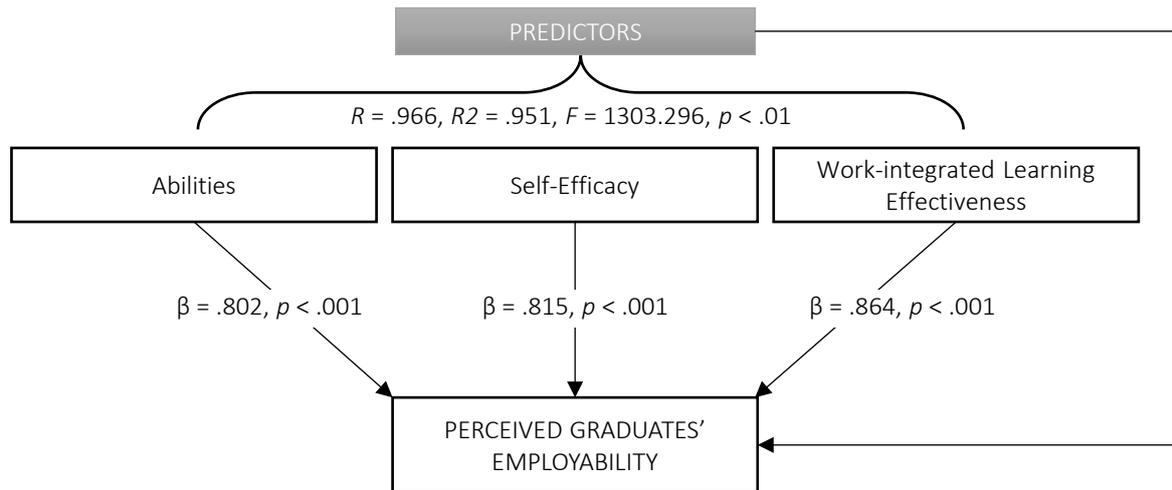
dictors are highly effective in predicting the result. Hence, the paper demonstrates that the collective impact of abilities, self-efficacy, and work-integrated learning effectiveness accounts for 95% of the variation in graduates' employability. The *F*-statistic demonstrates that this outcome is statistically significant, with a *p*-value below .001, indicating a robust and dependable model. Table 2 shows that after controlling for work-integrated learning effectiveness, the three independent factors caused 5% of the change in graduates' employability ( $R^2$  change = .031,  $F$  change (1, 192) = 156.967,  $p < .001$ ), different from the second model when abilities and self-efficacy accounted for 1% of the variation in graduates' employability ( $R^2$  = .047,  $F$  change (1, 193) = 134.759,  $p < .001$ ). However, when considering the efficacy of work-integrated learning, these factors only account for 5% of the overall variance. In contrast, they only account for 1% of the variance when not considering work-integrated learning effectiveness. This indicates employees' viewpoint that the effectiveness of work-integrated learning has a significant role in determining the employability of graduates.

Table 3 shows variances in graduates' employability within South African organizations in the fourth industrial revolution era according to the independent measures (abilities, self-efficacy, and perceived work-integrated learning effectiveness).

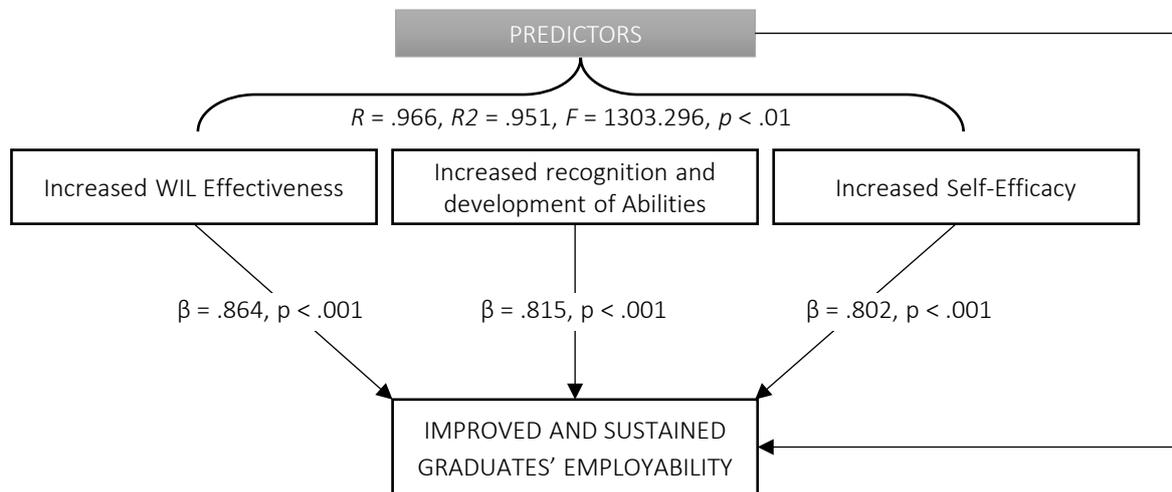
Table 4 highlights that all three independent variables had a significant impact on graduates' em-

ployability, with work-integrated learning effectiveness owning a higher beta value ( $\beta = .864$ ,  $p < .001$ ) than self-efficacy ( $\beta = .815$ ,  $p < .001$ ) and abilities ( $\beta = .802$ ,  $p < .001$ ). Statistical analysis supports these results ( $R^2$  change = .031,  $F$  change (1, 192) = 156.967,  $p < .001$ ). The beta coefficient for work-integrated learning effectiveness (0.864) is the highest compared to the other two variables, indicating that it significantly influences employability. Self-efficacy (.815) and abilities (.802) exhibit considerable influences, albeit slightly less pronounced than the impact of work-integrated learning effectiveness. Therefore, these results confirmed the first three hypotheses.

Table 2 shows that South African businesses outperformed in the most recent 4IR regarding graduates' abilities, self-efficacy, and adopting work-integrated learning practices. Data from Model 3 supports the assertion that these elements improve graduates' employability ( $R = .966$ ,  $R^2 = .951$ ,  $F = 1303.296$ ,  $p < .001$ ). The findings are statistically substantial, as indicated by the significant *p*-value. Additionally, the investigation found that abilities, self-efficacy, and work-integrated learning together accounted for 97% of the improvements in graduates' employability. Thus, these factors are critical in determining South African graduates' employability in the current 4IR. Collectively, these three characteristics account for 97% of the improvements in graduates' employability. This significant percentage highlights the crucial significance of these aspects in improving one's em-



**Figure 1.** The independent and combined influences of abilities, self-efficacy, and work-integrated learning effectiveness on graduates' employability



**Figure 2.** A practical model for enhancing and sustaining graduates' employability

ployability. The results underscore the necessity for educational and training initiatives to concentrate on these domains to enhance employability. Therefore, the fourth hypothesis was confirmed. Figure 1 depicts the model indicated by the results.

Furthermore, based on its findings, this investigation proposes an analytical paradigm South African businesses can use to improve and sustain graduates' employability for the fourth industrial revolution (see Figure 2).

## 4. DISCUSSION

This study found that company employees perceived that South African graduates' abilities significantly and positively influenced their employ-

ability in the current 4IR. This statement is based on the inference that when South African graduates demonstrate additional abilities, they will be more employable. These results are coherent with Hossain et al.'s (2020) hypothesis that employability is strongly linked to technical and soft skills. It also supports Succi and Canovi's (2020) findings on graduates' abilities and employability. They discovered that communication, interpersonal, and problem-solving skills enhance graduate employability. The results of this study provide evidence that aligns with the argument made by Nazron et al. (2017) that collaboration and problem-solving abilities are two essential talents that set apart job applicants. It also supports the claims of Nusrat and Sultana (2019) and Hosain et al. (2023), who claimed that collaboration and problem-solving

abilities could help people find and keep jobs and solve real-world or simulated problems effectively and quickly.

Furthermore, this study discovered that South African employees within the technology, financial services, and sales industries perceived self-efficacy as a significant and positive influence on the employability of South African graduates in the fourth industrial revolution. Hence, South African graduates with higher self-efficacy were more employable during the fourth industrial revolution. These results uphold the assertion in some conclusions (e.g., Ahmed et al., 2019) that people with higher self-efficacy perceive their future employability more positively. This result supports the claim made by Chow et al. (2019) that self-efficacy improves graduates' perceived employability. This study also supports Aydin's (2022) assertion that self-efficacy positively impacts graduates' future employability. Moreover, it corroborates the findings by Ngo et al. (2017), who established a connection between self-efficacy and perceived employability. However, the current findings do not support Coetzee and Oosthuizen's (2012) observation that the participants' self-efficacy had no significant relationship with their employability.

The study revealed that South African employees perceived that work-integrated learning significantly and positively influenced graduates' employability in South African businesses during the fourth industrial revolution. This finding implies that company employees believe graduate students at South African universities will be more employable if they implement and encourage work-integrated learning. According to Namutuwa (2020), work-integrated learning addresses employability issues. Incorporating work-integrated learning opportunities into coursework allows students to apply their academic theory in the workplace. This enhances the employability and academic performance of recent graduates. Furthermore, the current findings back up Ng et al.'s (2021)

claim that work-integrated learning strengthens the link between employers, institutions, and students, resulting in increased employability. This study also backs up Fenta et al.'s (2019) finding of a significant link between graduate employability and work-integrated learning. Furthermore, it reinforces Zehr and Korte's (2020) claim that work-integrated learning improves graduates' employability by teaching them the necessary credentials and abilities in a desired field. Work-integrated learning significantly improves employability skills (Ebner et al., 2021).

This study discovered that the three independent metrics in the fourth industrial revolution had a substantial, varied, and independent influence on graduates' employability when an attempt was made to identify the differential, separate, and combined influences of abilities, self-efficacy, and work-integrated learning effectiveness in South African businesses. The findings suggest that abilities, self-efficacy, and work-integrated learning play a vital role in determining the employability of South African graduates in the context of the 4IR. Hence, it establishes employees' perspective that encouraging work-integrated learning significantly impacts South African graduates' employability in the fourth industrial revolution and their abilities and self-efficacy. According to the third-step model, the three factors substantially impacted graduates' perceptions of employability more than other likely combination matrices. Consequently, 97% of South African graduates are perceived employable in the most recent 4IR due to their abilities, self-efficacy, and participation in work-integrated learning. The 3% disparity in the employability of graduates in South African enterprises during the 4IR is attributable to factors not examined in this study. Therefore, these findings support the notion that, in the 4IR, South African graduates' employability is significantly and jointly influenced by abilities, self-efficacy, and work-integrated learning effectiveness.

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## CONCLUSION

This study intended to evaluate, among South African employees, the perceived impacts of abilities, self-efficacy, and work-integrated learning effectiveness on graduates' employability within South African firms, specifically in the context of 4IR. It was discovered that work-integrated learning effectiveness,

abilities, and self-efficacy independently and significantly predict the variations in employability among graduates in South African businesses during the 4IR era. Hence, this study concludes that South African businesses perceive that the employability of South African graduates is predominantly influenced by their abilities, self-efficacy, and the effectiveness of work-integrated learning.

The present results provide managerial, human resources, higher education institutions, and academic professionals with advice on positioning students better to achieve and maintain employability in the 4IR era, focusing on strategies to improve performance abilities, self-efficacy, and participation in workplace learning. This will make graduates more employable in the current fourth industrial era. The views and information provided in this analysis also help to advance corporate and higher education management policies regarding encouraging abilities, work-integrated learning, and performance abilities appropriate for employment in the current 4IR environment.

However, the following suggestions are relevant to improving and sustaining graduates' employability within South African businesses. During this 4IR period, leaders and managers in higher education and work settings ought to foster and inspire performance skills pertinent to the current industrial revolution. Besides, it is crucial for companies and higher education authorities to consistently promote and prioritize work-integrated learning and provide support. This is because students need to be aware of the workplace and the expectations that arise from the fourth industrial revolution (4IR). This enhances the marketability of graduates in the business sector. Furthermore, this paper encourages corporate and higher education leaders to research and model the best practical strategies for raising graduates' self-efficacy.

## AUTHOR CONTRIBUTIONS

Conceptualization: Masase Mageza-Mokhethi, Foluso Philip Adekanmbi.

Data curation: Foluso Philip Adekanmbi.

Formal analysis: Foluso Philip Adekanmbi.

Funding acquisition: Masase Mageza-Mokhethi.

Investigation: Foluso Philip Adekanmbi.

Methodology: Masase Mageza-Mokhethi, Foluso Philip Adekanmbi.

Project administration: Masase Mageza-Mokhethi, Foluso Philip Adekanmbi.

Resources: Masase Mageza-Mokhethi.

Supervision: Masase Mageza-Mokhethi, Foluso Philip Adekanmbi.

Validation: Masase Mageza-Mokhethi, Foluso Philip Adekanmbi.

Visualization: Foluso Philip Adekanmbi.

Writing – original draft: Foluso Philip Adekanmbi.

Writing – review & editing: Masase Mageza-Mokhethi, Foluso Philip Adekanmbi.

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## REFERENCES

1. Ahmed, H., Nawaz, S., & Rasheed, M. I. (2019). Self-efficacy, self-esteem, and career success: The role of perceived employability. *Journal of Management Sciences*, 6(2), 18-32. Retrieved from <https://pdfs.semanticscholar.org/3ced/e06e46d525f535b34b577fe07d-9dbc025359.pdf>
2. Ambepitiya, K. (2016). Employability of graduates of public and private management education institutes: A case study of two institutes in Sri Lanka. *OUSL Journal*, 11, 113-134. <https://doi.org/10.4038/ouslj.v11i0.7346>
3. Atitsogbe, K. A., Mama, N. P., Sovet, L., Pari, P., & Rossier, J.

- (2019). Perceived employability and entrepreneurial intentions across university students and job seekers in Togo: The effect of career adaptability and self-efficacy. *Frontiers in Psychology*, 10. <http://doi.org/10.3389/fpsyg.2019.00180>
4. Aydın, E. (2022). Exploring the impact of career adaptability on perceived future employability: The mediation role of self-efficacy. *Press Academia Procedia (PAP)*, 15, 1-5. <http://doi.org/10.17261/Pressacademia.2022.1569>
  5. Borrageiro, K., & Mennega, N. (2023). Essential skills needed in the fourth industrial revolution (4IR): A systematic literature review. *2023 IST-Africa Conference (IST-Africa)* (pp. 1-13). Tshwane, South Africa. <https://doi.org/10.23919/IST-Africa60249.2023.10187815>
  6. Bryman, A. (2016). *Social research methods* (5<sup>th</sup> ed.). Oxford University Press.
  7. Chow, H. J., Wong, S. C., & Lim, C. S. (2019). Examining the mediating role of self-efficacy on undergraduates' perceived employability. *International Journal of Academic Research Business and Social Sciences*, 9(6), 135-154. <http://dx.doi.org/10.6007/IJARBS/v9-i6/5929>
  8. Coetzee, M., & Oosthuizen, R. M. (2012). Students' sense of coherence, study engagement, and self-efficacy in relation to their study and employability satisfaction. *Journal of Psychology in Africa*, 22(3), 315-322. <https://doi.org/10.1080/14330237.2012.10820536>
  9. Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5<sup>th</sup> ed.). SAGE Publications.
  10. De Vos, A., & Soens, N. (2008). Protean attitude and career success: The mediating role of self-management. *Journal of Vocational Behavior*, 73(3), 449-456. <https://doi.org/10.1016/j.jvb.2008.08.007>
  11. Ebner, K., Soucek, R., & Selenko, E. (2021). Perceived quality of internships and employability perceptions: The mediating role of career-entry worries. *Education+Training*, 63(4), 579-596. <https://doi.org/10.1108/ET-02-2020-0037>
  12. El Mansour, B., & Dean, J. C. (2016). Employability skills as perceived by employers and university faculty in the fields of human resource development (HRD) for entry-level graduate jobs. *Journal of Human Resource and Sustainability Studies*, 4(1). <https://doi.org/10.4236/jhrss.2016.41005>
  13. Fenta, H. M., Asnakew, Z. S., Debele, P. K., Nigatu, S. T., & Muhaba, A. M. (2019). Analysis of supply-side factors influencing employability of new graduates: A tracer study of Bahir Dar University graduates. *Journal of Teaching and Learning for Graduate Employability*, 10(2), 67-85. <https://doi.org/10.21153/JTLGE2019VOL-10NO2ART801>
  14. Hosain, M. S., Mustafi, M. A. A., & Parvin, T. (2023). Factors affecting the employability of private university graduates: An exploratory study on Bangladeshi employers. *PSU Research Review*, 7(3), 163-183. <https://doi.org/10.1108/PRR-01-2021-0005>
  15. Hossain, M. M., Alam, M., Alamgir, M., & Salat, A. (2020). Factors affecting business graduates' employability – Empirical evidence using partial least squares (PLS). *Education+Training*, 62(3), 292-310. <https://doi.org/10.1108/et-12-2018-0258>
  16. Jackson, D., & Collings, D. (2018). The influence of work-integrated learning and paid work during studies on graduate employment and underemployment. *Higher Education*, 76(3), 403-425. <https://doi.org/10.1007/s10734-017-0216-z>
  17. Jayasingha, D., & Suraweera, S. (2020). An analysis of the factors affecting the graduates' employability in the case of the Rajarata University of Sri Lanka. *IRE Journals*, 3(12), 10-24. Retrieved from <https://www.irejournals.com/formatedpaper/1702342.pdf>
  18. Kinash, S., Crane, L., Judd, M. M., & Knight, C. (2016). Discrepant stakeholder perspectives on graduate employability strategies. *Higher Education Research & Development*, 35(5), 951-967. <http://doi.org/10.1080/07294360.2016.1139555>
  19. Messer, D. (2018). Work placements at 14-15 years and employability skills. *Education+Training*, 60(1), 16-26. <https://doi.org/10.1108/ET-11-2016-0163>
  20. Namutuwa, M. T. (2020). *The impact of work-integrated learning on the employability of undergraduates using psychological career resources at a higher education institution in Namibia*. Retrieved from [https://etd.cput.ac.za/bitstream/20.500.11838/3146/1/Namutuwa\\_Martha\\_213182882.pdf](https://etd.cput.ac.za/bitstream/20.500.11838/3146/1/Namutuwa_Martha_213182882.pdf)
  21. Nazron, M. A., Lim, B., & Nga, J. L. (2017). Soft skills attributes and graduate employability: A case in Universiti Malaysia Sabah. *Malaysian Journal of Business and Economics (MJBE)*, 4(2). Retrieved from <https://jurcon.ums.edu.my/ojums/index.php/mjbe/article/view/1080>
  22. Ng, P. M., Chan, J. K., Wut, T. M., Lo, M. F., & Szeto, I. (2021). What makes better career opportunities for young graduates? Examining acquired employability skills in higher education institutions. *Education+Training*, 63(6), 852-871. <https://doi.org/10.1108/ET-08-2020-0231>
  23. Ngo, H. Y., Liu, H., & Cheung, F. (2017). Perceived employability of Hong Kong employees: Its antecedents, moderator, and outcomes. *Personnel Review*, 46(1), 17-35. <https://doi.org/10.1108/PR-01-2015-0015>
  24. Nusrat, M., & Sultana, N. (2019). Soft skills for sustainable employment of business graduates of Bangladesh. *Higher Education, Skills and Work-Based Learning*, 9(5), 264-278. <https://doi.org/10.1108/HESWBL-01-2018-0002>
  25. Oliver Wyman. (2021). *Digitalisation in Financial Services in South African financial services. Is the juice worth the squeeze?* Retrieved from <https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2021/digitalization-in-financial-services-in-south-africa-updated.pdf>

26. Paadi, K. (2014). Perceptions on employability skills necessary to enhance human resource management graduate prospects of securing a relevant place in the labour market. *European Scientific Journal*, 10(10). Retrieved from <https://core.ac.uk/download/pdf/328024466.pdf>
27. PwC South Africa. (2022). *The Digital CFO. A survey study on the digitisation of the finance function*. Retrieved from <https://www.pwc.co.za/en/assets/pdf/the-digital-cfo-2022.pdf>
28. Scholz, U., Doña, B. G., Sud, S., & Schwarzer, R. (2002). Is general self-efficacy a universal construct? Psychometric findings from 25 countries. *European Journal of Psychological Assessment*, 18(3).
29. Singaram, S., Mayer, C. H., & Oosthuizen, R. M. (2023). Leading higher education into the fourth industrial revolution: an empirical investigation. *Frontiers in Psychology*, 14, Article 1242835. <https://doi.org/10.3389/fpsyg.2023.1242835>
30. Strauss, K., Griffin, M. A., & Parker, S. K. (2012). Future work selves: How salient hoped-for identities motivate proactive career behaviours. *Journal of Applied Psychology*, 97(3), 580-598. <https://doi.org/10.1037/a0026423>
31. Succi, C., & Canovi, M. (2020). Soft skills to enhance graduate employability: Comparing students' and employers' perceptions. *Studies in Higher Education*, 45(9), 1834-1847. <https://doi.org/10.1080/03075079.2019.1585420>
32. Tentama, F., Merdiaty, N., & Subardjo, S. (2019). Self-efficacy and work readiness among vocational high school students. *Journal of Education and Learning (EduLearn)*. <https://doi.org/10.11591/EDULEARN.V13I2.12677>
33. Tuffa, H. P., & Rahayu, H. U. (2023). The relationship of self-efficacy with perceived future employability in job seekers of higher college graduates in Padang City. In *Trend: International Journal of Trends in Global Psychological Science and Education*, 1(1), 10-18. <https://doi.org/10.62260/intrend.v1i1.86>
34. Wiharja, C. K., Ernawati, E., & Ningsih, R. Y. (2020). Student's perception in learning Indonesian language from conventional to blended learning model. *Proceedings of the 2020 8th International Conference on Information and Education Technology* (pp. 73-77). <https://doi.org/10.1145/3395245.3396434>
35. Winterton, J., & Turner, J. J. (2019). Preparing graduates for work readiness: An overview and agenda. *Education Training*, 61(5), 536-551. <https://doi.org/10.1108/ET-03-2019-0044>
36. Yorke, M., & Knight, P. (2006). *Embedding employability into the curriculum*. New York: Higher Education Academy.
37. Zehr, S. M., & Korte, R. (2020). Student internship experiences: Learning about the workplace. *Education+Training*, 62(3), 311-324. <https://doi.org/10.1108/ET-11-2018-0236>