

Predicting students' work world awareness through their readiness and competency for the digital world

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Abstract

In the current fast-paced digital work environment, it has become crucial for individuals to cultivate a deep understanding of the constantly changing nature of the job market. With jobs and career paths becoming increasingly indistinct and unpredictable, developing awareness of the digital work world is more important than ever. This research empirically investigated the degree to which the world of work readiness and competency of distance learning students could serve as predictors for their digital work world awareness. Data were collected from (N = 486) full-time employed undergraduate students at a comprehensive South African distance learning institution. Regression analysis and structural equation modelling were used in the cross-sectional, quantitative study. The study emphasised the significance of developing job certitude, business ingenuity and socio-digital agility as part of students' career development learning to improve their awareness of the digital work environment. The study enhanced comprehension of the implicit function of students' work readiness and competency in relation to significant digital-era awareness.

Keywords

Digital work awareness, job awareness, continuous learning, wow competency, agility, wow readiness, job certitude, job fitness

Introduction

The importance of developing awareness of the digital work world cannot be overstated in today's highly competitive and rapidly changing career landscape (Ramnund-Mansingh & Reddy, 2021; Tomlinson & Holmes, 2017; Williams et al., 2022). Numerous studies have highlighted the impact of technological advancements, digital disruption, and artificial intelligence on the new world of work, which has significant implications for individuals navigating the digital work environment (Al-Asfour et al., 2021; Hite & McDonald, 2020; Industry Week, 2020; Potgieter et al., 2019). It is therefore imperative that higher education institutions focus on equipping students with the additional skills and competencies needed to enhance their awareness of the digital world of work and increase their readiness for the future workplace (Ramnund-Mansingh & Reddy, 2021).

In light of this, Wafa et al., (2020) found that both graduates and employees feel unprepared for the digital world of work, highlighting the need for individuals to develop competencies beyond their qualifications to succeed in the unpredictable and rapidly evolving digital-era work world where jobs and occupational pathways have become blurred and uncertain. Competencies such as adaptability

and problem solving, will ensure that graduates are ready to work and meet the requirements of the industry (Irfansyah et al., 2023). To further expand the understanding of individuals' awareness of the digital world of work, this study presents findings on higher education students' perceptions of their readiness and competency for the world of work, and the extent to which these attributes predict their digital work world awareness.

This study contributes to the existing body of knowledge by providing insights into the attributes that students require to develop awareness of the digital world of work. The findings of this study can be used by higher education institutions and career development practitioners to guide students in developing the necessary readiness and awareness of the digital-driven work environment.

Research objective

This research examined the degree to which students' perceptions of their world of work readiness (job/occupation fitness and job/occupation certitude) and competency (business ingenuity and socio digital agility) predict their world of work awareness (awareness of the digital nature of work, occupation/job awareness and continuous upskilling awareness).

However, there is currently a paucity of research on the links between these attributes of students. Accordingly, the following research question ensued from our reasoning:

To what extent do students' world of work readiness and competency serve as predictors for their digital work world awareness?

Literature review

World of work readiness and competency

In the present study, world of work readiness of students refers to (1) their job and occupation certitude (i.e. their confidence and clarity about available jobs and occupations in their study field, including the skills and knowledge and training needed for such jobs and occupations), and (2) their job and occupation fitness (i.e. optimism that their studies prepared them for the digital work environment and career pathways, how to navigate jobs and occupations and develop the knowledge and skills for employability in preferred jobs and occupations (Coetzee et al., 2021). Essentially, students have a perception that their career interest and studies fit the emerging jobs and occupations in the digital era work world. Additionally, students exhibit a positive sense of certitude regarding the knowledge and skills required for the jobs and occupations in their field of study. They are confident that their qualifications will help them qualify for jobs of interest and have clear plans to pursue their chosen occupation (Williams et al., 2022; Coetzee et al., 2021).

Higher education institutions should empower students to develop the necessary world of work readiness to successfully transition from graduate to the labour market. This includes ensuring that their curriculum includes critical digital-era competencies and encourage students to actively participate in developing these competencies (Clinkard, 2018). When students feel prepared for the digital-era world environment, their transition to the workplace will be smoother (Keogh et al., 2015).

To achieve world of work readiness, students must demonstrate job certitude and occupation fitness by perceiving that their personal study and career interests align with the requirements of jobs and occupations in the digital world of work. They should also have the confidence that their university studies have equipped them with the necessary knowledge and skills for success in those jobs (Coetzee, et al., 2021; Tomlinson, 2007; Tomlinson & Holmes, 2017; Winterton & Turner, 2019). Additionally, students should acquire non-technical skills and exhibiting digital awareness skills (Coetzee & Veldsman, 2022). Graduates who have positive attitudes about their work fitness, exhibit certitude regarding their job and believe that they are fully equipped for the world of work and these students are more likely to succeed in finding suitable employment (Duan et al., 2022; Ramnund-Mansingh & Reddy, 2021).

The world of work is constantly evolving and becoming increasingly digital, which requires workers to possess new and advanced competencies to stay competitive. Two essential competencies for exhibiting digital-era employability are business ingenuity and socio-digital agility (Coetzee & Veldsman, 2022).

Business ingenuity refers to the self-efficacious acumen in understanding and applying business principles and practices in the workplace. It includes leadership skills, financial literacy, communication skills, critical and strategic thinking, and the ability of multi-disciplinary solving of complex business problems (Coetzee et al., 2021). Research has shown that business acumen is a critical competency for success in today's job market, particularly for those in management positions (Abessolo et al., 2017).

Socio-digital agility refers to the ability to use digital technology to interact and communicate effectively with others in a professional setting. It includes skills such as digital communication, social media, and online collaboration in diverse work contexts (Coetzee & Veldsman, 2022). Studies have shown that socio-digital agility is becoming increasingly important for employability and enhancing awareness in the digital era (Gaglio & Winter, 2017). The concept of socio-digital agility refers to the level of an individual's self-efficacy in inter-digital competencies, including digital collaboration for problem-solving, managing socio-cultural diversity, and self-directed management of their career and employability, as highlighted in previous studies (Coetzee et al., 2019; Coetzee et al., 2021; Keogh et al., 2017).

Recent research by Coetzee and Veldsman (2022) highlights the importance of these competencies for digital awareness in the digital era. Their study found that socio-digital agility significantly predicted employability beyond traditional technical skills, and that business acumen was positively related to job satisfaction and career success. Another study by Gaglio and Winter (2017) found that socio-digital agility was positively related to job performance, job satisfaction, and job search self-efficacy.

Overall, recent research suggests that business ingenuity and socio-digital agility are essential competencies for digital awareness. As the world of work continues to evolve, it is crucial for individuals to develop and demonstrate these competencies to remain competitive in the job market.

Digital World of Work Awareness

Digital world of work awareness refers to individuals' understanding of the digital aspects of their jobs and their ability to use technology to perform their tasks effectively. With the increasing digitisation of the workplace, digital world of work awareness has become an essential competency for individuals to possess.

According to a recent study by Ulfert-Blank & Schmidt. (2022), digital competence and awareness were positively associated with job satisfaction and job performance. The authors suggest that individuals with high digital competence and awareness are more likely to feel comfortable with digital tools and technology, which enhances their ability to complete work-related tasks efficiently.

Similarly, in a study by Duan et al. (2022), digital competence and awareness were found to be positively related to employees' creativity and innovation in the workplace. The authors suggest that employees with high digital competence are better equipped to navigate the rapidly changing technological landscape and use digital tools to generate new and innovative ideas.

Furthermore, a study by Coetzee (2022) found that digital world of work awareness plays a critical role in enhancing employees' adaptability and agility in the face of changing work conditions. The authors suggest that individuals with high digital competence are more likely to be able to adapt to new digital tools and platforms, making them more versatile and valuable to their employers.

Overall, these studies suggest that digital world of work awareness is a crucial competence for individuals to possess in the current digital landscape. As the workplace continues to evolve, individuals who possess high digital competence and awareness are more likely to excel in their roles

and be viewed as valuable assets to their employers. Individuals with a high level of world of work awareness are more likely to show high levels of adaptability and job readiness.

Research design

Research approach

The research made use of a cross-sectional quantitative approach. Data were collected using non-probability convenience sampling technique.

Research Participants

The study randomly recruited a total of 486 undergraduate students who were pursuing their studies in the field of economic and management sciences at a South African comprehensive distance learning institution. The mean age of the participants was 34.34 years (SD = 9.12; age range 25 – 55 years). The sample consisted predominantly of women (65%) who were employed (74%) and ranged between 25 – 55 years of age.

Measuring instruments

Participants completed the world of work orientation scale (Coetzee et al., 2021), which measured three domains of work world awareness. The first domain related to the extent to which students' studies contributed to their world of work readiness (job/occupation certitude and job/occupation fitness). The second domain assessed personal evaluations of world of work competency (business ingenuity and socio-digital agility). The third domain measured perceptions about their world of work awareness (the digital nature of work, occupation/job awareness and continuous upskilling/learning awareness). The responses of the participants were assessed using a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree) which produces data suitable for interval statistical analyses such as descriptive statistics, correlations, regressions, and factor analysis (Allen & Seaman, 2007).

World of work readiness

World of work readiness measured perceptions of students' job/occupation certitude (6 items; e.g. 'My studies help me to qualify for the job or occupation that I like best ') and job/occupation fitness (6 items; e.g. 'I feel satisfied that my studies prepare me for the 2020s world of work '). The internal reliability coefficients of the subscales were .88 and .92. Coetzee et al. (2021) confirmed the construct validity of the scale.

World of work competency

World of work competency included evaluations of students' business ingenuity (11 items; e.g. 'I am flexible and adapt with ease to market, business and economic changes ') and socio-digital agility (10 items; e.g. 'I feel confident in using online tools such as search engines to gather information and data and to solve problems in the digital world of work '). The internal reliability coefficients of the subscales were .91 and .94. Coetzee et al. (2021) confirmed the construct validity of the scale.

World of work awareness

World of work awareness measured students' perceptions of the (1) digital nature of work (5 items; e.g. 'I see technological innovation as a major driver of new employment and career opportunities '), (2) occupation/job awareness (3 items; e.g. 'I know which skills and knowledge I need to qualify for jobs and occupations that interest me in the Fourth Industrial Revolution world of work '), and (3) continuous upskilling/learning awareness (7 items; e.g. 'It is important for me to continuously engage in upskilling efforts to ensure I am prepared for constant changes in jobs and occupations '). The internal reliability coefficients of the subscales ranged between .87 and .92. Coetzee (2022) confirmed the construct validity of the scale.

Procedure and ethical considerations

The research ethics review and permissions committees of the university provided approval for the study (#2020_CEMS-IOP_031 and # 2020_RPC_051). Participants were invited to participate in the study voluntarily and anonymously via an email sent by a student system administrator from a 'no-reply' email address. The email contained a URL link to an online questionnaire. Participants provided informed consent for the research to utilise their data for anonymous group-based research purposes.

Statistical analysis

To examine the discriminant validity among the seven latent variables in the measurement model, Confirmatory Factor Analysis (CFA) was conducted using Maximum Likelihood Estimation. Initially, a single-factor CFA was tested, followed by a multi-factor CFA. The CFAs, descriptive statistics, internal consistency reliability coefficients (Cronbach's Alpha and Composite Reliability [CR]), Pearson product-moment correlations, and linear regression analysis were computed and analysed using IBM SPSS (Version 28) (2021). The bootstrapping method was applied, and the stringent lower-level confidence interval (LLCI) and upper-level confidence interval (ULCI) range not containing zero were utilised to interpret significant regression effects at the 95% confidence interval (Hair et al., 2010). Subsequently, a Structural Equation Modelling (SEM) was performed to assess the validity of the structural model, specifically, the statistically significant ($p \leq .05$) world of work fitness and competency on the three digital world of work awareness variables. The following threshold fit indices suggested by Hair et al. (2010) served as guidelines for accepting the CFA and SEM models: CMIN/df < 3; RMSEA and SRMR < .07; CFI \geq .90.

Results

Testing the measurement model

The fit statistics of two alternative models were compared to the baseline model. The single factor CFA model (loading all indicators onto a single latent variable) did not have a good fit with the data: CMIN/df = 6.70 ($p = .000$); RMSEA = .11; SRMR = .11; CFI = .56; AIC = 9793.20. The final multi factor latent variable model (with indicators loading onto their respective factor) showed a better and good model fit and, thus, discriminant validity among the latent variables: CMIN/df = 2.44 ($p = .000$); RMSEA = .06; SRMR = .04; CFI = .91; AIC = 2821.20.

Descriptive statistics and bivariate correlations

Table 1 provides a summary of the descriptive statistics and bivariate correlations. The internal consistency reliability coefficients (all Cronbach alphas and CRs) were higher ($\geq .71$) than the cut-off value (.70) as suggested by Hair et al. (2010) for good reliability. The two world of work variables and the two world of work fitness variables had positive and significant correlations ($p = .0001$ and $p = .04$) with the three digital world of work awareness variables ($r \geq .38$ [medium practical effect] to $r \leq .75$ [large practical effect]).

Table 1: Descriptive Statistics and Bivariate Correlations

Variable	α	CR	AVE	Mean (SD)	1	2	3	4	5	6	7
1 Job/occupation certitude	.88	.88	.55	5.27 (1.09)	-						
2 Job/occupation fitness	.91	.91	.63	5.37 (1.14)	.74 ***	-					
3 Business ingenuity	.93	.93	.56	5.46 (.92)	.71 ***	.54 ***	-				
4 Socio-digital agility	.91	.91	.51	5.86 (.84)	.69 ***	.54 ***	.86 ***	-			
5 Awareness of the digital nature of work	.91	.92	.61	5.55 (1.10)	.47 ***	.37 ***	.49 ***	.63 ***	-		
6 Occupation/job awareness	.87	.88	.70	4.90 (1.39)	.75 ***	.55 ***	.53 ***	.47 ***	.47 ***	-	
7 Continuous upskilling/learning awareness	.85	.85	.54	5.85 (1.00)	.40 ***	.38 ***	.49 ***	.51 ***	.73 ***	.58 ***	-

N = 486 *** $p \leq .001$; $r \leq .10$ (small practical effect size), $r \geq .30 \leq .49$ (medium practical effect size), $r \geq .50$ (large practical effect size).

Regression estimates and validity of structural model

Table 2, 3 and 4 summarises the regression estimates results for the regression of the world of work fitness and competency upon the three digital world of work awareness. Three linear regression models were tested (one for each world of work awareness variable). The F-statistic for each model was significant:

- Awareness of digital nature of work: $F = 37.71$; $p = .000$; adjusted $R^2 = .23$ [moderate practical effect]
- Occupation/job awareness: $F = 92.54$; $p = .000$; adjusted $R^2 = .43$ [large practical effect]
- Continuous learning/upskilling awareness: $F = 60.86$; $p = .000$; adjusted $R^2 = .33$ [large practical effect]

Table 2: Regression of Work Readiness & Competency on Awareness of the Digital Nature of Work

Model variables	Un-standardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics			
	B.	Std. Error				Beta	Tolerance	VIF	LLCI
(Constant)	1.821	.31		5.868	.000***			1.21	2.43
Job/occupation certitude	-.02	.06	-.02	-.33	.74	.42	2.41	-.14	.10
Job/occupation fitness	.11	.05	.13	2.32	.02**	.54	1.85	.02	.22
Business ingenuity	.21	.08	.18	2.70	.01**	.37	2.72	.06	.36
Socio-digital agility	.35	.08	.28	4.30	.00***	.39	2.57	.19	.51

Table 3: Regression of Work Readiness and Competency on Occupational/Job Awareness

Model variables	Un- standardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics			
	B.	Std. Error				Beta	Tolerance	VIF	LLCI
(Constant)	.13	.35		.40	.69			-.54	.82
Job/ occupation certitude	.68	.07	.53	10.0	.000***	.42	2.41	.55	.82
Job/ occupation fitness	.12	.05	.10	2.19	.03**	.54	1.85	.01	.24
Business ingenuity	.21	.09	.14	2.45	.02**	.37	2.72	.04	.38
Socio-digital agility	-.11	.09	-.07	-1.18	.24	.39	2.57	-.29	.07

Table 4: Regression of Work Readiness and Competency on Continuous Upskilling/Learning Awareness

Model variables	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics			
	B.	Std. Error				Beta	Tolerance	VIF	LLCI
(Constant)	1.88	.26		7.20	.00***			1.37	2.39
Job/occupation certitude	.08	.05	.09	1.62	.11	.42	2.41	-.02	.18
Job/occupation fitness	.03	.04	.04	.78	.44	.54	1.85	-.05	.12
Business ingenuity	-.01	.06	-.01	-.17	.86	.37	2.72	-.14	.12
Socio-digital agility	.58	.07	.50	8.45	.00***	.39	2.57	.45	.72

Based on the guidelines of Hair et al (2010), the variance inflation factor (VIF) values for all the construct variables were inspected for issues of collinearity to avoid misleading or bias estimation of the results. The results revealed VIF values of <3.00, indicating no potential collinearity issues.

As shown in Table 2, three of the world of work readiness and competency variables had significant and positive regression effects on awareness of the digital nature of work variable ($\beta \geq .13$ to $\beta \leq .35$; $p = .000$; the LLCI and UCL range did not contain any zero). The job/occupation certitude did not have a significant regression effect on awareness of the digital nature of work ($\beta = -.02$; $p = .74$; LLCI = 1.21; ULCI = 2.43).

As shown in Table 3, three of the world of work readiness and competency variables had significant and positive regression effects on occupational/job awareness variable ($\beta \geq .10$ to $\beta \leq .53$; $p = .000$; the LLCI and UCL range did not contain any zero). The socio-digital agility did not have a significant regression effect on occupational/job awareness variable ($\beta = -.11$; $p = .24$; LLCI = .29; ULCI = .07).

As shown in Table 4, only the socio-digital agility variable had significant and positive regression effect on awareness of the continuous upskilling/learning variable ($\beta \geq .58$; $p = .000$; the LLCI and UCL range did not contain any zero). The other three world of work fit and competency variables did not have significant regression effects on the continuous upskilling/learning variable ($\beta = -.01$ to $\beta \leq .08$; $p = .86$; LLCI = $-.14$; ULCI = $.12$).

The observed statistically significant ($p \leq .05$) world of work readiness and competency estimates upon the three digital world of work awareness variables were subjected to structural equation modelling (SEM) to assess the validity of the structural model. The structural model had good fit with the model data: CMIN/df = 2.65 ($p = .000$); RMSEA = .06; SRMR = .06; CFI = .90.

Figure 1 below provides the path coefficients for the regression model of perceived world of work fitness and competency as expressions of digital world of work awareness competency.

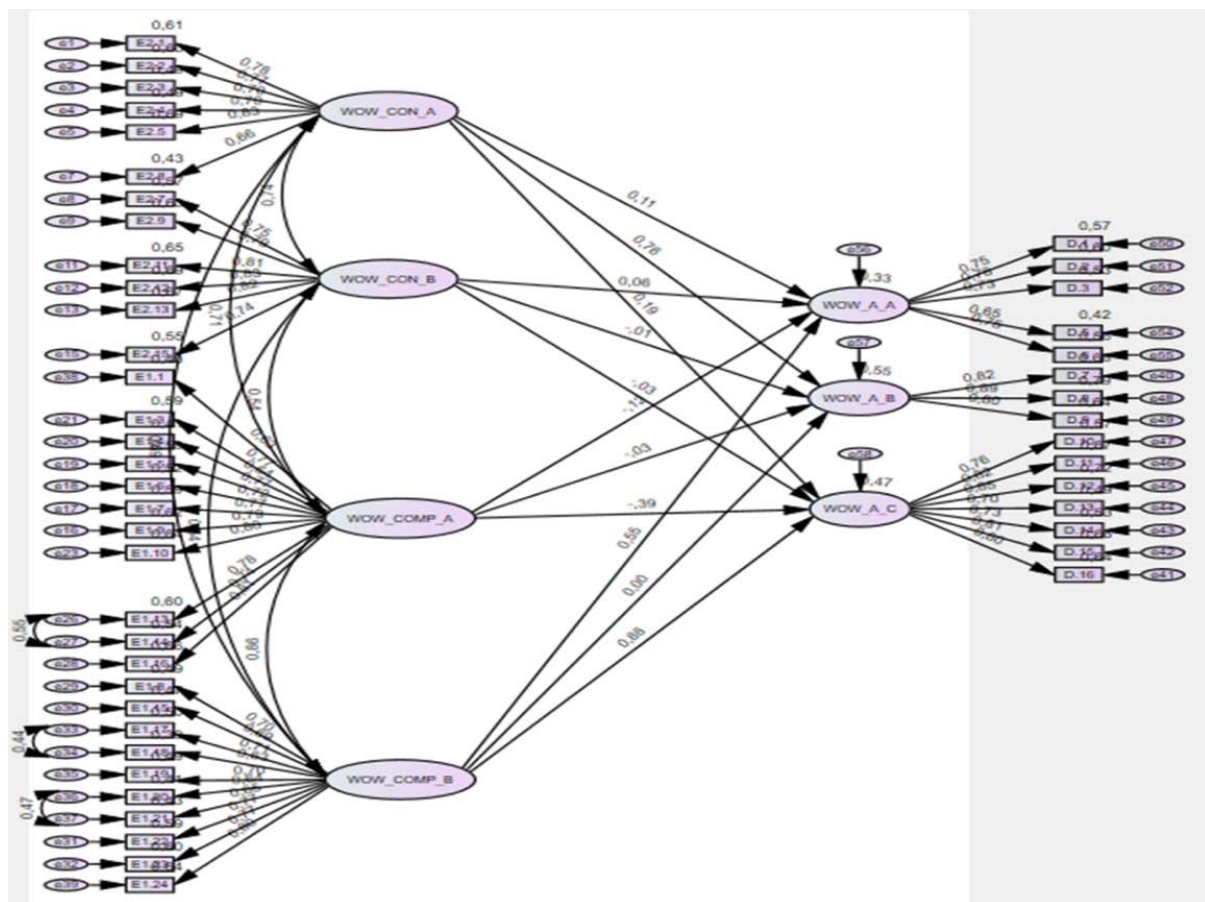


Figure 1: Structural Equation Regression Model

It is evident from Figure 1 that only perceived job/occupation certitude (WOW-CON_A), business ingenuity (WOW_COMPA) and socio-digital agility (WOW_COMPB) showed path coefficients above .30. This, thus, provides an indication that job and occupation certitude had a higher significant predictive weight to occupational/job awareness (WOW_B = .76). Business ingenuity revealed a higher predictive weight to continuous upskilling/learning awareness (WOW_C = .39). Lastly, socio-digital agility had a higher significant predictive weight to awareness of the digital nature of work (WOW_A = .55) and continuous upskilling/learning awareness (WOW_C = .88). The structural equation model confirms the regression analysis results that job/occupation certitude and socio-digital agility were the most significant predictors of digital world of work awareness.

Findings and discussion

The rapid changes and technological advancements in the digital world of work have transformed the nature of organisations, careers, jobs, and occupations, impacting job certitude, business ingenuity and socio-digital agility (Ramnund-Mansingh & Reddy, 2021). In response, higher education institutions have a responsibility to prepare students for the new world of work through career development learning processes, knowledge about the world of work, self-awareness, appropriate career mindsets, and the necessary skills to navigate digital careers (AlKhemeiri et al., 2020; Jackson & Dean 2022).

This study provides empirical evidence of how university education can contribute to students' readiness for the new world of work and their digital-era employability competency. The findings suggest that students' certainty about available jobs and occupations (and concomitant knowledge and skills requirements) in their study field, their optimism about the fit between their studies and digital-era career pathways, including their competency of business ingenuity are crucial for actively navigating available jobs and occupations. The findings further suggests that acquiring the knowledge needed for employment in a digital work environment is of crucial importance. In addition, developing through their studies job and occupation fitness and the competency of business ingenuity and socio-digital awareness seem to have activated students' interest in and optimism about digital-technological innovation as a driver of new employment opportunities. Socio-digital awareness further stimulated the need for continuous learning and upskilling.

These findings are consistent with prior research that highlights the importance of individuals' perceptions and attitudes towards their careers and the new world of work explaining their world of work orientation and career exploration process (Autin & Allan, 2020; Coetzee, 2022). Positive perceptions of fitness for the new world of work can enhance business ingenuity and thus impact on the employability and adaptability to the digital world of work. Positive perceptions can also improve socio-digital agility, including competencies such as people skills, communication with a diverse workforce, career self-management, and confidently using digital media, social media, and other technological communication platforms and tools (Coetzee et al., 2021).

The study's results further reinforce the need for higher education institutions to integrate career development planning and world of work readiness and competency into the curriculum (AlKhemeiri et al., 2020). Refinement of the curriculum is essential for graduates to obtain the necessary awareness of the digital-driven world of work (Clinkard, 2018; Hernandez-Lopez et al., 2016). Career development planning may deepen students' insights into their own fitness and competency for the new world of work, leading to a curiosity about the new job and occupation requirements of the changing digital era, sustainable career success, and the necessary fitness and competency requirements. Ultimately, students' fitness and competency for the new world of work may be enhanced.

The result of the present study further indicates that job certitude, business ingenuity and socio-digital agility are significant predictors of digital world of work awareness among university students. This finding is consistent with previous research that highlights the importance of these competencies in enhancing fitness and awareness in the digital era (Coetzee et al., 2021; Keogh et al., 2015).

Job certitude is an essential components of career adaptability and refers to individuals' confidence in their ability to obtain and maintain employment in their chosen field. The present study found that job certitude is a significant predictor of digital world of work awareness. This result is in line with the previous research that suggest that individuals with high levels of job certitude are more likely to be motivated to seek out new opportunities and adapt to changes in the digital world of work (Coetzee & Veldsman, 2022).

Job certitude, or the confidence in one's ability to obtain and maintain employment, is linked to awareness of the digital workplace as it contributes to individuals' motivation to seek out new opportunities and adapt to changes in the digital world of work. As the digital world of work is

constantly evolving, individuals who possess high levels of job certitude are more likely to be open to new learning opportunities, take risks and adapt and fit into changes in the workplace.

In the context of awareness of the digital workplace, a study done by Keogh et al. (2015) found that individuals who were more confident in their ability to adapt and fit into changes in the digital world of work had higher levels of innovative and entrepreneurial thinking, which is a components of job certitude. This suggests that job certitude may contribute to individuals' adaptability and innovative thinking in the digital workplace, which in turn can enhance their awareness of the digital world of work.

Overall, the link between job certitude and awareness of the digital workplace highlights the importance of developing individuals' confidence in their ability to adapt to changes in the workplace. This has practical implications for career development practitioners and higher education institutions in guiding students to develop higher levels of job certitude and other competencies that may enhance their fitness and competency in the digital world of work.

Business ingenuity, which involved innovative and entrepreneurial thinking, was also found to be a significant predictor of digital world of work awareness. This result supports previous research that emphasises the importance of creativity and innovation in adapting to the demands of the digital era (Keogh et al., 2015). Business ingenuity is identified as a key component for enhancing awareness of the digital world of work. Individuals who possess this competency are more likely to adapt to the changing demands and identify new opportunities for growth and development within their careers.

Keogh et al. (2015) and Paul et al., (2023) found that business ingenuity is the key factor in successful digital entrepreneurship. In the context of awareness in the digital era, individuals who possess business ingenuity are better equipped to identify new opportunities and adapt to changes in the digital workplace. This may involve developing new digital skills, identifying new career paths, or developing innovative solutions to problems in the workplace. Research has shown that organisations that promote business ingenuity among their employees are more likely to be successful in the digital workplace (Miralles et al., 2015).

Overall, the ability to think innovatively and entrepreneurially is an important competence for enhancing individuals' digital awareness. Individuals who possess business ingenuity are better equipped to adapt to changes in the digital era and identify new opportunities for growth and development in their careers.

Finally, the present study found that socio-digital agility, which encompasses individuals' ability to collaborate and manage socio-cultural diversity in digital environments, was also a significant predictor of digital awareness. This finding aligns with previous research that highlights the importance of digital competencies such as social media skills and intercultural communication skills in enhancing adaptability and work of work fitness and competency (Coetzee, et al., 2019). Individuals with strong socio-digital agility may be better equipped to navigate the complexities of digital collaboration, communication and networking. Socio-digital agility is becoming increasingly important in the digital era as more and more work is done remotely and across borders. Research has shown that socio-digital agility is positively related to the awareness of the digital world of work.

Studies done by Coetzee et al. (2019) and Keogh et al. (2015) found that socio-digital agility was positively associated with digital competencies such as social media skills and adaptability in the digital workplace. A further study done by Coetzee et al. (2021) found that socio-digital agility was positively associated with self-perceived readiness for the digital world of world among individuals. The authors suggest that developing socio-digital agility may be particularly important for individuals that find themselves in the field such as business management, where digital competencies are becoming increasingly important (Olo, Correia & Rego, 2021).

Overall, these results suggest that job certitude, business ingenuity, and socio-digital agility are important competencies for enhancing awareness of the digital world of work among university students. These findings have practical implications for career development practitioners and higher

education institutions in guiding students to develop the required fitness and competency to ensure higher digital awareness. Such initiatives might include re-designing the curriculum to be inclusive of these competencies and adapt career development strategies to enhance these competencies. Future research could explore the extent to which these competencies predict success in the digital world of work among working professionals in different industries.

Limitations and future research

Due to the cross-sectional research design and the limited sample size of students from a single higher education institution in the field of economic and management sciences, the findings of this study should be interpreted with caution and considered exploratory. Therefore, generalisations cannot be made based on these results. To enhance the understanding of the associations between world of work fitness, competency and digital awareness, future research could examine distance learning employees in different study fields and occupational contexts. Future research could also further explore the extent to which these competencies predict success in the digital world of work among different professionals in different industries. Moreover, given that students may have varying responses at different stages of their career and world of work experience, longitudinal studies with multiple points of measurement could be helpful to assess the stability or changes in the world of work fitness and competency in relation to digital awareness. Taking on a qualitative approach in future studies might demonstrate a deeper awareness and will contribute to the broader discourse.

Conclusions

Despite limitations in the research design, this study provided valuable initial empirical insights into students' perception of their awareness of the digital world of work and how it may impact their competency and fitness in this area. Unlike previous research that focused on employability attributes, this study explores the importance of job certitude, business ingenuity and socio-digital agility as key expressions of digital awareness. The results could stimulate discussions around the competencies students need to possess for success in the new world of work. Furthermore, the findings could guide higher education institutions and career development professionals in advising students on how to develop these crucial competencies for higher digital awareness in the workplace.

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Disclaimer

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References

- Abessolo, M., Rossier, J., & Hirschi, A. (2017). Basic values, career orientations and career anchors: Empirical investigation of relationships. *Frontiers in Psychology, 8*, 1556. <https://doi.org/10.3389/fpsyg.2017.01556>
- Al-Asfour, A., Tlaiss, H.A., & Shield, S.W. (2021). Work experiences of native Americans: A qualitative study. *Journal of Career Development, 48*(2), 105-119. <https://doi.org/10.1177/0894845319832129>
- Allen, I.E., & Seaman, C.A. (2007). Likert scales and data analysis. *Quality Progress, 40*, 64-65. <https://www.bayviewanalytics.com/reports/asg/likert-scales-and-data-analyses.pdf>
- AlKhemeiri, A.K., Khalid, K. & Musa, N. (2020). The role of career competencies and proactive personality in early-career employee career adaptability. *European Journal of Training and Development, 45*(4/5), 285-300. <https://doi.org/10.1108/EJTD-05-2020-0081>
- Autin, K.L., & Allan, B.A. (2020). Socioeconomic privilege and meaningful work: A psychology of working perspective. *Journal of Career Assessment, 28*(2), 241-256. <https://doi.org/10.1177/1069072719856307>
- Clinkard, M. (2018). Are employability and entrepreneurial measures for higher education relevant? Introducing Agile reflection. *Journal of Industry and Higher Education, 32*(6). <https://doi.org/10.1177/0950422218808625>
- Coetzee, M. (2022). Career agility for purposive career exploration: Role of adult learners' career orientations and digital-era world of work awareness. *African Journal of Career Development, 4*(1), a54. <https://doi.org/10.4102/ajcd.v4i1.54>
- Coetzee, M., Ferreira, N. & Potgieter, I.L. (2019). Employer requirements and employability mindsets influencing graduate workers' self-confidence in gaining employment. *African Journal of Career Development, 1*(1), a4. <https://doi.org/10.4102/ajcd.v1i1.4>
- Coetzee, M., Ferreira, N. & Potgieter, I.L. (2021). *World of work orientation scale*. [Unpublished research report], Department of Industrial and Organisational Psychology, University of South Africa.
- Coetzee, M. & Veldsman, D. (2022). The digital-era industrial/organisational psychologist: Employers' view of key service roles, skills and attributes. *South African Journal of Industrial Psychology, 48*(0), a1991. <https://doi.org/10.4102/sajip.v48i0.1991>
- Duan, J., Lin, X., Wang, X. & Xu, Y. (2022). How organizational cultures shape social cognition for newcomer voices. *Journal of Occupational and Organizational Psychology, 95*(3), 577-738. <https://doi.org/10.1111/joop.12390>
- Gaglio, C.M. & Winter, S. (2017). Entrepreneurial Alertness and Opportunity Identification: Where are we now? In M Brannback & A.L. Carsrud (Eds.), *Revisiting the entrepreneurial mind. Inside the black box: An expanded edition* (pp. 339-358. Springer International. https://doi.org/10.1007/978-3-319-45544-0_21
- Hair, J.F., Black, W., Babin, B.J. & Anderson, R.E. (2010). *Multivariate data analysis: a global perspective*. 7th edition. Pearson.
- Hernandez-Lopez, L., Garcia-Almeida, D.J., & Ballesteros-Rodriguez, J.L. (2016). Students' perceptions of the lecturer's role in management education: knowledge acquisition and competence development. *International Journal of Management Education, 14*(3), 411-421. <https://doi.org/10.1016/j.ijme.2016.10.001>
- Hite, L.M. & McDonald, K.S. (2020). Careers after COVID-19: challenges and changes. *Human Resource Development International, 23*(4), 427-437. <https://doi.org/10.1080/13678868.2020.1779576>
- IBM Corp. (2021). IBM SPSS Statistics for Windows (Version 28.0) [Computer software]. IBM Corp.
- Industry Week. (2020). *Trends impacting the future of work*. <https://www.industryweek.com/covid19/article/21130761/9-trends-impactingthe-future-of-work>
- Irfansyah, A., Suparji, Suprianto, B., Kuntadi, C., & Sudarmaji, H. (2023). Factors that affect the quality of vocational education graduates in the 4.0 era: Job readiness, skills and digital services. *Dinasti International Journal of Education Management and Social Science, 4*(4), 485-496. <https://doi.org/10.31933/dijemss.v4i4.1734>
- Jackson, D. & Dean, B.A. (2022). The contribution of different types of work-integrated learning to graduate employability. *Higher Education Research & Development, 42*(1), 93-110. <https://doi.org/10.1080/07294360.2022.2048638>
- Keogh, J., Maguire, T. & O'Donoghue, J. (2015). Graduate work-readiness in the 21st century. Proceedings of Higher Education in Transformation Conference, Dublin, Ireland, 385-395. <https://arrow.tudublin.ie/cgi/viewcontent.cgi?article=1004&context=st4>
- Miralles, F., Giones, F. & Riverola, C. (2015). Evaluating the impact of prior experience in entrepreneurial intentions. *International Entrepreneurial and Management Journal, 12*, 791-813. <https://doi.org/10.1007/s11365-015-0365-4>

- Olo, D., Correia, L. & Rego, C. (2021). How to develop higher education curricula towards employability? A multi-stakeholder approach. *Education + Training*, 64(1), 89-106. <https://doi.org/10.1108/ET-10-2020-0329>
- Potgieter, I.L., Ferreira, N., & Coetzee, M. (2019). *Theory, research and dynamics of career wellbeing: Becoming fit for the future*. Springer Nature. <https://doi.org/10.1007/978-3-030-28180-9>
- Paul, J., Alhassan, I., Binsaif, N. & Singh, P. (2023). Digital entrepreneurship research: A systematic review. *Journal of Business Research*, 156. <https://doi.org/10.1016/j.jbusres.2022.113507>
- Ramund-Mansingh, A. & Reddy, N. (2021). South African specific complexities in aligning graduate attributes to employability. *Journal of Teaching and Learning for Graduate Employability*, 12(2), 206–221. <https://doi.org/10.21153/jtlge2021vol12no2art1025>
- Tomlinson, M. & Holmes, L. (2012). Graduate employability: A review of conceptual and empirical themes. *Higher Education Policy*, 25, 407-431. <https://doi.org/10.1057/hep.2011.26>
- Tomlinson, M. (2007). Graduate Employability and Student Attitudes and Orientations to the Labour Market. *Journal of Education and Work*, 20(4), 285-304. <https://doi.org/10.1080/13639080701650164>
- Ulfert-Blank, A., & Schmidt, I. (2022). Assessing digital self-efficacy: Review and scale development. *Computers and Education*, 191. <https://doi.org/10.1016/j.compedu.2022.104626>
- Wafa, A., Singh, J. & Kaur, D. (2020). Challenges faced and employability skills that employers seek in fresh graduates in a third world country. *International Journal of Psychosocial Rehabilitation*. 24(2), 735-748.
- Williams, K.E., Hutchings, P.B. & Phelps, C. (2022). Beyond learning in higher education: an evaluation of the ‘Life Design’ initiative to improve student employability. *Studies in Higher Education*, 47(6), 1184-1198. <https://doi.org/10.1080/03075079.2020.1870946>
- 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>