Students' career capital resource needs for employability in the technology-driven work world

Melinde Coetzee[1]

Corresponding author: Melinde Coetzee (coetzm1@unisa.ac.za)
[1] Department of Industrial and Organisational Psychology, University of South Africa

Abstract

The present study assessed the world of work awareness of a random sample of (N = 486) higher education undergraduate students from an emerging country. In addition, the study explored these students' needs for information they need from their studies about the technology-driven world of work. The needs were evaluated in terms specific career capital resources that should be addressed in the higher education curriculum to foster the employability of graduates in a rapid evolving digital-era workplace. A mixed methods concurrent triangulation design was employed to analyse quantitative (numeric descriptive statistics and correlations) and qualitative (text) data from the same sample. The quantitative descriptive findings suggested an open-mindedness toward new technology, being responsive to changing work conditions and a need for continuous upskilling opportunities. The participants exhibited sound awareness of the impact of technology on their future employability and careers. Predominantly, the qualitative findings indicated a strong need for 'knowing how' career capital resource development in the form of career planning and job search guidance and gaining deeper knowledge and understanding of the impact of technology on the job market, job and occupation opportunities and employability requirements. Participants expressed a need to understand the relevance of the qualification curriculum and content to the digital-era world of work and shifting employer expectations. The findings also revealed a need for 'knowing what', 'knowing why' and 'knowing whom' career capital resource development for employability as part of university studies. Recommendations are made for incurriculating career and employability development in university courses.

Introduction

The challenge of sustainable employability remains extremely high for contemporary graduates who are obliged to adapt to a rapidly evolving technological-driven global work landscape (Wallis, 2021). Digital-innovative work practices and hybrid work models require digital-savviness, including the capacity for continuous learning, upskilling and reskilling which raises the standards for employability (Ramnund-Mansingh & Reddy, 2021; Coetzee & Veldsman, 2022; Spöttl & Windelband, 2021; Van Laar et al., 2022). Moreover, technological innovation may in future make some known occupations obsolete while also creating new, but unfathomed, jobs and occupations (Lockwood, 2020). The gig economy has further opened opportunities for skills-on-demand hiring and employment which blurs the notion of job security and clear career progression paths for graduates (Ogunwale, 2022).

Employability becomes more challenging because of digital transformation in talent searching, recruiting and selection (Lockwood, 2020; Manyika, 2017; Ogunwale, 2022). Digital and online talent platforms and artificial intelligence-based digital software enable expedient and efficient talent searching, job-skills-matching and on-demand skills hiring across a higher volume of diverse and global talent pools (Heaslip, 2022; Lockwood, 2020; Manyika, 2017; Ogunwale, 2022). Virtual hiring technology including video resumes and online coding interviews (or simulation) of job-related skills now serve as virtual job auditions that help recruiters get a clearer and more reliable picture of a candidate's employability, skills and expertise (Heaslip, 2022; Ogunwale, 2022). In this regard, digital recruiting levels the playing field for job seekers because candidates can be interviewed in parallel and be compared in a more reliable, equitable and valid manner (Heaslip, 2022).

On the other hand, advances in mobile and social media technology such as job searching apps also enable job seekers to apply for the most appealing jobs, market their employability, skills and expertise portfolio through online platforms and communicate with potential employers via conferencing and online video interviews (Heaslip, 2022; Ogunwale, 2022). The global war for skilled talent increases opportunities to move across jobs, industries and countries with greater career mobility. Technology-enabled remote and flexible working conditions make it possible to be in multiple jobs at a time and engage in hybrid entrepreneurial forms of employment (Coetzee & Veldsman, 2022; Ogunwale, 2022). Entrepreneurial attitudes toward employability are evident in fast emerging hybrid approaches to employment in the form of portfolio careers (i.e. moving between employment, self-employment and freelancing) and online job creation made possible by technology (Clinkard, 2018). Scholars note higher education's imminent role in the cultivation of an entrepreneurial and job creation intention and the development of knowledge and skills for career and business start-up in today's turbulent, uncertain job market that heralds high unemployment trends (Ehiobucheet al., 2022).

Higher education plays a critical role in leveraging graduates' awareness of employability in the digital era in respect of the job market becoming more complex and competitive because of technological advancement (Goulart et al., 2022; Ramnund-Mansingh & Reddy, 2021). Higher education must adopt a more pervasive role in developing the career capital resources graduates need to confidently navigate a complex digital-driven employment market for achieving the career goals and livelihoods they aspire to (Bennett, 2019; Wallis, 2021). In this regard, research highlights the value of integrating career guidance and employability development services including career development learning into the curriculum to foster graduate career capital, employability and job readiness (Bennett, 2018; Bridgstock et al., 2019; Glerum & Judge, 2021; Lexis et al., 2021). Addressing graduates' career capital and employment needs in their higher education studies enriches their capacity to navigate the work world for shifts in job and career opportunities. Graduates are not only better prepared to adopt agency for managing their employability and careers but also become more proactive in successfully adapting to changes in the work world (Bates et al., 2019; Bennett, 2018; Bridgstock et al., 2019). Although research highlights the importance of student career guidance services and career and employability development learning as part of the curriculum (Bennett, 2018; Bridgstock et al., 2019; Ciarocco, 2018; Glerum & Judge, 2021; Lexis et al., 2021), higher education students' digital-era world of work awareness and career capital resource needs for employability seem unclear and under-researched.

The study examined higher education students' digital-era work world awareness and their specific career capital resource needs to inform their career and employability development. Suggestions are made to integrate career capital resource development in the curriculum to enhance students' self-regulatory employability capability for the digital-era employment context. The study contributes to novel studies of teaching and learning for graduate employability in the digital era by elucidating new insights into the unique career capital resources needs of students who reside within an emerging country higher education context. Generally, emerging countries are technologically lagging behind first world countries in their transition to a more competitive economy because of resource constraints which may potentially impact on graduates' readiness for the digital-driven work world (Goulart et al., 2022; Ramnund-Mansingh & Reddy, 2021).

Literature review

Theoretical framework: career capital

Drawing from human capital theory (Tomlinson, 2017; Tomlinson et al., 2017; Williams et al., 2016), career capital represents individuals' subjective (soft) human capital and self-regulatory employability capability (Arthur et al., 1995; DeFillippi & Arthur, 1994; Sutherland et al., 2015). Research highlights four inter-related dynamic facets of career capital that serve as important personal resources of graduate employability (Sutherland et al., 2015): 'Knowing why' career capital denotes individuals' awareness of the work world, their personal career and study interests, career-related choices, and the motivation they bring to their careers and work. 'Knowing why' career capital is dynamic because career identities shift in response to contextual changes (Dickmann et al., 2018). 'Knowing what' career capital refers to awareness and knowledge of industry dynamics and its impact on employability requirements in the context within which the career is pursued. 'Knowing how' career capital involves the explicit or tacit knowledge, skills, attributes, insights and information needed to be successful in one's career. 'Knowing whom' career capital refers to career-relevant social and professional networks and relations that help advance job search and career advancement (DeFillippi & Arthur, 1994; Inkson & Arthur, 2001).

Career capital is malleable and can be enhanced through the accumulation of experience, training, learning and development, information (knowledge), skills, and exposure to work (Lamb & Sutherland, 2010; Sutherland et al., 2015). A well-rounded portfolio of career capital resources enhances a sense of self-effectuation in intrinsic employability capability (Clinkard, 2018; Dickmann et al., 2018). The dynamic and future-oriented nature of intrinsic employability increases the likelihood of successful movement in the labour market, finding or creating employment that matches one's interests, values and competencies, and provide opportunities for continuous upskilling and learning to enhance access to future job prospects and careers success (Cortellazzo et al., 2020).

In the present study, career capital resources allude to the value that university studies create through ongoing improvement of students' human capital, employability capability and career position in a competitive job market (Bridgstock et al., 2019; DeFillippi & Arthur, 1994; Sutherland et al., 2015; Tomlinson et al., 2017). Accordingly, higher education studies serve as an important conduit for enhancing students' repertoire of career capital resources for sustained employability (Tomlinson, 2017; Tomlinson et al., 2017; Wallis, 2021).

World of work awareness as a career capital resource

In the present study, students' world of work awareness alludes to their technological adaptivity, awareness of the digital nature of work, digital-era skills and knowledge relevant to occupations and jobs in the field of study, awareness of the importance of continuous learning and upskilling, and perceptions of the degree to which their higher education studies help them to investigate jobs and occupations that best match their career and study interests (Coetzee, 2022; Coetzee et al., 2021). Technological adaptivity reflects an adaptive readiness for careers in the technology-driven work world. Individuals feel that evolving job roles as a result of new technologies optimize their creativity, growth and happiness; they are more willing to update their knowledge and skills to capitalize on new job opportunities created by accelerated technological developments. Individuals are actively marketing their unique brand of values and portfolio of skills across digital networks (Coetzee, 2022). Bennett (2018) views employability in the context of higher education as the process of preparing students to successfully navigate their careers in their personal and work lives. In this regard, it is essential that academics and students understand the characteristics and future of work. Graduate employability has a dynamic adaptive nature; graduates must engage in continuous learning and upskilling processes to ensure sustainable employability and careers in rapid shifting and technological evolving employment contexts (Bennett, 2018; Wallis, 2021).

Research showed positive associations between technological adaptivity and individuals' awareness of the digital nature of work, digital-era requirements for jobs and occupations, and continuous

learning and upskilling (Coetzee, 2022). In the context of employability, technological adaptivity reflects the personal motivation ('knowing why' career capital) to adapt to a changing employment context that signals new employment requirements ('knowing what' career capital: DeFillippi & Arthur, 1994; Jones & DeFillippi, 1996; Sutherland et al., 2015). These attributes are generally described as psychological capital features of the human capital needed for self-regulatory employability capability (Tomlinson, 2017; Tomlinson et al., 2017; Williams et al., 2016).

Perceptions of university studies' contribution to the fit between acquired knowledge and skills in the study field and career pathways in the digital work world (i.e. job and occupation fitness) positively predict employability competencies such as business ingenuity and socio-digital agility (Potgieter et al., 2023). Generally, students' level of world of work awareness is deemed important because it reflects the degree to which university studies' help prepare them for the work world and their psychological readiness to craft career paths in a changing uncertain job market (Bennett, 2018; Coetzee, 2022; Ramnund-Mansingh & Reddy, 2021). Scholars emphasise that university students need active preparation for the digital-era workplace (Bates et al., 2019; Bennett, 2018; Bremner & Laing, 2019; Ramnund-Mansingh & Reddy, 2021; Wallis, 2021). Research shows associations between students' perceptions and understanding of career paths and the labour market and their capacity to manage their employability (Bennett, 2018; Coetzee, 2022; Winterton & Turner, 2019).

Drawing from human capital theory (Tomlinson, 2017; Tomlinson et al., 2017; Williams et al., 2016), students' world of work awareness elucidates some important digital-era career capital attributes (i.e. 'knowing why' and 'knowing what') they need for career success in the job market and workplace. Research shows that career capital enhances individuals' self-regulatory employability capability which facilitates career satisfaction (Sutherland et al., 2015). However, research on the digital-era work world awareness of higher education students in an emerging country context is sparse (Coetzee, 2022; Ramnund-Mansingh & Reddy, 2021). The present study addresses this research gap by assessing the world of work awareness of students who resides within an emerging country, including exploring, in general, the information they need about the digital work world. Students' information needs are then evaluated in terms of specific career capital resources that should be addressed in the higher education curriculum to foster the employability of graduates in a rapidly evolving work world.

Career capital resources for employability

Students' 'knowing why' and 'knowing what' career capital resources are strengthened by their world of work awareness which is cultivated through their higher education studies (Bridgstock et al., 2019; Glerum & Judge, 2021). In similar vein, higher education has a pivotal role in equipping students with the 'knowing how' and 'knowing whom' career capital resources they need to sustain their employability in a technology-driven work world. Career capital are important resources for students' optimal career and employability development and learning (Tomlinson, 2017; Tomlinson et al., 2017; Bridgstock et al., 2019; Glerum & Judge, 2021; Lexis et al., 2021).

Higher education generally provides career capital-related services (i.e. 'knowing why'; 'knowing how'; 'knowing whom' career capital) to students that are available separate to the curriculum. In the context of the sample relevant to the present study, the higher education institution has a department dedicated to specialised career and employability guidance and counselling services. These services are advertised as a resource for students on the university website (University of South Africa, 2022). However, an employability survey by the university (Coetzee et al., 2019) showed that students are often unaware of these services and therefore tend to make little use of them. Typical career guidance services that are provided on the university general website for students include job searching, CV writing, career portfolio building, interview skills, networking skills, graduateness and employability requirements, matching interests with career options, self-development, career information, mentoring, and study skills (University of South Africa, 2022).

Although university career guidance services are essential, there is a great need for incurriculating career and employability development in coursework in collaboration with university experts who provide such career guidance services to students (Bennett, 2018; Bridgstock et al., 2019; Glerum &

Judge, 2021; Lexis et al., 2021). The incurriculation of career and employability development in coursework equips students with important skills and mindsets including greater self-awareness of their employability-related career capital resources. Such an approach helps students see the relevance between their university studies, the competencies and knowledge they gain in a study field and the extent to which these are in alignment with shifting employer requirements and career paths (Bridgstock et al., 2019; Glerum & Judge, 2021; Lexis et al., 2021). The present study explored, in general, the career capital resource needs of students that may help inform career and employability development and learning as part of the curriculum.

Method

Participants

The participants were a random sample (N = 486) of undergraduate students pursuing further studies in the economic and management sciences field at a comprehensive open distance learning higher education university situated in a Southern African emerging country context. The participants were represented by male (35%) and female (65%) students with a mean age of 34 years (SD = 9.12; age range 25 – 55 years). Most of the participants were Black Africans (72%). The sample was further represented by participants from Coloured (7%), Indian (5%) and White (16%) origin. Seventy-two percent (72%) of the participants were in employment and only 28% were unemployed.

Procedure

The research ethics review and permission committees of the university (#2020_CEMS-IOP_031 and #2020_RPC_051) provided approval for the study. Students received an invitation via an email from a 'no reply' student system administrator with an URL link to the online questionnaire for anonymous, voluntary participation. The participants provided informed consent that the researcher may use the data for anonymous, group-based research purposes.

Measures

The world of work awareness scale (WWAS – 28 items) developed by Coetzee et al. (2023) was used to measure students' level of technological adaptivity (7 items; e.g. 'I market my unique brand of values and portfolio of skills across my digital networks'), awareness of the digital nature of work (5 items; e.g. 'I believe that work can be done virtually from anywhere by anyone through smart digital technology'), occupation and job awareness (3 items; e.g. ' I have a clear picture of jobs and occupational opportunities made possible by new technological advancements in my field of study'), continuous learning and upskilling awareness (7 items; 'I accept continuous life-long learning as important to ensure I can adapt to changing forms of work, jobs and occupations') and study contribution to job and occupation fitness (6 items; e.g. ' I feel satisfied that my university studies prepare me for the digital world of work'). Responses were measured on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree). The internal reliability coefficients of the subscales ranged between .84 and .92. Because of the relatively large sample and the study's core interest to explore, in general, students' information needs regarding the digital work world, the measure also contained an open-ended question, phrased as follows: '*Explain the information you need about the digital world of work'.* It was assumed that the information needs would translate into specific career capital resource needs.

Data analysis

A mixed methods concurrent triangulation design was employed to analyse quantitative (numeric) and qualitative (text) data from the same sample (Creswell, 2013). This design facilitated a rich and deeper understanding of the research phenomenon. The first stage involved the quantitative analysis of students' level of awareness of the digital era world of work. SPSS version 3.0 (2017) was used to

calculate the frequencies, descriptive statistics, reliability coefficients and bivariate correlations on the measurement scale.

In the second stage, six phases of inductive, data-driven thematic analysis were conducted for analysing the open-ended question responses. Following the guidelines of Braun and Clark (2006), this process involved familiarising oneself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and summarizing the findings in a report. The qualitative data analysis was an iterative process of reading and rereading open-ended, narrative text responses, and refining and relabelling identified themes. To reduce the bias of subjective thematic analysis and enhance trustworthiness and validity of the findings, two additional academic researchers independently reviewed the narrative, text responses and corroborated the identified themes. A record of the research process, the data coding and labelling of themes was kept for data integrity. Because of the large sample, themes that emerged from half or more of the participants were identified for labelling and reporting.

Results

Quantitative results: Students' current level of awareness of the digital era world of work

The means reported in Table 1 reflect mid-range scores ranging from 'slightly agree' for occupation and job awareness (Mean = 4.90; SD = 1.39) to 'agree' for technological adaptivity (Mean = 5.30; SD = 1.02), and job and occupation fitness (Mean = 5.30; SD = 1.16). Awareness of the digital nature of work (Mean = 5.60; SD = 1.04) and continuous learning and upskilling awareness (Mean = 5.86; SD = .97) reflected the highest mean scores ('definitely agree'). The bi-variate correlations reflect positive associations of moderate to large practical significant effect ($r \geq .31$ to $r \leq .69$; $p = .0001$) between the various facets of digital-era world of work awareness. The relatively low correlations among the construct variables indicated that the subdimensions measured uniquely differentiating constructs. The positive direction of the correlations suggested that the constructs are complementary in explaining students' work world awareness.

Table 1: Descriptive Statistics and Bi-Variate Correlations

	Variables	α	Mean	SD	1	2	3	4	5
1	Technological adaptivity	.84	5.30	1.02	-				
2	Awareness of digital nature of work	.87	5.60	1.04	.46***	-			
3	Occupation/job awareness	.87	4.90	1.39	.39***	.50***	-		
4	Continuous learning/upskilling awareness	.92	5.86	.97	.36***	.69***	.43***	-	
5	Job/occupation fitness	.92	5.30	1.16	.36***	.31***	.51***	.32***	-

Note: N = 486. ***$p \leq .001$

Qualitative findings: Students' career capital resource needs

The open-ended question yielded rich information that related to the notion of career capital described by DeFillipi and Arthur (1994). As shown in Table 2, the themes were categorised in terms of 'knowing why' and 'knowing what' career capital; 'knowing how' career capital and 'knowing whom' career capital. Although the open-ended question was very broadly phrased, the narrative responses clearly alluded to employability concerns in respect of a technological-driven world of work. In this regard, the themes enriched the notion of career capital in the context of digital-era employability. The themes of career guidance and job search support and sustainable employability emerged as the predominant information needs. Table 2 summarises the core themes.

Table 2: Students' Career Capital Resource Needs

'Knowing why' and 'knowing what' career capital resource needs

Adaptation support (5%)

- Nature of digital and technological advances and its impact on employability
- Adapting to remote work, hybrid workplaces and balancing work, studies and life in digital-driven workspaces
- Sustaining employability and career longevity
- Personal upskilling and development guidance for sustainable employability the digital world of work

'Knowing how' career capital resource needs

Technological resources needed (5%)

- Student access to data, internet and computers for further studies

Career guidance and job search support (30%)

- Conducting job searches on digital platforms and social networks
- Career guidance and planning for employability
- Online interview preparation skills
- Online self-positioning (differentiation) and profiling through use of technology in a competitive employment market
- Legitimate job search websites [avoiding internet scams]

Upskilling for digital savviness (10%)

- Courses as part of qualification that teach about IT systems and technology, and enhance capability to utilise smart-digital technology and platforms in virtualised workspaces
- Use of technology in world of work

Sustainable employability insight: Knowledge and understanding needed (40%)

- Impact of technology-driven employment context on job market and opportunities, career paths, and future employability
- Relevance of qualification curriculum and content to world of work
- Career and job opportunities in field of study
- Employer employability expectations, skills and competencies needed in global virtualised employment market
- Qualification contribution to the development of graduate skills and competencies required by employers

Job creation intention in a digital-online world of work (5%)

- How to create own employment and career success and sustainable income through use of technological advances
- Entrepreneurial capability development: how to be innovative and create job opportunities for self and others

'Knowing whom' career capital resource needs

Social networking (5%)

- Connecting and networking effectively in digital age on social media platforms with people who give moral advice and support
- Advancing one's career through online social networking

'Knowing why' and 'knowing what' career capital resource needs

Some of the responses highlighted digital and technological advances and its impact on employability and work as important motivational forces for adaptation and the need for information about the digital-era world of work. Adaptation is also associated with the motivation for information on self-improvement and continuous growth for sustainable employability.

Adaptation support

The need for adaptation support was evident, with one participant expressing a need for more knowledge about new opportunities that digital changes bring: 'Adapting to the digital changes (i.e. where are opportunities?). What technology advances will be taking place in the next 5-10 years in your particular industry so you can pivot accordingly' (Participant F50). Another participant pointed out the need for upskilling support to better adapt to the changes that technology bring by stating 'I need to know how to adapt to the changing times by equipping myself with the necessary skills more specifically technology' (Participant M14).

'Knowing how' career capital resource needs

Some of the participants expressed a need for technological resources such as access to data and the internet, laptops and personal computers. These resources are not always readily available to students in an emerging country context (Ramnund-Mansingh & Reddy, 2021).

Technological resources need

One participant noted the need to 'Accommodate students with no access to data and laptops to further their studies' (Participant F80), highlighting the technological resource challenges that students in an emerging country face (Participant F80). Another participant also highlighted the dire need for gaining 'access to the internet and a laptop/pc' (Participant F15).

In most of the accounts given by the participants, the theme of career guidance and job search revolved around information and guidance on understanding employers' employability requirements in a technological-driven work world. It was evident that the participants were aware of the competitive challenges of digital or online job searching, e-recruiting, e-interviewing and the importance of being able to successfully position oneself in more creative ways as a suitable or best candidate for the job. Some participants expressed the need for information on credible digital platforms for global online job searching, career guidance on jobs and occupations and skills demands, and courses to take for further upskilling.

Career guidance and job search support

Participant F95 expressed a need to better understand what the organisation and interview panels are looking for in employees in a technology-driven world of work, stating 'What an organisation needs in candidates? What does the panel need during the interview? What is expected from employees in a global digital-era world with such technological innovation?' Job search support pertained also to knowledge about the e-recruitment process including the qualifications needed in an e-recruitment work world, exemplified by Participant F120: 'How organisations are using the e-recruitment process. And what qualifications do I need to add to my degree which supports e-recruitment'.

The career guidance support needed included knowing more about finding employment and how to differentiate oneself in a competitive job market with one's degree, e.g. 'I do need to know how to find work, but more than that I need to know how to set myself apart in an interview. Similarly, I need to know how to compete with the skill and knowledge I've gained from my degree' (Participant F140). The theme of guidance regarding finding job opportunities relevant to the digital-era work world and new employer requirements was echoed in a participant stating 'I need to know how to find job opportunities that are in line with the digital-era world of work, what employers are looking for (market requirements)' (Participant M155).

Career guidance support needs also included specific job search skills such as, e.g. 'New ways of online job posting, creating video CVs.' (Participant F75) and information on careers and skills in demand, for example '…the careers and skills in demand of the 4IR future.' (Participant F67). Another participant emphasised the need for guidance on employment opportunities including information on jobs, job descriptions in the field of study, and further post-graduate studies needed: 'I need guidance on employment opportunities, types of jobs, job descriptions in my field and preferred post-graduate qualification to pursue onwards' (Participant F35).

One participant highlighted the darker side of digital job searching by expressing a need for guidance and information on credible job search websites so as to be better protected against potential scammers, explaining - 'As technology is improving scammers are finding new ways to target job seekers. Job seekers need to know which websites are legit for looking for employment' (Participant F126).

Concerning technology and digital skills upskilling, participants expressed a need for additional higher educational courses that equip them with basic knowledge and skills of IT, digital software design and utilisation of technology and social media platforms in the workplace and social sphere of life. It was evident that they regard technological or digital upskilling as essential for their employability in the digital-era work world.

Upskilling for digital savviness

The need for the curriculum to include an introductory course on specialised careers that require digital savviness including IT knowledge of technology and software design to help differentiate them as job seekers, was highlighted by Participant M160: 'Besides basic knowledge needed for jobs, some specialized careers require knowledge of IT, software systems, designing software. It would be beneficial if we could get an introductory course in this, with some basic knowledge that could enable job seekers to get their foot in the door'. This need was echoed by Participant F186, stating the general need to develop digital-savviness in the use of technology: 'I need to know how to use technology to its full capacity. I want to do more with it, not only in my work environment.'

Sustainable employability emerged as the highest concern about information needed. The information needs related to knowledge and understanding of how the technology-driven employment context will impact on job market and opportunities, career paths, and future employability. Some participants raised the need to have knowledge on the relevance of the university qualification curriculum and content to the digital-era world of work, including career and job opportunities in their field of study. A strong need was expressed for knowledge about employer employability expectations, skills and competencies needed in global virtualised employment market and the qualification's contribution to the development of graduate skills and competencies required by employers.

Sustainable employability insight: Knowledge and understanding needed

One participant pointed out the need for information on employer employability competency requirements in the digital-era work world by stating 'I need to have more information about what is expected of the potential employee in terms of capabilities and core competencies of an economic and management sciences graduate in the 'new' world of work' (Participant F193). Participant F154 echoed the need for career guidance on upskilling for employability in the digital-era job market, noting 'I need to know how I can upskill myself to make myself more employable in the job market. Career guidance and planning is necessary and how technological innovation will impact the job market and employment opportunities.'

The need to understand the relevance of the skills gained through one's university for employability including guidance on skills to differentiate oneself as job seeker was evident in quotes such as,

> *I need to know if the skills that I am gaining through studying at this university will still be relevant in the next 10 to 15 years and how to find work opportunities and what skills I need to have to be the best candidate for those particular jobs.* (Participant F163)

Some accounts expressed an awareness of technology opening new doors for job creation opportunities. Participants highlighted a need for information on how to create their own employment and career success and sustainable income through use of technological advances. They also expressed a need for entrepreneurial capability development through their higher education studies including information on how to be innovative and create job opportunities for self and others through online technology.

<u>Job creation intention in a digital-online world of work</u>

Participants with an intent to create jobs in a digital-online work world highlighted the need for the curriculum to equip them with entrepreneurial skills and knowledge, including financial planning and management that would help them expand their business, e.g. 'Finding entrepreneurial skills and knowledge through mentorship and also finding opportunities in order to expand my business through financial planning and management'(M128). Job creation intent was also expressed in quotes such as, e.g. 'Creating my own success digitally with the world online'(Participant F136) and 'I need to know how to create job and business opportunities' (Participant F143).

'Knowing whom' career capital resource needs

The participants provided evidence of their awareness of the use of technology for social networking to ensure sustained employability. These responses expressed a need for information on how to connect and network effectively in the digital age on social media platforms with people who give moral advice and support and using networking for the advancement of one's studies and career.

<u>Social networking</u>

The need for social networking guidance pertained to knowing how to use digital technology and social media to connect with others that can promote one's job search and employability, as represented by the following quote: 'Be connected with people who give you moral advice and support, and also search opportunities on Google LinkedIn, join groups on Facebook pages, government sites' (Participant F199).

Discussion

Main findings: Students' level of 2020s work world awareness

Generally, the quantitative findings suggest an open-mindedness toward new technology, being responsive to changing work conditions and a need for continuous upskilling opportunities. Moreover, the participants seem to have a sound awareness of the impact of technology on their future employability and careers. The continuous learning awareness was positively associated with their awareness of the digital nature of work i.e. being able to do work virtually from anywhere through smart technology; viewing technological innovation as a major driver of new employment and career opportunities; seeing digital platform work as a new way to create and deliver multiple services through online marketplaces (Coetzee, 2022). These findings bring to light the psychological digital work world readiness ('knowing why' career capital) of the participants which has become crucial for employability in the technology-driven work world (Mercer, 2022; Ramnund-Mansingh & Reddy, 2021; Van Laar et al., 2022).

Participants were moderately certain about their technological adaptivity (i.e. actively updating their skills and knowledge to capitalise on new job opportunities created by accelerated technological developments; marketing their unique brand of values and portfolio of skills across digital networks and searching for jobs that are evolving as result of technological conditions: Coetzee, 2022). Participants felt slightly certain that their university studies help them to develop the special knowledge and skills they need for desired jobs and occupations including helping them to actively investigate jobs and occupations that may emerge in the digital-era work world (i.e. occupation/job awareness and job/occupation fitness). They were moderately certain that their university studies will open new career pathways and prepare them for the digital work world (Coetzee, 2022).

These findings may be attributed to participants' psychological digital work world readiness ('knowing why' career capital) observed from their awareness of the impact of technology on their future employability and careers, including their internal motivation for continuous learning and upskilling. The moderate mean scores on technological adaptivity, occupation and job awareness, and job and occupation fitness signal a dire need for career development support ('knowing what' and 'knowing how' career capital) for employability in the curriculum. Although the participants are aware of, and psychological ready for the new employability demands of a technology-driven work world, they appear to need more explicit and tacit support from their studies to prepare and equip them with the career capital resources they need to manage their careers and employability in a self-efficacious manner. Research shows positive associations between students' perceptions of their studies and qualifications preparing and equipping them for careers in the digital work world and their sense of employability competency (Winterton & Turner, 2019; Zakaria & Alhassan, 2019). Scholars further express the need for higher education to integrate career development planning, upskilling and work world awareness in the curriculum and advocate for a refinement of the curriculum to help students gain the requisite knowledge and skills for the employment market (Choate et al., 2019; Clinkard, 2018; Ramnund-Mansingh & Reddy, 2021).

The findings contributed new insights regarding the participants' level of work world awareness and signalled a need for more tacit career capital resources in their studies to be better prepared for employability and career development in the digital-driven work world. Scholarly views on employability as a repertoire of personal career-building skills argue that work world awareness and career capital resources help students to navigate the labour market and help them gain access to work and contribute to their career success Glerum & Judge, 2021; Lo Presti & Pluviano, 2016; Tomlinson, 2017; Tomlinson et al., 2017).

Main findings: Career capital resource needs for employability in the technology-driven work world

Predominantly, the findings indicated a strong need for 'knowing how' career capital resources in the form of gaining deeper knowledge and understanding of the impact of technology on the job market, job and occupation opportunities and employability requirements. Participants expressed a need to understand the relevance of the qualification curriculum and content to the digital-era world of work and shifting employer expectations, that is, whether the qualification and the skills and knowledge they gained from their studies will enable them to secure desired or in-demand jobs and occupations. The strong need for career guidance and online job search support in a virtualised work world may be attributed to the new technological-driven challenges in the form of digital platforms and e-recruiting strategies that heighten competition in qualifying for jobs (Lockwood, 2020; Manyika, 2017; Ogunwale, 2022). These career capital resource needs may explain the findings observed for participants' world of work awareness. The strong open-mindedness toward continuous life-long learning and upskilling observed in the quantitative findings may explain the participants' need for a better understanding of the relevance of the university studies and qualification in a technology-driven work world. The somewhat moderate level of job and occupation awareness exhibited by the participants may explain the need for more information regarding the job and occupation and career path opportunities associated with the qualification.

The career capital resources of career and employability development guidance are critical in a more competitive global job market. University studies are pursued out of a need to better qualify oneself for the job market and improve one's employability (Bennett, 2018;Bridgstock et al., 2019; Tomlinson, 2017; Tomlinson et al., 2017). The drive toward career capital resources for enhanced employability was quite evident from the findings. Noteworthy is participants' entrepreneurial open-mindedness toward creating jobs for self and others because of the new possibilities for online, virtualised business proffered by technological innovation (Clinkard, 2018; Ogunwale, 2022). In this regard, participants also expressed a need for upskilling in especially the use of technology in their work and personal lives. The open and distance learning context of the participants including the emerging country nature of

the university may explain the need for access to internet, data and computers as career capital resources (Ramnund-Mansingh & Reddy, 2021).

The 'knowing why' and 'knowing what' career capital resources seem to revolve around gaining deeper insight into the impact of the shifting technology-driven dynamics of the industry and workplace on one's employability. This need could explain the 'knowing why' one must learn to adapt to the new nature of work being performed remotely or in hybrid workspaces. The 'knowing why' and 'knowing what' career capital resources further seem to revolve around needing information to help one development and grow of sustainable employability (Bennett, 2018; Tomlinson et al., 2017). These findings corroborate the sound level of continuous learning awareness and openness to change (i.e. technological adaptivity) exhibited by the participants.

Finally, the need for 'knowing whom' career capital resources was evident in some participants expressing a need for information on online networking and collaborating effectively in the digital era to advance one's careers. This need could also explain the need for courses that offer basic technological skills in the use of technology and social media platforms in work and one's personal life. Tomlinson (2017) argues that graduates' social networks and relationships (i.e. social capital) help them mobilise their existing human capital and facilitate their access to and awareness of job market opportunities. 'Knowing whom' career (social) capital help generate new resources that spring from social ties in the labour market (Santos & Thune, 2022).

Recommendations for incurriculating career capital resource development

The findings provided evidence of the importance of assessing students' work world awareness to better understand their career capital resource needs for sustained employability. In line with the arguments of Bennett (2018), the findings suggested that students' work world awareness ('knowing why' career capital) are positively associated with a need for 'knowing what', 'knowing how' and 'knowing whom' career capital resources in their studies' curriculum. Students want to feel confident that the qualification curriculum and content will enhance their chances of quality employment in a competitive digital-driven work world (Beaumont et al., 2016). The 'knowing how' and 'knowing whom' career capital resources denote certain skills, knowledge, competencies and supportive information that can be successfully derived through their qualification studies. A course should generally address 'knowing what' and 'knowing why' when teaching and developing 'knowing how' and 'knowing whom' skills. Incurriculating employability implies that the curriculum content, teaching and learning process should develop students' abilities to conceptualise their future lives and work by learning the practice of the discipline in formal and informal real-life work contexts and in greater collaboration between the university, industry and students. The teaching process should facilitate narrative articulation of and self-reflection on employability across the career capital resources to foster meaning-making of learning experiences and build confidence in the alignment between university studies and jobs and skills in demand (Bennett, 2018; Bridgstock et al., 2019; Reid et al., 2021).

The benefit of incurriculating the development of career capital resources for employability is that students can reflect on and assess their progress in developing these career capital resources and experience their university studies as personally more meaningful (Bennett, 2018). Career capital resource development may further enhance their confidence in job searching, job creation, networking for career advancement and managing their employability (Bridgstock et al., 2019). Research shows lack of skills and abilities as reasons for students' low confidence of success in job hunting and gaining employment (Beaumont et al., 2016). Mandatory careers, employability and enterprise-related modules as part of the curriculum seem to increase students' confidence in job searching, job creation intent and gaining employment (Beaumont et al., 2016; Ehiobuche et al., 2022).

Limitations and future research

The study findings contributed new knowledge to the understanding of university students' world of work awareness and career capital resource needs for employability in an emerging country context. However, it should be noted that the study was cross-sectional in nature and limited to a specific research setting in the field of economic and management sciences. The unique higher education setting and sample characteristics could have influenced the nature of the findings which cannot be generalised to other university settings and study fields. It would be interesting to replicate this study with students from different study fields across different higher education settings to explore whether the world of work awareness and career capital resource needs outlined in this study remain relevant. Different contexts may expose variations in career capital resource needs because of varying approaches in qualification curriculum content for preparing students for the technology-driven work world. The study included only a single open-ended question which could have limited deeper probing of the career capital resource needs. Notwithstanding the limitation of a single open-ended question, the narrative themes yielded rich data that could be categorised in terms of the career capital framework to inform career development support for students in the curriculum.

Conclusion

The importance of the research findings has been shown through the plethora of research on the graduate employability agenda and the quest to prepare graduates for a technological advanced work world and job market. The concept of career capital resource development for graduate employability provided a meaningful theoretical lens to better understand students' work world awareness, continued employability concerns for which they need a range of career capital resources, and the role that higher education can play through curriculation in preparing students for the work world. The study further extended career capital theory and its relevance for informing student career and employability support for the digital-driven work world in the higher education domain. The findings informed teaching and learning practices for graduate career and employability development.

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