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Mediating effect of digital skills in the relationship between academic competence and employability of procurement and supplies professionals

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Abstract

The increasingly digital transformation of procurement highlights the need for an in-depth understanding of the joint effect of digital skills (DGSK) and academic competence (ACCP) on the employability of procurement and supply professionals (EPSP). This study aimed to examine the mediating effect of DGSK in the relationship between ACCP and perceived EPSP in Tanzania, using the theoretical framework of Social Cognitive Career Theory (SCCT). Data for the study were collected from 307 respondents, comprising chief executive officers (CEOs) and human resource managers (HRMs) from public and private institutions in Dodoma, Tanzania, using a cross-sectional questionnaire survey. Structural equation modelling (SEM) was employed to test the study's hypotheses. The study's notable findings are that ACCP has a significant positive effect on both DGSK and EPSP. Furthermore, DGSK has a significant positive effect on EPSP, simultaneously mediating the impact of ACCP on EPSP. Drawing on SCCT, the study reveals that DGSK serves as a strategic belief and self-efficacy mechanism through which procurement and supply professionals can translate their ACCP into improved employability. Among other implications, this study suggests that academic institutions, policymakers, and regulators should reform curricula to mandate DGSK in procurement training through internships, apprenticeships, digital upskilling workshops, and hands-on e-procurement courses led by field and ICT experts. Empirically, the study advances existing literature on employability dynamics by highlighting the critical role of DGSK as a bridge between theoretical knowledge and practical job readiness in the digital era of procurement.

Keywords: *Academic competence, digital skills, procurement professionals, supplies professionals, graduates' employability*

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1. Introduction

The concept of employability refers to an individual's ability to secure rewarding employment based on their academic qualifications, skills, competencies, and prevailing labour market conditions (Behle, 2020; Kee et al., 2023). Unemployability, on the other hand, describes a situation in which individuals, despite being part of the labour force, are unable to secure employment due to various factors (Morrish & Medina-Lara, 2021; Sharma et al., 2024). This is a global phenomenon affecting all professions in both developing and developed countries, including the procurement and supply profession (Huang et al., 2022; Israel, 2024). However, developing countries like Tanzania face unique unemployment challenges compared to developed regions. Empirical studies on education and unemployment challenges in developing countries, such as those by Aruofor and Ogbeide (2024) and Hassan (2025), have identified a mismatch between the soft skills graduates possess and those required by the job market, a lack of relevant work experience, and insufficient academic competencies as key causes of unemployment in technical fields such as procurement and supply chain management. Other hurdles include age-related biases, high dependence on the informal sector for job creation, a nascent digital economy, and a lack of effective career guidance (Rahmat et al., 2022; Sangaré-Oumar et al., 2025). In contrast, unemployment in more developed regions is largely driven by technological changes, labour market rigidities, economic downturns, and financial crises (Freire, 2025).

The unemployability phenomenon has significant socio-economic and political implications for both national and global economies. It can contribute to rising unemployment rates and social unrest, leading to decreased human capital accumulation, productivity, and earnings, all of which are vital for a country's economic growth (Mgaiwa, 2021; Lucas et al., 2022). Traditionally, academic competence (ACCP) was considered a key determinant of the employability and performance of procurement and supply professionals (Beske-Janssen et al., 2023; Changalima & Mdee, 2023). In the context of procurement and supply management, ACCP primarily focuses on knowledge acquired through formal education, including procurement regulations, logistics management, negotiation techniques, and contract management (Tan & Ling, 2025; Wahab et al., 2024). However, with the rise of digital transformation in procurement processes, the ability to leverage digital skills (DGSK) has become equally critical. As procurement and supply functions transition from manual operations to end-to-end digital platforms, the demand for digitally skilled personnel has

increased. Consequently, DGSK, encompassing the use of e-procurement platforms, data analytics, and automation tools, is now essential for procurement and supply professionals to remain competitive and enhance their performance. Empirical studies on procurement work-integrated learning and closing the skills gap suggest that procurement and supply professionals with a high level of DGSK are better positioned for employability (Rodrick, 2024; Culver, 2021). These skills enable them to meet the market demand for an increasingly digital and sophisticated e-procurement work environment.

In response to digital procurement transformation and the unemployability phenomenon, academic institutions have been urged to produce procurement and supply professionals who are both academically and digitally competent. A key emphasis has been placed on integrating academic training programs with DGSK in both formal and non-formal education (Huang et al., 2022; Malhotra et al., 2022). Despite efforts to bridge the DGSK and ACCP divides, procurement and supply professionals continue to experience relatively low employability rates. In Tanzania, where this study was conducted, statistics reveal that approximately 850,000 university graduates and professionals (including those in the procurement and supply chain profession) enter the job market each year (National Bureau of Statistics [NBS], 2022). However, the economy generates only 50,000 to 60,000 employment opportunities annually, leaving about 800,000 graduates and professionals unemployed. Furthermore, approximately 61% of graduates and professionals are considered unemployable and unfit for the job market due to a lack of ACCP and digital-related skills (NBS, 2022; Mgaiwa, 2021). Similarly, about 70% of graduates and professionals face a significant shortage of DGSK (International Telecommunication Union [ITU], 2020), preventing them from meeting labor market demands. Drawing on Social Cognitive Career Theory (SCCT), this study examines whether ACCP, when integrated with DGSK, can help procurement and supply professionals enhance their employability. SCCT highlights the role of learning experiences in shaping self-efficacy beliefs and outcome expectations, which, in turn, influence career success and performance (Lent & Brown, 2019).

In a digitally evolving procurement and supply chain management system, DGSK remains essential in bridging the gap between ACCP and the employability of procurement and supply professionals (EPSP). However, there is limited knowledge on how ACCP and DGSK jointly enhance EPSP. Most existing research has taken a general or sector-agnostic approach, focusing on the individual direct effects of ACCP and DGSK on graduates'

employability in fields such as health (Cham et al., 2021; Saong et al., 2023), linguistics (Al-Khateeb, 2017), business (Al-Shehab et al., 2021; Kassa, 2022), and tourism (Kimeto, 2021; Singh & Jaykumar, 2019). Other studies discuss challenges related to employability among procurement and supply professionals (Mgaiwa, 2021; Israel, 2024; Changalima et al., 2023). However, the impact of ACCP on EPSP, when mediated by DGSK, in the context of developing countries like Tanzania remains underexplored. Existing studies on this approach are largely confined to developed countries (Kimeto, 2021), whose findings cannot be generalised to Tanzania's procurement and supply field due to differences in educational standards, varying levels of digital infrastructure, and distinct industry demands. This empirical study offers novel insights by examining the mediating effect of DGSK on the relationship between ACCP and EPSP in Tanzania, a developing country. The focus on the procurement and supply profession in this study was motivated by the rapid digital transformation in the field, which mandates e-procurement systems as the legal procedure for procuring goods, works, and services. Given the research focus, the study aims to address the following questions:

RQ1. Does ACCP have a significant positive effect on EPSP?

RQ2. Does ACCP positively influence DGSK?

RQ3. What effect does DGSK have on EPSP?

RQ4. How does DGSK mediate the effect of ACCP on EPSP?

By addressing these research questions, this study provides new theoretical and empirical insights while contributing to the existing literature on employability dynamics. Theoretically, the study advances the applications of SCCT by operationalising ACCP, DGSK, and EPSP within the procurement and supply chain profession. It extends existing employability frameworks by introducing DGSK as a critical mediator in the relationship between ACCP and EPSP, offering a more nuanced understanding of how academic knowledge and digital proficiency jointly shape the employability outcomes of procurement and supply professionals. Empirically, it fills a gap in the literature by focusing specifically on the procurement and supply chain sector, an area often overlooked in employability studies. The study findings provide evidence that DGSK are essential in bridging the gap between academic qualifications and industry requirements, reinforcing the growing importance of digital fluency in today's labour market. More importantly, the study provides academic institutions, scholars,

and education regulators with insights into policy implications for enhancing graduates' DGSK and ACCP to improve employability in the global labour markets and professions.

2. Literature Review and Hypothesis Development

2.1. The Social Cognitive Career Theory (SCCT)

The study adopts SCCT to investigate the interaction effect of ACCP and DGSK on EPSP, similar to prior empirical studies on employability dynamics (Agnihotri, 2023; Varenyk & Piskova, 2024). Principally, SCCT emphasises the role of learning experiences and the environment in shaping individuals' self-efficacy beliefs and outcome expectations, which, in turn, influence career development, employability outcomes, and performance (Schaub, 2004; Lent & Brown, 2019). According to SCCT, self-efficacy beliefs and outcome expectations play a crucial role in career decision-making, goal-setting, and development of competencies relevant to an individual's chosen field. Importantly, SCCT posits that career development is influenced by the interaction of personal attributes, behaviour, and environmental factors (Lent & Brown, 2019). Drawing on these perspectives, we employ SCCT to explore how procurement and supplies professionals' self-efficacy in DGSK interacts with their ACCP to influence their employability. In this context, DGSK is regarded as a crucial self-efficacy belief through which procurement and supplies professionals can enhance their ACCP and job prospects. Based on SCCT, it is theorised that procurement and supplies professionals with clear goals related to skills development, who are placed in a supportive learning environment that promotes digital literacy, are more likely to exhibit stronger self-efficacy beliefs in their DGSK (Kee et al., 2023; Spada et al., 2022). These skills, in turn, can serve as a mediating factor that could strengthen their ACCP and overall employability prospects, considering the digitally evolving labour market of the procurement and supply chain sector.

2.2. Hypothesis Formulation

2.2.1. ACCP and EPSP

ACCP encompasses two multidimensional characteristics: academic skills and academic enablers, both of which are essential for employees to perform their jobs more effectively (Kassa, 2022). Academic skills derive from both complex and basic abilities, such as writing, reading, critical thinking, problem-solving, and the ability to apply knowledge in different contexts (Kee et al., 2023). Academic enablers, on the other hand, include values,

behaviours, and attitudes such as motivation, networking, interpersonal skills, and study habits (Alabdali & Salam, 2022). While empirical studies document a significant positive impact of ACCP on EPSP in developed countries (Hosain et al., 2023; Malhotra et al., 2022), the situation is not the same in the context of developing countries. In particular, studies on EPSP in India, Nigeria, and Tanzania, such as those conducted by Malhotra et al. (2022), Hosain et al. (2023), and Israel (2024), opine that the demand for skilled procurement professionals outpaces the supply of adequately trained graduates. The impact of ACCP on EPSP in these countries, as reported by Rodrick (2024) and Culver (2021), demonstrates insignificant positive relationships, often constrained by issues such as inadequate infrastructure and limited access to quality education. Yet, a survey study by Beske-Janssen et al. (2023) asserts that robust ACCP provides the foundational skills and attributes that employers seek, making procurement professionals more competitive and employable in a digitally demanding labour market. This underscores the importance of aligning educational outcomes with market demands to enhance EPSP. Reinforced by SCCT (Lent & Brown, 2019), ACCP is highly valued in the workplace as a driver of self-efficacy, as employers seek individuals who can analyse complex situations, demonstrate critical thinking and problem-solving skills, make informed decisions, and find innovative solutions in challenging work environments. Based on this discussion, this study hypothesizes that:

H1. ACCP has a significant positive effect on EPSP.

2.2.2. ACCP and DGSK of procurement and supply professionals

Literature regards the digital divide as a contemporary issue, with many universities, particularly in both developed and developing economies, struggling to integrate modern procurement technologies into academic training programs (Alabdali & Salam, 2022). This gap was particularly evident in an empirical study by Cham et al. (2021) in Australia, which found that only 11% of university graduates and professionals reported that their universities provided practical interventions to help candidates build DGSK-related competencies. Similarly, research findings by Al-Shehab et al. (2021) in Bahrain highlighted the lack of a direct association between ACCP and DGSK. According to these studies, weak institutional frameworks, outdated teaching models, and limited access to digital infrastructure hinder the development of DGSK among university graduates and professionals. Consequently, this results in a significant mismatch between industry needs and graduates' skills, ultimately

affecting employability and career growth. In contrast, an empirical study by Culver (2021) in the United States suggests that designing innovative curricula and practical training methodologies that integrate academic training and DGSK is imperative for enhancing digital literacy among procurement and supply professionals. This fosters critical thinking, effective learning, and the application of procurement and supply knowledge in various digital contexts. Aligned with SCCT (Schaub, 2004), bridging the digital skills gap by integrating technological skills into academic training methodologies is essential for improving procurement and supply professionals' DGSK. Such integration ensures that these professionals are not only digitally literate but also capable of leveraging digital tools to their full potential in the modern work environment. Based on this, it is therefore hypothesised that:

H2. ACCP has a significant positive effect on DGSK

2.2.3. DGSK and EPSP

In the procurement and supply chain profession, where digital transformation is reshaping professional roles, the demand for DGSK has become more pronounced. DGSK encompasses an individual's ability to share and store information, create and evaluate content, browse, search, and filter information, interact, collaborate, and manage and exchange data using computers, digital devices, and software (Spada et al., 2022). Literature in this context, particularly from middle- and high-income regions, establishes a significant positive link between DGSK and EPSP (Freire, 2025; Culver, 2021). This is attributed to the fact that employers in both the private and public sectors prioritize candidates with strong DGSK to enhance operational efficiency, comply with e-procurement mandates, and improve decision-making processes. However, despite the growing importance of DGSK, studies from developing countries reveal persistent employability challenges due to inadequate digital training in higher education curricula. For instance, in Kenya and Benin, Kimeto (2021) and Sangaré-Oumar et al. (2025) found that while digital literacy is recognized as essential for procurement professionals, gaps in university training prevent graduates from meeting industry expectations, leading to a skills mismatch. Similarly, in Bangladesh, Hossain et al. (2022) highlighted that procurement professionals often struggle with e-procurement platforms due to insufficient exposure to digital tools during their studies. These studies suggest that while digital competency is widely acknowledged as a key driver of employability, systemic gaps in curriculum design and training opportunities hinder graduates' transition into the workforce.

Drawing on SCCT, DGSK is closely linked to self-efficacy beliefs and cognitive adaptability, which influence an individual's ability to navigate digital work environments efficiently. Accordingly, the study hypothesises that:

H3. DGSK has a significant positive effect on EPSP.

2.2.4. Mediating role of DGSK

In today's digital world, DGSK has become an essential requirement for employers when hiring employees (Balogun et al., 2023; Hossain et al., 2022). This demand stems from the increasing automation of organizational operations. Employers view DGSK as an added advantage that complements employees' academic core competencies. Previous empirical studies offer diverse perspectives on the role of DGSK in shaping an individual's ACCP and employability. A study by Zhou et al. (2023) in China argues that the quality of ACCP required for securing lucrative employment is influenced by DGSK. Similarly, a study by Cham et al. (2021) on graduates' DGSK and employability in Malaysia asserts that employers' perceptions of employee quality are determined by their ability to perform and complete tasks using computer-based devices and software. Consequently, DGSK has been widely recognized as a crucial criterion in employee selection and recruitment. To enhance ACCP and EPSP, candidates must be equipped with DGSK relevant to procurement and supply management. However, a study conducted by Varenyk and Piskova (2024) in Ukraine found no significant influence of IT skills on graduates' employability. Given the technology-driven nature of the procurement and supply chain profession, this study argues that ACCP alone may not be sufficient to enhance EPSP. This is where DGSK plays a critical mediating role, enabling procurement and supply professionals to effectively utilize their ACCP in digital tasks, making them more versatile and adaptable to various procurement roles. In this regard, the study hypothesises that:

H4. DGSK mediates the relationship between ACCP and EPSP.

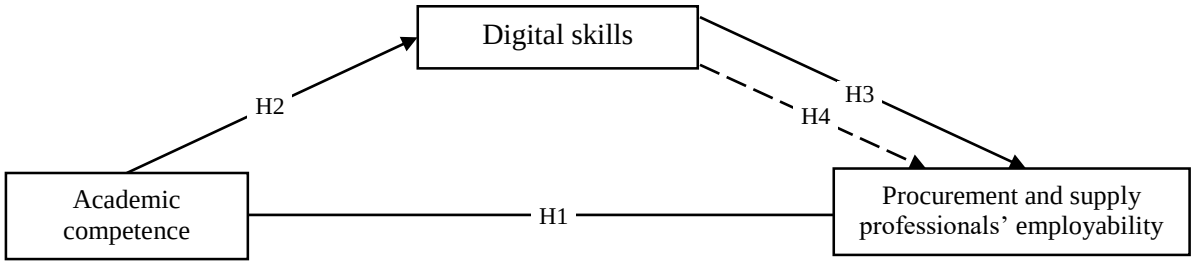
2.3. The Conceptual Framework

Figure 1 is the conceptual framework of this study, demonstrating the hypothesised relationships between ACCP and EPSP, with the mediating effect of DGSK among procurement and supplies professionals in Tanzania. The framework was developed based on a literature review and the formulation of four research hypotheses. The model hypothesises

that ACCP has a significant positive effect on both DGSK and EPSP. Additionally, the model theorises that DGSK has a significant positive effect on EPSP, significantly mediating the relationship between ACCP and EPSP.

Figure 1

Conceptual framework



Source: Figure by Authors

3. Methodology

3.1. Research Paradigm, Design and Study Area

This study employed a cross-sectional research design and an epistemological-positivism research paradigm. According to Feilzer (2010), the selection of appropriate methods for data collection and analysis tools is built upon the research paradigm and design employed by the researcher. The use of a cross-sectional research design and an epistemological-positivism research paradigm fits well with this study because the authors sought to collect quantitative data and test the proposed model hypotheses at a single point in time (Saunders et al., 2019). The study was conducted in the Dodoma region of Tanzania, covering both public and private institutions. The Dodoma region was selected for the study because it is the capital of Tanzania, where most private and public institutions are based following the government's move from Dar es Salaam in 2019 (Hayuma, 1980; Nyyssölä, 2021).

3.2. Sampling and Data Collection

The unit of analysis for this study comprised private and public institutions in the Dodoma region of Tanzania. Public and private institutions in Tanzania operate under different organizational cultures, structures, and demands, offering a diverse range of employment

opportunities to procurement and supplies chain professionals. From the surveyed institutions, chief executive officers (CEOs) and human resource managers (HRMs) were selected to participate in the study as the unit of enquiry. CEOs and HRMs were deliberately selected as the unit of enquiry due to their pivotal role in recruitment, selection, and workforce planning within organizations (Succi & Wieandt, 2019; Hossain et al., 2022). Unlike graduates, who may assess their employability based on self-perception, CEOs and HRMs, as employers, offer objective, first-hand knowledge and experience-based insights into the DGSK and academic competencies that make procurement graduates employable in the labour market.

Since it was difficult to establish the total number of CEOs and HRMs in the study area, Cochran's (1977) formula for an infinite population was employed to determine the initial sample size of 385. To ensure sample representativeness and avoid bias in selecting the unit of enquiry, the initial sample size was proportionally allocated to each private and public institution. Subsequently, a simple random sampling approach was used to select CEOs and HRMs from the surveyed institutions. Considering the adopted research design, paradigm, and geographical diversity of the study area, a structured questionnaire survey containing a set of closed questions was employed for data collection. In total, 385 survey questionnaires were initially distributed in person to CEOs and HRMs using a drop-and-pick-later approach between June and July 2024. However, after data cleaning and accounting for the non-response rate, only 307 questionnaires, equating to a 79.74% response rate, were retained for the final analysis. The final sample characteristics included in the analysis are presented in table 3.

3.3. Measurements

To investigate the mediating effect of DGSK on the relationship between ACCP and EPSP, we utilized measurement scales developed in previous studies with validated reliability and validity. The independent variable, ACCP, was assessed using five-item scales derived from Kassa (2022), Kee et al. (2023), Malhotra et al. (2022), and Pereira et al. (2019). The mediator variable, DGSK, was measured using four-item scales adapted from Fonseca and Picoto (2020), Lucas et al. (2022), Kimeto (2021), and Al-Khateeb (2017). The dependent variable, EPSP, was measured using six-item scales from Al-Shehab et al. (2021), Kassa (2022), Ergün & Şeşen (2021), and Ayodele et al. (2020). In line with previous studies, each construct was specified as a first-order reflective and unidimensional construct. Responses for each item were captured on a five-point rating scale ranging from 1 ("not at all") to 5 ("to a

very great extent"), assessing the extent to which DGSK mediates the effects of ACCP on EPSP. Before the main data collection, a pilot study was conducted to assess the clarity, reliability, and validity of the adapted research items. The pilot test involved six CEOs and five HR managers from the study area to ensure contextual relevance. Necessary adjustments were made to improve the questionnaire items based on the feedback from the pilot participants. Importantly, reliability was evaluated using Cronbach's alpha (α), with all constructs exceeding the recommended threshold of 0.70, indicating strong internal consistency. Table 1 presents the complete list of the measurement items and their modifications for each construct.

Table 1

Constructs and measurement items

Constructs and items	References
Procurement and supplies professionals' academic competence (ACCP)	
Accp1. Understanding and application of basic principles in procurement and supplies practices Accp2. Ability to analyse and evaluate complex procurement and supplies problems Accp3. Ability to independently and efficiently solve procurement and supplies-related problems Accp4. Ability to interpret procurement and supplies data and understand its implications Accp5. Effectiveness in both written and oral communication Accp6. Attainment of procurement and supplies professional certifications	Kassa (2022), Kee et al. (20230, Malhotra et al. (2022), and Pereira et al. (2019).
Procurement and supplies professionals' digital skills (DGSK)	
Dgsk1. Proficiency with fundamental computer tasks (e.g., word processing, spreadsheets, email) Dgsk2. Competence in using procurement and supplies-specific software, tools and platforms Dgsk3. Ability to effectively use the internet to find, evaluate and utilise information Dgsk4. Knowledge of cybersecurity principles and practices relevant to procurement and supplies Dgsk5. Ability to quickly learn and adapt to new digital tools and technologies in procurement and supplies	Fonseca & Picoto (2020), Lucas et al. (2022), Kimeto (2021), and Al-Khateeb (2017).
Employability of procurement and supplies professionals (EPSP)	
Epsp1. Preparedness to start procurement and supplies roles immediately after graduation Epsp2. The extent of professional networks and connections within the procurement and supplies sector Epsp3. Ability to work effectively within a team as a result of procurement and supplies professionalism Epsp4. Continued ability to adapt to new roles, tasks and work environments Epsp5. Ability to demonstrate professional behaviours and attitudes in a work setting Epsp6. Graduates' performance and suitability for procurement and supplies roles	Al-Shehab et al. (2021), Kassa (2022, Ergün & Şeşen (2021), and Ayodele et al. (2020).

Source: Table by authors

3.4. Reliability and Validity

Cronbach's alpha (α) and composite reliability (CR) were used to assess the internal reliability of the questionnaire and data using confirmatory factor analysis (CFA). According to Hair et al. (2013), the internal consistency and reliability of research tools are achieved when

Cronbach's alpha and CR values for the theoretical research constructs are ≥ 0.70. The CFA results reported in table 2 reveal an attainment of internal reliability for each theoretical construct, with α and CR values being ≥ 0.70. Furthermore, convergent validity was evaluated using average variance extracted (AVE) and factor loadings. The rule of thumb for convergent validity is that a theoretical construct should exhibit AVE values and factor loadings for reflective items greater than 0.5 (Hair et al., 2013). The study confirms the attainment of good convergent validity, with AVE values and factor loadings greater than 0.5. Furthermore, discriminant validity was evaluated by assessing whether the square root of the AVE value for each theoretical construct exceeded the inter-correlation value between constructs (Fornell & Larcker, 1981). The results in Table 4 support the attainment of discriminant validity, with the AVE value for each construct exceeding the correlation value between that construct and other constructs.

Table 2

Factor loadings and reliability values of measurement items

Constructs and items	VIF	Factor loadings	Cronbach's alpha	CR	AVE
Procurement and supplies professionals' academic competence (ACCP)			0.884	0.932	**0.695**
Accp1	1.889	0.842			
Accp2	2.618	0.828			
Accp3	2.561	0.878			
Accp4	3.798	0.761			
Accp5	2.092	0.868			
Accp6	2.473	0.820			
Procurement and supplies professionals' digital skills (DGSK)			0799	0.897	**0.636**
Dgsk1	2.872	0.701			
Dgsk2	3.928	0.838			
Dgsk3	2.005	0.897			
Dgsk4	2.233	0.750			
Dgsk5	3.762	0.787			
Employability of procurement and supplies professionals (EPSP)			0.827	0.899	**0.600**
Epsp1	3.018	0.666			
Epsp2	2.227	0.891			
Epsp3	2.119	0.783			
Epsp4	3.362	0.713			
Epsp5	2.285	0.697			
Epsp6	**2.983**	**0.870**			

Source: Table by Authors

3.5. Data Analysis Approach

Structural equation modelling (SEM-AMOS 23.0) was used in this study to test the model hypotheses regarding the mediating effect of DGSK in the relationship between ACCP and EPSP. SEM is more useful in testing the hypotheses, including the direct and indirect effect between the predictor, the mediator and the outcome variables (Hair et al., 2013). Since the proposed model for this study aimed to assess both the direct and indirect effects between the study variables, we appropriately selected SEM for the mediation analysis. In this case, a simple mediation analysis was conducted to evaluate the direct and indirect effects of ACCP on EPSP through DGSK, using a bootstrapping sample of 5,000 at 95% confidence intervals. Before testing the model hypotheses through the SEM, CFA was performed to assess and confirm if the measurement model fit well with the data. The use of CFA allows for the extraction of latent constructs that share the most variance with the variables connected to those constructs (Fan et al., 2016). The results of the CFA were used to assess the validity and reliability of the construct measures.

4. Results

4.1. Sample Characteristics

Table 3 presents the sample characteristics of the respondents included in the study. Males accounted for a significant portion of the respondents (54.40%, n = 167), compared to females, who made up 45.60% (n = 140). The majority of respondents were HRMs (55.70%, n = 171), while 44.30% (n = 136) were CEOs. Regarding age groups, most of the CEOs and HRMs (23.78%, n = 73) were between 41-50 years old, followed by those aged 51-60 years (21.50%, n = 66). In terms of education, the majority had a postgraduate qualification (56.68%, n = 174), while the remaining 43.32% (n = 133) held a first degree. Further, the analysis reveals that most respondents were sampled from public institutions (62.54%, n = 192), compared to those from private institutions (37.46%, n = 115). Lastly, the statistics show that 23.13% (n = 71) of respondents had 11 to 15 years of work experience, followed by those with 16 to 20 years of work experience (21.17%, n = 58). These statistics suggest that the respondents were sampled from diverse organizations and with adequate knowledge and work experience to effectively respond to questions related to ACCP, DGSK, and EPSP.

Table 3

Characteristics of sampled respondents

Variable	Category	Frequencies	Percentages
Gender	Male	167	54.40
	Female	140	45.60
Age groups	> 20 ≤ 30 years	49	15.96
	> 30 ≤ 40 years	62	20.20
	> 40 ≤ 50 years	73	23.78
	> 50 ≤ 60 years	66	21.50
	> 60 years	57	18.57
Level of education	First Degree	133	43.32
	Postgraduate	174	56.68
Job position	Human resource managers	171	55.70
	Chief executive officers	136	44.30
Nature of institution	Public organisation	192	62.54
	Private organisation	115	37.46
Work experience	> 1 ≤ 5 years	53	17.26
	> 5 ≤ 10 years	64	20.85
	> 10 ≤ 15 years	71	23.13
	> 15 ≤ 20 years	68	22.15
	> 20 years	51	16.61

Source: Table by authors

4.2. Descriptive Statistics and Correlation Analysis

Table 4 summarises the key descriptive statistics (mean and standard deviation) and the correlation matrix for the study variables. ACCP has a mean score of 3.293, indicating a relatively moderate level of ACCP among procurement and supplies professionals. DGSK has a mean value of 4.064, suggesting that employers in the surveyed public and private institutions place substantial importance on DGSK when recruiting procurement professionals. EPSP has a mean value of 2.529, indicating slightly lower employability for procurement and supplies professionals. Given the mean score of 2.529 for EPSP, it can be inferred that other skills or qualifications, apart from ACCP, may be significantly needed to enhance EPSP. On the other hand, the correlation analysis shows that ACCP is positively associated with DGSK (r = 0.409) and EPSP (r = 0.523), indicating that ACCP correlates with both DGSK and EPSP. Furthermore, DGSK is positively correlated with EPSP (r = 0.605). All correlations are significant and moderate (ranging from 0.409 to 0.605), suggesting that multicollinearity was not an issue in the dataset.

Table 4

Descriptive statistics, discriminant validity and correlation analysis

	Mean	Std. deviation	MSV	ASV	ACCP	DGSK	EPSP
ACCP	3.293	0.783	0.274	0.220	*0.834*		
DGSK	4.064	0.865	0.366	0.267	0.409**	*0.798*	
EPSP	2.429	0.796	0.366	0.320	0.523**	0.605**	*0.775*

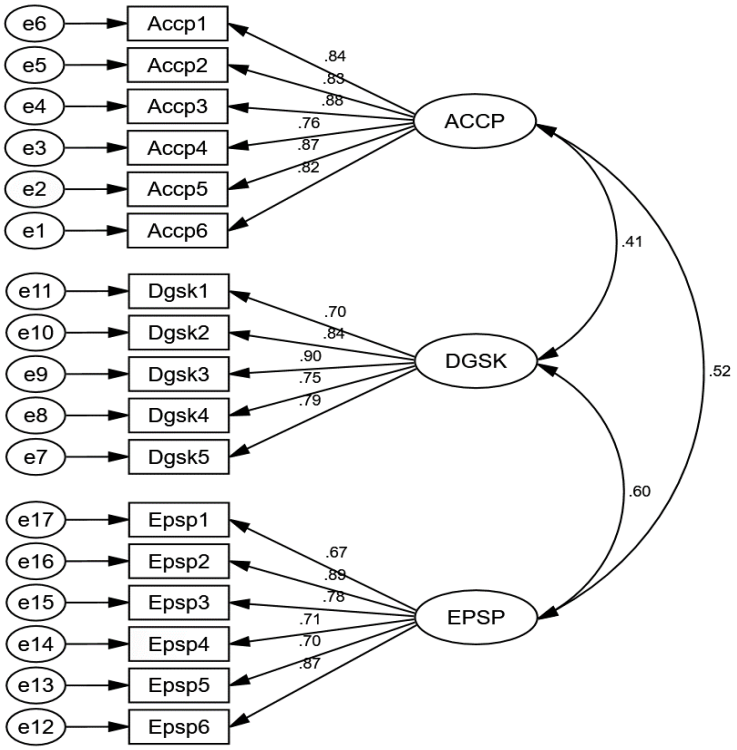
Note: **p < 0.01. square root of AVE reported along diagonal in italic. ***Source***: Table by Authors.

4.3. Measurement Model

Figure 2 shows the measurement model used in the study to assess the model fit indices and its suitability for the data. The model fit indices indicated a chi-square (χ^2) value of 309.485 with degrees of freedom (df) of 116, yielding a p-value less than 0.01 and a χ^2/df ratio of 2.668. Nonetheless, other indices also demonstrated a robust fit. The Goodness of Fit Index (GFI) was 0.876, the Tucker-Lewis Index (TLI) was 0.931, the Incremental Fit Index (IFI) was 0.942, the Comparative Fit Index (CFI) was 0.941, the Normed Fit Index (NFI) was 0.910, the Root Mean Square Error of Approximation (RMSEA) was 0.078, the Standardized Root Mean Square Residual (SRMR) was 0.031, and the probability of close Fit (PClose) was 0.089. These values demonstrate that the hypothesized model is valid and attained a good fit to the data (Hair et al., 2020).

Figure 2

Measurement model



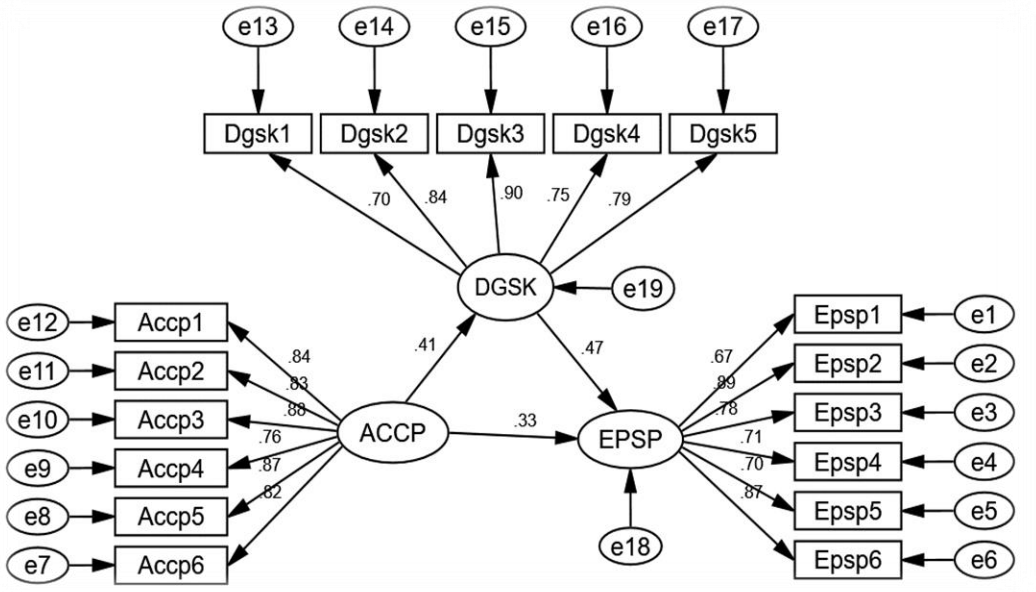
Source: Figure by Authors

4.4. Structural Model and Hypotheses Testing

Figure 3 is the structure model of the study, precisely used to test the model hypotheses. Essentially, the structural model demonstrates a good fit with the data, as values presented in Table 5 for each fit index are much larger than the recommended thresholds (Hair et al., 2020). Besides, the model demonstrates adequate predicting power in explaining the mediation effect of DGSK in the relationship between ACCP and EPSP. In essence, the R^2 value for DGSK was 0.367 ($p < 0.01$), meaning that ACCP explains the proportion of variance in DGSK by 36.7%. Again, the R^2 for EPSP was 0.457 ($p < 0.01$), indicating that ACCP and DGSK collectively explain the proportion of variance in EPSP by 45.7%. Concerning direct effects, the results presented in figure 3 and table 5 reveal that ACCP positively and significantly influences EPSP ($\beta = 0.222$, $p < 0.001$). This indicates that enhancing ACCP by 1% can result in a 22.2% increase in EPSP. Therefore, hypothesis H1 was supported. Similarly, the direct effect of ACCP on DGSK was found to be positive and statistically significant ($\beta = 0.308$, $p < 0.001$), indicating that enhancing ACCP by 1% improves DGSK by 30.8%. This result supports H2. Furthermore, the relationship between DGSK and EPSP was also positive and significant ($\beta = 0.417$, $p < 0.001$). Consequently, hypothesis H3 was supported as well, indicating that a 1% increase in DGSK results in a 41.7% increase in EPSP.

Figure 3

Structural model



Source: Figure by authors

4.5. Testing of Mediation Effect

Table 5 shows the results of the mediating effects of DGSK on the relationship between ACCP and EPSP. In the bootstrapping approach, an indirect effect is considered significant if the confidence intervals, ranging from the lower level (LLCI) to the upper level (ULCI), do not include zero (Hayes, 2022). Based on this criterion, the bootstrapping results presented in Table 5 reveal that DGSK significantly mediates the effect of ACCP on EPSP (β = 0.129, 95% CI [LLCI = 0.078, ULCI = 0.205]). Therefore, hypothesis H4 was supported, suggesting a complementary mediation effect of ACCP on EPSP through DGSK.

Table 5

Results of hypotheses testing

Direct effects	Coefficient	se	C.R	p	LLCI	ULCI	Results
H1. ACCP → EPSP	0.222	0.042	5.309	***	0.140	0.313	Supported
H2. ACCP → DGSK	0.308	0.051	6.019	***	0.190	0.446	Supported
H3. DGSK → EPSP	0.417	0.064	6.531	***	0.271	0.592	Supported
Mediation effect	Effect	BootSE		BootLLCI	BootULCI		
H4. ACCP → DGSK → EPSP	0.129		0.032	0.078		0.205	Supported

Model fit indices: GFI = 0.867, NFI = 0.918, IFI = 0.949, TLI = 0.938, CFI = 0.948, RMSEA = 0.068, χ^2 = 318.485, df = 116, $\chi 2/df$ = 2.746, RMSEA = 0.068, SRMR = 0.049, and PClose = 0.099.

Note: ***p < 0.001.

Source: Table by Authors

5. Discussions

This present study examines the mediating role of DGSK in the association between ACCP and EPSP. The findings supported the research model, confirming our prediction of the hypothesized direct effect of ACCP on EPSP (H1). This aligns with prior empirical findings by Rakowska and de Juana-Espinosa (2021) in Poland and Presti et al. (2022) in Italy, where ACCP was identified as one of the key determinants of graduates' employability. The finding of this study can be interpreted within the theoretical framework of SCCT, viewing ACCP as a set of self-efficacy beliefs that enable graduates to solve complex problems, articulate ideas, communicate clearly, and interpret and understand data, thereby enhancing their employability in a rapidly evolving job market. A similar empirical study by Israel (2021) in Tanzania highlighted ACCP in terms of professional certifications, which validate procurement and

supplies professionals' skills and knowledge, making them more attractive and eligible for employment in both public and private sectors. However, the study presents somewhat contradictory findings compared to empirical research by de Ntarangwi (2024) and de Dios et al. (2024) in Kenya and Spain, which reported an insignificant positive impact of ACCP on graduates' employability. This discrepancy was attributed to a lack of practical application and the growing preference of employers for digital and soft skills over academic qualifications. Moreover, these findings challenge SCCT's model, which regards ACCP as one of the fundamental attributes that fosters individual graduates' and professionals' competencies, strengthens self-efficacy beliefs, and enhances their confidence in searching and applying for challenging jobs (Lent & Brown, 2019). Although some previous studies, such as Bargsted et al. (2021), do not acknowledge the value of ACCP in employability, our research provides empirical support that ACCP nurtures positive outcomes towards enhancing EPSP.

A significant positive relationship was found between ACCP and DGSK, supporting the study's second hypothesis (H2). This implies that stronger ACCP can subsequently enhance procurement and supplies professionals' DGSK. These findings are consistent with those of Akaadom and Obibi (2023) in Ghana and Ogunbodede et al. (2023), who also found a significant positive influence of ACCP in nurturing graduates' and professionals' DGSK. Consistent with this study, these prior studies argued that ACCP, including independence in handling complex tasks, interpreting and understanding data, and communicating effectively, has a strong positive impact on graduates' digital competencies. ACCP serves as critical cognitive, self-efficacy, and behavioural components of SCCT, enabling graduates and professionals to seek out, adapt to, and leverage digital solutions and analytical tools that simplify complex job-related tasks. In the context of procurement and supply, enhanced graduates' DGSK can be attributed to the integration of learning curricula with digital procurement skills, tools, and applications in universities. This is further supported by an empirical study by Mugizi et al. (2023) in Uganda and the SCCT theoretical model, which identifies ACCP as a foundational framework for improved DGSK. Therefore, the ACCP gained during procurement studies provides a knowledge base that can be built upon to acquire digital procurement skills. Aligned with SCCT (Lent & Brown, 2019), academic learning experiences, both in the classroom and through practical applications, foster DGSK, which is essential for utilizing digital tools in the e-procurement labour market.

Moreover, DGSK exhibited a significant positive role in enhancing EPSP. The findings suggest that procurement and supplies professionals experience higher employability when they possess and demonstrate strong DGSK. These findings are supported by empirical studies conducted by Bejaković and Mrnjavac (2020) and Singh and Jaykumar (2019) in Croatia and India, who similarly reported a significant positive role of DGSK in graduates' employability. A similar empirical study by Rodrick (2024) in Tanzania reported the same, arguing that procurement and supplies professionals who demonstrate strong proficiency in basic computer applications, adapt to and utilize e-procurement tools and technologies, and understand cybersecurity principles are more likely to secure and succeed in procurement careers with greater confidence. Drawing on SCCT (Schaub, 2004), these proficiencies align with self-efficacy and positive outcome expectations, as employers recognize DGSK as foundational and widely applicable skills for EPSP. This is particularly important in organizations where procurement activities have become increasingly digitalized (Rodrick, 2024), unlike traditional academic qualifications that focus primarily on theoretical understanding (Israel, 2021; Mokoena & Seeletse, 2024). As such, employers have shifted their hiring criteria, placing greater emphasis on digital proficiency rather than solely relying on academic qualifications. Overall, digitally skilled procurement and supplies professionals enable organizations to reduce the training burden while ensuring that employees meet the technical demands of modern procurement roles. This, in turn, allows them to efficiently handle e-procurement tasks, making them more valuable and employable in the labor market (Hopkins & Sohal, 2019).

Lastly, the predicted indirect effect of ACCP on EPSP through DGSK was confirmed. This finding highlights DGSK as a significant conduit through which procurement and supplies professionals can enhance their employability. It supports the arguments of previous studies by Zhan et al. (2024) and Ramírez et al. (2024), conducted in Indonesia and Spain, as well as the theoretical foundations of SCCT (Lent & Brown, 2019), which regard DGSK as crucial for developing self-efficacy beliefs and cognitive skills that bridge the gap between ACCP and job-relevant skills in the digital business environment. While ACCP provides procurement and supplies professionals with theoretical knowledge and cognitive skills such as problem-solving, data interpretation, and effective communication (Gupta & Mahajan, 2024; Stéphane & Simon, 2018), DGSK enhances ACCP by enabling professionals to apply their knowledge in a digitalized work environment (Nghia, 2019). For instance, proficiency in e-procurement tools allows procurement and supplies professionals to effectively utilize their problem-solving

and data interpretation skills in real-world procurement tasks. The findings also align with empirical research by Nusrat and Sultana (2019) in Bangladesh, who found that the ability to leverage e-procurement systems strengthens the effectiveness and efficiency of ACCP in handling procurement roles, making procurement graduates and professionals more attractive to employers. Therefore, with strong DGSK, procurement and supplies professionals are more likely to develop positive expectations about their career outcomes. According to SCCT, this enables procurement graduates and professionals to translate their academic knowledge into practical, marketable skills, thereby enhancing their employability.

6. Conclusion, Implications and Direction for Further Studies

6.1. Conclusion

The present study introduced a theoretical model to test the mediating effect of DGSK in the relationship between ACCP and EPSP within Tanzania's digitalized procurement environment. The findings demonstrate a significant positive direct effect of ACCP on both DGSK and EPSP. In addition, DGSK positively affects EPSP. Another notable finding is that DGSK mediates the impact of ACCP on EPSP, revealing DGSK as a strategic capability through which procurement and supplies professionals can translate their ACPP into improved employability. The results suggest that procurement and supplies professionals with strong ACCP benefit significantly from DGSK, allowing them to apply their theoretical knowledge effectively in a real-world digitalized procurement environment. This proficiency enables them to meet the technical demands of modern procurement roles, ultimately increasing their attractiveness and value in the labour market. In particular, the dual focus on ACCP and DGSK aligns with the self-efficacy and positive outcome expectations outlined in SCCT, reinforcing the importance of a holistic educational approach in fostering EPSP. Aligned with SCCT, the study argues that enhancing the DGSK of procurement and supplies professionals is paramount for their successful transition into the workforce. It empowers them to meet industry standards, adapt to technological advancements, and contribute effectively to organizational goals, thereby enhancing their employability in the competitive labour market.

6.2. Theoretical Contributions

The study offers significant contributions to the literature and theoretical implications. Empirically, the study advances the existing literature on employability dynamics by

highlighting the critical role of DGSK as a bridge between theoretical knowledge and practical job readiness in the digital era. It extends previous studies, which have predominantly focused on the direct effect of ACCP on the employability of university graduates in non-procurement professions (Cham et al., 2021; Al-Khateeb, 2017; Kassa, 2022). Unlike earlier work, this study proposes a revised model of employability for procurement and supplies professionals in Tanzania, incorporating DGSK as a pivotal element. The study theorizes and explores the under-examined mediating effect of DGSK in the relationship between ACCP and EPSP. The revealed mediation effect of DGSK in the link between ACCP and EPSP has far-reaching implications. For educational institutions, it underscores the urgent need to integrate DGSK training into procurement curricula to bridge the gap between theoretical knowledge and practical, technology-driven competencies. For employers, it highlights the necessity of shifting hiring criteria to prioritize DGSK over solely relying on ACCP. This shift could disadvantage graduates lacking DGSK exposure, potentially leading to underemployment or skills mismatches in the job market. The adopted research model more accurately reflects the current demands of the labour market, where digital literacy is essential for effectively performing procurement tasks and achieving career success.

By focusing on Tanzania, the research provides valuable insights into the unique employability dynamics in developing countries. It underscores the importance of DGSK in a context where the digital transformation of procurement processes is rapidly advancing but not yet fully integrated into academic programs. Theoretically, this study expands the understanding of SCCT by highlighting how self-efficacy and positive outcome expectations, facilitated by DGSK, bridge the gap between ACCP and EPSP in the modern procurement field. The significant positive effects of ACCP and DGSK on EPSP suggest the importance of integrating these factors into the conceptualization of SCCT, which emphasizes individual beliefs and self-efficacy as key components of career success and employability outcomes. Furthermore, the research identifies DGSK as a critical mediator that enhances the practical utility of ACCP, particularly in a digitalized work environment. Drawing on SCCT, the study indicates that DGSK serve as a strong signal of a graduate's self-efficacy, readiness and capability to handle modern procurement roles, thereby increasing their perceived value in the job market. Overall, the study validates the competence-performance link, signifying that ACCP alone is insufficient for employability. As such, DGSK is essential for translating

academic knowledge into effective employability, especially in digitally-driven work environments.

6.3. Practical Implications

This study offers valuable insights for academic institutions, policymakers, and procurement and supply professionals. First, for academic institutions, the study recommends fostering industry-academia partnerships that facilitate internships, apprenticeships, and digital upskilling workshops. These initiatives allow students to gain hands-on experience with procurement technologies before entering the job market. Additionally, institutions should support industry-specific projects and invite professionals and ICT experts for guest lectures. This approach helps align ACCP with practical procurement DGSK, providing students with real-world insights and experiences. Second, the government, in collaboration with educational institutions, should develop or reform curricula to mandate the inclusion of DGSK in procurement and supply chain management training. In addition, training institutions should offer hands-on short courses on e-procurement systems, applications, and data analytics to ensure graduates are well-prepared for the digital demands of modern procurement roles. This is essential for bridging the gap between academic knowledge and the practical application of DGSK in contemporary e-procurement systems, making procurement and supply professionals more efficient and effective in their roles. Third, government policies should mandate continuous professional development (CPD) in digital competencies for procurement professionals to ensure they remain competitive in a rapidly evolving digital landscape. Lastly, procurement and supply professionals should take individual initiative to access online courses, workshops, and professional certifications in procurement and DGSK. These efforts will equip them with the necessary ACCP and DGSK to meet industry standards and enhance their employability.

6.4. Limitations and Directions for Future Research

The study presents several limitations and avenues for further research. First, the focus on procurement and supplies professionals in the Dodoma region of Tanzania limits the applicability and generalizability of the research findings to other geographical contexts, fields, and countries with different educational systems, employment policies, and digital infrastructure. Accordingly, we suggest conducting comparative studies between different

countries or regions to provide comprehensive insights into how ACCP and DGSK influence the employability of university graduates across various professions. Furthermore, the study primarily employed a cross-sectional questionnaire survey to capture data about the study variables at one point in time. This limits the ability to draw inferences about long-term causality between the study variables, especially given the fast-paced nature of technological advancements and evolving labour markets. Therefore, future research could employ longitudinal designs to track changes in ACCP, DGSK, and EPSP over time, extending the methodological approach to incorporate qualitative methods, such as interviews or focus group discussions. Lastly, the study did not account for industry-specific and personal factors, such as the relevance of work experience, academic performance, attitude, and personality traits, which might influence EPSP. As such, the study highlights the need to consider how these factors impact the employability of university graduates in the procurement field. These avenues can provide more comprehensive insights into the experiences and perceptions of employers regarding the relevance of DGSK, ACCP, and the employability of university graduates.

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