Unravelling the Key Ingredients of Employability Skills for Surveyor Graduates: A Systematic Literature Review

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ABSTRACT

The surveying profession has proven its value in the current era of development, as it offers services that generate, enhance, preserve, and protect valuable property and assets. Despite increasing attention, surveying education seems to be falling behind in meeting the demands of the construction industry by producing graduates with essential employability skills. Only a few studies have attempted to review the employability skills expected by employers from surveyor graduates. Therefore, this systematic review aims to identify essential elements of employability skills for surveyor graduates. The preparation of this review follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) review method. A total of 25 related studies were obtained from three databases: Scopus, ScienceDirect, and Google Scholar. The findings revealed that the most crucial employability skills expected from surveyor graduates are communication skills (functional work skills), leadership skills (functional work skills), teamwork skills (functional work skills), critical thinking skills (cognitive skills), and emotional intelligence (personal and entrepreneurial skills). Surveying education should consider incorporating these identified skill sets into their curriculum and training modules to ensure the employability and readiness of graduates for the workforce.

Keywords: Employability skills, graduates, industry demand, surveying profession, systematic review

INTRODUCTION

Surveyors' involvement in the lifecycle of buildings and construction projects has demonstrated its significance in the construction industry sector, where it offers services such as generating, enhancing, preserving, and protecting valuable property and assets (Wong et al., 2007). Surveyors are

professionals who can give expert advice in all aspects of the construction industry. They are categorised into four main divisions: building surveying, quantity surveying, property surveying, property surveying, and geomatics and land surveying. In preparing competent and highly qualified surveyors, several professional associations and bodies have been established worldwide, such as the Royal Institution of Chartered Surveyors (RICS) in the United Kingdom, the Royal Institution of Surveyors Malaysia (RISM) in Malaysia, the Hong Kong Institute of Surveyors (HKIS) in Hong Kong, and the Society of Chartered Surveyors Ireland (SCSI) in Ireland, among others.

The rapid economic growth of the construction industry has increased the employment rate across various departments, including surveyor departments. Consequently, there is a heightened demand for new employees (graduates). Despite this, the increasing number of graduates produced by higher education institutions (HEIs) has gradually forced employers to screen for the best candidates who excel in both hard and soft skills, ensuring their adaptability in changing business circumstances (Abidoye et al., 2022; Bhuruk et al., 2018). Aliu et al. (2022a) also claimed that an academic degree will not guarantee personal or industry success.

Although surveying education was drafted in coordination with the core competency requirements for surveyors to perform their work professionally, tertiary education remains concerned with the demand for additional knowledge, skills,

and competencies that should be adopted by surveyor graduates (Masum et al., 2019) to suit the changing era of globalisation in the construction industry. In helping fulfil this demand, governments have taken the initiative to develop Technical and Vocational Education and Training (TVET) programmes as a platform for acquiring knowledge and job-relevant skills (Osidipe, 2017). These are relatively known as employability skills, which refer to the generic skills needed in the 21st century to secure and remain in a job (Ahmadu et al., 2023).

The increasing concern about graduates' employability has attracted many researchers from various fields of work to conduct studies on the crucial skills and competencies needed to remain employable and workable, such as Deep et al. (2022), Vaz-Serra and Mitcheltree (2021), Moyo and Chigara (2023), Balakrishnan and Ishak (2021), and Ayodele et al. (2021). While many studies focus on the skills and competencies needed to survive in the world of work, only a few attempts have been made to systematically review the employability skills expected from surveyor graduates by employers. Conducting a systematic literature review (SLR) provides an overview of the results from different individual studies (Kraus et al., 2020). The authors are able to report the essential employability skills that surveyor graduates should possess from the perspective of employers with different backgrounds and regions.

According to the United Nations, 17 Sustainable Development Goals (SDGs)

were adopted in 2015. They serve as a universal call to all countries to take action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by the year 2030. This study helps contribute to two of the SDGs, which are "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all" (Goal 4) and "promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all" (Goal 8). In alignment with SDGs 4 and 8, which emphasise the importance of embracing digital transformation in education, including the development of ICT skills, as well as promoting productive employment and decent work opportunities for all societies, this study seeks to contribute to the preservation and advancement of high civilisation by exploring the competencies needed to maintain employability and productivity in the construction industry with impactful scientific knowledge and skills aimed at the betterment of society.

Parallel to the goals of the SDGs and amid today's rapid change, professionals in the surveying field play a leading role in advancing sustainable construction and preserving civilisation at a high level. Cultivating a highly trained workforce capable of handling complex social, climate, and environmental challenges is critical for achieving sustainable development that aligns with the SDGs' aims. The demand for qualified surveyors is growing as resource constraints intensify in urban settings, alongside global concerns such as climate change and rapid technological advancements in the industry. Surveyors impact the physical landscape, urban growth, and building safety and contribute to communities' social, economic, and environmental well-being. For instance, lifelong learning, emotional intelligence, flexibility, adaptability, effective communication, interpersonal skills, teamwork, and problem-solving are all critical for surveyor graduates to remain relevant in their field and contribute meritoriously to preserving a high standard of civilisation. Defining the key employability skills for surveyor graduates allows them to make a valuable contribution to the preservation of advanced civilisation, which enables graduates to approach complicated situations with creativity, compassion, and foresight, thereby making real contributions to society. Providing graduates with key employability skills will help promote a highly trained workforce capable of tackling complex social issues and guaranteeing long-term growth.

Guiding Theory Towards the Phenomenon of Employability Skills

Emerging issues in graduates' performance and employability skills underscore the need for more productive collaboration between industry and educators to foster significant reform. These issues in graduates' job performance and employability skills concepts are integral to developing the grounded theory for this research. Harvey (2001) introduced the "magic bullet" model of employability, suggesting that students

gain employability simply by being students, ultimately leading to employment. He emphasises that an individual's employability is "a propensity of students to obtain a job" (Romgens et al., 2020; Sumanasiri et al., 2015). Hence, it is important to differentiate between the employability of individuals and institutional performance (Romgens et al., 2020), with the latter referring to how well institutions perform. A graduate's employment should be viewed solely as a measure of the individual's employability, not as a means for institutional enhancement (Sumanasiri et al., 2015). This model outlines the three main parties involved in the process of employability development: graduates (students), higher education institutes (HEIs), and employers.

Graduates are responsible for selecting and participating in the employment opportunities offered by HEIs (Weligamage, 2009). Meanwhile, HEIs offer various opportunities to enhance students'

employability, such as developing self-presentation skills and promoting lifelong learning (Sumanasiri et al., 2015). In addition, as summarised by Weligamage (2009), the model outlines three fundamental mechanisms that influence employability, which are: a) the pedagogic process that encourages development, b) self-reflection by the student, and c) the articulation of experiences and abilities. Harvey's concept of employability is not solely about students' potential to be employed but rather about their ability to develop skills that make them suitable for the working world (Aliu & Aigbavboa, 2020). Therefore, as depicted in Figure 1, researchers employed this model to direct and establish the phenomena of this study. A force without proper direction may not ensure success and complete satisfaction. Therefore, this paper aims to demonstrate all employability skills necessary for surveyor graduates to secure employment.
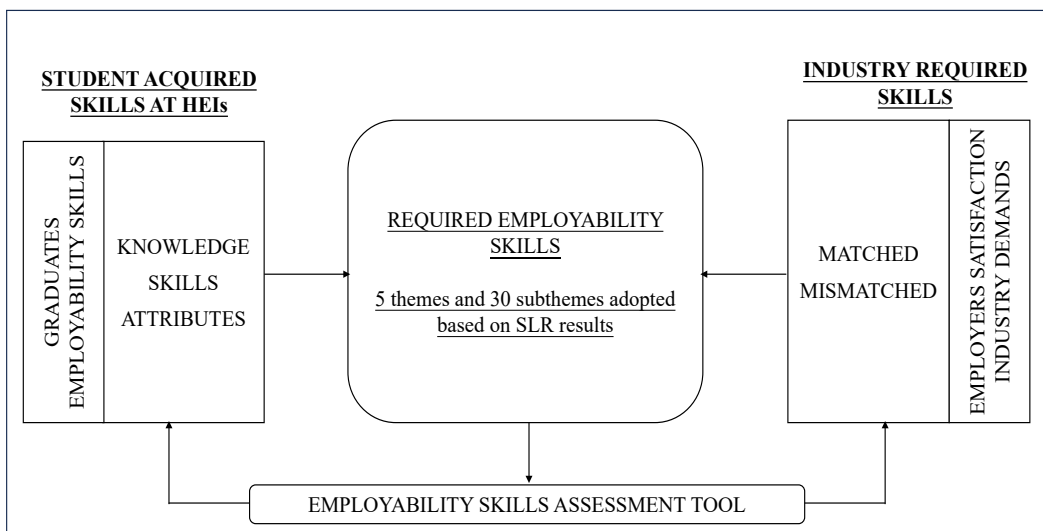

Figure 1. The guiding theory for employability skills development for surveyor graduates
Source: Adapted from Harvey (2001)

LITERATURE REVIEW METHODS

The Review Protocol (PRISMA)

The PRISMA statement served as a guide for this SLR study. The PRISMA statement was developed to help authors report their systematic reviews and meta-analyses. Sierra-Correa and Cantera Kintz (2015) mentioned that the PRISMA statement provides three main benefits: (1) clearly defining research questions prior to conducting the SLR, (2) distinctly outlining inclusion and exclusion criteria, and (3) enabling evaluation of a substantial body of scientific literature within a specified timeframe.

Formulation of the Research Question

The research question for this study is formulated based on the Population, Interest, and Context (PICo) approach. PICo is a tool that guides researchers in developing a clear and precise research question (Lockwood et al., 2015). Following these concepts, the authors have included three main aspects for review: Surveyor (population), employability skills (interest), and graduates (context). These aspects guide the authors in formulating their main research question: What employability skills are required by surveyor graduates in performing professional roles? This study aims to fill the gap by reviewing related studies to better understand employers' demands regarding the employability skills that surveyor graduates need to possess and excel in.

Systematic Review Process

The PRISMA method consists of three main processes for the systematic review: identification, screening, and eligibility.

Identification

The identification phase determines the keywords and databases for the search. Based on the formulated research question, two main keywords were identified: "employability skills" and "surveyors". Following this, Mohamed Shaffril et al. (2020) searched the online thesaurus for synonyms and related terms using keywords from earlier studies and expert suggestions to enrich the keyword list. According to Xiao and Watson (2019), a systematic literature review (SLR) must be derived from multiple databases, as no database comprises a complete set of published materials. Three familiar databases were identified for this SLR: Scopus, ScienceDirect, and Google Scholar. Scopus and ScienceDirect were chosen for their status as leading indexing systems with strong recognition for publishing scientific articles (Noraishah Ismail et al., 2021). Meanwhile, Google Scholar was selected for its extensive coverage across various fields and its easy and open access (Yusop et al., 2022).

Although other databases are available, the authors limited their research to three search engines due to time constraints and chose not to research other rich search engines such as Web of Science (Social Science Citation Indexed). According to Wilder and Walters (2021), the most significant disadvantage of the Web of

Science to most scholars is its resource availability. The authors discovered that most recommended journals were unavailable or duplicated on Scopus and ScienceDirect during the database selection process. The formatted search string, which includes Boolean operators, phrase searching, and field code functions, was used for both Scopus and ScienceDirect databases. Excluding the field code function, the same techniques were used for Google Scholar (Figure 2). Due to Scopus's limitation of using Boolean operators up to eight times, the keywords were restricted to nine only.

Databases	Keywords
• Scopus	TITLE-ABS-KEY(("employability skills" OR "employability skill" OR "generic skills" OR "generic skill") AND ("building surveyors" OR "quantity surveyors" OR "land surveyors" OR "property surveyor") AND "construction industry")
Databases	Keywords
• ScienceDirect	TITLE-ABS-KEY(("employability skills" OR "employability skill" OR "generic skills" OR "generic skill") AND ("building surveyors" OR "quantity surveyors" OR "land surveyors" OR "property surveyor") AND "construction industry")
Databases	Keywords
• Google Scholar	(("employability skills" OR "employability skill" OR "generic skills" OR "generic skill") AND ("building surveyors" OR "quantity surveyors" OR "land surveyors" OR "property surveyor") AND "construction industry")

Figure 2. The search string used for search purposes
Source: Authors' work (2023)

Screening

The 505 documents identified from the identification process underwent the screening phase. Screening is the second step in the SLR process, based on the inclusion and exclusion criteria established by the researchers (Mohamed Shaffril et al., 2021). Patino and Ferreira (2018) added that this process helps determine the key characteristics of a target population in answering the research questions while eliminating several traits of the population that might be hindrances to the study. Prior to this, three duplicate documents were removed from the list based on the inclusion and exclusion criteria (Figure 3).

Firstly, a publication timeline between 2013 and 2022 was selected, which is within a 10-year duration. Following the concepts of "research field maturity" highlighted by Kraus et al. (2020), the longer duration of research was selected to ensure sufficient study maturity, as researchers identified only a small number of articles that had been
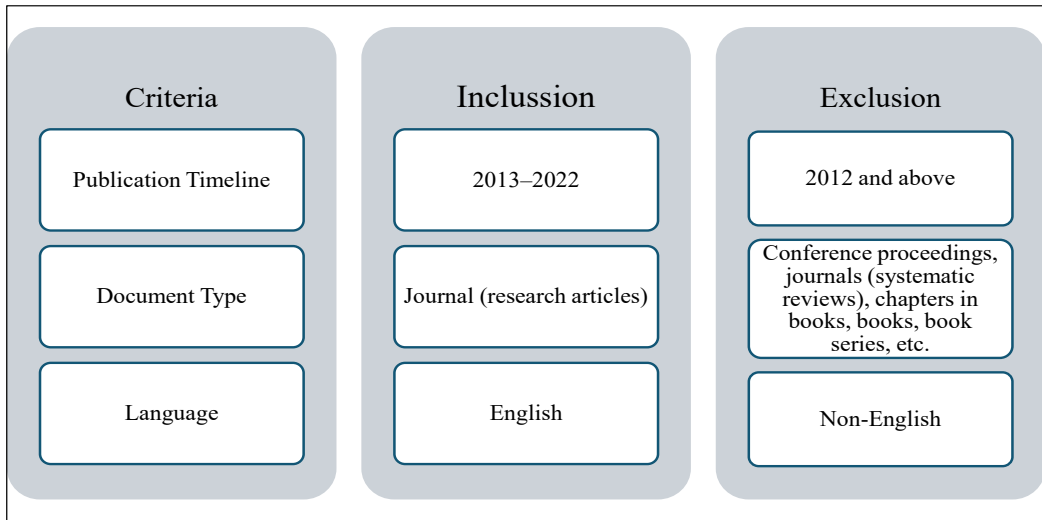
Figure 3. The criteria for inclusion and exclusion
Source: Authors' work (2023)

published within a short period. Regarding the document or literature type criteria, the researchers only concentrated on the journal (research articles) type because it is the primary source that offers empirical data. Only papers published in English were considered to reduce errors or confusion in extracting and analysing the data. The screening process was conducted manually because Google Scholar is not equipped with such functions to filter the criteria except for publication timelines. During the process, 338 articles were excluded as they seemed unsuited to the inclusion criteria, and 38 articles were removed as they had not been retrieved and were from inaccessible resources (Figure 4).

Eligibility

The third phase (second screening) is known as the eligibility process, where the authors

manually monitor the retrieved articles to verify that all surviving articles meet the authors' detailed criteria (Mohamed Shaffril et al., 2020). The process involved scrutinising the articles' titles and abstracts and, if necessary, the findings of the studies. This process excluded 100 articles from the SLR due to not focusing on employability skills, focusing on employers' perception rather than employers' demand on the graduates' employability skills, and the study being conducted for other professions that were not within surveyors' professions or even the construction industry sector.

Quality Appraisal

Referring to the guidelines proposed by Kitchenham and Charters (2007), assessing the quality of primary studies is crucial because it influences the degree of inference. Therefore, the remaining 26 articles were assessed using the Quality Assessments
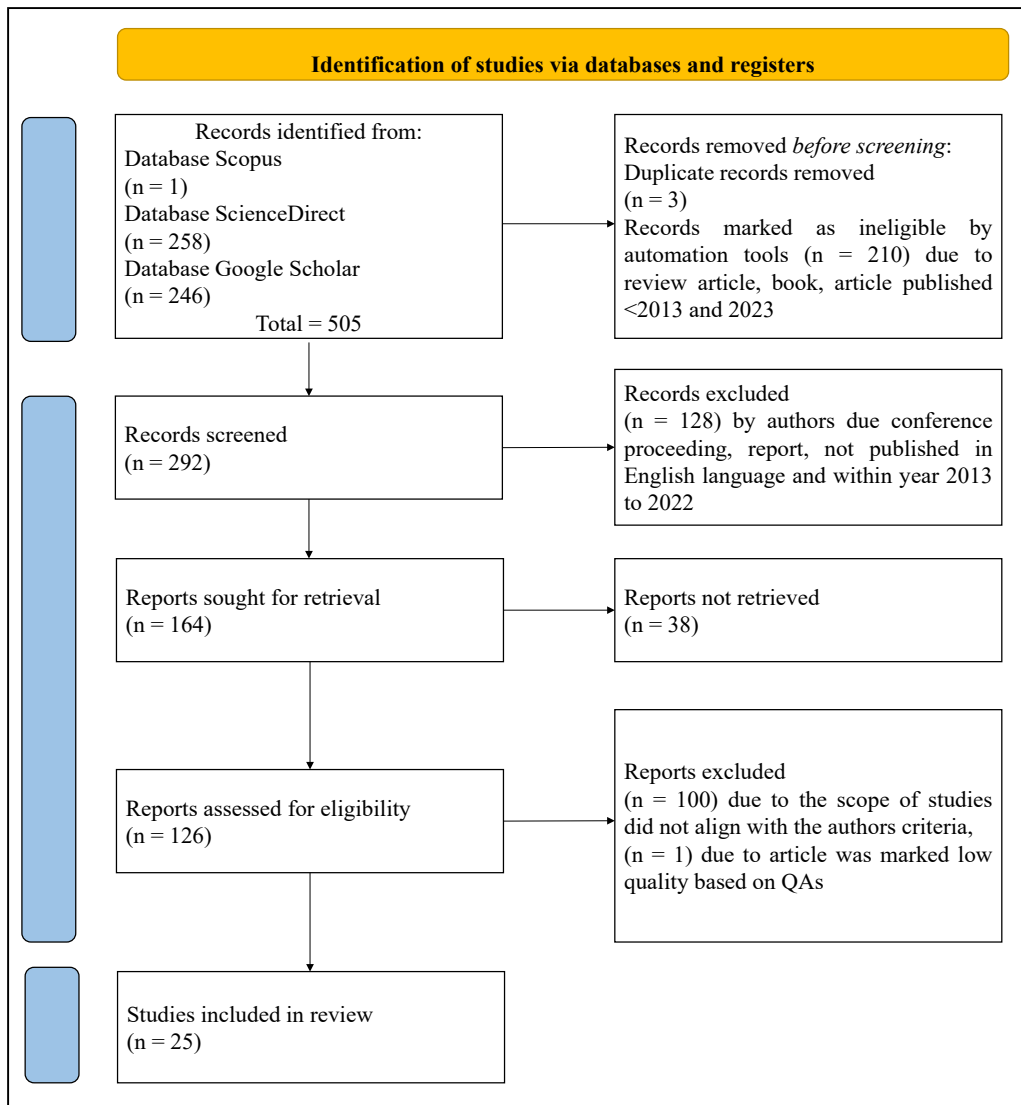
Figure 4. PRISMA flow diagram application for this SLR study
Source: Adapted from Page et al. (2021)

(QAs) list in Figure 5. The quality appraisal or criteria assessment focused on presenting the scanning process and data to ensure its reliability for the study data. The criteria for quality appraisal were selected based on established guidelines, as Abouzahra et al. (2020) suggested, focusing on employability skills for the surveying profession. There are six criteria used to judge the remaining articles: the purpose of the study must be made clear (Q1), the work must be presented in an interesting and useful way (Q2), the study methodology must be made clear (Q3), the approach's ideas must be made

clear (Q4), the work must be compared and measured with other similar work (Q5), and the work must have its limitations made clear (Q6). The scoring procedure used to evaluate each QA was: Yes (Y) = 1, Partly (P) = 0.5, or No (N) = 0. Of the 26 articles, 16 were marked as high quality, 10 as moderate quality, and one as low quality. Therefore, one article was deducted, and the remaining 25 continued for data abstraction and analysis.

Data Abstraction and Analysis

The surviving articles were evaluated, screened, and analysed. The tasks focused on the studies that answered the formulated research questions. The data were extracted to identify the appropriate themes and sub-themes by reading the abstract and then the full articles (in-depth). Qualitative analysis was performed using thematic analysis, which required searching for relationships among the domains and how these relationships are linked to the overall topic (Onwuegbuzie et al., 2012).

The first step of thematic analysis is to generate themes, which was determined by referring to the Malaysian Qualification Framework (MQF) 2nd edition. A total of five themes were formed. Later, the authors examined the extracted data from the reviewed articles to identify patterns between the data and found 40 sub-groups (items on elements of employability skills) to be generated and organised around the five themes by typology (Table 1).
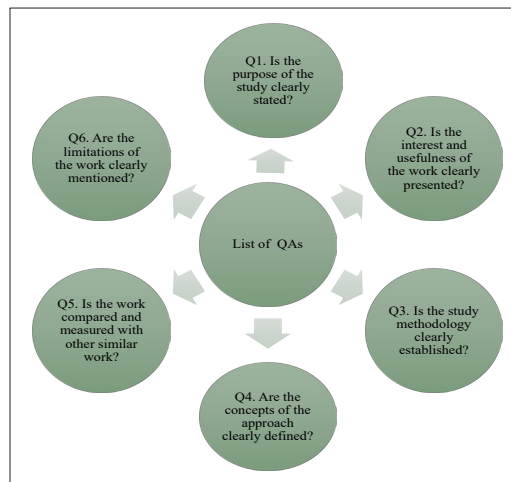

Figure 5. The list of QAs
Source: Adapted from Abouzahra et al. (2020)

RESULTS

Background of the Selected Studies

Through the reviewing process, 25 articles were identified that met the criteria and focus of the study. Upon reviewing the research design employed by the primary studies, it was found that 17 studies utilised the quantitative technique, while an additional four studies employed the qualitative method (Table 1). The mixed method was used in the remaining studies, except for one study where the study design was unclear. Additionally, most studies identified were conducted in Nigeria (seven studies) and Malaysia (six studies), followed by three studies in South Africa, two in India and the United Kingdom, and one in Australia, China, Egypt, Slovenia, and Sri Lanka.

Regarding the focus on the essential employability skills for surveyor graduates, most articles were found for quantity surveyor roles (seven studies), followed by building surveyor roles (two studies),

Table 1
The findings of primary studies from the years 2013 to 2022

Studies	Country	Focus profession	Study design	Knowledge and understanding	Cognitive skills	Employability skills		Ethics and professionalism
						Functional work skills	Personal and entrepreneurial skills	
1. Khodeir and Nessim (2020)	Egypt	Others	QN		CTS-DMS, PSS	TWS-CS	TMS	
2. Golob and Lisec (2022)	Slovenia	Land surveyor	MM		CRS-DMS	MS-CS	EI	
3. Aliu et al. (2022a)	South Africa	Others	QN			MS	EI	
4. Perera et al. (2017)	UK	Quantity Surveyor	MM		CRS	CC-NS-TWS-CS		CL-EPP
5. Zaheer et al. (2021)	UK	Building surveyor	MM	KL		CC-TWS-CS-ICT-OPT	PMS-EI-TMS	
6. Aliu and Aigbavboa (2020)	Nigeria	Others	QN	KL	CIA	MOS-TWS-LDS		EPP
7. Ebekozien et al. (2021)	Nigeria	Others	QL		DMS-CIA-PSS	TWS-CS-WS-ICT-LDS	EI	EPP
8. Ebekozien et al. (2022)	South Africa	Others	QL		ANS-CTS-PSS	LDS	ES	
9. Oladokun and Gbadegesin (2017)	Nigeria	Property surveyor	QN		CTS-PSS	CC-NS-CS-LTS-WS-ICT	ES-TMS	EPP
10. Shafie et al. (2014)	Malaysia	Quantity Surveyor	QN		CTS-DMS-PSS	CS-LGS	CWI-EI	EPP
11. Wang and Cheng (2022)	China	Others	QN		CRS	RM-CC-CS-PS-ICT-LDS		EPP
12. Hashim et al. (2021)	Malaysia	Quantity Surveyor	QL			NS-CS		CL-EPP
13. Kalgo et al. (2019)	Nigeria	Others	QN		CIA	RM-TWS-CS-LDS-RB		
14. Omoraka et al. (2022)	Nigeria	Others	QN		ANS-CRS-CTS	COS-MOS-MNS-MTS-IS-NS-CS-LDS	ES-TMS	

Table 1 (*Continue*)

Studies	Country	Focus profession	Study design	Employability skills				
				Knowledge and understanding	Cognitive skills	Functional work skills	Personal and entrepreneurial skills	Ethics and professionalism
15. Bhuruk et al. (2018)	India	Others	NA	KL	ANS-CRS-CTS-DMS-PSS-RC	COS-MOS- MNS-CC-IS-MS-NS-TWS-CS-LTS-WS-LDS	FS-IP-PMS-EI-TMS-WL	EPP
16. Rajput et al. (2022)	India	Others	QN	KL	ANS-DMS	MOS-RM-TWS-CS-WS-ICT-LDS	AWU	EPP
17. Arowoiya and Akinradewo (2022)	Nigeria	Quantity Surveyor	QN	KL	ANS-CTS	MOS-IS-NS-TWS-CS-WS-ICT-NMS-LDS		
18. Tan and Chan (2016)	Malaysia	Quantity Surveyor	QN		CTS	TWS-CS		
19. Aliu et al. (2022b)	South Africa	Others	QN	KL	CTS-CIA-PSS	COS-CS-ICT-LDS	ADS-IP-EI	
20. Karunasena et al. (2015)	Sri Lanka	Quantity Surveyor	QN			CC-NS-CS-LGS-LTS-WS	PMS	
21. Haryanti et al. (2017)	Malaysia	Others	QN		ANS-PSS	NS-TWS-LDS-RB	ES-FS-PMS	
22. Oluwole and Yetunde (2020)	Nigeria	Quantity Surveyor	QN		CRS-CTS-DMS	TWS-CS-LDS	AWU-ADS-FS-EI	
23. Husain et al. (2020)	Malaysia	Building surveyor	QL		PSS	CS-LGS	CWI-EI	
24. Salleh et al. (2013)	Malaysia	Others	QN	KL	CIA	IS-CS-PS-ICT-LDS-OPT	AWU-FS-CWWI-IP-PMS-EI-TMS-WL	
25. Abidoye et al. (2022)	Australia	Property surveyor	QN		CTS-PSS	CC-MS-NS-CS-WS-ICT-NMS	ADS-CWI-EI	EPP

Table 1 *(Continue)*

Note.
Study design
QN=Quantitative; QL=Qualitative; MM=Mixed method

Knowledge and understanding
KL=Knowledge

Cognitive skills
ANS=Analytical skills; CRS=Conflict resolution skills; CTS=Critical thinking skills; DMS=Decision making skills; CIA=Creative and innovative ability; PSS=Problem solving skills; RC=Reading comprehension

Functional work skills
COS=Coordination skills; MOS=Management and organising skills; MNS=Monitoring skills; MTS=Multitasking skills; RM=Risk management skills; CC=Client care; IS=Interpersonal skills; MS=Mediation skills; NS=Negotiation skills; TWS=Team working skills; CS=Communication skills; LGS=Language skills; LTS=Listening skills; PS=Presentation skills; WS=Writing skills; ICT=ICT skills; NMS=Numeracy skills; LDS=Leadership skills; OPT=Optimistic personality traits; RB=Relationship building

Personal and entrepreneurial skills
AWU=Ability to work under pressure; ADS=Adaptability skills; ES=Entrepreneurship skills; FS=Flexibility skills; CWI=Capability to work independently; IP=Initiative and proactive; PMS=Personal management skills; EI=Emotional intelligence; TMS=Time management skills; WL=Willingness to learn

Ethics and professionalism
CL=Conduct rules; EPP=Ethics and professional practice

Source: Authors' work (2023)

property surveyor roles (two studies), and land surveyor roles (one study). A total of 13 studies were not specified in the surveyor profession but within the construction industry sector and were included in the data analysis.

The Themes and Sub-Themes

Knowledge and Understanding

Knowledge is the capacity to use information to survey work practices and comprehend information methodically. For instance, most research highlights that surveying graduates should possess and thoroughly understand the overarching concept and foundation of their chosen discipline (Aliu et al., 2022b; Aliu & Aigbavboa, 2020; Zaheer et al., 2021). Rajput et al. (2022), Bhuruk et al. (2018), and Salleh et al. (2013) emphasised the importance of graduates possessing a broad range of technical knowledge. For example, building surveying graduates should possess knowledge of building pathology and maintenance, construction and deconstruction methods, and building survey and inspection (Zaheer et al., 2021), while quantity surveying graduates should be knowledgeable in the estimation of materials, time, and labour costs to conduct feasibility studies (Aliu et al., 2022b).

Besides, surveying graduates should know the rules and legislation at work (Bhuruk et al., 2018; Zaheer et al., 2021) and understand their and others' professional practices and ethics. In addition to understanding knowledge, graduates should be able to apply the principles in

their work practice to fully support the knowledge competencies (Aliu et al., 2022b). Furthermore, the studies by Aliu and Aigbavboa (2022b) and Bhuruk et al. (2018) highlighted the need for graduates to know about market philosophy and keep abreast of societal trends.

Cognitive Skills

The critical employability skills attributed to cognitive skills include critical thinking, problem-solving, decision-making, analytical thinking, conflict resolution, creativity and innovation, and reading comprehension skills. Based on Table 1, the most important cognitive skills valued by employers are critical thinking skills (44%), problem-solving skills (40%), and decision-making skills (28%). Eleven studies emphasise the need for graduates to have the ability to examine objectively, understand the different components, and break down problems into smaller parts, making critical thinking skills the most expected cognitive skill of graduates. Meanwhile, Khodeir and Nessim (2020), Ebekozien et al. (2021, 2022), Oladokun and Gbadegesin (2017), Shafie et al. (2014), Bhuruk et al. (2018), Aliu et al. (2022b), Haryanti et al. (2017), Husain et al. (2020), and Abidoye et al. (2022) emphasise the importance of graduates' ability to recognise and solve problems. Only Bhuruk et al. (2018) indicated that graduates should have reading comprehension skills when interpreting drawings.

Functional Work Skills

Under functional work skills, 20 subtopics are found and divided into six groups: (1) practical work skills, (2) interpersonal skills, (3) communication skills, (4) digital skills, (5) numeracy skills, and (6) leadership, autonomy, and responsibility. Interpersonal skills and communication skills are the most important skills. Practical work skills include managing and organising, coordination, risk management, monitoring, and multitasking. Based on the findings in Table 1, graduates in the construction industry are expected to effectively manage and utilise resources, energy, and time and demonstrate perseverance to achieve their goals. In addition, graduates working in supply chain management should possess coordination skills to efficiently coordinate all activities within the supply chain (Omoraka, 2022).

Teamwork, negotiation, client care, interpersonal, and mediation skills are categorised under interpersonal skills. Given the collaborative nature of the construction and surveying fields, graduates are expected to be willing and able to work effectively in teams, often comprising diverse members (Aliu & Aigbavboa, 2020; Bhuruk et al., 2018; Zaheer et al., 2021). As negotiation skills complement communication skills, employers expect graduates, especially quantity surveying and property surveying graduates, to have good negotiation skills to reduce conflict, reach consensus, and improve client satisfaction (Abidoye et al., 2022; Hashim et al., 2021; Karunasena et al., 2015; Perera et al., 2017).

To achieve excellent communication skills, graduates must possess various communication abilities, including writing skills, language proficiency, listening skills, and presentation skills. The ability to interact, communicate effectively, and connect with colleagues and clients are critical factors that prompt employers to actively seek graduates with strong listening and communication skills. In addition to verbal communication skills, written communication is a significant way of conveying information. Employers place a high value on writing proficiency because it is necessary for tasks such as report writing and schedule preparation (Bhuruk et al., 2018; Rajput et al., 2022).

With the ongoing revolution of technology in the construction industry, graduates are not only expected to know these technologies but also to understand and be able to apply them (Aliu et al., 2022b; Rajput et al., 2022). In addition, ICT skills are important so that graduates can utilise digital tools and services to complete their tasks (Bhuruk et al., 2018; Zaheer et al., 2021). Furthermore, since conducting market analysis on real estate or material supplies forms the basis of the work of quantity and property surveyors, graduates are expected to have excellent numerical skills (Abidoye et al., 2022; Arowoiya & Akinradewo, 2022).

The last category is leadership, autonomy, and responsibility, which includes leadership skills, optimistic personality traits, and relationship building. Graduates with leadership qualities are usually willing

to take responsibility and be accountable when leading a team (Aliu & Aigbavboa, 2020; Rajput et al., 2022). When leading diverse teams, employers expect graduates to possess optimistic personality traits to maintain mental resilience and positivity in their work (Zaheer et al., 2021). Additionally, graduates are expected to build relationships and maintain networks, which are crucial for professional development (Haryanti et al., 2017).

Personal and Entrepreneurial Skills

The first sub-theme and the dominant skill among personal and entrepreneurial skills is emotional intelligence (n = 11). Emotional intelligence is a person's ability to express, regulate, and use their emotions and those of others (Aliu et al., 2022b). Based on the results from Table 1, employers value graduates who demonstrate initiative and aspire to lead themselves and others to success. The need to interact with and approach people from diverse backgrounds leads employers to seek graduates with high levels of self-confidence. Additionally, Golob and Lisec (2022), Aliu et al. (2022a), and Abidoye et al. (2022) add that employers are highly interested in hiring graduates who can control, understand, and communicate their most intense emotions.

The second sub-theme and the second most important skill is time management skills (n = 6). Graduates who can manage and complete the task assigned to them within the desired time frame are highly valued and appreciated by employers. Other sub-themes under this cluster include personal

management skills, entrepreneurship skills, flexibility skills, capability to work independently, ability to work under pressure, adaptability skills, initiative and proactive skills, and willingness to learn. The least mentioned skill for graduates to possess among those under the personal and entrepreneurial skills category is willingness to learn (n = 2).

Ethics and Professionalism

Two sub-themes formed under this theme include ethics, professional practice, and conduct rules. Employers expect graduates to be familiar with ethics and professional practice because they must be firm, honest, and unbiased in their dealings with clients (Abidoye et al., 2022; Hashim et al., 2021; Rajput et al., 2022). Strong work ethics and business skills indicate the graduates' capacity to adapt to a changing marketplace (Aliu & Aigbavboa, 2020). Meanwhile, Perera et al. (2017) and Hashim et al. (2021) have shown that employers require quantity surveyor graduates to have codes of conduct, ethics, and professional practice to maintain the company's reputation.

The Essential Elements of Employability Skills for Surveyor Graduates

After the first analysis, the authors continued to exclusively analyse the essential employability skills required by surveyor graduates. Out of 40 items of employability skills, ten were removed as the skills were not mentioned in any studies focusing on the surveyor profession. According to the
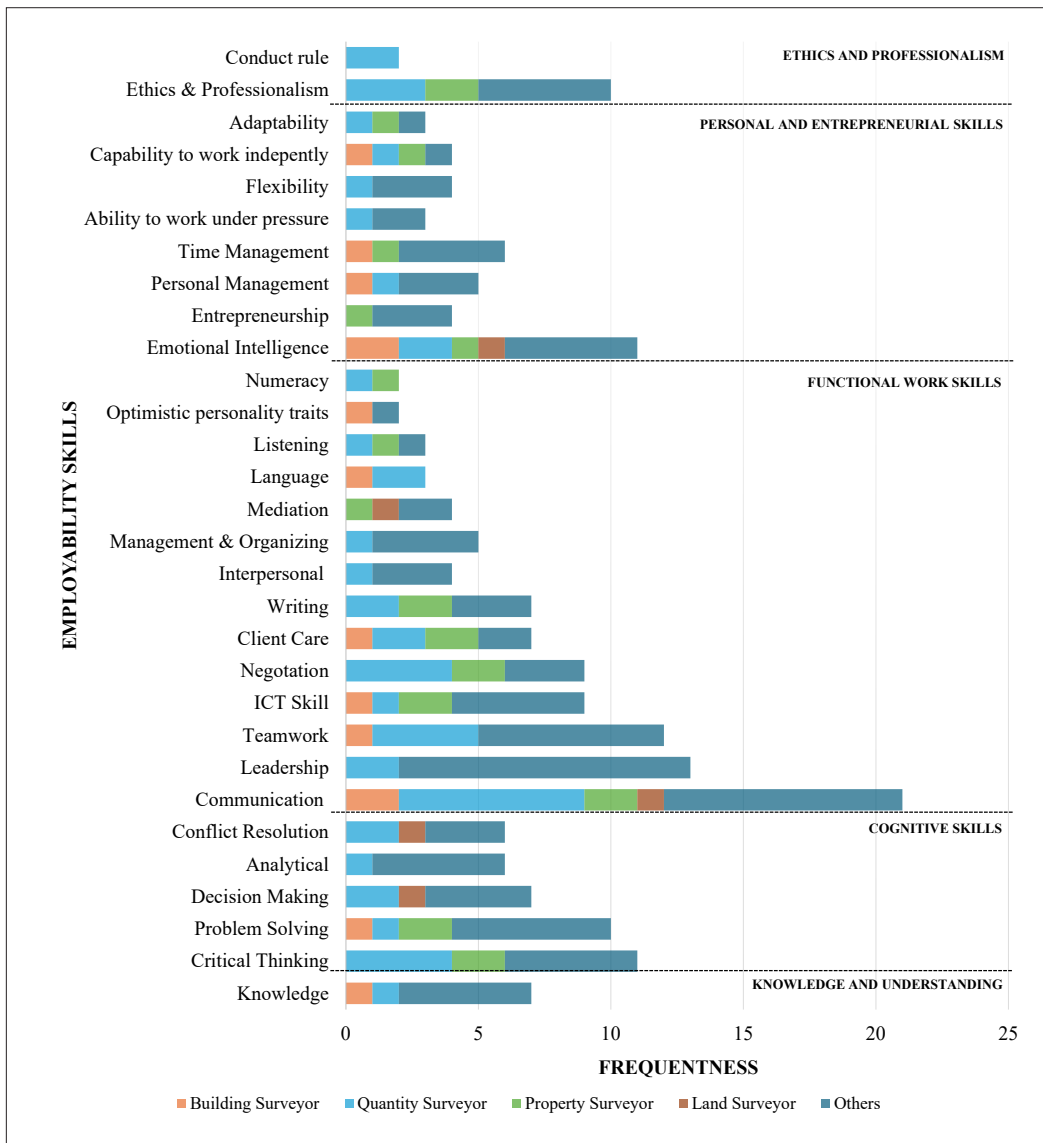
Figure 6. Frequentness of essential elements of employability skills expected from surveyor graduates
Source: Compiled by the authors (2023)

findings, communication skills emerged as the most important component of employability skills that surveyor graduates should possess, followed by leadership skills, teamwork skills, critical thinking skills, emotional intelligence, problem-solving skills, ethics and professionalism, ICT skills, negotiation skills, and decision-making skills (Figure 6). It suggests that employers expect surveyor graduates to possess more functional work skills and cognitive skills compared to other graduates,

with five functional work skills and three cognitive skills being among the most crucial components of employability skills.

FINDINGS AND DISCUSSION

The thematic analyses identified five themes and 30 sub-themes, with ten themes deemed unfit and removed. Functional work skills are the most crucial employability skills that surveyor graduates should possess to increase their employability and effectiveness in current and future roles. It mainly includes strong communication, leadership, teamwork, negotiation, and ICT skills. Effective communication skills are vital for interactions between clients and consultants, consultants and design teams, and consultants and contractors (Moyo & Chigara, 2023). Coupled with negotiation skills, graduates can effectively solve problems, enhance client satisfaction, and serve as effective representatives of their firms (Abidoye et al., 2022; Golob & Lisec, 2022; Oladokun & Gbadegesin, 2017; Zaheer et al., 2021).

Furthermore, Hashim et al. (2021) reported that employers are not looking for standalone employees. However, at construction sites, individuals with a team-player spirit comprise a diverse group of people with different backgrounds and statuses who work together (Haryanti et al., 2020). Besides that, in developing countries, graduates should be able to manipulate digital tools and services to keep pace with advancements in industry technology (Aliu et al., 2022b; Balog & Demidova, 2021). Although leadership

skills were listed as the most employability skill expected by employers, in the context of surveyor graduates, it is less expected due to graduates typically being in entry-level positions (Oladokun & Gbadegesin, 2017). Leadership skills are generally acquired through work-life experience (Liu et al., 2020).

Likewise, graduates should also possess cognitive skills, including critical thinking, problem-solving, and decision-making skills. Employers from property and quantity surveying firms mostly expect surveying graduates to be capable of making logical judgements by identifying underlying issues and determining the best approach to problem-solving. This critical thinking ability is essential for effectively managing supply chains and properties, involving careful planning and task organisation (Omoraka, 2022), thus preventing project and company losses (Ralston & Blackhurst, 2020).

In addition to such skills, the study emphasises the need for surveying graduates to have the ability to fully grasp the overall idea of the chosen discipline (Aliu et al., 2022b), which helps in preparing graduates for their jobs and future careers (Fitriani & Ajayi, 2022; Stanton & Stanton, 2020). Above and beyond that, surveying graduates should know related rules and legislation. Employers value graduates who acknowledge and are prepared to abide by any related legislation and rules at work, safeguard client data, and maintain compliance with current regulatory and industry standards (Bhuruk et al., 2018;

Zaheer et al., 2021). In environments with diverse individuals, graduates need a basic understanding of others' professional practices and ethics.

Unforeseen circumstances in the working environment have pushed employers to seek graduates with personal skills, mainly emotional competencies (emotional intelligence). Graduates who possess this skill can motivate themselves when feeling down, regulating their emotions to make better choices, taking initiative, and driving themselves to success (Aliu et al., 2022a). Besides, it provides reassurance that graduates can learn, overcome hurdles, and resolve conflict situations responsibly (Golob & Lisec, 2022; Zaheer et al., 2021). Furthermore, employers also value graduates with good time management skills because it guarantees employers that they can complete their assigned tasks and projects on time without overexerting themselves to one task (Omoraka, 2022; Salleh et al., 2013). Moreover, proficient time management skills not only improve graduates' job performance but also provide opportunities for career advancement (Zaheer et al., 2021).

It is important for surveying graduates to possess ethics and professional practice skills to ensure their professional performance. Graduates who adhere to the code of ethics assure employers of their impartiality, honesty, and steadfastness in their dealings (Hashim et al., 2021; Rajput et al., 2022). Surveying graduates who cultivate ethical work practices also adapt to an ever-changing and dynamic work environment (Aliu & Aigbavboa, 2020).

STUDY IMPLICATIONS AND CONCLUSION

Employability skills encompass work-readiness skills, including knowledge, skills, and competencies enhancing individual performance in their respective fields. Therefore, this SLR was conducted to identify and analyse the crucial employability skills expected by employers for surveyor graduates. According to the findings, the crucial employability skills that employers seek are communication skills, leadership skills, teamwork skills, critical thinking skills, emotional intelligence, problem-solving skills, ethics and professionalism, ICT skills, negotiation skills, and decision-making skills. It indicates that surveying graduates needs to develop functional work skills and cognitive abilities to effectively perform their professional duties and exercise sound judgement when required.

After completing the literature on the required employability skills for surveyor graduates, this study aligns with Harvey's theory that the main parties—graduates, HEIs, and employers—play crucial roles in enhancing employability. HEIs need the employers' perspective on the required employability skills to enhance the opportunity for graduates to generate employment. The results of this systematic review reveal opportunities to enhance the employability skills set required for surveyor graduates. For HEIs to design chances for surveyor graduates to obtain employment, they should focus on the following clusters of employability skills: five themes (knowledge and understanding,

cognitive skills, functional work skills, personal and entrepreneurial skills, ethics and professionalism) along with 30 subthemes.

In addition to filling the knowledge gap, this outcome guides educators, policymakers, and organisers who intend to enhance the traditional learning workshops through problem-based or project-based learning (PBL). It suggests integrating role-playing activities that promote social and critical thinking skills, as well as implementing continuing professional development (CPD) programmes that focus on mastering the crucial employability skills required by surveyor graduates. It may require integrating evolving trends, technology, and optimal approaches into CPD sessions to guarantee that surveyor graduates stay current with market improvements. Furthermore, it is possible to implement specialist technical training programmes that concentrate on advanced technical competencies pertinent to the surveying profession. These programmes would include digital technology tools and equipment, advanced data analysis approaches, and competence in surveying-specific software. Regarding developing soft skills, it is important to organise seminars focusing on crucial skills such as communication, leadership, teamwork, critical thinking, emotional intelligence, problem-solving, ethics, professionalism, ICT, negotiation, and decision-making. These abilities are crucial for surveyors to efficiently collaborate with stakeholders and manage complex projects.

In conclusion, this study not only addresses the specific objectives outlined in this paper but also resonates with overarching societal values and fosters the preservation of high civilisation with impactful scientific knowledge and skills aimed at the betterment of society, especially for surveyor graduates. By unravelling the key ingredients of employability skills for surveyor graduates, this research substantially contributes to preserving and advancing high civilisation through impactful scientific knowledge and skill endeavours, as perceived by employers and industry.

STUDY LIMITATION AND RECOMMENDATIONS

The limited use of direct and restricted keywords has indirectly reduced the number of relevant papers available for evaluation. Currently, other professions, such as property surveyors, building surveyors, and land surveyors, have limited results compared to quantity surveyors. This situation is due to the use of different terms of employability in the research paper for those professions. Therefore, researchers recommend expanding the search terms by increasing the keywords and adopting more commonly used terms. Additionally, the searches conducted were restricted to three databases and did not include other rich search engines such as Web of Science (Social Science Citation Indexed). Prior to finalisation, the researchers performed a preliminary search on the chosen databases. They discovered that most recommended journals from the Web of Science were inaccessible due to

institutional subscriptions (limited access or discontinued). It is recommended that future research adopt a more comprehensive approach to database selection, ensuring the inclusion of outnumbered published articles or literature sources in the research field. Furthermore, due to the ever-changing nature and trends of research, it is recommended that systematic reviews be conducted after several years to update current changes and developments in the surveying industry. This iterative approach enables the examination of research findings over time, aiding in gaining a more profound comprehension of trends, changes, and transformations in the study discipline, enhancing the significance and applicability of the combined data.

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