

Bridging the gap: The influence of employability skills on self-perceived employability and academic satisfaction



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Background: In the ever-changing competitive labour market, finding and maintaining a job necessitates that graduates possess the right set of discipline-specific and generic skills.

Aim: This study assessed the relationship between employability skills and self-perceived employability (SPE) among university students. The study further examined whether SPE influences academic satisfaction among university students.

Setting: The study was conducted using students registered at a South African university.

Method: The study adopted a quantitative research method with a causal research design to achieve the study's objectives. Data were collected using a self-administered questionnaire distributed to university students. The participants were recruited using convenience and purposive sampling techniques. An actual sample size of 306 was considered in the study. The data were analysed using the SMART PLS 4 version software.

Results: The findings of this study showed that all five employability skills, such as communication, problem-solving, critical thinking, teamwork and self-management skills, were positively related to SPE. This implies that employability skills are crucial determinants of SPE. The findings also showed that SPE positively influences academic satisfaction.

Conclusion: This study highlights the critical role of employability skills such as communication, problem-solving, critical thinking, teamwork and self-management in shaping university students' SPE, which enhances their commitment to their studies and overall academic success.

Contribution: The findings of this study contribute to the limited literature on the relationship between employability skills and SPE and the subsequent effect of SPE on academic satisfaction from a developing country context such as South Africa.

Keywords: academic satisfaction; career decision self-efficacy; employability skills; self-perceived employability; skills gap.

Introduction

Over the past decade, there has been growing pressure for universities globally to include employability skills and attributes as part of their curriculum to prepare graduates for the unprecedented disruption in the labour market (Botha 2021; Byrne 2022; Fearon et al. 2020). According to the World Economic Forum (2025), 39% of workers' core skills will change by 2030, highlighting the growing importance of equipping graduates with human-centred and future-oriented skills such as artificial intelligence (AI) and big data; analytical thinking; creative thinking; resilience, flexibility and agility, technological literacy, leadership and social influence, curiosity and lifelong learning, systems thinking, talent management, and motivation and self-awareness, which remain resilient in the era of artificial intelligence. Consequently, in an ever-changing competitive labour market, finding and maintaining a job necessitates that graduates possess the right set of discipline-specific and generic skills (Botha 2021; Donald, Baruch & Ashleigh 2019; Fearon et al. 2020; Soares & Mosquera 2020). Thus, enhancing employability skills among graduates has become an essential topic in Higher Education Institutions (HEIs) globally (George & Paul 2024; Gupta & Mahajan 2024; Mainga, Daniel & Alamil 2022). Employability skills are defined as job readiness skills that make a person attractive to potential employers (Tushar & Sooraksa 2023). Existing literature points to specific employability skills required for graduates to become competitive in the labour market, regardless of the

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discipline (Mainga et al. 2022; Mtawa, Fongwa & Wilson-Strydom 2021). Some of these employability skills include basic skills (communication skills), higher-order skills (problem-solving, decision-making and critical thinking) and affective skills (teamwork and self-management). A study by Simba et al. (2025) argues that it has become vital for HEIs to incorporate soft skills into entrepreneurship education to improve the problem-solving, creativity, critical thinking and entrepreneurial readiness of graduates. These skills are not only vital for creating a new business but also help produce graduates who can innovate within an existing organisation through corporate entrepreneurship, a unique contribution most organisations require from graduates. Furthermore, Simba et al. (2025) assert that embedding problem-solving and critical thinking skills in the entrepreneurship education curriculum can foster other competencies, such as leadership, decision-making and conflict resolution, making these young individuals in Africa marketable to entrepreneurial organisations. In support, Geng et al. (2025) argue that the dynamic, rapidly changing nature of the labour market necessitates that the workforce be equipped not only with technical expertise but also with employability skills vital for addressing multifaceted problems. Beyond improving job readiness, these skills also influence graduates' employability-related behaviours and outcomes, such as proactive career planning, continuous skills development, networking and active job search, which are vital for obtaining and maintaining employment (Geng et al. 2025; Mseleku 2024). As such, to develop these employability skills, HEIs have been tasked with mandating employability skills and attributes as part of their curriculum to prepare graduates for the unprecedented disruption in the labour market (Botha 2021; Gupta & Mahajan 2024; Mtawa et al. 2021). Nevertheless, the World Economic Forum (2023) revealed that there is a notable skill gap in graduate readiness for employment. Likewise, existing literature indicates that there is a mismatch between the skills and knowledge required in the labour market and that supplied by HEIs globally (George & Paul 2024; Gupta & Mahajan 2024; Tushar & Sooraksa 2023). This phenomenon is also common in developing countries (Ngonda, Nkhoma & Falayi 2024).

For instance, South Africa has also started emphasising the employability of graduates because of skills shortages in the country (Mabungela & Mtiki 2024). Some institutions have begun implementing strategies such as work-integrated learning to enhance employability. Work-integrated learning aims to bridge the gap between HEIs and corporates by merging theory and practice to produce work-ready students (Mabungela & Mtiki 2024). Such initiatives are intended not only to enhance graduates' employment prospects but also to stimulate employability behaviours, such as workplace adaptability, professional networking and the practical application of theoretical knowledge in real-world contexts (Mabungela & Mtiki 2024). However, the effectiveness of this strategy remains indistinct because it is still marred with implementation challenges (Ngonda et al. 2024). As such, employers in

South Africa have been raising concerns over the calibre of graduates produced by HEIs in the country (Botha 2021; Habiyaemye, Habanabakize & Nwosu 2022; Ngulube 2020).

A significant gap remains, as the educational system emphasises traditional academic knowledge over practical and transferable skills (Mseleku 2024). In other domains, such as those in the entrepreneurship field, existing studies show that the entrepreneurship education curriculum in most South African HEIs has not transformed effectively to adapt to the skills required in the prevailing business environment and labour market (Iwu et al. 2024; Machingambi & Iwu 2025), thus necessitating the need for more studies to bridge this gap. Consequently, South Africa's youth unemployment rate (ages 15–34) is currently estimated at 45.5%, compared to the national average of 32.9% in the first quarter of 2024 (StatsSA 2024). On the other hand, graduate unemployment stands at 10%, and unemployment among those with other tertiary education is 20.6%, highlighting the significant impact of employability skills on job prospects (Statista 2024). These statistics highlight how employability skills can affect labour market outcomes such as job stability and career mobility. Thus, universities must equip students with employability skills to address this issue. Even though existing studies have enhanced our understanding of employability, there are gaps in existing literature regarding how employability skills influence self-perceived employability (SPE) (George & Paul 2024; Soares & Mosquera 2020) and the subsequent effect of SPE on academic satisfaction (AS). Therefore, this study addresses two novel research gaps in existing literature.

Firstly, our study addresses this research gap by proposing that employability skills positively influence SPE in a developing country context such as South Africa. For instance, critical thinking and problem-solving are not only considered critical skills for the present labour market but are also projected to become even more important human-centric and future-oriented skills, which are of continued relevance amid rapid technological advances (World Economic Forum 2025). These skills enable individuals to think creatively, solve complex problems and develop innovative solutions (Sharif, Lee & Rahman 2021). This enhances one's confidence that they can secure and maintain a job in the labour market. Higher levels of confidence in one's employability are likely to foster proactive employability behaviours such as searching for learning opportunities, pursuing challenging academic and work-related tasks and engaging in career planning (Chowa et al. 2025). Similarly, communication skills, both in person and through technology, are essential for success in the labour market (Othman et al. 2022). These skills enable students to perform well in job interviews and workplace interactions, establish professional networks and market themselves to potential employers. Furthermore, self-management skills such as active learning, flexibility, stress tolerance and resilience are vital skills linked with SPE among students. Essentially, these skills enable students to adapt to changes, maintain well-being, enhance

productivity and support long-term career growth (Stan 2021). As such, students with strong self-management skills are most likely to engage in employability behaviours, such as persistent job search activities and continuous reskilling and upskilling, to successfully navigate career transitions (Chowa et al. 2025). This self-awareness allows students to confidently navigate the unpredictable job market, leading to enhanced SPE (George & Paul 2024). In support, other scholars report that employability skills influence students' SPE (Duggal et al. 2024; George & Paul 2024; Soares & Mosquera 2020). Building on the gap identified above, this study seeks to answer the following research question:

Q1: *Do employability skills positively influence self-perceived employability among university students in South Africa?*

Secondly, existing studies indicate that SPE is a crucial determinant of AS (Duggal et al. 2024; George & Paul 2024). Self-perceived employability is defined as an individual's perception or belief of how easy it is to find new employment (Rothwell & Arnold 2007). Self-perceived employability is a crucial personal resource that gives students strong confidence in their capabilities and skills (Duggal et al. 2024). Beyond shaping perceptions, SPE serves as a motivational resource, encouraging students to persist in their studies and invest in skills development. Some scholars assert that SPE predicts several outcomes, such as performance, well-being and AS (Duggal et al. 2024; Ma & Bennett 2021; Soares & Mosquera 2020). Students who perceive themselves as employable are more likely to exhibit adaptive academic behaviours, such as goal-directed learning and perseverance in the face of academic challenges, which, in turn, contribute to higher AS and completion of studies in record time. Lent et al. (2007:87) defined AS as 'the level of enjoyment that students perceive when they carry out experiences linked to their role as students'. Academic satisfaction has become an essential topic among scholars because HEIs are mandated to create an enabling environment for students to cope well and complete their studies in record time (Kee et al. 2023). Academic satisfaction is a vital subjective educational outcome associated with student retention (Wilkins-Yel et al. 2018). Nevertheless, little is known regarding how SPE affects AS within the academic domain, particularly in South Africa. In support of this view, recent studies argue that there are gaps regarding the determinants and outcomes of self-perceived (Álvarez-González, López-Miguens & Caballero 2017; Duggal et al. 2024), necessitating further studies. We, therefore, address this gap by proposing that SPE influences AS among university students. Thus, exploring the link between SPE and AS among students in South Africa is crucial, given SPE's role in positively influencing AS. This study is intended to answer the following research question based on the above arguments.

Q2: *Does SPE positively influence AS among university students in South Africa?*

Based on the above background, the contribution of this study is twofold. Firstly, this study uses a sample of university students from a developing country context to assess the

relationship between employability skills and SPE. This is a novel contribution, especially from the context of a developing country because most studies have been conducted in developed countries (Duggal et al. 2024). Thus, our study responds to a study by Duggal et al. (2024) for more contextual studies on the predictors and outcomes of SPE. Secondly, our study extends the existing literature by closing the knowledge gap on the link between SPE and AS among university students in a developing country. We believe that the examined factors, such as employability skills, SPE and AS, interact and intertwine to determine the labour market preparedness of graduates in South Africa. These constructs have become crucial variables in South Africa since HEIs are actively searching for ways to enhance their graduates' labour market preparedness. Thus, students who believe in their ability to secure employment after graduation are likely to maintain this perception even in unstable times (Duggal et al. 2024). This belief is reinforced if students also perceive themselves as possessing relevant employability skills, essential in the era of artificial intelligence (World Economic Forum 2020). The findings from this study provide HEIs and policymakers with possible recommendations on enhancing students' overall academic success and employability.

Literature review

Employability in higher education globally

The employability of graduates has become an essential topic in HEIs globally (Donald, Baruch & Ashleigh 2019; Donald et al. 2018). On this account, labour market preparedness has become crucial to bridge the gap between graduates and future employers (George & Paul 2024). According to George and Paul (2024), there is increasing pressure on HEIs to adapt to changes in the labour market by equipping their graduates with the employability skills demanded in the 21st-century workplace. Even though HEIs have begun implementing several strategies to enhance employability, this has not addressed the widening gap of skills shortages in economies globally. As such, there are concerns that HEIs are globally failing to produce work-ready graduates with specific skills relevant to the 21st-century labour market (Tushar & Sooraksa 2023; George & Paul 2024). On this account, existing literature reports that there is a mismatch between the skills graduates possess and what is demanded in the labour market (Tushar & Sooraksa 2023). George and Paul (2024) observed that holding an HEI qualification no longer guarantees employment for graduates globally, as different countries in Europe, the United States, and East Asia (Japan and South Korea) have been experiencing increasing graduate unemployment over the past decades. In support, Ma and Bennett (2021) remark that the issue of rising graduate unemployment has also become a pressing issue in China, as the country is experiencing an oversupply of graduates who are not work-ready. This has triggered global challenges such as graduate unemployment and underemployment (George & Paul 2024; Kibona 2024; Tushar & Sooraksa 2023). These problems are ongoing globally, necessitating more studies to address this issue.

Employability in the South African context

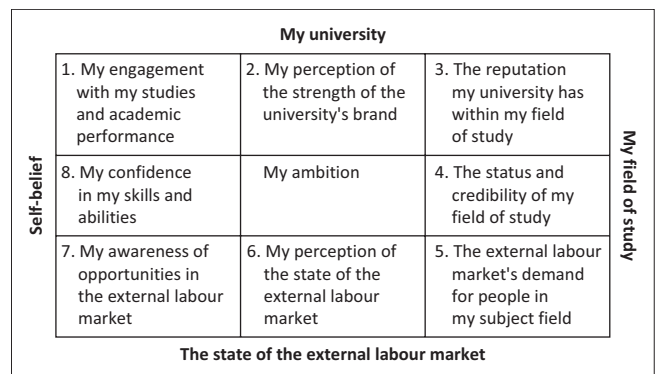
South Africa is also not immune to global graduate employability issues. Currently, South African HEIs are at crossroads with realities in the labour market, as there is a mismatch between graduates produced and the nature of jobs in the labour market (Habiyaremye et al. 2022). Even though HEIs have made some strides to address the issues of graduate employability, employers complain that the graduates are not work-ready (Mtawa et al. 2021; Ngulube 2020). Against this background, other scholars report that HEIs in South Africa find it challenging to incorporate employability skills into the traditional way of teaching and learning (Mtawa et al. 2021; Ngulube 2020). This finding is not surprising given the noted global trends in resistance to curriculum changes in most HEIs (Zuluaga 2024). Employers prefer graduates with employability skills because they perceive them as active problem solvers who can adapt to the demands of the dynamic work environment (Mtawa et al. 2021; Ngulube 2020). This has resulted in a widening unemployment rate and underemployment among graduates. According to Statistics South Africa (2024), youth are the most affected group regarding unemployment. This necessitates a study of this nature to explore how employability skills, SPE and AS interact and intertwine to enhance the labour market preparedness of graduates in SA.

Theoretical framework and hypothesis development

This study borrows from Rothwell's (2015) conceptualisation to understand employability among university students. Rothwell (2015) asserts that employability is understood from different perspectives, such as employability in public policy, education, organisation and at the individual level. Employability in public policy is linked to the drive by policymakers to decrease unemployment and its consequences. This resulted in governments across the globe coining the concept of employability among citizens to avoid unemployment (Botha 2021; Rothwell 2015; Vargas et al. 2018). To achieve this, several governments have made it mandatory for their institutions of higher learning to emphasise skills development in areas identified as critical. From this perspective, employability is reflected in labour market outcomes such as higher graduate employment rates, shorter unemployment duration and increased workforce participation. The organisational approach to understanding employability describes employer-driven strategies to ensure that employees are upskilled to fit into the dynamic conditions in the workplace, providing job security while enhancing the competitive advantage of the organisation (Botha 2021; Rothwell 2015; Vargas et al. 2018). In this instance, employability is manifested in outcomes such as internal mobility, employee adaptability and sustained job performance. On the other hand, the academic approach to understanding employability describes initiatives by universities to enhance graduates' access to the labour market. As such, universities globally have started incorporating employability skills into their curriculum to enhance graduate employability. Even though there has been progress in terms of incorporating

employability skills into the curriculum, other scholars believe that most institutions in South Africa are still struggling to achieve this. This is because of the continued mismatch between the skills demanded by employers and the skills possessed by graduates.

The individual approach consists of three aspects: competence-based employability, trait-based employability and SPE. Nevertheless, this study focuses on understanding the SPE approach. The SPE approach indicates that an individual's perception of being employable is shaped by the evaluation of their capabilities and skills (internal dimensions) and the labour market (external dimensions). Rothwell (2015) also further argues that the internal and the external dimensions interact with each other, implying that how individuals believe in their skills will influence how they view the labour market and how they perceive the skills demand in the labour market influences how they evaluate the importance of their skills and capabilities (Batistic & Tymon 2017; Rothwell 2015). As such, these perceptions do not remain mere cognitive evaluations; they shape how individuals behave in relation to their careers. Students with higher SPE would be more likely to engage in proactive employability behaviours, such as seeking career-related information, actively preparing for labour market entry, investing in continuous reskilling and upskilling and developing professional networks (World Economic Forum 2025), which enhances their AS. Rothwell, Herbert and Rothwell (2008) developed a theoretical model to explain SPE. The theoretical model consists of internal and external dimensions that influence SPE. As depicted in Figure 1, the theoretical model includes factors such as self-belief, the state of the external labour market, perception about the field of study, and the credibility of the university the student is affiliated with. The self-belief dimension relates to the confidence that the student has in his or her skills and capabilities as these are believed to influence one's chance of securing and sustaining a job. Self-perceived employability functions as a motivational and self-regulatory resource that translates a person's confidence in their abilities into observable outcomes across multiple levels. Perception about the state of the external labour market relates to how



Source: Rothwell, A., Herbert, I. & Rothwell, F., 2008, 'Self-perceived employability: Construction and initial validation of a scale for university students', *Journal of Vocational Behavior* 73(1), 1–12. <https://doi.org/10.1016/j.jvb.2007.12.001>

FIGURE 1: Self-perceived employability dimensions.

students evaluate the opportunities and the skills demanded in the labour market, and whether it matches their skills and capabilities. Positive labour market perceptions will encourage students to invest their time and effort in employability-enhancing activities, while negative perceptions may decrease career confidence and engagement in employability-enhancing activities.

The credibility of the university the student is affiliated with is also believed to influence the student's SPE in that reputable universities are linked to more chances of producing competent graduates who are employable (Botha 2021). Also, the perception of the relevance of the field of study is one other dimension in Rothwell et al.'s (2008) model, which influences SPE among students. Because of rapid changes in the labour market, there is now demand for graduates from specific fields of study, as others have become obsolete. Thus, once the student perceives that their field of study is among the list valued by employers, they are likely to feel confident that they will be able to secure and sustain a job in the labour market, which in turn strengthens their engagement in employability behaviours and AS.

Rothwell's (2015) conceptualisation of employability and SPE has been adopted and applied widely in studies exploring employability among graduates in different contexts (Vargas et al. 2018). This framework provides an important tool to understand the importance of employability and SPE.

Hypothesis development

Figure 2 presents the conceptual framework for the study. As indicated in Figure 2, employability skills were tested against SPE. In addition, the link between SPE and AS was also explored.

The link between employability skills and self-perceived employability: In any industry and organisation, employability skills have been identified as a mandatory set of skills required at any entry level of job (Donald et al. 2018; Rathee & Mittal 2024). These employability skills have been conceptualised differently by different industries and specific job requirements (Mainga et al. 2022). As such, this study adopts Cotton's (2000) conceptual framework of employability skills, broken down into three major skill

sets: basic skills, higher-order thinking skills and affective skills. Existing studies found that communication skills, teamwork skills, self-management skills, critical thinking, decision-making skills and problem-solving skills are skills that are required for graduates to possess as they are regarded as the backbone of any successful career (George & Paul 2024; Rathee & Mittal 2024). These skills are a combination of generic and discipline-specific skills, essential for success as they are directly relevant to finding initial employment, maintaining employment and obtaining new jobs (George & Paul 2024; Nirmala & Kumar 2018; Rathee & Mittal 2024).

Existing literature indicates that employability skills are crucial determinants of SPE among university students (Duggal et al. 2024; George & Paul 2024; Rathee & Mittal 2024). Employability skills help individuals to adapt to changes in the labour market and improve their career opportunities in the workplace, which enhances their SPE (Mtawa et al. 2021; Rathee & Mittal 2024; Soares & Mosquera 2020). Likewise, Koloba (2017) established that employability skills are vital in enhancing university students' SPE. Another study by George and Paul (2024) found that employability skills positively influence graduates' SPE by improving their confidence in the skills they possess. Nevertheless, there are limited studies that have explored how employability skills influence SPE (Duggal et al. 2024; George & Paul 2024). Given that HEIs globally are mandated to enhance students' employability skills and SPE (Duggal et al. 2024), more studies are needed to close this gap, especially in a developing country context.

Our study addresses this research gap by proposing that employability skills positively influence SPE of university students in a developing country context. Based on this argument, this study hypothesises that:

- H1:** Communication skills (CMK) positively influence SPE.
- H2:** Problem-solving skills (PSK) positively influence SPE.
- H3:** Critical thinking skills (CTK) positively influence SPE.
- H4:** Teamwork skills (TWK) positively influence SPE.
- H5:** Self-management skills (SMK) positively influence SPE.

Relationship between self-perceived employability and academic satisfaction: Self-perceived employability is an essential factor closely linked to a greater sense of security, as it helps graduates handle turbulent organisational environments (Duggal et al. 2024; Jackson & Wilton 2017). Self-perceived employability is essential for graduates, as it gives them the self-assurance that they will survive and thrive in an increasingly competitive job market (Botha 2021; Duggal et al. 2024), resulting in satisfaction with higher education (Monteiro, Ferreira & Almeida 2020). Drawing from prior literature (Duffy, Douglass & Autin 2015), there are at least two ways SPE can influence AS: career adaptability and career decision self-efficacy (CDSE). Savickas (1997:254) defines career adaptability as 'the readiness to cope with the predictable tasks of preparing for and participating in the

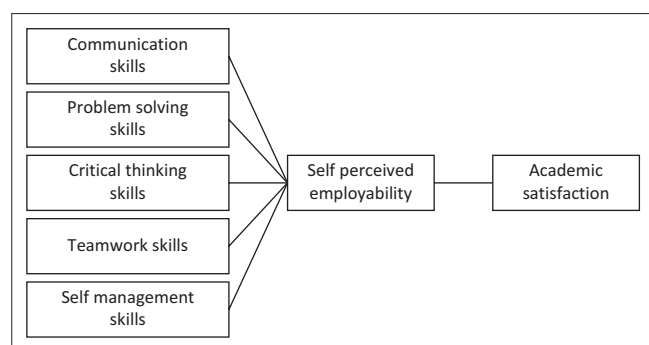


FIGURE 2: Conceptual model.

work role and with the unpredictable adjustments prompted by changes in work and working conditions'. According to Kvasková et al. (2023), career adaptability consists of four dimensions such as 'concern for the future (planning, being planful), control (decision-making, being decisive), curiosity (exploring, being inquisitive) and confidence (problem-solving, being productive)'. Career adaptability has been found to positively affect AS (Duffy et al. 2015; Wilkins-Yel et al. 2018). Duffy et al. (2015) observed that students who feel more adaptable displayed greater AS. Douglass and Duffy (2015) established that students with higher career adaptability had more positive vocational outcomes. Consequently, career adaptability can improve a person's chances of securing employment, augmenting their career success, identity and AS (Kvasková et al. 2023; Wang & Park 2024).

Regarding CDSE, Taylor and Betz (1983) define CDSE as a person's belief about completing tasks necessary for career decision-making. Given that CDSE conceptually originates from Bandura's (1986) self-efficacy theory and empirical research (Yousaf & Sanders 2012) have established that CDSE strongly predicts self-efficacy, it is reasonable to expect CDSE to be affected by SPE. Also, Huang (2015) reported that perceived internal employability was positively associated with CDSE. Additionally, CDSE has been found to mediate the career adaptability satisfaction relationship (Duffy et al. 2015) and have a positive association with AS (Nauta 2007) and career adaptability (Douglass & Duffy 2015) such that students who had a higher career adaptability felt more effective and competent when making decisions about their career. In support, Schettino, Marino and Capone (2022) assert that SPE enhances one's self-efficacy that they will be able to secure a job in future, resulting in AS.

A study by Ma and Bennett (2021) also found that SPE predicts AS among students by enhancing academic engagement and reducing stress levels. Similarly, another strand of literature suggests that having a positive SPE enhances one's self-efficacy resulting in satisfaction with the HEI (Ali & Mehreen 2022; Capone, Marino & Park 2021; Schettino et al. 2022). However, little is known about how SPE influences AS within the academic domain (Duggal et al. 2024; Ma & Bennett 2021). Thus, we respond to recent calls for more contextual studies that examine SPE and its outcomes among student samples from a developing country context (Duggal et al. 2024). Against the backdrop of the foregoing discussion, this study proposes that given that both career adaptability and CDSE have both a direct and indirect relation with SPE and AS, it is thus plausible to hypothesise that:

H6: Self-perceived employability positively predicts academic satisfaction.

Methods

The positivist research philosophy informed this study. The positivism research philosophy emphasises that a research phenomenon can be understood by exploring

cause-and-effect relationships among variables (Saunders, Lewis & Thornhill 2019). In this case, the quantitative research method was adopted because the researchers intended to collect numerical data on employability skills, SPE and AS. A causal research design was adopted, and the study was cross-sectional because data were collected at a single point in time. The population was business students in the faculty of economics and management sciences at a South African university. A self-administered questionnaire was distributed to 500 university students at a South African university. A sample size of 500 was calculated using the online Raosoft sample size calculator. The sample size was considered sufficient to capture the perceptions of university students regarding employability skills, SPE and AS. The participants were recruited using convenience and purposive sampling techniques. This meant that those participants who were readily available and willing to participate and met the inclusion criteria, such as being registered students, were recruited to participate in the survey. These sampling techniques were used because of the inability to access a sampling frame because some students deregister during the course of the semester. Nevertheless, the authors of this study took into account the possible limitations of these sampling techniques, such as the inability to generalise the findings. Consequently, out of the 500 questionnaires issued, 306 were fully completed, yielding a response rate of 61.2%.

Measures

Employability skills

In this study, multi-item scales were used to operationalise the five employability skills (communication skills, problem-solving and decision-making skills, critical thinking skills, teamwork skills and self-management skills) used in this study following prior studies by Cotton (2000). Participants responded to items on a 5-point Likert scale type ranging from 1 (strongly disagree) to 5 (strongly agree).

Self-perceived employability

Self-perceived employability was measured using the 16-item scale by Rothwell et al. (2008), which has been widely used in prior studies (Botha 2021; Vargas et al. 2018). The items measure the student's SPE as influenced by factors such as self-belief (internal dimensions), the state of the external labour market, perception about the field of study, and the credibility of the university the student is affiliated to (external dimensions). The overall score for a student's SPE was achieved by combining all the items. All the items were anchored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Academic satisfaction

Academic satisfaction was measured using a seven-item Likert scale by Lent et al. (2007). Some of the sample items included: '*I am generally satisfied with my academic life*'. Participants responded to items on a 5-point Likert scale type ranging from 1 (Strongly disagree) to 5 (Strongly agree).

Assessment of common method bias

In this study, it was crucial to assess the possibility of Common Method Bias given that the study used self-reported questionnaires. The Harman's one-factor test was used to assess Common Method Bias in SPSS. To achieve this, factor analysis was run using unrotated principal component analysis. The Harman's one-factor test results showed that the first factor accounted for 35.23%, which is less than 50%, indicating that Common Method Bias was not a problem in the model; hence, ready for further statistical analyses.

Data analysis

Data were analysed using SPSS and SMART PLS 4. Before analysis, the data were cleaned in Excel. The SPSS software was used to provide frequencies on demographic data and descriptive statistics such as mean and standard deviation. The SMART PLS 4 software was used to test the hypothesised relationship among the variables of the study. The SMART PLS 4 software enabled the researchers to test the complex model with multiple variables.

Ethical considerations

The study obtained ethical clearance from the ethics committee of the General/Human Research Ethics Committee (GHREC) of the University of the Free State, with an ethical approval number UFS-HSD2021/0770/21/4. The study adhered to all ethical considerations stipulated by the institution's ethics committee. The participants were voluntarily invited to participate in the study, and those who agreed to participate signed informed consent forms. Confidentiality and anonymity of the participants were also ensured by removing any information that could result in participant re-identification in the questionnaire.

Results

Demographic characteristics

Table 1 describes the demographic characteristics of the participants. The results show that most participants were females (67%), while males only constituted 33%. The dominant age groups were those between 18 years and 20 years, followed by those 21–25 years. Additionally, the findings show that most participants were black people (80%), followed by those who identified as white people (11%).

In terms of level of study, most participants were in their second year (47%), followed by those in their third year (31%), first year (12%), and honours (10%).

Descriptive statistics

This section presents results on the descriptive statistics of the key variables of the study (Table 2). In addition, this section also presents correlation analysis results among the key variables of the study. The results show that the participants possessed moderate levels of each skill examined, as indicated by a scale mean around 3. The results further revealed that the participants reported high levels of communication skills (mean = 4.08) and self-management skills (mean = 4.35). Regarding correlations among variables, the results showed that SPE was positively correlated with communication skills ($r = 0.206$; $p < 0.01$), problem-solving skills ($r = 0.162$; $p < 0.01$), critical thinking skills ($r = 0.396$; $p < 0.01$), self-management skills ($r = 0.432$; $p < 0.01$) and teamwork skills ($r = 0.409$; $p < 0.01$). In addition, the results showed that SPE was positively correlated with AS ($r = 0.217$; $p < 0.01$).

Measurement model

Table 3 presents the findings on the quality assessment of the measurement model. The Cronbach's alpha and composite reliability (CR) were used to test for construct reliability, while convergent validity was measured using the Average Variance Extracted (AVE). All the factor loadings were acceptable, as they were above the recommended threshold

TABLE 1: Demographic characteristics of the participants.

Variables	Category	Frequency	%
Gender	Female	245	67
	Male	101	33
Age (years)	18–20	121	40
	21–25	114	37
	26–30	33	11
	31–40	38	12
Race	Black people	245	80
	White people	34	11
	Indian people	17	6
	Mixed race	6	2
	Asian people	4	1
Level of study	First year	36	12
	Second year	144	47
	Third year	94	31
	Honours	32	10

TABLE 2: Mean, standard deviation, correlations ($N = 306$).

Constructs	Mean	SD	1	2	3	4	5	6	7
1. Academic satisfaction	3.75	0.872	1	-	-	-	-	-	-
2. Self-perceived employability	3.57	1.063	0.217**	1	-	-	-	-	-
3. Communication skills	4.08	0.906	0.255**	0.206**	1	-	-	-	-
4. Problem-solving skills	3.42	0.851	0.225**	0.162**	0.478**	1	-	-	-
5. Critical thinking skills	3.85	1.013	0.238**	0.396**	0.282**	0.332**	1	-	-
6. Self-management skills	4.35	1.052	0.280**	0.432**	0.253**	0.279**	0.824**	1	-
7. Teamwork skills	3.93	0.980	0.213**	0.409**	0.315**	0.354**	0.435**	0.532**	1

SD, standard deviation.

** , correlation is significant at the 0.01 level (2-tailed); * , correlation is significant at the 0.05 level (2-tailed).

of 0.7 and above (Hair et al. 2019). The results in Table 3 show that the alpha values ranged from 0.759 to 0.925, indicating that all seven main constructs met the quality criteria, while the CR values ranged from 0.882 to 0.935, which is all above the required threshold of 0.7 (Hair et al. 2019). Also, AVE values range from 0.509 to 0.652, which shows acceptable levels of convergent validity for all the main constructs in the model following prior studies by Henseler, Hubona and Ray (2016).

Discriminant validity

The heterotrait-monotrait ratio (HTMT) was used to test for discriminant validity as recommended by Hair et al. (2019). Following this criterion, discriminant validity is attained when the HTMT value is below 0.9 or 0.85. From Table 4, it is

observed that the HTMT values are below the conservative value of 0.85, thus meeting the acceptable level for discriminant validity.

Structural model

As indicated by Hair et al. (2019), it is crucial to assess the structural model to ascertain if it is free from collinearity issues. Thus, we used the Variance Inflation Factor (VIF) to assess collinearity issues in the structural model. All the VIFs for the key constructs were within the acceptable threshold of < 3 (Hair et al. 2019). The R^2 value on the relationship between employability skills and SPE was 0.452. This demonstrates a moderate explanatory power of the model. On the other hand, the R^2 value on the relationship between SPE and AS was 0.386, also indicating a moderate explanatory power of the model in the context of this study. This is in line with recommendations by Hair et al. (2019) that R^2 values of 75%, 50%, and 25% are considered high, moderate and low, respectively, depending on the context of the study. Table 5 presents results on the hypothesised direct relationships (direct effects). The hypothesised relationships were tested for significance using the bootstrapping method with 5000 sub-samples in SMART PLS 4. The findings showed that communication skills positively influence SPE ($\beta = 0.255$; $p = 0.000$). The results also showed that critical thinking skills positively predict SPE ($\beta = 0.219$; $p = 0.000$). A positive and significant association was also established between problem-solving skills and SPE ($\beta = 0.512$; $p = 0.007$). It was also established that self-management skills significantly predict SPE ($\beta = 0.510$; $p = 0.017$).

The findings of this study showed that teamwork skills positively predict SPE ($\beta = 0.195$; $p = 0.009$). Thus, the findings showed that employability skills are significant determinants of self-perceived employability, confirming hypotheses 1 to 5. It was also observed that SPE has a significant positive influence on AS ($\beta = 0.666$; $p = 0.000$) supporting hypothesis H6.

TABLE 3: Construct reliability and validity.

Constructs	Items	Factor loadings	CA	CR	AVE
Academic satisfaction	AS1	0.723	0.890	0.915	0.610
	AS2	0.824	-	-	-
	AS3	0.920	-	-	-
	AS4	0.770	-	-	-
Communication skills	CMS1	0.874	0.759	0.846	0.580
	CMS2	0.837	-	-	-
	CMS3	0.732	-	-	-
	CMS4	0.742	-	-	-
	CMS5	0.763	-	-	-
Critical thinking skills	CTS1	0.895	0.823	0.882	0.652
	CTS2	0.896	-	-	-
	CTS3	0.905	-	-	-
	CTS4	0.874	-	-	-
Problem-solving and decision skills	PSS1	0.848	0.822	0.874	0.582
	PSS2	0.787	-	-	-
	PSS3	0.778	-	-	-
Self-management skills	SMS1	0.764	0.862	0.901	0.648
	SMS2	0.912	-	-	-
	SMS3	0.726	-	-	-
	SMS4	0.789	-	-	-
Team work skills	TWS1	0.795	0.874	0.904	0.611
	TWS2	0.827	-	-	-
	TWS3	0.810	-	-	-
	TWS4	0.826	-	-	-
	TWS5	0.860	-	-	-
Self-perceived employability	SPE1	0.767	0.925	0.935	0.509
	SPE2	0.721	-	-	-
	SPE3	0.722	-	-	-
	SPE4	0.705	-	-	-
	SPE5	0.733	-	-	-
	SPE6	0.731	-	-	-
	SPE7	0.792	-	-	-

CA, Cronbach's alpha; CR, composite reliability; AVE, average variance extracted.

TABLE 5: Direct effects results.

Hypothesis	Path	Beta	t	p-value	Decision
H1	CMS→SPE	0.255	4.697	0.000	Supported
H2	CTS→SPE	0.219	3.579	0.000	Supported
H3	PSS→SPE	0.512	2.708	0.007	Supported
H4	SMS→SPE	0.510	2.388	0.017	Supported
H5	TWS→SPE	0.519	2.624	0.009	Supported
H6	SPE→AS	0.666	19.406	0.000	Supported

CMS, communication skills; SPE, self-perceived employability; CTS, critical thinking skills; PSS, problem-solving and decision skills; SMS, self-management skills; TWS, team work skills; AS, academic satisfaction.

TABLE 4: Discriminant validity (heterotrait-monotrait ratio).

Constructs	1	2	3	4	5	6	7
Academic satisfaction	-	-	-	-	-	-	-
Communication skills	0.355	-	-	-	-	-	-
Critical thinking skills	0.398	0.417	-	-	-	-	-
Problem-solving and decision skills	0.384	0.490	0.461	-	-	-	-
Self-management skills	0.416	0.297	0.392	0.269	-	-	-
Self-perceived employability	0.718	0.549	0.519	0.479	0.399	-	-
Team work skills	0.355	0.355	0.362	0.461	0.332	0.437	-

Discussion

The findings of this study showed that employability skills such as communication skills, problem-solving and decision-making skills, critical thinking skills, teamwork skills and self-management skills are vital in enhancing the SPE of university students. This implies that when students are trained in areas that improve their employability skills, they are likely to feel confident that they can secure and sustain a job in the labour market. These findings are consistent with other existing studies (Duggal et al. 2024; George & Paul 2024; Kee et al. 2023; Koloba 2017). This also aligns with Rothwell's (2015) conceptualisation of employability, particularly the academic approach to understanding employability. It describes the importance of incorporating employability skills in universities' curriculums to enhance graduate employability as it is linked to SPE. It was also established that SPE has a significant and positive association with AS. This suggests that when students are sure about their employability prospects and satisfied with their academic achievement, they will be more likely to continue to be enrolled in their academic major and more devoted to succeeding academically (Jackson & Wilton 2017; Ma & Bennett 2021). In support of this finding, Mtawa et al. (2021:279) assert that 'positive graduate outcomes enhance students' aspirations for a university, accountability to the government for funding, and as a proxy for university quality and curriculum relevance'. A study by Duggal et al. (2024) also reported that students who positively rate their SPE are likely to derive satisfaction from their studies.

Implications of the study

The results of this study culminate with interesting theoretical, policy and practical implications. For the theoretical contributions, the study contributes to the growing body of knowledge on the importance of context in understanding employability, employability skills, SPE and its outcomes (Duggal et al. 2024; George & Paul 2024). Thus, the findings of this study contribute to the limited literature on the relationship between employability skills and SPE and the subsequent effect of SPE on AS. This study highlights the role of future-oriented core skills, foregrounding their continued relevance amid rapid technological advances (World Economic Forum 2025). These skills serve as key mechanisms through which SPE translates into positive AS and graduates' employability-related behaviours and outcomes, such as proactive career planning, continuous skills development, networking and active job search, which are vital for obtaining and maintaining employment. These findings are crucial, especially in the context of a developing country such as South Africa, characterised by rising skills shortages and graduate unemployment.

Furthermore, South Africa represents an idiosyncratic context shaped by historical inequality, high unemployment and labour market dualism. Thus, this study advances the applicability of SPE theory in a developing country context, such as South Africa, by showing that graduates'

perceptions of their employability are also influenced by their confidence in future-proof, human-centred skills examined in this study.

The findings of this study also culminate with policy implications. Firstly, these findings emphasise the need for universities and other HEIs to intentionally embed employability skills across curricula and co-curricular activities when designing their policies. Fostering these skills would not only enhance students' SPE but also enhance their AS, which reduces disengagement and graduate drop-out rates, thus enhancing successful programme completion. Secondly, this study highlights the need for policymakers to incentivise human-centred, future-oriented, skills-oriented curricula and to systematically monitor graduate employability outcomes to ensure alignment between labour market core skills requirements and long-term workforce competitiveness.

This study also offers practical implications. Firstly, this study corroborates with prior studies on the importance of enhancing employability skills (discipline-specific and generic skills) as they are considered important and directly related to the needs of the labour market. This is an important starting point as universities and higher education efforts have increasingly focused on providing students with the necessary discipline-specific and generic skills by embedding employability into the curriculum to facilitate their transition to graduation and beyond into a graduate job. Nonetheless, given the changing landscape emanating from the fourth industrial revolution, there will be a need to upgrade degree programmes and change the skills graduates will require to meet the demands of the future labour market. Therefore, this study suggests that HEIs' teaching and learning approach must be based on reconfiguring their degree programmes to focus on a range and combinations of modules that will force students to take modules from different core disciplines and fields. This will enable students to still acquire not only discipline-specific and generic skills but also acquire different skills which cannot be replaced by technology but which they can use to take advantage of technology to enhance productivity. Furthermore, the results of this study should also encourage HEIs to incorporate soft skills into entrepreneurship education to improve the problem-solving, creativity, critical thinking and entrepreneurial readiness of graduates. These skills are not only vital for creating a new business but can also help produce graduates who can innovate in an existing organisation through corporate entrepreneurship, a unique contribution that most organisations require from graduates. In support of this view, existing literature suggests that fostering employability skills has also become vital for graduates in the entrepreneurship and business management stream who are likely to be absorbed by entrepreneurial organisations (Mabkhot & Mirzaliev 2025; Machingambi & Iwu 2025; Simba et al. 2025).

Secondly, this study investigated a new avenue for understanding SPE. While prior studies have established that career adaptability and CDSE are

directly and indirectly associated with SPE and AS, this study investigated the relationship between SPE and AS. The positive significant relationship established between SPE and AS suggests that AS is a new and viable avenue that can influence a student's perception of their current and future employability prospects and a vital component of career adaptability. This finding implies that students equipped with employability skills will be more likely to be satisfied with their academic majors, which will increase their confidence to navigate academic challenges and thus enhance their chances of academic retention, persistence and success. This study suggests the need for HEIs to provide academic programmes that can improve students' career adaptability (e.g. self-confidence, self-control skills) as it will enhance their AS. Also, HEIs' academic counsellors working with academically dissatisfied students should focus on understanding the deterrent of AS and how many choices students have in their career decision-making, examine students' self-efficacy in implementing their career choices and identify which barriers restrict these choices. Findings from such studies could promote greater satisfaction in students' HEIs experience, particularly in South Africa, where student dropout rates in universities are high.

Limitations and future directions

Given that this study only focused on existing students, future research can focus on the employed and unemployed to find out how the skills they acquired have helped them find employment, maintain current employment and obtain new employment or make transitions in the labour market. This is very relevant following the definition of employability by Vanhercke et al. (2014).

Conclusion

This study highlights the critical role of employability skills such as communication, problem-solving, critical thinking, teamwork and self-management in shaping university students' SPE. When students develop these skills, they gain confidence in their ability to secure and sustain employment. In essence, students who are assured of their career prospects tend to be more satisfied with their academic experience, which enhances their commitment to their studies and overall academic success. These insights underscore the importance of integrating employability skills training into higher education curricula to bridge the gap between education and employment readiness.

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CRedit authorship contribution

Brownhilder N. Neneh: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Resources, Software, Writing – original draft, Writing – review & editing. Obey Dzomonda: Data curation, Software, Writing – review & editing. All authors reviewed the article, contributed to the discussion of results, approved the final version for submission and publication, and take responsibility for the integrity of its findings.

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Data availability

The data will be made available upon request from the corresponding author, Obey Dzomonda.

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